ARCHAEOLOGICAL EXCAVATION AND WATCHING BRIEF REPORT: THE OLD PALACE, MINSTER YARD LINCOLN, LINCOLNSHIRE

Planning Application Number: 2010/0130/LBC
NGR: SK 97756 71711
AAL Site Code: LIBI 10
Global Accession Number: LCNCC:2010.158
OASIS Reference Number: allenarc1-94073

Report prepared for Focus Consultants (UK) Limited
On behalf of the Diocese of Lincoln

By
Allen Archaeology Limited
Report Number 2011011

February 2011

The Authority on Archaeological Planning Services

REGISTERED ORGANISATION IfA

Contents

List of Appendices

List of Figures

List of Plates

Document Control

Element	Name	Date
Report prepared by:	Maria Piirainen	21/02/2011
Illustrations prepared by:	Maria Piirainen	28/02/2011
Report edited by:	Mark Allen	28/02/2011
Report produced by:	AAL 2011011	28/02/2011

Cover image: General view of The Old Palace and garden, looking north-north-west

Summary

Allen Archaeology Limited was commissioned by Focus Consultants 2010 LLP on behalf of the Diocese of Lincoln to undertake an archaeological scheme of works within the basement of The Old Palace, Minster Yard in Lincoln, Lincolnshire.

The works comprised the archaeological excavation for a sump and monitoring of the lowering of the basement floor.

The works identified activity dating to the late 1st to mid 2nd century AD and undated layers that are also likely to be of Roman date. Mirroring the results of previous investigations, the area appears to have been abandoned until the late 9th or 10th century, when a series of pits were excavated. These may be robber pits associated with the removal of stone to be used elsewhere, possibly to repair the defensive walls of the city.

1.0 Introduction

1.1 Allen Archaeology Limited (hereafter AAL) was commissioned by Focus Consultants 2010 LLP on behalf of the Diocese of Lincoln to carry out an archaeological investigation by test pitting followed by a watching brief within the basement of The Old Palace, Minster Yard in Lincoln, Lincolnshire.

1.2 The excavating, recording and reporting conforms to current national guidelines, as set out in the Institute for Archaeologists '*Standard and guidance for archaeological excavations*' (IfA 1994a, revised 2001 and 2008), '*Standard and guidance for archaeological watching briefs'* (IfA 1994b, revised 2001 and 2008), procedures that are set out in the Lincolnshire County Council publication *Lincolnshire Archaeological Handbook: A Manual of Archaeological Practice* (LCC 1998, revised 2010), and the English Heritage documents *'Management of Research Projects in the Historic Environment'* (English Heritage 2006) and *'Management of Archaeological Projects'* (English Heritage 1991). All English Heritage guidelines on archaeological practice were also followed (www.helm.org/server/show/nav.7740), along with a specification prepared by this company (AAL 2010).

1.3 The archive will be submitted to The Collection, Lincoln, within six months of the completion of the report, where it will be stored under the global accession number LCNCC:2010.158.

2.0 Site Location and Description

2.1 Lincoln is the regional centre of Lincolnshire, and is located approximately 58km to the west of the east coast of England. Minster Yard lies within the historic core of the settlement, with the area of investigation lying in the basement of the The Old Palace.

2.2 The area of works is centred on NGR SK 97756 71711, lies at a height of approximately 59m above Ordnance Datum, and is situated adjacent to a geological fault line, with a bedrock geology of Lincolnshire Limestone noted (British Geological Survey 1973). No superficial geology is identified in the study area.

3.0 Planning Background

3.1 An application for Listed Building Consent was submitted to City of Lincoln Council for the construction of ventilation and drainage structures within the basement of The Old Palace, including the excavation of a drainage sump and pump system (Planning Reference: 2010/0130/LBC). The condition was granted subject to conditions, including the undertaking of an appropriate programme of archaeological excavation and recording in advance of and during development.

4.0 Archaeological and Historical Background

4.1 Prior to the foundation of the city in the Roman period, the Lincoln Archaeological Research Assessment describes the area as being limestone uplands, with likely hill top activity during the prehistoric period. Also, the prehistoric 'Jurassic Way' is thought to have run along the scarp of the Lincoln Edge to the west of the site, before turning south-eastwards, down slope, crossing the River Witham via a possible causeway in the area of Stamp End.

4.2 Romano-British activity in the region began with the possible imposition of a fort in the area of South Common, pre-dating the legionary fortress adjacent to the site. The possibility of an early fort has been postulated due to the presence of a number of legionary tombstones that stylistically date to around AD 50 that were found in the south part of the city, largely around Monson Street during the 19th century (Jones 2002). This site appears to have been abandoned in favour of an uphill site to the north of the river in the 60's AD, where a larger legionary fortress was established immediately to the north of the site (*ibid.*).

4.3 Following the abandonment of the legionary fortress in Lincoln in the latter part of the first century AD, the site was developed as a *colonia*, a settlement of retired legionary soldiers and their dependents, and an administrative centre. The city expanded rapidly beyond the confines of the former legionary fortress at this time, extending downhill towards the river.

4.4 By the mid 5th century AD, the Roman city appears to have declined considerably, with only scattered ephemeral evidence of activity over the following four centuries having been discovered around Lincoln (Jones 2002).

4.5 Lincoln re-emerged as a town in the late 9th century, prospering greatly over the following two centuries as a thriving urban centre (Vince 2003), and by the time of the Norman Conquest of 1066 there may have been as many as 12,000 people living in the city (Sawyer 1998). The Domesday Survey of 1086 shows that there were seven Anglo-Scandinavian Estate owners prior to the Conquest, and that they were all replaced by Normans soon after, including Bishop Remigius, who established the cathedral in Lincoln (Vince 2003). The construction of Lincoln Cathedral began at some point between 1072 and 1075, and was consecrated in 1092 (Pevsner and Harris 1989).

4.6 Bishop Chesney began the Bishop's Palace complex, which lies immediately to the east of the site, around 1163, with later modifications by subsequent Bishops over the next three hundred years (*ibid.*). The site was much damaged in 1648 when besieged during the Civil War, before falling into decay and ruin in the late 17th and 18th centuries. Restoration of the palace began in 1838 and continued throughout the century.

4.7 Recent archaeological works during the installation of a lift shaft in the adjacent old Palace building exposed approximately 0.2m of disturbed soil directly below the existing floor surface. Below this were deposits of Late-Saxon date, sealing a possible Roman floor surface (K. Trott *pers. comm.*).

4.8 In October 2010, an archaeological evaluation carried out by this company on the car park north of The Old Palace exposed a deep sequence of deposits (AAL 2010). Approximately 1.5m below the modern ground surface was a Roman yard surface and substantial wall, with dating suggesting activity from the 2nd century to the very late 4th century. The Roman wall appeared to have been substantially robbed in the 9th to 11th centuries, perhaps to repair the city defensive walls. There was limited medieval activity noted, with terracing, possibly associated with 19th

century refurbishment works or the construction of the car park, appearing to have removed the majority of the later deposits.

5.0 Methodology

5.1 The first stage of work comprised a small excavation within the north-east corner of the WC area in the basement (Figure 3). This was undertaken by the author during three days in October 2010. Floor slabs were manually lifted exposing a confined space approximately 0.5m x 0.5m in plan, which was then manually excavated to the depth of 0.9m below the floor level.

5.2 The watching brief was carried out by the author and one experienced field archaeologist between Friday 14th and Thursday 20th January 2011. Works were carried out in the north and north-west areas of the basement under Staircase 1, Store LG 12 and the Lift Lobby/WC (Figure 3). Floor slabs of York stone were lifted and the underlying deposits were excavated by hand to a depth of 0.45m below floor level.

5.3 A full written record of the archaeological deposits was made on standard AAL context recording sheets. Archaeological deposits were drawn to scale, in plan and section (at scale 1.10, 1:20 or 1:50), with Ordnance Datum heights being displayed on each class of drawing. Photography formed an integral part of the recording strategy. All photographs incorporated scales, an identification board and directional arrow, and a selection of these images has been included in Appendix 1.

5.4 Each deposit, layer or cut was allocated a unique two or three digit identifier (context number), and accorded a written description, a summary of these are included in Appendix 11.

6.0 Results

6.1 **Test Pit 3** (Figures 3 and 4)

6.1.1 The test pit excavation was undertaken in October 2010 by the author. Following the removal of the York slab surface, brick foundation 300 and deposit 301 were encountered. 301 was a very firm and compact greyish red sandy clay with frequent cement fragments, angular limestone, rounded pebbles and occasional charcoal flecks. It sealed a very coarse and firm mid yellowish grey sandy clay and angular limestone rubble with occasional charcoal flecks and mortar 302. This layer extended beyond the limit of excavation and contained a single sherd of second century Romano-British pottery.

6.2 **Watching Brief** (Figures 3, 5 and 6)

6.2.1 The areas that were monitored are shown on Figure 3 and are labelled as Areas 1, 2 and 3.

6.2.2 The watching brief began underneath the staircase in Area 1 with the removal of the York stone surface 06, revealing a basement foundation cut [19], along with brick foundation 01 and backfill 02 (Figure 5). The foundation cut [19] was cut through deposit 04, consisting of a coarse mid yellowish brown clayey sand with limestone fragments, occasional concrete fragments and charcoal flecks. This in turn sealed layer 03, a firm and compact clayey sand with frequent limestone, mortar flecks, brick and tile (hereafter ceramic building material, or CBM) fragments,

including one piece of Roman tegula or roof tile. Occasional oyster shells were also found within this soil, along with two sherds of late 1st to mid 2nd century AD Roman pottery.

6.2.3 Area 2 (a store) was heavily disturbed by a number of drainage pipes and an inspection chamber. There was no evidence of layers 03 and 04 extending into this area, although they may have been removed by modern disturbance. The existing foundations cut through layer 05, a compact and coarse mix of limestone fragments, occasional modern concrete, mortar and rare charcoal flecks. This disturbed layer extended beyond the limit of excavation.

6.2.4 Area 3 (the Lobby) revealed concrete bedding 23 beneath stone surface 24 (Figure 6). Its removal revealed basement foundation cut [20], contaning brick foundation 21 and backfill 22. Two east – west aligned modern service pipes were also exposed. Under the concrete bedding just to the north of these modern pipes a small pit [12] was exposed beneath the concrete layer 23. The pit was irregular in plan with steep sides and a slightly rounded base. It was backfilled with 13, a fairly loose dark brown clayey sand with limestone fragments and moderate charcoal flecks that was devoid of finds. The feature truncated a larger irregular pit [09] with a similar fill 08, although with abundant limestone fragments. The pit backfill also contained oysters, mussels and a large number of animal bones of mainly sheep/goat and goose. The assemblage included fifteen pot sherds of late 10th century date and twelve residual Roman finds; comprising two roof tile fragments, one box flue tile, one brick and eight sherds of mid to late 2nd century pottery.

6.2.5 A sample that was taken from this feature contained burnt wood, oat, barley, wheat, possible bean or pea, weed seeds, heather and hazelnut shells. Occasional fishbone, marine shell and a possible amber fragment or glass splinter were also present. It is suggested that this material is hearth waste, and therefore an indication of domestic activity.

6.2.6 Pit [09] truncated the southern edge of 07, a small concentration of angular limestone rubble with occasional possible concrete fragments. Beneath this was layer 10, a coarse and moderately compact mid orange brown and mid grey brown clayey sand with frequent limestone, rounded pebbles and oyster shell. Forty-nine fragments of mixed mammal bone were retrieved, predominately sheep and goat. Only one fragment indicated butchery and another exhibited signs of partial burning, possibly associated with cooking. A mixed assemblage of ten sherds of pottery dating from residual 2nd century material to mid to late 10th century date was also recovered from this layer.

6.2.7 To the south of the modern pipes there was no evidence for layer 10, with layer 14 being exposed instead. Layer 14 was a loose dark brown slightly clayey sand with frequent limestone and thirty-three fragments of animal bone, including two butchered pieces. CBM was also recovered, as well as five sherds of pottery of late 10th century date. Residual Roman finds included one fragment of pottery and three pieces of Roman CBM (tegula, imbrex and brick fragments).

6.2.8 Both 10 and 14 sealed layer 11, a compact and coarse slightly clayey sand with frequent limestone and one fragment of Roman imbrex. Layer 11 was cut by a shallow pit or hollow [16]. The feature was filled with 17, a loose dark brown slightly clayey sand and limestone similar to deposit 14. One sherd of Lincoln Shelly ware of late 9th to 10th century date was recovered from the deposit along with a small assemblage of animal bone, including one worked fragment, possibly a point or handle.

6.2.9 Beneath layer 11 was 18 a light brown/yellow sand, gravel and limestone layer that in turn sealed 15, a loose dark grey sand with moderate charcoal and occasional animal bone. This layer extended beyond the limit of excavation and remained undated.

7.0 Discussion and Conclusion

7.1 The test pit excavation and watching brief have revealed deposits of archaeological interest of Roman and Late Saxon date. The results are similar to the previous evaluation at the property, where a 2nd century Roman stone surface and wall were encountered at approximately 59m aOD (AAL 2010). The flagstone floor of the basement was at approximately 60m aOD, suggesting that at least 1m of archaeological deposits may survive beneath the building.

7.2 The earliest dated deposit encountered during the works was soil build up 03, of late 1st to mid 2nd century date in Area 1. This was overlain by 04, an undated dumped deposit that contained probably intrusive modern concrete pieces.

7.3 Also potentially of Roman date was rubble spread 302 in Test Pit 3. This may be of 2nd century date, although as this is based on a single fragment of pottery the date should be treated with caution. The layer above, 301, is relatively modern however, and probably relates to the construction of the basement.

7.4 Area 2 exposed 05, an undated layer that contained limestone rubble and charcoal, and fragments of modern concrete that is probably intrusive and dating to the construction of the basement.

7.5 Area 3, located adjacent to the lift shaft, contained the only archaeological features encountered during the works. The earliest deposits encountered were a series of sandy layers containing charcoal and animal bone. Although undated, their position in the sequence suggests they are probably of Roman date. Sealing these deposits was 11, a layer containing limestone rubble and a piece of Roman tile.

7.6 Layer 11 may be the uppermost deposit of the Roman sequence, and it was truncated by a series of cut features. Shallow pit or hollow [16] contained a high concentration of limestone and a piece of late 9th to 10th century pottery, along with animal bone and material suggestive of hearth waste. Immediately to the north of this was pit [09], which was of mid to late 10th century date, with some Roman residual material present.

7.7 The late Saxon pits may be associated with the robber pits excavated within the car park to the east of the site, and mirror the results of the previous evaluation that suggested the area was abandoned from the end of the Roman period until the late 9th or 10th century (AAL 2010).

8.0 Effectiveness of Methodology

8.1 The archaeological excavation and watching brief methodologies were appropriate to the scale and nature of the proposed development. The investigations have shown that significant archaeological deposits survive beneath the Old Palace basement, and beneath the depth of the current groundworks.

9.0 Acknowledgements

9.1 Allen Archaeology Limited would like to thank Focus Consultants 2010 LLP for this commission, and to their client, the Diocese of Lincoln. Thanks also go to the staff at The Old Palace for their help during the works. Kevin Trott is acknowledged for providing information on previous investigations in the basement of the Old Palace.

10.0 References

AAL., 2010, *Archaeological Evaluation Report: Test Pitting on Land at The Old Palace, Minister Yard, Lincoln, LN2 1PU*. Unpublished Report. Allen Archaeology Report Number 2010065. Allen Archaeology Ltd

Clay, C., 2010, *Specification for an Archaeological Excavation and Watching Brief at the Bishops Palace, Lincoln, Lincolnshire*. Allen Archaeology Ltd unpublished project document

British Geological Survey, 1973, *Lincoln. England and Wales Sheet 114. Solid and Drift Geology. 1:50,000 Provisional Series*. Keyworth, Nottingham: British Geological Survey

EH, 1991, *Management of Archaeological Projects.* English Heritage

EH, 2006, *Management of Research Projects in the Historic Environment.* English Heritage

IfA 1994a (revised 2001 and 2008), *Standard and guidance for archaeological excavations.* Institute for Archaeologists, Reading

IfA 1994b (revised 2001 and 2008), *Standard and guidance for archaeological watching briefs.* Institute for Archaeologists, Reading

Jones, M., 2002, *Roman Lincoln: Conquest, Colony & Capital*. Tempus Publishing Ltd

Jones, M., Stocker, D. and Vince, A., 2003, *The City by the Pool. Assessing the archaeology of the city of Lincoln.* Lincoln Archaeological Studies No. 10. Oxbow Books

LCC, 1998 (revised 2010), *Lincolnshire Archaeological Handbook: A Manual of Archaeological Practice.* Lincolnshire County Council

Morgan, P., and Thorn C., (eds.), 1986, *Domesday Book: vol.31: Lincolnshire*, Phillimore & Co. Ltd, Chichester

Pevsner, N. and Harris, J., 1989, *The Buildings of England. Lincolnshire*. Yale University Press

Sawyer, P., 1998, *Anglo-Saxon Lincolnshire*. A History of Lincolnshire Volume III. History of Lincolnshire Committee for the Society for Lincolnshire history and Archaeology

Steane, K., 2006, *The Archaeology of the Upper City and Adjacent Suburbs*. Lincoln Archaeological Studies No. 3. Oxbow Books

Vince, A., 2003, The New Town: Lincoln in the High Medieval Era (c.900 to c.1350), in Jones, M., Stocker, D. and Vince, A., *The City by the Pool. Assessing the archaeology of the city of Lincoln.* Lincoln Archaeological Studies No. 10. Oxbow Books

Appendix 1: Colour Plates

Plate 1: General view of The Old Palace, taken from the garden to its west, looking north-east. The basement is at ground level on the left side of the building, suggesting the flat lawn has probably been cut into the hillside as a terrace

Plate 2: West-facing representative section in Test Pit 3, looking east

Plate 3: South-facing representative section and view of Area 1, looking south

Plate 4: Representative view of Area 2, looking west

Plate 5: East-facing section of pits [09] and [12] in Area 3

Plate 6: General view of the southern end of Area 3, showing shallow pit [16] as a darker feature in the centre of the photograph, looking north

Appendix 2: Romano-British Pottery Report

By Ian Rowlandson

Introduction
The pottery has been archived using count and weight as measures according to the guidelines laid down for the minimum archive by *The Study Group for Roman Pottery* (Darling 2004) using the codes developed by the City of Lincoln Archaeological Unit- CLAU (see Darling and Precious *forthcoming*). Rim equivalents (RE) have been recorded and an attempt at a 'maximum' vessel estimate has been made following Orton (1975, 31). The pottery has been bagged by fabric and vessels selected as suitable for illustration have been bagged separately for ease of future reference. The archive record (Appendix 1) is an integral part of this report and will be curated in an Access database, available from the author in a digital format.

Condition
The ceramics presented for assessment totalled 17 manually retrieved Roman sherds, weighing 0.372kg total RE 0.28, from 4 contexts from a scheme of archaeological monitoring. The majority of the Roman sherds are relatively fresh, the average sherd weight of 21.88g/sherd is high as would be expected for a site in the Upper City of Lincoln.

Dating
The detailed archive is presented as Appendix 1. Table 1 provides a quantified summary of spot dates by context.

Table 1: Dating summary

Context	Spot date	Comments	Sherd	Weight (g)	Total RE %
03	L1-M2	A small group including a fragment of a an early Lincoln mortarium	2	140	0
08	PROM/ ML2	A small group including fragments of a cream flagon and an iron age tradition jar	8	103	28
10	PROM/ 2C	A small group including a sherd from a rusticated jar	6	123	0
14	PROM/ M1-2	A single creamware sherd	1	6	0
302	2C+	A single burnt sherd in a cream fabric	1	6	0

The pottery presented for study is contains a range of early Roman pottery although much of it was retrieved from contexts containing post Roman sherds. The Roman pottery from this site is similar to the group from the watching brief at Edward King House (Rowlandson with Precious 2008, site code LEDK08) and much earlier than the material from the LIBI10 evaluation. Of note is the presence of a fragment of a local mortarium from context 03 in a light firing micaceous fabric similar to the products of the Technical College site and a sherd from a rusticated jar from context 10.

All of the pottery should be retained and deposited in the relevant museum to enable future research especially the mortarium sherd from context 03.

Bibliography
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

Orton, C. R., 1975, Quantitative pottery studies, some progress, problems and prospects. *Science and Archaeology* 17, 30-5

Rowlandson, I.M. with Precious, B.J., 2008, A Report on Roman Pottery from a Watching Brief at Church House and Edward King House, The Old Palace, Lincoln (LEDK08), Revised September 2010, unpublished developer report

Table 2: Roman pottery archive

Context	Fabric	Form	Decoration	Vessels	Alt	Drawing	Comments	Sherd	Weight	Rim diam	Rim eve
03	GROG	-	WM; SHG	1	ABR; CONCTRETION		BS; SHLDR	1	10	0	0
03	MOLO	MHK		1	CONCRETION		BS; FLANGE BROKEN; LIGHT FIRING FABRIC; COMMON MICA ON SURFACES; WIPED INTERIOR; SPARSE GRITS-QUARTZ 2-4MM; AN EARLY TECH COLLEGE TYPE FABRIC	1	130	0	0
08	CR	F?		1	BURNT		HANDLE	1	20	0	0
08	IAGR	J	B; HM	1			RIM; SHELL AND GROG	1	21	16	9
08	GREY	JEVC		1	ABR		RIM	1	15	14	11
08	GREY	CLSD		1			BS	2	9	0	0
08	GREY	LD		1			RIM	1	7	18	4
08	DR20?	A		1	VAB		BS; FLAKE	1	6	0	0
08	GREY	L	B	1			RIM; PLAIN RIM	1	25	22	4
10	GREY	OPEN	BDL	1	?DEP INT		BS	1	14	0	0
10	GROG	J		1	ABR		BS LOWER WALL	1	54	0	0
10	GROG	JB		1			HANDLE- TWO GROOVES OR ?FOOTED BOWL	1	20	0	0
10	CR	CLSD		1			BS; ?FLAGON; 2C; BUFF EXTERNAL SURFACE	1	16	0	0
10	GREY	CLSD	SHG	1			BS SHLDR; SANDY EARLY ROMAN FABRIC	1	11	0	0
10	GREY	JRUST	RWEB	1	CALC DEP INT; SOOT EXT		BS	1	8	0	0
14	CR	CLSD		1			BS	1	6	0	0
302	CR	-		1	SOOT EXT		BS	1	6	0	0

Appendix 3: Post-Roman Pottery Report

By Jane Young

Introduction

A small assemblage of twenty-five post-Roman sherds representing twenty-two vessels was recovered from the site. The pottery is entirely of late Saxon date and includes local and regionally imported fabrics. 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 with the guidelines laid out in Slowikowski, *et al*. (2001). Visual fabric identification of the Saxon and 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 one was found. The pottery data was entered on an access database using fabric codenames (see Table 1) developed for the Lincoln Ceramic Type Series (Young, Vince and Nailor 2005).

Condition

The pottery is mainly in a slightly abraded to fairly fresh condition with sherd size mainly falling into the small to medium range (below 50grams). Only three vessels are represented by more than one sherd and no cross-context joins were noted. Several of the vessels have external soot residues suggesting that they have been used over an open fire. One jar has an internal 'kettle fur' deposit over an internal carbonised or sooty deposit.

The Pottery

In total twenty-two vessels in four different identifiable ware types, were recovered from the site (Table 1). The pottery was recovered from four different deposits noted during the watching brief. A narrow range of vessel types is represented with only examples of various types of jar being identified.

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

Codename	Full name	Earliest date	Latest date	Total sherds	Total vessels
EST	Early Stamford ware	870	1010	1	1
LSH	Lincoln shelly ware	850	1000	12	12
SNLS	Saxo-Norman Lincoln	970	1080	9	7
TORK	Torksey ware	850	1100	3	2

Late Saxon Pottery

All twenty-two of the vessels recovered from the site vessels are of late Saxon type and date between the late 9th and late 10th centuries. Twelve of these vessels are in Lincoln Shelly ware (LSH) which was produced at several workshops in Lincoln between the mid/late 9th and late 10th centuries. The fabric of several of these sherds is not consistent with most of the Lincoln Shelly ware types recovered from the City, possibly suggesting a different workshop in the locality. Most of the shell-tempered vessels are identifiable as jars but two sherds could come from bowls. None of the vessels can be closely dated, but the absence of roller-stamped decoration on the three rims present suggests that these vessels are not of 9th to early 10th century date. One small jar sherd has an internal iron-rich slip suggesting that it was intended for liquid containment, or as a drinking vessel. Several other jar sherds have soot residues from exposure to an open flame, or in the case of internal soot, burnt contents. One of these jars has an internal 'kettle fur' deposit over an internal soot or carbonised deposit. Another jar has a soot residue over the external spalled surface.

The seven reduced Lincoln Sandy ware vessels are all of late type (SNLS) and are of probable late 10th century date. All seven vessels are jars, including two with thumb-pressed rims. One of these decorated jars

is similar in fabric to vessels recovered from the kiln at the Sessions House, Lincoln. The other jar is in an unusual fabric with a high iron-rich grain content and sparse fossil shell fragments. Four of these quartz-tempered jars have soot residues, suggesting that they, like the shell-tempered jars, were mainly used for cooking. The two Torksey ware vessels (TORK) are identifiable as medium-sized jars. These vessels are not closely datable, but are not of obvious early or late type. A single Early Stamford ware sherd (EST) is from an unglazed jar. The basal sherd is in Fabric A and is of probable 10th century date.

Site Sequence

The twenty-two post-Roman vessels were recovered from four different contexts (Table 2). Pit [09] produced sherds from fourteen different vessels; most of which are shell-tempered jars (fill 08). Five of the other vessels are Lincoln Saxo-Norman Sandy ware jars, including one with a thumb-pressed rim and also one sherd from a Torksey ware jar. This small domestic group can be dated quite closely to the late 10th century. A single Lincoln Shelly ware jar sherd was recovered from the fill of hollow/pit [16] (context 17). Layer 10 produced two Lincoln Shelly ware jars and two rim sherds from a single medium-sized Torksey ware jar. These two vessels can be dated to between the mid/late and late 10th century. The four vessels recovered from layer 14 include two rim sherds from a single Lincoln Saxo-Norman Sandy ware jar with thumb-pressed decoration on the rim edge. This vessel is in a fabric similar to that used for the vessels found in the Sessions House Kiln in Lincoln. The sherds from the vessel are in a fresh condition suggestive of primary deposition. A second Lincoln Saxo-Norman Sandy ware jar is in a different fabric. A Lincoln Shelly ware jar sherd in an unusual fabric may be a product of kilns in the upper City. The only Stamford ware sherd to be recovered from the site also came from this layer. This small group is of late 10th century date.

Table 2: Suggested Ceramic dating with sherd and vessel count

Context	Ceramic date	Total sherds	Total vessels
08	Late 10th	15	14
10	Mid/late to late 10th	4	3
14	Late 10th	5	4
17	Late 9th to 10th	1	1

Discussion

The pottery recovered from this site suggests post-Roman activity in the area certainly during the late 10th century, if not slightly earlier. Little pottery from the early part of the late Saxon ceramic sequence has been recovered from the upper city where intensity of occupation appears to have only increased in the late 10th century (Young 2006, 285). It is probable that the pottery comes from nearby occupation, as several of the sherds are in a fairly fresh condition suggestive of primary discard. The pottery is mainly of a domestic nature, but does include some unusual fabrics. The entire assemblage should be kept for future study.

Bibliography

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**

Young, J. 2006. The Post-Roman Pottery in Steane, K., *ed.,* The Archaeology of the Upper City and Adjacent Suburbs. Lincoln Archaeological Studies **3**

Post-Roman Pottery Archive

Context	Cname	Sub fabric	Form type	Sherds	Vessels	Weight	Decoration	Part	Description
08	LSH		jar	1	1	14		base	soot; abraded
08	LSH		jar	1	1	24		rim	EVERA3 rim
08	LSH		jar	1	1	60		rim	EVERA3 rim; int & ext soot but not over rim edge; thick int white deposit over soot/carbonised deposit
08	LSH		jar	1	1	11		rim	EVERA3 rim; soot int rim edge & under ext rim
08	LSH		jar/bowl	1	1	7		base	
08	LSH		small jar	1	1	4		BS	soot part ext & int; fe slip int
08	LSH		jar	1	1	26		BS	leached int
08	SNLS		jar	1	1	18	thumb-pressed rim	rim	high fired; fabric incl common fe & sparse shell
08	SNLS		jar	2	1	24		BS	flake; soot ext
08	SNLS	light reduced with dark surfaces	jar	1	1	11		BS	
08	SNLS		jar	1	1	3		BS	soot
08	SNLS		jar	1	1	7		BS	soot
08	TORK		jar	1	1	9		BS	soot
08	LSH		jar/bowl	1	1	6		BS	spalled surfaces
10	TORK		jar	2	1	34		rim	plain everted rim

Context	Cname	Sub fabric	Form type	Sherds	Vessels	Weight	Decoration	Part	Description
10	LSH		jar	1	1	6		BS	soot; unusual fabric
10	LSH		jar	1	1	16		base	soot including over breaks; unusual fabric
14	EST	Fabric A	jar	1	1	30		base	soot
14	SNLS		jar	1	1	55		BS	soot
14	SNLS	pale reduced with dark surfaces	jar	2	1	65	thumb-pressed rim	rim	Sessions House kiln ?
14	LSH		jar ?	1	1	5		BS	soot including over spalls; unusual fabric
17	LSH		jar	1	1	5		BS	soot; unusual fabric

Appendix 4: Ceramic Building Material Report

By Jane Young

Introduction
A total of nine fragments of Roman ceramic building material weighing 1.587 kg in total was recovered from the site. The material was examined visually and then recorded using locally and nationally agreed codenames. The CLAU tile type series was consulted for comparative material. The resulting archive was then recorded on an Access database and complies with the guidelines laid out in Slowikowski, et al. (2001) and the Lincolnshire County Council's *Archaeological Handbook* (Sections 13.4 and 13.5).

Condition
The material is in variable condition with most fragments showing a small degree of abrasion. Fragments range from large-sized (488 grams) to medium-sized (61 grams).

Overview of the Ceramic Material
A range of Roman ceramic roof tile and brick was found on the site (Table 1). The tiles recovered from the site are mainly typical of other material recovered from the upper City but do include fabrics that are uncommon

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

Type	Full name	Total fragments	Total weight in grams
BOX	Roman box tile	1	133
IMB	Imbrex	2	176
RBRK	Roman brick	2	580
RTIL	Roman tile	2	128
TEG	Tegula	2	570

Roman
The collection includes examples of brick (RBRK), Tegula (TEG), box-flue tiles (BOX) and Imbrex (IMB). Unlike much of the Roman building material from nearby investigations none of the tile or brick from this site has mortar adhering. At least five different fabrics are represented, suggesting that the material does not all come from a single source. Most of the Roman tiles are quartz-tempered and fall within a bright oxidised colour range, although two examples have reduced cores. For the purpose of this assessment only a minimal fabric description (by eye) has been given, as there is no Roman Fabric Type Series for the city.

Neither of the two Tegula fragments (TEG) recovered from the site have flanges or cut-outs, although one has part of a curved signature. The two fragments of Imbrex (IMB) are in differing fabrics, as are the two Roman bricks (RBRK). One of these bricks has a 50mm thickness and could come from a Bessales, Pedales or Sesquipedalis. A single box flue tile (BOX) was recovered from the fill of pit [09] (context 08). The tile has vertical straight and wavy combing. Two further tile fragments are certainly of Roman date (RTIL) but are too fragmentary to determine type.

Summary and Recommendations
The ceramic building material recovered from this site is all of Roman date and is typical of types found on sites elsewhere in the upper City, although some of the fabrics are uncommon. Most of the tile, with the exception of those fragments recovered from layers 03 and 11, was found associated with Late Saxon pottery. All of the material should be retained.

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.

Ceramic Building Material Archive

Context	Cname	Fabric	Frags	Weight	Description
03	TEG	fine oxid	1	483	some voids moderate fe & sparse ca
08	RTIL	fine OX/R/OX sandy	1	61	abraded; IMB ?
08	RTIL	coarse oxid sandy + fe	1	67	? TEG;18mm;abundant coarse fe
08	BOX	fine oxid sandy	1	133	alternate combed straight 4(+) & wavy lines
08	RBRK	fine oxid	1	488	some voids moderate fe & sparse ca; corner; 50mm
11	IMB	fine-med oxid sandy	1	103	
14	TEG	coarse oxid	1	87	moderate coarse fe & white clay ? Incl; curved signature
14	IMB	coarse oxid	1	73	moderate coarse fe & white clay ? Incl
14	RBRK	fine OX/R/OX	1	92	some voids moderate fe & sparse ca

Appendix 5: Ceramic Dating Archive

By Jane Young

Context	Earliest	Latest horizon	Date	Comments
03	R	R	Roman	single CBM only
08	ASH11	ASH11	late 10th	good group
10	ASH10	ASH11	mid/late to late 10th	
11	R	R	Roman	single CBM only
14	ASH11	ASH11	late 10th	
17	ASH7	ASH11	late 9th to 10th	single sherd

Appendix 6: Animal Bone Report

By Jen Wood

Introduction

A total of 154 (1599g) refitted fragments of animal bone were recovered by hand during a program of archaeological works undertaken by Allen Archaeology Ltd at the Bishops Palace, Lincoln. 31 (857g) fragments of oyster shell were also recovered during the works.

The assemblage was recovered from a series of dump/occupation deposits and pit fills, mainly dated approximately from the 10th century, although layer 03 was possibly of late 1st to mid 2nd century date.

Methodology

For the purposes of this assessment, the entire assemblage has been fully recorded into a database archive. Identification of the bone was undertaken with access to a reference collection and published guides. All animal remains were counted and weighed, and where possible identified to species, element, side and zone (Serjeantson 1996). Also fusion data, butchery marks (Binford 1981), gnawing, burning and pathological changes were noted when present. Ribs and vertebrae were only recorded to species when they were substantially complete and could accurately be identified. Undiagnostic bones were recorded as micro (rodent size), small (rabbit size), medium (sheep size) or large (cattle size). The separation of sheep and goat bones was done using the criteria of Boessneck (1969) and Prummel and Frisch (1986) in addition to the use of the reference material. Where distinctions could not be made the bone was recorded as sheep/goat (S/G).

The condition of the bone was graded using the criteria stipulated by Lyman (1996). Grade 0 being the best preserved bone and grade 5 indicating that the bone had suffered such structural and attritional damage as to make it unrecognisable.

The quantification of species was carried out using the total fragment count, in which the total number of fragments of bone and teeth was calculated for each taxon. Where fresh breaks were noted, fragments were refitted and counted as one.

Tooth eruption and wear stages were measured using a combination of Halstead (1985), Grant (1982) and Levine (1982), and fusion data was analysed according to Silver (1969). Measurements of adult, that is, fully fused bones were taken according to the methods of von den Driesch (1976), with asterisked (*) measurements indicating bones that were reconstructed or had slight abrasion of the surface.

Results

Condition

The overall condition of the bone was good, averaging at grade 2 on the Lyman criteria (1996).

A total of 3 fragments of bone recovered from deposits 10 and 14 displayed evidence of butchery. The butchery marks were consistent with jointing of the carcass.

A single fragment of worked cattle metatarsal was recovered from hollow/pit [16]. The broken proximal shaft had been roughly worked to a point and a hole had been drilled through the proximal articulation. The piece does not appear finished and was probably discarded before being put to use. The piece was probably intended for use as a point or handle.

A single Sheep/Goat radius recovered from deposit 10 displayed only partial charring to the shaft. Partial burning on bone has occasionally been associated with cooking or roasting the meat joint.

Gnawed bone represents 6% of the overall assemblage (10 fragments), suggesting that the remains majority of the remains were rapidly buried after disposal reducing the access of scavengers. The gnawing marks were

identified predominantly as carnivore.

Species Representation

Table 1 summarises the number of fragments of bone identified to species or taxon within the assemblage.

Table 1: Number of Represented Taxa, by Context

	Fill 08 in pit [09] (Late 10th century)	Dump/occupational deposit 10 (mid to Late 10th century)	Possible occupation layer 14 (late 10th century)	Deposit 17 in pit/hollow [16] (late 9th – 10th century)	Total
Taxon					
Cattle	1	5	1	1	8
Sheep/Goat	13	10	11	1	35
Sheep	2		1		3
Pig	1	3	3		7
Goose	5				5
Bird	2				2
Domestic Fowl	2	1			3
Fish			1		1
Large Mammal	23	21	11	1	56
Medium Mammal	11	5	5	1	22
Small Mammal		1			1
Unidentified	8	3			11
N=	68	49	33	4	154

Sheep/Goat were the most abundant species, with three fragments positively identified as sheep, identified within assemblage. Cattle were the next most abundant species closely followed by pig. Small numbers of goose, domestic fowl and fish were also identified. Oyster shell fragments were recovered from deposits 03, 08 and 10.

A small amount of aging data in the form of toothwear scores and epiphyseal fusion data is present within the assemblage, mostly attributed to sheep/goat remains. Tooth wear evidence suggests that the majority of the animals were slaughtered at approximately 10-20 months of age, with some animals being retained to an older age of 5-8 years. This would indicate that most of the animals were slaughtered at a prime age for meat production, were as some animals were retained to an older age for the production of wool fleeces.

Discussion

The animal bone assemblage recovered from the scheme of works undertaken at the Bishops Palace, Lincoln was of a small size, which generally limits the interpretations that can be made from the assemblage. However, as the majority of the remains were fairly cohesively dated, generalisations can be made.

The assemblage is based upon a sheep/goat based assemblage, with a suggestion of a mixed economy of both meat and wool production influencing the site economy. Cattle, pig, goose, domestic fowl, fish and oyster would have all supplemented the diet. There is no evidence to suggest a particularly high status diet consumed on site. The skeletal element representation suggests that the remains are a mixture of domestic food refuse and butchery discard.

References

Binford, L., 1981, *Ancient Men and Modern Myths*, New York: Academic Press

Boessneck, J, 1969 Osteological Differences in Sheep (*Ovis aries* Linné) and Goat (*Capra hircus* Linné), in D Brothwell and E Higgs (eds) *Science in Archaeology*, Thames and Hudson, 331-358

von den Driesch, A, 1976, *A Guide to the Measurement of Animal Bones from Archaeological Sites*, Peabody

Museum

Grant, A, 1982, 'The Use of Tooth Wear as a Guide to the Age of Domestic Ungulates', in B Wilson *et al*. *Ageing and Sexing Animal Bones from Archaeological Sites*, BAR British Series 109, 91-108, Oxford

Halstead, P, 1985, A Study of Mandibular Teeth from Romano-British Contexts at Maxey, in F Pryor, *Archaeology and Environment in the Lower Welland Valley*, East Anglian Archaeology Report 27: 219-224

Levine, M A, 1982, The Use of Crown Height Measurements and Eruption-Wear Sequences to Age Horse Teeth. In Wilson, B et al. *Ageing and Sexing Animal Bones from Archaeological Sites*. BAR British Series 109. 223 - 250

Lyman, R L, 1996, *Vertebrate Taphonomy*, Cambridge Manuals in Archaeology, Cambridge University Press, Cambridge

Prummel, W and Frisch, H-J, 1986, A Guide for the distinction of species, sex and body size in bones of sheep and goat, *Journal of Archaeological Science* XIII*.,* 567–77

Serjeantson, D, 1996, The Animal Bones, in *Refuse and Disposal at Area 16, East Runnymede: Runnymede Bridge Research Excavations,* Vol. 2, (eds) E S Needham and T Spence, British Museum Press, London

Silver, I, A, 1969, The Ageing of Domestic Animals*,* in D. Brothwell and E.S. Higgs*, Science in Archaeology*, Thames and Hudson

Animal Bone Archive

Ctxt No	Taxon	Element	Side	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Prox	Dist	Path	Butch	Worked	Burnt	Gnaw	Fresh Break	Assoc'd	Measured	Tooth Wear	Surface	Condition	No	(g)	Notes
8	Sheep/ Goat	Tibia	R	N	N	N	Y	Y	Y	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	12	
8	Sheep/ Goat	Metatarsal	L	N	N	N	N	Y	Y	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	1	7	
8	Sheep/ Goat	Humerus	L	N	Y	N	N	N	N	N	N	U	X	N	N	N	N	N	N	N	N	N	X	2	1	3	
8	Medium Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	6	11	
8	Sheep/ Goat	Radius	L	N	N	N	N	Y	Y	N	N	X	X	N	N	N	N	N	N	N	N	N	X	4	1	10	
8	Sheep/ Goat	Metatarsal	R	N	N	Y	Y	Y	Y	N	N	F	X	N	N	N	N	Y	N	N	N	N	X	3	1	14	Carnivore gnawing on the distal end
8	Sheep/ Goat	Humerus	R	N	N	N	N	Y	Y	Y	Y	X	F	N	N	N	N	N	N	N	Y	N	X	2	1	20	
8	Medium Mammal	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	5	19	
8	Sheep/ Goat	Scapula	L	N	N	N	Y	Y	N	N	N	X	X	N	N	N	N	Y	N	N	N	N	X	3	1	8	Carnivore gnawing on the neck
8	Large Mammal	Thoracic	B	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	11	
8	Sheep /Goat	Innominate	R	N	N	Y	Y	Y	N	Y	N	F	X	N	N	N	N	N	N	N	N	N	X	3	1	15	
8	Sheep/ Goat	Skull-maxilla	R	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	1	21	
8	Large Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	7	50	
8	Large Mammal	Thoracic	B	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	1	1	7	
8	Pig	Humerus	R	N	N	N	N	Y	Y	N	N	X	X	N	N	N	N	Y	N	N	N	N	X	2	1	17	Carnivore gnawing on the distal end
8	Bird	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	1	
8	Sheep/ Goat	Tibia	L	N	N	Y	Y	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	15	
8	Goose	Humerus	L	N	N	Y	Y	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	1	4	
8	Large Mammal	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	9	104	

Ctxt No	Taxon	Element	Side	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Prox	Dist	Path	Butch	Worked	Burnt	Gnaw	Fresh Break	Assoc'd	Measured	Tooth Wear	Surface	Condition	No	(g)	Notes
8	Fowl	Femur	R	Y	Y	N	N	N	N	N	N	F	X	N	N	N	N	N	N	N	N	N	X	2	1	1	
8	Fowl	Coracoid	R	Y	Y	Y	Y	Y	Y	N	N	F	X	N	N	N	N	N	N	N	N	N	X	2	1	1	
8	Sheep/ Goat	Tibia	L	N	N	N	N	Y	Y	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	1	5	
8	Goose	Scapula	L	Y	Y	Y	Y	N	N	N	N	F	X	N	N	N	N	N	N	N	N	N	X	3	1	2	
8	Goose	Coracoid	R	Y	Y	Y	Y	Y	Y	Y	N	F	X	N	N	N	N	N	N	N	N	N	X	3	1	4	
8	Goose	Humerus	R	Y	Y	Y	Y	N	N	N	N	F	X	N	N	N	N	Y	N	N	N	N	X	2	1	5	Carnivore gnawing on the proximal end
8	Bird	Synsacrum-pelvis	B	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	1	1	Fragment
8	Sheep	Mandible	L	Y	Y	Y	Y	Y	Y	Y	Y	X	X	N	N	N	N	N	N	N	N	Y	X	3	1	43	
8	Sheep/ Goat	Mandible	R	N	N	Y	Y	Y	N	N	N	X	X	N	N	N	N	N	N	N	N	Y	E	3	1	22	Mineral encrusted
8	Sheep	Mandible	R	N	Y	Y	Y	Y	Y	N	N	X	X	N	N	N	N	N	Y	N	N	Y	X	3	1	19	
8	Un-identified	Unidentified	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	8	19	
8	Cattle	Tibia	R	N	N	N	N	Y	Y	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	18	
8	Large Mammal	Skull	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	4	37	
8	Large Mammal	Atlas	X	N	N	Y	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	1	13	
8	Sheep/ Goat	Axis	B	Y	Y	Y	N	Y	N	Y	Y	F	U	N	N	N	N	N	N	N	N	N	X	2	1	10	
8	Goose	Scapula	L	N	N	Y	Y	Y	Y	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	1	
10	Pig	Calcaneus	R	N	Y	Y	N	Y	Y	Y	N	U	X	N	N	N	N	N	N	N	N	N	X	3	1	11	
10	Pig	Radius	R	N	N	Y	Y	Y	Y	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	1	14	
10	Pig	Metatarsal (III)	R	Y	Y	Y	Y	Y	Y	N	N	F	U	N	N	N	N	N	N	N	N	N	X	2	1	7	
10	Cattle	Scapula	L	N	Y	N	Y	Y	Y	N	N	X	X	N	N	N	N	N	Y	N	N	N	X	2	1	62	
10	Cattle	Femur	R	N	N	N	N	Y	Y	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	1	52	
10	Cattle	Tibia	R	N	N	N	N	Y	Y	Y	Y	X	F	N	N	N	N	N	N	N	Y	N	X	3	1	70	
10	Cattle	Axis	B	Y	Y	N	N	N	N	N	N	F	X	N	N	N	N	N	N	N	N	N	X	3	1	24	
10	Cattle	Tooth	R	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	2	Lower insicor
10	Large	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	3	67	

Ctxt No	Taxon	Element	Side	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Prox	Dist	Path	Butch	Worked	Burnt	Gnaw	Fresh Break	Assoc'd	Measured	Tooth Wear	Surface	Condition	No	(g)	Notes
	Mammal																										
10	Large Mammal	Thoracic	B	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	9	
10	Large Mammal	Vertebra	B	N	N	N	N	N	N	N	N	X	U	N	Y	N	N	N	N	N	N	N	X	2	12	12	Chopped on the left side of the centrum
10	Sheep/ Goat	Metatarsal	L	N	N	N	N	Y	Y	N	N	X	X	N	N	N	N	Y	N	N	N	N	X	2	1	6	Possible carnivore gnawing on the shaft
10	Un-identified	Unidentified	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	3	14	
10	Large Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	2	18	
10	Small Mammal	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	E	3	1	1	Mineral encrusted
10	Large Mammal	Carpal/ Tarsal	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	Y	N	N	N	N	X	2	1	10	Carnivore gnawing on the surface
10	Sheep/ Goat	Metacarpal	L	N	N	Y	Y	Y	Y	N	N	X	X	N	N	N	N	Y	N	N	N	N	X	2	1	12	Possible carnivore gnawing on the proximal end
10	Fowl	Femur	R	Y	Y	N	N	N	N	N	N	F	X	N	N	N	N	N	N	N	N	N	X	2	1	2	3
10	Sheep/ Goat	Innominate	R	N	Y	Y	N	N	N	N	N	F	X	N	N	N	N	N	N	N	N	N	X	3	1	10	
10	Sheep/ Goat	Tibia	L	N	N	Y	Y	Y	Y	Y	Y	X	F	N	N	N	N	N	N	N	Y	N	X	3	1	30	
10	Sheep/ Goat	Radius	R	N	N	N	N	Y	Y	N	N	X	X	N	N	N	Y	N	N	N	N	N	X	2	1	8	Slightly charred black on the midshaft
10	Sheep/ Goat	Skull-occipital	R	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	1	4	
10	Sheep/ Goat	Tibia	R	N	N	N	N	Y	Y	Y	Y	X	F	N	N	N	N	N	N	N	Y	N	X	3	1	18	
10	Medium Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	2	1	
10	Large Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	2	16	
10	Medium Mammal	Skull	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	2	
10	Sheep/ Goat	Tooth	R	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	5	Upper M2
10	Medium	Thoracic	B	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	1	3	

Ctxt No	Taxon	Element	Side	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Prox	Dist	Path	Butch	Worked	Burnt	Gnaw	Fresh Break	Assoc'd	Measured	Tooth Wear	Surface	Condition	No	(g)	Notes
	Mammal																										
10	Sheep/ Goat	Tibia	L	N	N	Y	Y	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	16	
10	Medium Mammal	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	3	
10	Sheep/ Goat	Tibia	L	N	N	Y	Y	N	N	N	N	X	X	N	N	N	N	Y	N	N	N	N	X	3	1	24	Possible carnivore gnawing on the proximal and distal ends of the shaft
14	Sheep/ Goat	Skull	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	4	8	
14	Pig	Metatarsal (III)	L	Y	Y	Y	N	N	N	N	N	F	X	N	N	N	N	N	N	N	N	N	X	2	1	5	
14	Medium Mammal	Vertebra	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	2	3	
14	Large Mammal	Vertebra	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	5	Transverse process
14	Sheep/ Goat	Mandible	R	N	Y	Y	Y	Y	Y	Y	Y	X	X	N	N	N	N	N	N	N	N	Y	X	3	1	45	
14	Sheep/ Goat	Metacarpal	R	N	N	N	N	Y	Y	N	N	X	U	N	N	N	N	N	N	N	N	N	X	3	1	5	
14	Sheep/ Goat	Metatarsal	L	N	N	N	N	Y	Y	N	N	X	X	N	N	N	N	Y	N	N	N	N	X	2	1	11	Carnivore gnawing on the distal end
14	Sheep	Metatarsal	L	Y	Y	Y	Y	Y	Y	Y	Y	F	F	N	N	N	N	N	N	N	Y	N	X	2	1	24	
14	Sheep/ Goat	Scapula	R	N	Y	Y	Y	N	N	N	N	F	X	N	N	N	N	N	N	N	N	N	X	2	1	10	
14	Sheep/ Goat	Innominate	L	N	N	N	N	N	N	Y	Y	F	X	N	N	N	N	N	N	N	N	N	X	2	1	7	
14	Sheep/ Goat	Radius	R	Y	Y	Y	Y	N	N	N	N	F	X	N	N	N	N	N	N	N	Y	N	X	3	1	14	
14	Large Mammal	Long Bone	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	4	51	
14	Pig	Calcaneus	R	Y	Y	Y	Y	Y	Y	Y	N	U	X	N	N	N	N	N	N	N	N	N	X	2	1	9	
14	Medium Mammal	Lumbar	B	N	N	N	N	N	N	N	N	U	U	N	N	N	N	N	N	N	N	N	X	3	1	7	
14	Large Mammal	Cervical	B	N	N	N	N	N	N	N	N	F	F	N	N	N	N	N	N	N	N	N	X	2	1	53	
14	Sheep/ Goat	Skull-frontal	R	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	4	

Ctxt No	Taxon	Element	Side	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Prox	Dist	Path	Butch	Worked	Burnt	Gnaw	Fresh Break	Assoc'd	Measured	Tooth Wear	Surface	Condition	No	(g)	Notes
14	Large Mammal	Tibia	L	N	N	N	N	Y	Y	N	N	X	X	N	N	N	N	Y	N	N	N	N	X	3	1	49	Possible carnivore gnawing on the distal end
14	Pig	Ulna	L	N	N	N	Y	Y	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	6	
14	Large Mammal	Ulna	X	N	N	N	Y	Y	N	N	N	X	X	N	Y	N	N	N	N	N	N	N	X	2	1	14	Chopped through the posterior shaft
14	Large Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	2	15	
14	Cattle	Mandible	R	N	N	N	N	N	N	Y	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	20	
14	Fish	Vertebra	B	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	1	
14	Medium Mammal	Thoracic	B	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	1	
14	Medium Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	Y	N	N	N	N	N	N	N	X	2	1	2	Single cut at the neck
14	Large Mammal	Vertebra	L	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	2	1	22	Neural arch
17	Sheep/ Goat	Mandible	R	N	Y	Y	Y	N	N	N	N	X	X	N	N	N	N	N	N	N	N	Y	X	3	1	36	
17	Medium Mammal	Rib	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	N	N	N	N	X	3	1	2	
17	Cattle	Metatarsal	L	Y	Y	Y	Y	N	N	N	N	F	X	N	N	Y	N	N	N	N	Y	N	X	3	1	81	Midshaft roughly parred into a point, hole drilled through the proximal articular end
17	Large Mammal	Scapula	X	N	N	N	N	N	N	N	N	X	X	N	N	N	N	N	Y	N	N	N	X	3	1	6	blade fragment

Appendix 7: Palaeoenvironmental Report

By Val Fryer

Introduction and Method Statement

Excavations at the Old Palace, Lincoln, undertaken by Allen Archaeology Ltd, recorded a small number of features, none of which were closely dated as all contained residual and intrusive material, mostly in the form of demolition debris. A single sample for the retrieval of the plant macrofossil assemblage was taken from the fill of a pit (context [09]) recorded within the basement of the structure.

The sample was processed by manual water flotation/washover and the flot was collected in a 300 micron mesh sieve. The dried flot was scanned under a binocular microscope at magnifications up to x 16 and the plant macrofossils and other remains noted are listed in Table 1. Nomenclature within the table follows Stace (1997). All plant remains were charred. Modern fibrous and woody roots were also recorded.

The non-floating residue was collected in a 1mm mesh sieve and will be sorted when dry. Any artefacts/ecofacts will be retained for further specialist analysis.

Results

The assemblage was largely composed of charcoal/charred wood fragments, some of which were quite large (>10mm). Other plant macrofossils, most of which were extremely well preserved, included oat (*Avena* sp.), barley (*Hordeum* sp.) and wheat (*Triticum* sp.) grains, a possible fragmentary pea or bean (large Fabaceae) and seeds of brome (*Bromus* sp.), small legumes (Fabaceae) and black bindweed (*Fallopia convolvulus*). Fragments of heather (Ericaceae) stem were also noted along with pieces of hazel (*Corylus avellana*) nutshell. With the exception of the vitreous globules, which were moderately common and all probable residues of the high temperature combustion of organic materials, other remains were scarce, but did include fragments of fish bone, marine mollusc shell and a possible splinter of amber or amber coloured glass.

Conclusions and Recommendations for Further Work

Although a precise interpretation of this assemblage is difficult because of the apparent mixed nature of the recorded deposits, it would appear most likely that the material within the fill of pit [09] is largely derived from domestic detritus and/or hearth waste. Heather was much favoured as fuel within the domestic context, as it ignited very easily and maintained a high, even temperature throughout combustion. Cereals were often accidentally spilled during culinary preparation, and it is, perhaps, of note that within the current assemblage, oats occur most frequently, and these were often toasted prior to consumption. The few weed seeds recorded are all of a similar size to the grains and are, therefore, most likely to have persisted along with the cereal after winnowing. Hazelnuts were a common 'snack', with the shells often being burnt after consumption.

As the current assemblage does not contain a sufficient density of material for quantification (i.e. <100 specimens), no further analysis is recommended. However, a summary of this assessment should be included within any publication of data from the site.

Reference

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

Table 1: Environmental Remains within Pit [09]

Sample No.	**1**
Context No.	**08**
Feature No.	**09**
Feature type	**Pit**
Cereals and other food plants	
Avena sp. (grains)	x
Hordeum sp. (grains)	x
Triticum sp. (grains)	x
Cereal indet. (grains)	xx
Large Fabaceae indet.	xcoty
Herbs	
Bromus sp.	x
Fabaceae indet.	x
Fallopia convolvulus (L.)A.Love	x
Tree/shrub macrofossils	
Corylus avellana L.	x
Other plant macrofossils	
Charcoal <2mm	xxxx
Charcoal >2mm	xxx
Charcoal >5mm	x
Charcoal >10mm	x
Charred root/stem	xx
Ericaceae indet. (stem)	x
Other remains	
?Amber frag.	x
Black porous 'cokey' material	x
Fish bone	x
Marine mollusc shell	x
Small coal frag.	x
Vitreous globules	xx
Sample volume (litres)	**56**
Volume of flot (litres)	**0.1**
% flot sorted	**100%**

Key to Table
x = 1 – 1 0 specimens xx = 11 – 50 specimens xxx = 51 – 100 specimens xxxx = 100+ specimens

Appendix 8: Context Summary List

CBM = Ceramic Building Material (e.g. brick and tile)

Test Pit 3

Context No.	Type	Description	Interpretation
300	Structure	Six courses of symmetric red bricks bonded with cement.	Brick foundation of the house
301	Layer	Very firm and compact greyish red sandy clay with frequent cement, angular limestone and rounded pebbles, occasional charcoal flecks. Sealed by York stone slabs, seals 302	Made ground
302	Layer	Firm and very coarse mid yellowish grey sandy clay and uncut limestone rubble with occasional charcoal flecks and mortar. Sealed by 301	Possible dumped deposit

Watching Brief Areas

Context No.	Type	Description	Interpretation
01	Structure	Four courses of symmetric red bricks bonded with cement. Sealed by 02	Modern/early modern brick foundation
02	Fill	Hard concrete mixed with bricks and limestone, fill of foundation cut	Backfill of foundation cut sealing brick foundation
03	Layer	Firm, compact and coarse clayey sand with frequent limestone, mortar flecks, cbm fragments, oyster shells and pottery. Sealed by 04	Possible dumped deposit
04	Layer	Coarse mid yellowish brown clayey sand and limestone fragments with occasional concrete fragments and charcoal flecks. Cut by [19] Seals 03	Possible dumped deposit
05	Layer	Compact and coarse mix of limestone occasional concrete, mortar and rare charcoal flecks. Cut by [19]	Disturbed layer beyond limit of excavation
06	Surface	Faced York stone slabs, seals 02	Modern surface in basement
07	Layer	Un-cut limestone with occasional possible concrete fragments, cut by [09]	Limestone rubble
08	Fill	Fairly loose blackish brown clayey sand with frequent limestone and limestone fragments, occasional CBM, pottery, oysters and mussels. Cut by [12], fill of pit [09]	Backfill of pit [09]
09	Cut	Irregular feature with irregular sides and base, contains 08, cuts 07	Cut of pit
10	Layer	Coarse fairly compact mid orange brown and mid grey brown clayey sand with frequent limestone, rounded pebbles, oysters, animal bones and pottery. Sealed by 07, seals 11	Dumped deposit or occupation layer
11	Layer	Compact coarse slight clayey sand with frequent limestone and occasional cbm. Sealed by 10 and 14 seals 18	Dumped deposit or possible occupation layer
12	Cut	Small sub-rectangular feature with steep sides and concave base. Contains 13, cuts 08	Cut of pit
13	Fill	Fairly loose blackish brown clayey sand with limestone fragments and moderate charcoal flecks	Backfill of pit [13]

Context No.	Type	Description	Interpretation
14	Layer	Loose blackish brown slightly clayey sand with frequent sub-angular limestone, animal bone, pottery, CBM and charcoal flecks. Sealed by modern concrete, seals 11	Possible occupation layer
15	Layer	Loose blackish grey sand with moderate charcoal and occasional animal bone. Sealed by 18	Possible occupation layer
16	Cut	Irregular feature with irregular sides and base. Contains 17	Cut of possible natural hollow or pit
17	Fill	Loose blackish brown slightly clayey sand and limestone	Infill of hollow/pit [16]
18	Layer	Beige yellow sand and gravel and limestone. Sealed by 11, seals 15	Possible dumped layer
19	Cut	Vertically-sided cut, base unexcavated. Contains 01 and 02	Foundation cut of the house
20	Cut	Vertically-sided cut with unexcavated base. Contains 21 and 22	Foundation cut of the house
21	Structure	Three courses of symmetric red bricks bonded with cement	Brick foundation of the house within [20]
22	Fill	Loose brownish grey sand with limestone and brick fragments	Backfill of foundation cut [20]
23	Layer	Greyish white and black concrete, seals 10, sealed by 24	Bedding for modern stone surface 24
24	Surface	Large York stone slabs, seals 24	Modern stone surface

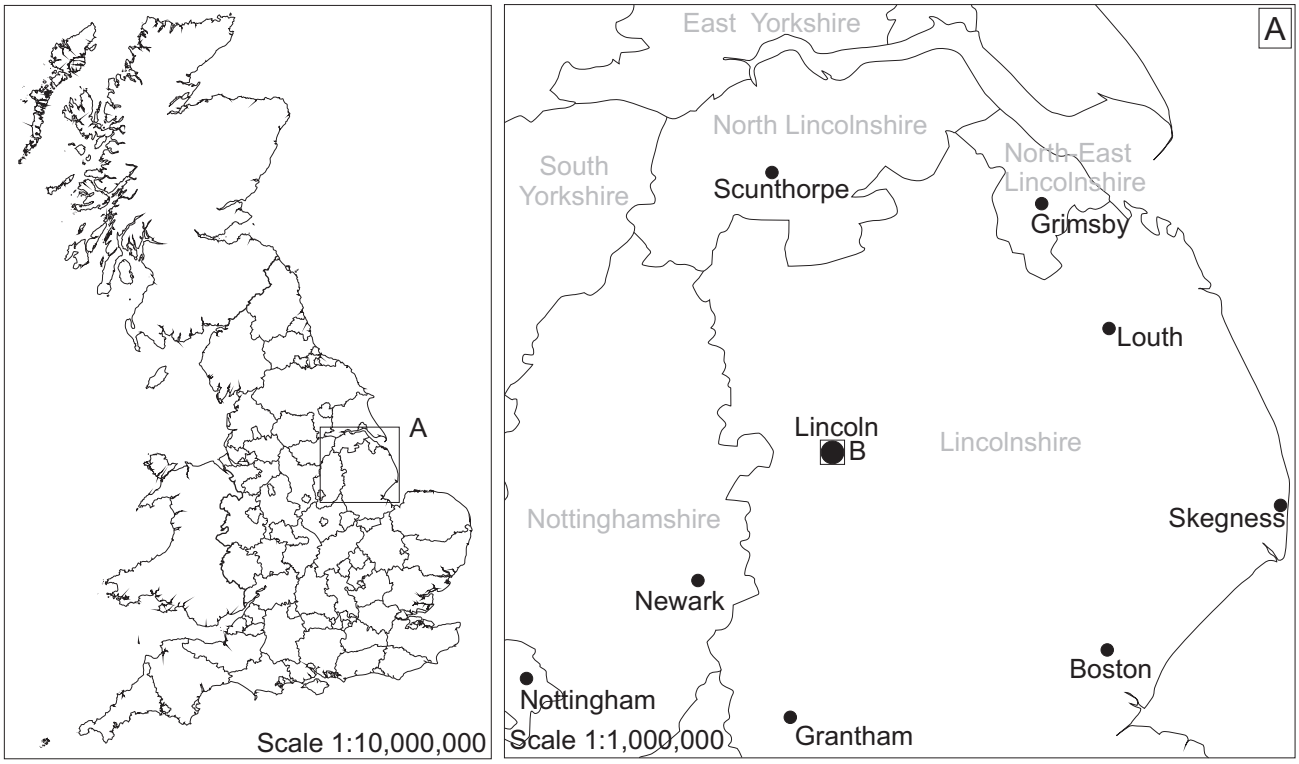

Figure 1: Location of site outlined in red at scale 1:25,000

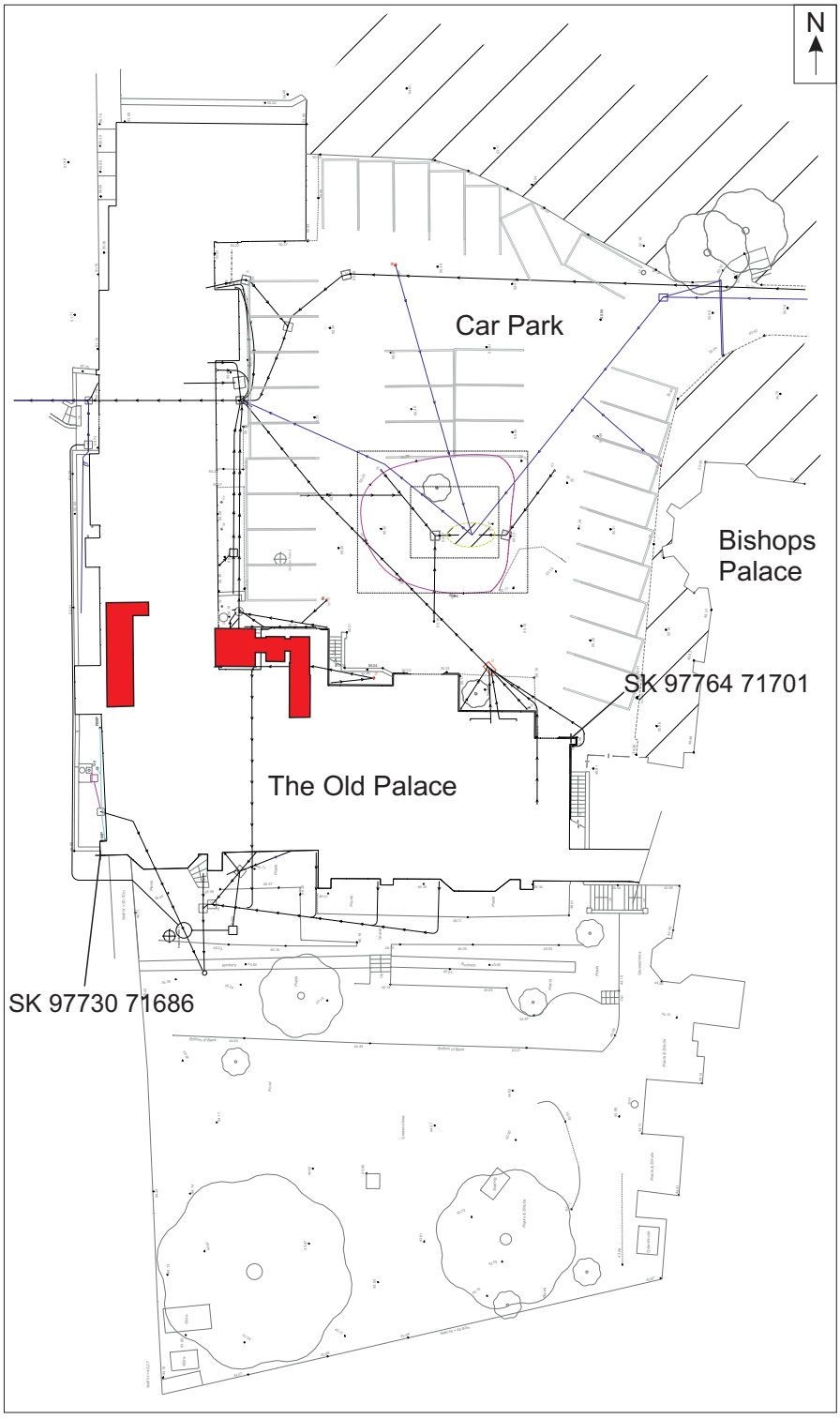

Figure 2: Site location plan at scale 1:500 with areas of investigation shown in red. Superimposed over known services plan

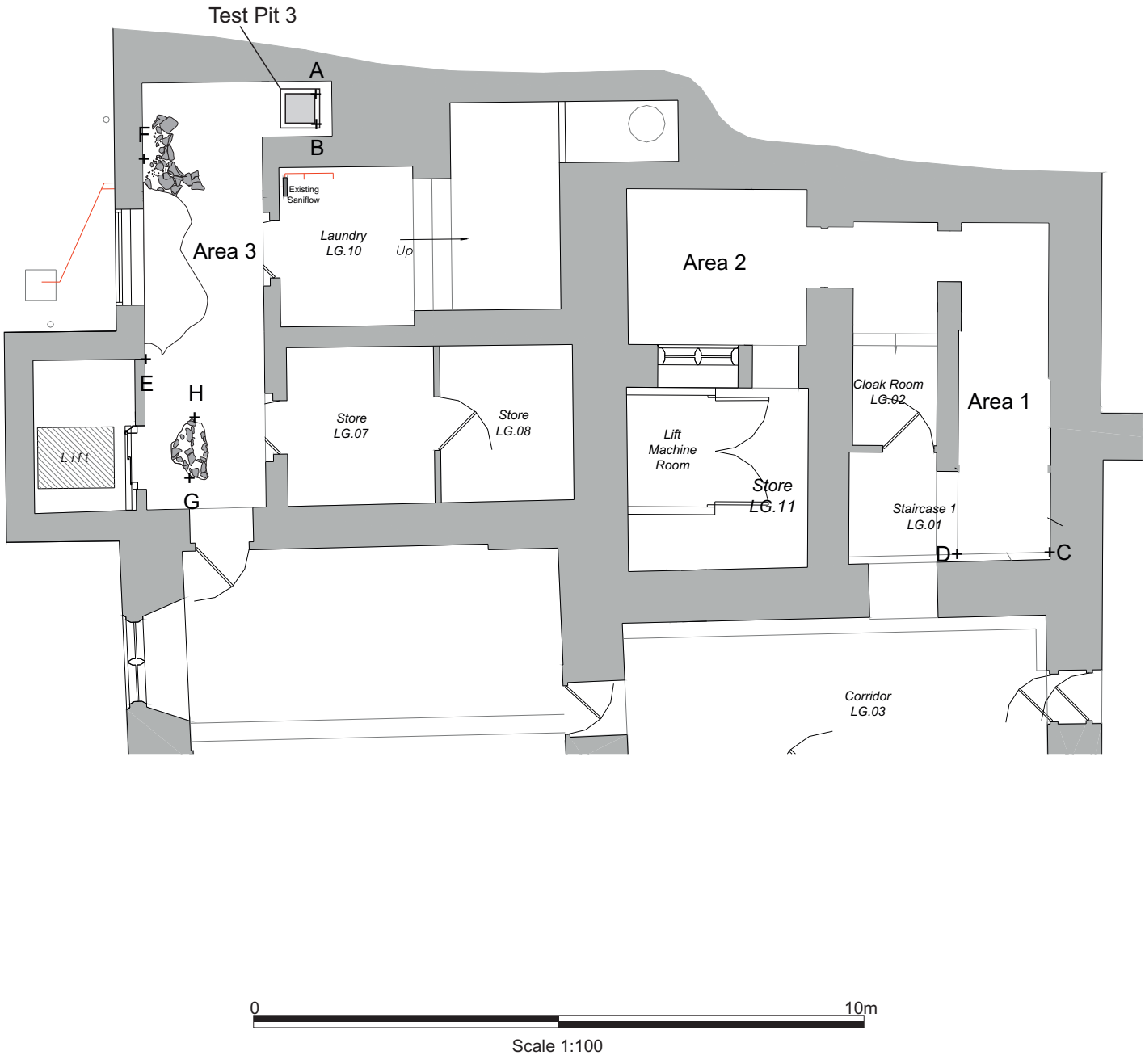

Figure 3: Areas of investigation and section location plan at 1.100. Sections shown on Figures 4 and 5

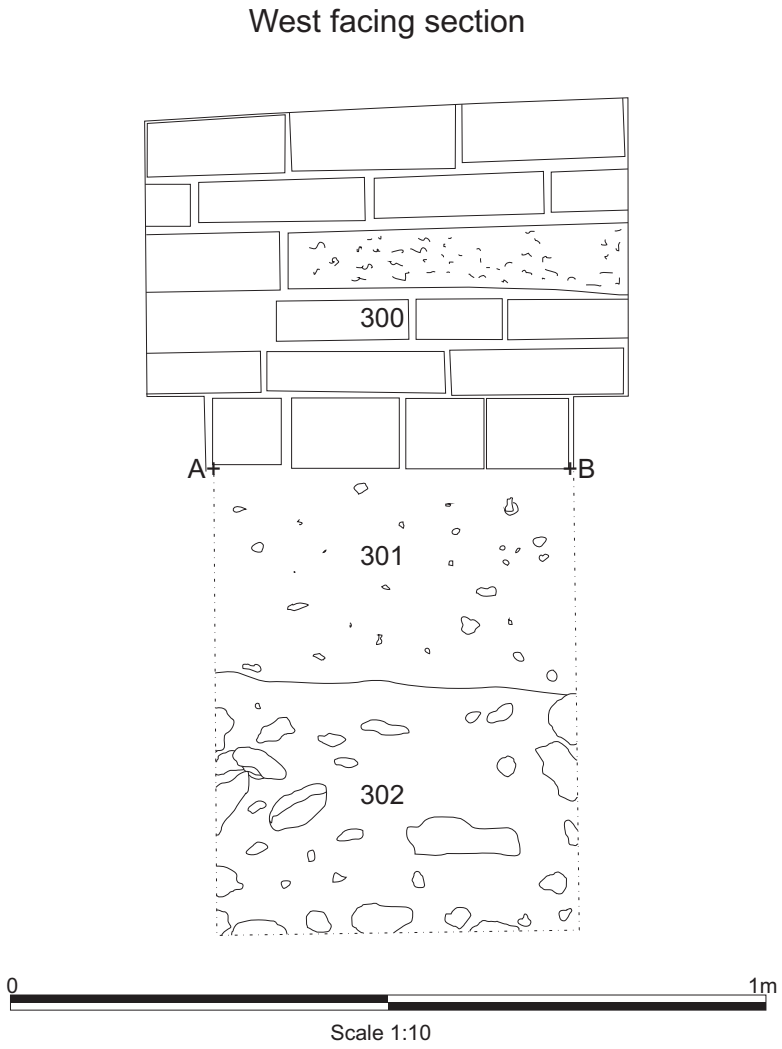

Figure 4: Representative section in Test Pit 3 at scale 1:10, see Figure 3 for location

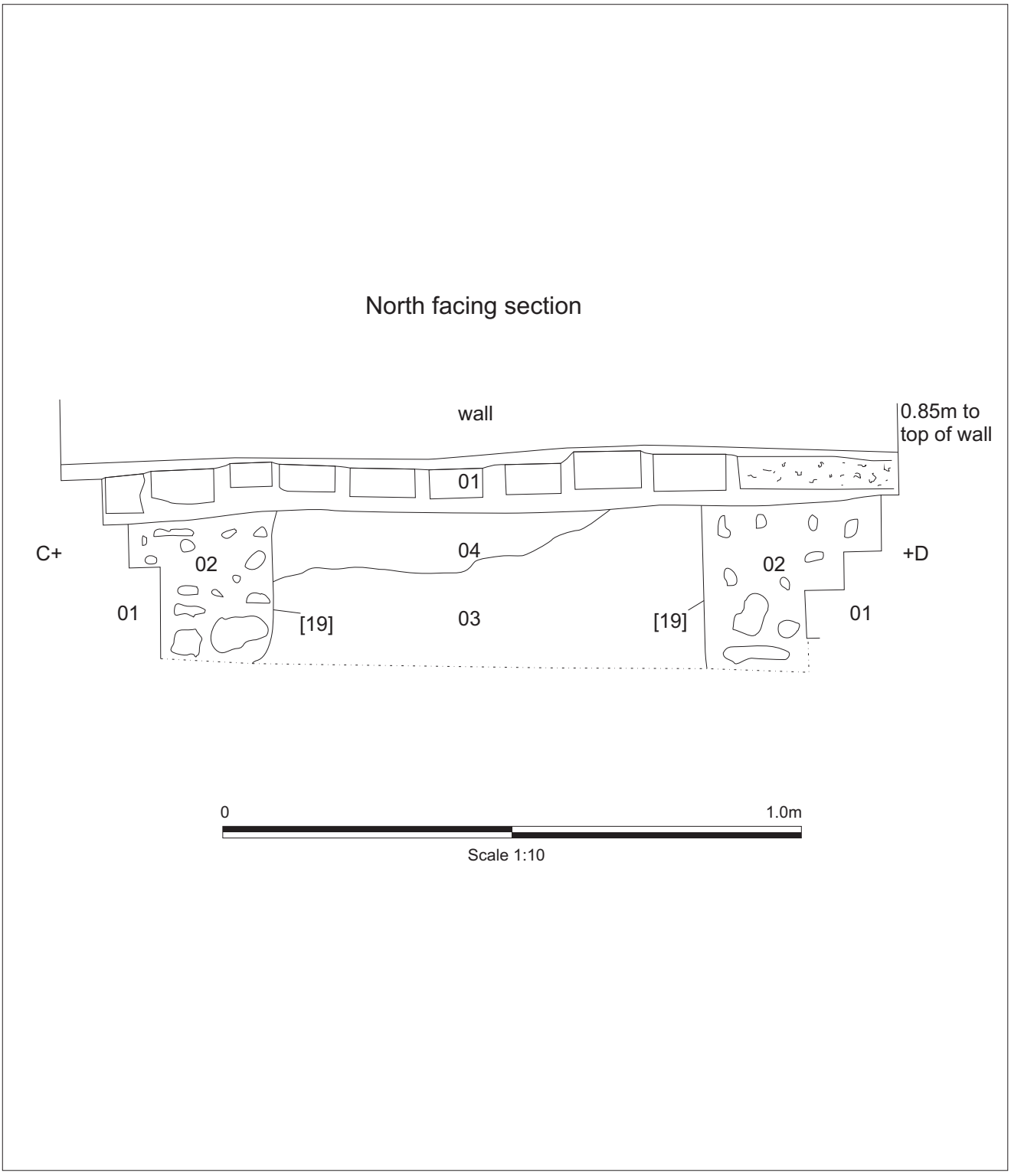

Figure 5: North facing section in Area 1 at scale 1:10. For location see Figure 3

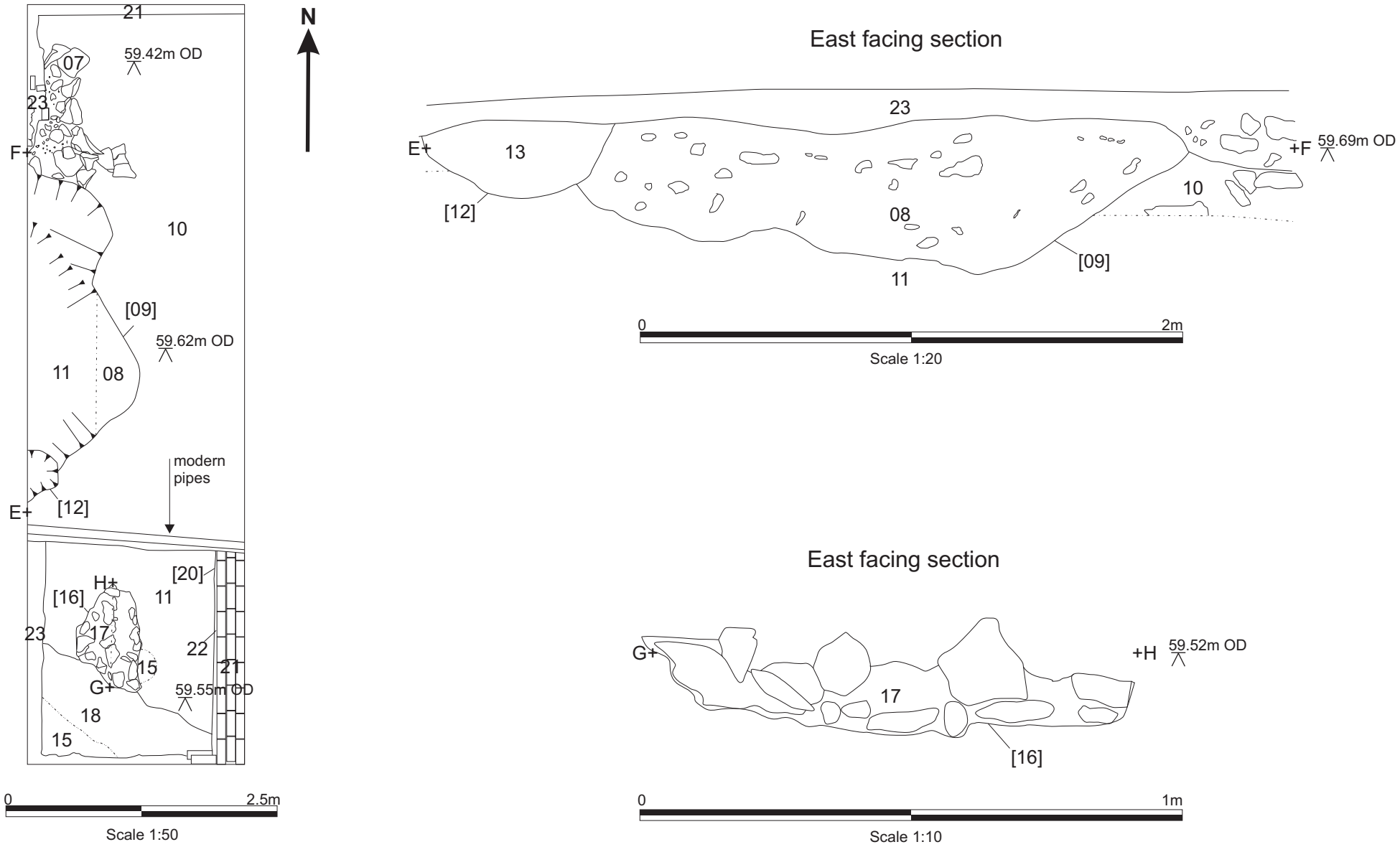

Figure 6: Area 3 plan at scale 1:50 and sections at scale 1:10 and 1:20. For locations see Figure 3

Allen Archaeology Limited
Website: www.allenarchaeology.co.uk

Company Registered in England and Wales No: 6935529

Lincoln
Unit 1C
Branston Business Park
Lincoln Road
Branston
Lincolnshire LN4 1NT

Tel/Fax: +44 (0) 1522 794400
Email: info@allenarchaeology.co.uk

Birmingham
Arion Business Centre
Harriet House
118 High Street
Birmingham
B23 6BG

Tel/Fax: +44 (0) 800 610 2545
Email: birmingham@allenarchaeology.co.uk

Cambridge
Wellington House
East Road
Cambridge
CB1 1BH

Tel/Fax: +44 (0) 800 610 2550
Email: cambridge@allenarchaeology.co.uk

Southampton
International House
Southampton International Business Park
George Curl Way
Southampton
SO18 2RZ

Tel: +44 (0) 800 610 2555
Email: southampton@allenarchaeology.co.uk