

# **CORNHILL, LINCOLN**

## **Archaeological Monitoring and Recording**

**Museum Project Code: LCH11**

**Network Project Code: LCH16**

**NGR: SK 975710**

**Museum Accession Number LCNCC: 2011.363**

**Prepared by**

**NETWORK ARCHAEOLOGY LTD**

**for**

**LINCOLN BIG**

**Report Number: 587**


**January 2012**



## DOCUMENT CONTROL SHEET

<b>Project title</b>	<b>Cornhill, Lincoln</b>					
<b>Document title</b>	Archaeological Monitoring and Recording					
<b>Report no.</b>	587					
<b>Document ref.</b>	LCH16 v1.0					
<b>Museum project code</b>	LCH11					
<b>Network project code</b>	LCH16					
<b>Accession number</b>	LCNCC: 2011.363					
<b>NGR</b>	SK 975710					
<b>Client</b>	Lincoln BIG					
<b>Distribution</b>	Lincoln BIG; Michael Jones (Lincoln City Archaeologist); The Collection (LCC), Historic Environment Record (LCC)					
<b>Document comprises</b>	Document control sheet	Table of contents, lists of tables, appendices, plates and figures	Text	Appendices	Plates	Figures
	1 page	2 pages	17	6	5	4

Ver.	Status	Author	Reviewer	Approver	Date
0.1	First draft	Mike Wood Project Manager	Chris Taylor Senior Project Manager		30th January 2012
0.2	Second draft	Mike Wood Project Manager	Chris Taylor Senior Project Manager		10 <sup>th</sup> February 2012
1.0	Submitted to client and curator	Mike Wood Project Manager	Chris Taylor Senior Project Manager	Chris Taylor Senior Project Manager	10 <sup>th</sup> February 2012

<p>Network Archaeology Northern Office 15 Beaumont Fee Lincoln LN1 1UH Tel: 01522 532621 Email: <a href="mailto:enquiries@netarch.co.uk">enquiries@netarch.co.uk</a></p>		<p>Network Archaeology Southern Office 22 High Street Buckingham MK18 1NU Tel: 01280 816174 Email: <a href="mailto:enquiries@netarch.co.uk">enquiries@netarch.co.uk</a></p>
<p>Network Archaeology delivers a complete consultancy and field service nationwide. The company's particular expertise is linear infrastructure, such as pipelines, roads, rail and cables. Its emphasis is upon good communication and recognition of clients' individual needs and priorities. Network is known for delivering professional support, taking care of the archaeology and enabling projects to keep moving forward.</p> <p><b>© Network Archaeology Ltd, January 2012</b></p> <p>All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means - electronic, mechanical, photocopying, recording or otherwise - unless the permission of the publisher has been given beforehand All statements and opinions presented in any report(s) arising from the proposed programme of investigation are offered in good faith and compiled according to professional standards. No responsibility can be accepted by the authors of the report(s) for any error of fact or opinion resulting from incorrect data supplied by any third party.</p>		

## CONTENTS

<b>Document control sheet</b> .....	<b>i</b>
<b>Contents</b> .....	<b>ii</b>
<b>Tables</b> .....	<b>iii</b>
<b>Appendices</b> .....	<b>iii</b>
<b>Plates</b> .....	<b>iii</b>
<b>Figures</b> .....	<b>iii</b>
<b>Non-technical summary</b> .....	<b>1</b>
<b>1 Introduction</b> .....	<b>2</b>
1.1 Purpose of the report .....	2
1.2 Commissioning bodies .....	2
1.3 Development area.....	2
1.4 Legislation, regulations and guidance .....	2
1.5 Archaeological and historical background .....	3
1.6 Aims .....	4
1.7 Circulation of this report .....	4
<b>2 Fieldwork procedures</b> .....	<b>5</b>
2.1 Quality standards.....	5
2.2 Survey .....	5
2.3 Mechanical-excavation.....	5
2.4 Hand excavation, recording and sampling .....	5
2.5 Project codes and number allocations .....	5
2.6 Assessment of archives and finds.....	5
<b>3 Results</b> .....	<b>6</b>
<b>4 Discussion</b> .....	<b>7</b>
<b>5 Assessment of impact</b> .....	<b>9</b>
5.1 Importance.....	9
5.2 Impact.....	9
5.3 Significance of impact.....	9
<b>6 Conclusion</b> .....	<b>10</b>
<b>7 Archive</b> .....	<b>11</b>
<b>8 Acknowledgements</b> .....	<b>12</b>
<b>9 References</b> .....	<b>13</b>

## **TABLES**

Table 2.1	Material types and specialists
Table 6.1	Quantification of the site archive

## **APPENDICES**

Appendix A	Context summary and Harris matrix
Appendix B	Post-Roman Ceramic Report
Appendix C	Human Remains Report
Appendix D	Animal Remains Report
Appendix E	Architectural Stone Report
Appendix F	OASIS Form

## **PLATES**

Plate 1:	Excavation of pit 1 and connecting trench
Plate 2:	Pit 1 looking west
Plate 3:	Pit 2 looking west
Plate 4:	Pit 3, Soakaway <b>304</b> and stone gutter looking south-east
Plate 5:	Grave <b>404</b>

## **FIGURES**

Figure 1	General location of site
Figure 2	Location of archaeological interventions
Figure 3	Plan and sections of excavated area

## **NON-TECHNICAL SUMMARY**

A programme of archaeological monitoring and recording was undertaken by Network Archaeology Ltd at Cornhill in Lincoln. This involved monitoring of groundworks associated with: the removal of a modern cobbled surface, the excavation of three pits for pop-up electrical points, and the installation of connecting services.

During the monitoring several deposits were recorded including late medieval demolition layers, a late medieval soakaway, and one partial medieval inhumation. Disarticulated human remains relating to disturbed medieval burials were also present.

Artefactual evidence included medieval pottery, ceramic building material and architectural stone was recovered; the latter included fragments likely to be related to the demolished church of St John the Evangelist, and to a medieval water pipeline probably once connected to the White Friars.

Other medieval and earlier remains are likely to exist in the area, and any future groundworks below 0.5m will risk impact to any such deposits.

# **1 INTRODUCTION**

## **1.1 Purpose of the report**

This report presents the results of a programme of archaeological monitoring and recording undertaken within a development area at Cornhill, Lincoln. This report indicates the level of impact on archaeological remains recorded during groundworks, and the successful mitigation strategy adopted.

## **1.2 Commissioning bodies**

This report was commissioned by Lincoln (Business Improvement Group) BIG. The archaeological contractor was Network Archaeology Ltd.

## **1.3 Development area**

### **Location**

The Cornhill area is a cobbled open space approximately 245m<sup>2</sup> lying adjacent to, and east of, the High Street. The cobbled area is flanked by a variety of banks and shops to the north and south, a tourist information kiosk (now utilised for other functions) to the west and dominated by the Corn Exchange building to the east. The corn exchange is now home to a bank and a large bookseller. Indoor and open markets lie directly north of this area (SK 975710) (Figures 1 and 2). Cornhill is located within the central Conservation Area of Lincoln (Cathedral and City no.1).

### **Development**

The development involved lifting of a recent cobbled surface in order to conduct ground works, which comprised excavation of three pits for pop-up electrical points, and the connecting service trenches between them.

### **Geology, topography, soils and land use**

The site lies at approximately 7m above Ordnance Datum on fairly level ground. Local soils are unrecorded for this area, but are known to lie over Jurassic Scunthorpe mudstone formation and Charmouth mudstone formation (BGS 2011).

## **1.4 Legislation, regulations and guidance**

The Lincoln City Archaeologist had previously indicated that the proposed work had the potential to impact on buried archaeological remains, in particular medieval burials and other remains associated with the church of St John the Evangelist at Wigford. As such a programme of archaeological monitoring was deemed necessary, to be undertaken during groundworks, under the guidance of Planning Policy Statement 5 (see below).

The document 'Planning Policy Statement 5: Planning for the Historic Environment' (PPS 5) sets out the Government's national planning policies relating to the conservation of the historic environment (Department for Communities and Local Government 2010). It is accompanied by a best practice guide (English Heritage 2010).

PPS 5 states:

'Local planning authorities should require an applicant to provide a description of the significance of the heritage assets affected [by a proposed development] and the contribution of their setting to that significance... As a minimum the relevant historic environment record should have been consulted and the heritage assets themselves should have been assessed using appropriate expertise where necessary given the application's impact.'... 'where an application includes, or has the potential to include, heritage assets with archaeological

interest, local planning authorities should require developers to undertake a field evaluation where desk-based research is insufficient to properly assess the interest' (HE 6.1).

It is further noted in PPS 5 that:

'Where the loss of the whole or a material part of a heritage asset's significance is justified, local planning authorities should require the developer to record and advance understanding of the significance of the heritage asset before it is lost...' (HE 12.3).

A Written Scheme of Investigation was produced by Network Archaeology Ltd detailing the procedures to be followed (Network Archaeology 2011).

## **1.5 Archaeological and historical background**

### **Prehistoric Era (-10000BC-AD 60)**

Prehistoric Era (-10000BC-AD 60): The development site would have lain on the northern edge of a settlement site on Brayford Island in Lincoln during the prehistoric period. Excavations at 181-3 High Street revealed late Iron Age occupation buried beneath about 3m of later deposits (Jones et al 2003, 19).

### **Roman Military Era (60-90)**

Lincoln was the site of a military fort following the Roman conquest in what had been a former *Corieltauvi* settlement. The development site would have been situated south of the river on sand islands containing buildings in the Brayford, between the Wigford causeway and the road up the northern hillside (*ibid*, 54-55).

### **Roman Colonia Era (90-410)**

Lincoln became a thriving commercial and 'ritual' centre during this period. Development continued south of the river, creating a suburban district possibly linked with the legions (*ibid*, 104, 139-40).

### **Early Medieval Era (410-850)**

The development site lies within an area of re-use and abandonment of central elements of the Roman city. Evidence for activity during this period is scant and predominantly found in the upper city (*ibid*, 156-159).

### **High Medieval Era (850-1350)**

The area of the development site would have lain within the grounds of St. John the Evangelist at Wigford, a parish church thought to have been constructed between the mid-10<sup>th</sup> and 11<sup>th</sup> centuries (Heritage Connect Lincoln 2011). Previous excavation at the Tourist Information Centre revealed extensive burials to its west and the buttressed wall of a medieval building to the south (CLAU 1999).

### **Late Medieval to Early Modern Era (1350-1750)**

A prolonged phase of economic decline followed the High Medieval Era and led to an overall decline in the population. The City Council decided to liquidate the church buildings and churchyard throughout the latter half of the 16<sup>th</sup> century, with the fabric sold in 1552. By 1598 the area was being leased to stall holders in the new market (Heritage Connect Lincoln 2011).

## **Industrial Era (1750-1945)**

The site of the medieval church and churchyard was developed during the Victorian period into market halls, including the Corn Exchange to the east and the later Central Market to the north of the development site (Jones *et al* 2003, 347).

## **Previous archaeological work**

The western side of Cornhill Square (Figure 2) was investigated in 1999; this recorded the remnants of masonry foundations and several burials proposed to relate to the Church of St John the Evangelist (Jarvis 1999). While the burials almost certainly do relate to the dissolved church, the foundations may actually be those of nearby late medieval buildings (Heritage Connect 2011). With the fabric of the Church being sold in 1552 it is likely all of the stone, including the foundations, was robbed out and re-used where possible.

## **1.6 Aims**

The aims and objectives of the programme of archaeological work, as set out in the WSI, were to:

- establish the presence or absence, extent, condition, character, quality and date of any archaeological remains;
- locate, recover, identify, and conserve where appropriate any archaeological artefacts;
- locate, sample, interpret and record archaeological deposits;
- determine the palaeo-environmental and palaeo-economic potential of any archaeological remains;
- accurately assess the ordnance datum (OD) heights of dated deposits to add to Lincoln's deposit model;
- assess the overall archaeological significance of any archaeological remains;
- produce a report that addresses the above;
- produce and submit a suitable archive to Lincoln Museum;
- provide information for accession to the County Historic Environment Record (HER);
- provide information for accession to the Lincoln Heritage Database;
- publish significant results in an appropriate journal, if appropriate.

## **1.7 Circulation of this report**

This report will be circulated to the following recipients:

- Lincoln BIG;
- Michael Jones (Lincoln City Archaeologist);
- The Collection, LCC
- Historic Environment Record (LCC)



## 2 FIELDWORK PROCEDURES

### 2.1 Quality standards

All archaeological work was undertaken in accordance with the Institute for Archaeologists' standard and guidance documents (IfA 2008a, 2008b, 2009a, 2010).

The standards represented by the Registered Organisation (RO) scheme operated by the IfA were adhered to throughout. Network Archaeology Limited is a Registered Organisation (RO) with the IfA. Key project staff are members of the IfA at appropriate levels.

### 2.2 Survey

The excavated area was located and recorded, using hand tapes and known points on nearby buildings in conjunction with an optical level. The height of nearby buildings prevented an accurate GPS signal and electronic survey was not possible at this location.

### 2.3 Mechanical and hand-excavation

The monitored area was excavated down to the top of the first archaeological horizon by a mini-digger fitted with a 1.2m wide toothless ditching bucket. The remaining deposits were then removed by hand by the ground crew employed by Lincoln BIG. All mechanical and hand excavation was undertaken under the supervision and direction of an experienced archaeologist.

### 2.4 Hand excavation, recording and sampling

A full written record was maintained on site, including standardised context descriptions on pro forma record sheets. A scale plan of the excavation area was produced, along with a representative section showing the sequence of deposits revealed. Colour, monochrome and digital photographs were taken. Fieldwork was undertaken between the 26th and 29th September 2011 by Patrick Daniel and Richard Moore.

### 2.5 Project codes and number allocations

The scheme of work has been given the internal Network Archaeology project code LCH16. In addition, a museum project code (LCH11) has been issued for the deposition of the site archive. All documents relating to the site archive for this project have been referenced, where appropriate, with these codes.

Each deposit was allocated a unique number starting from 100.

### 2.6 Assessment of archives and finds

Following completion of the fieldwork, the stratigraphic information gathered was assessed as to its potential and significance.

The finds were quantified and sent to appropriate specialists for assessment; these specialists are listed in the table below.

**Table 2.1 Material types and specialists**

<b>Material type</b>	<b>Assessment by</b>
Post-Roman ceramics	Dr Anne Irving (formerly Boyle)
Human Remains	Jen Wood
Animal Remains	Jen Wood
Architectural Stone	Glyn Coppack (transcribed by Mike Wood Finds Manager)

### 3 RESULTS

Groundworks were undertaken on an area measuring 18m by 10.5m, which was composed of a modern cobbled and concrete surface. Three pits were then excavated, each c.1.2m square by 1.1m deep; and this was followed by the excavation of two connecting service trenches between the pits, each 1.1m deep by c.0.5m wide. Each pit was numbered (1-3) and is discussed below. The trenches produced negligible volumes of artefact and were of such necessary narrow design that no recording took place, though they were periodically monitored. An additional spur was added to pit one, enlarging the hole and avoiding services. Context numbers starting 400 were assigned to deposits in this spur to differentiate from those wholly within the pit.

#### 3.1 Pit 1

The stratigraphically earliest deposit present was a compact material (*408 = 103*), brownish grey clayey silt with frequent scattered inclusions of fragments of ceramics, animal bone, and oyster shell flecks. This layer, which had an upper surface at 6.12m OD, has been dated by the pottery to the mid 14<sup>th</sup>-15<sup>th</sup> century and appears to be a compacted accumulation of debris, possibly formed by clearing land near the church if the churchyard was extended. A grave, **404**, was cut into layer *408=103*, indicating it must have existed while the Church of St John was still active. Grave **404** was aligned east-west and contained a juvenile burial *400* partially truncated by previous impact. A mix of remnant gravesoil and disarticulated bones from skeleton *400* was recorded as deposit 401, with the disarticulated remains confirmed during Osteological analysis as being part of the same skeleton. The burial was recorded on site and lifted under a Burial Licence supplied by the Ministry of Justice. This burial must presumably relate to the Church of St John, and as it was cut into a mid 14<sup>th</sup>-15<sup>th</sup> century layer, dates to no earlier than c.1350; it can also be stated with confidence that it does not post-date the late 1500s, as the church was known to be demolished in the late 16<sup>th</sup> century to make way for the marketplace. Nearby Pit **409** is of unknown function and contained no artefactual evidence, though it too must have been excavated between the mid 14<sup>th</sup> and 19<sup>th</sup> centuries based on stratigraphic evidence.

Both the pit and the grave were overlain by a layer (*402=403=102*), a dark grey silty clay levelling material. This deposit contained frequent scattered inclusions of ceramics, animal and human bone (charnel), and oyster shell flecks; the dateable material is from both the medieval period and 18<sup>th</sup>-19<sup>th</sup> century, implying a reasonable level of residual material had been incorporated into what is thought to represent an early modern levelling episode. It may be reasonable to assume this levelling was related to the ground preparation and construction of the Market Halls and Corn Exchange in the Victorian period.

The levelling layer was overlain by modern cobbles *101* and a layer of modern concrete *100*.

#### 3.2 Pit 2

The earliest deposit in pit 2 was *207*, a possible demolition layer consisting of a yellow grey sandy silt with small limestone/mortar flecks throughout; it produced a single sherd of 15-16<sup>th</sup> century pottery, as well as a piece of (presumably re-deposited) early 13<sup>th</sup> century architectural stone (Appendices B and E). The upper surface of layer *207* was located at 6.13m OD. Pit **208**, 0.28m wide and 0.2m deep, was cut into layer *207*, and contained a seemingly sterile fill, *206*. This pit (and layer *207*) was both sealed by a sequence of five levelling layers (*201-205*), which contained fragments of pottery, tile and human bone (charnel). Layer *205* contained 13<sup>th</sup>-14<sup>th</sup> century tile (one piece); while later layer *202* produced two sherds of mid 15<sup>th</sup> to 16<sup>th</sup> century pottery (Appendix B). Since, however, both layers lie above earliest layer *207* which contained the sherd of 15<sup>th</sup>-16<sup>th</sup> century pottery, it is likely that the tile was residual. The earliest layer (*207*), and the five layers, possibly all

relate to the redevelopment of the site in the later 16<sup>th</sup> century after the Church of St John was demolished and the site was converted into a market place. The uppermost of these layers (201) was overlain by modern concrete 200. There was no evidence for the posited Victorian clearance layer noted in pit 1, though it is not impossible that one or more of the five levelling layers represent this early modern activity, and that both the pottery and the tile they contained was residual material.

### 3.3 Pit 3

The earliest deposit in pit 3 was layer 303, loose, friable, yellow grey sandy silt with fragments of limestone, human bone (charnel) and three pieces of 15<sup>th</sup>-16<sup>th</sup> century tile (Appendix B), and with its upper surface located at 5.92m OD. The nature of this material suggests it was deposited quickly, and that it might be associated with the demolition of the Church of St John and subsequent creation of a market place in the late 16<sup>th</sup> century.

A soakaway was cut into the top of layer 303, and was formed from four complete 15<sup>th</sup> century roof tiles laid vertically to make a box 0.2 by 0.2 by 0.3m. The soakaway had a simple grille (306) made up of fragments of tile at its base, and had been partially backfilled by demolition waste 305, probably after the drain 304 connecting to the soakaway had been damaged (Plate 4). This drain (located at 6.25m OD) was visible in section and appeared to consist of a capstone slab with a groove cut down the length to drain water into the buried soakaway.

Either side of / abutting the soakaway was a loose rubble layer (302) containing several fragments of architectural stone including debris almost certainly associated with the Church of St John and the remnant of part of a stone channel constructed for carrying lead water pipes (Appendix E, Figure 4). This layer was probably formed rapidly in the late 16<sup>th</sup> century as the Church was demolished and the site was redeveloped as a market place. Both layer 302 and the soakaway were overlain by 301, dark grey clayey sandy silt with occasional small stones, and frequent flecks of oyster shell and charcoal. This deposit probably represents an accumulation of domestic debris in the marketplace during part or all of the 17<sup>th</sup>-19<sup>th</sup> centuries. As with pit 2, there is no evidence for a Victorian clearance episode, with layer 301 being sealed by modern concrete 300.

## 4 DISCUSSION

The 2011 development at the site extended to c.1.15m below the current ground surface, and mid 14<sup>th</sup> to 15<sup>th</sup> century deposits were the earliest remains exposed at 6.12m OD. A single burial marks the only remaining insitu archaeology exposed in this development that can be directly associated with the Church of St John the Evangelist. Further remains are proposed to have extended to the west, suggesting the central square at Cornhill has been heavily truncated and likely levelled post 16<sup>th</sup> century. Unstratified human remains (charnel) and early 13<sup>th</sup> century architectural stone were also recovered during groundworks from late 16<sup>th</sup> century layers and probably mark the levelling of the church grounds at this time, incorporating any fragments of demolished material formerly associated with the church.

A more surprising find was a fragment of a stone channel used for carrying multiple lead water pipes. Glyn Coppack (pers.comm; Appendix E) has indicated this is likely part of the medieval water pipeline connecting the water springs on the slope of Lincoln with White Friars south of the river. These water pipelines are rarely found in Britain and this should be considered a significant find, perhaps giving an indication of the likely route taken by the White Friars water supply. It should, however, be noted that this fragment, whilst large and heavy, was out of context in a late 16<sup>th</sup> century layer and may have been moved from its original position.

A soakaway was discovered consisting of 15<sup>th</sup> century roof tiles forming a box and positioned directly at the end of a grooved stone slab seen in section. This soakaway appears to date from the 16<sup>th</sup> century and was probably utilised as part of surface drainage near the now demolished Church of St John. The soakaway overlay a loose rubble layer probably associated with the late 16<sup>th</sup> century demolition of the Church, suggesting that the 15<sup>th</sup> century tiles had been re-used, and that the soakaway was constructed after the Church's demolition, although perhaps contemporaneously with the landscaping of the ground for the creation of the marketplace (as witnessed by the presence of another demolition layer either side of the soakaway). The fact that the box and grooved stone appear intact may indicate that the soakaway was retained for the new market place, before being blocked and covered over in subsequent years.

There is a distinct lack of post-16<sup>th</sup> century artefacts within the western half of the development, which suggests this area may have suffered greater levels of truncation and levelling in the post-medieval and early modern period. It is of course possible that material did accumulate through the 16<sup>th</sup>-19<sup>th</sup> centuries in this area, but did not produce artefacts in the limited size pits and trenches monitored, though this is perhaps unlikely given the prevalence of early modern debris seen in typical urban sites.

Late medieval (early modern in the Lincoln model) layers were located at between 5.92 and 6.25m OD, approximately 0.5-0.7m below current ground level. The layers above this contained a mixture of redeposited artefacts and disarticulated human remains, which while originally of medieval date, could well have been redeposited in the following centuries. The lack of inhumations away from Pit 1, while charnel was collected throughout the monitoring, suggests further burials were once present and have been disturbed by previous work.

## **5 ASSESSMENT OF IMPACT**

### **5.1 Importance**

The area around Cornhill is known to contain remains relating to the occupation of Lincoln, dating from at least the medieval period up until the present day. This project has revealed further evidence for the location of graves associated with the demolished Church of St John the Evangelist, as well as architectural stone almost certainly once used within the church itself, alongside a soakaway which may be roughly contemporary or constructed shortly after the English Reformation. These remains could be considered of no more than local interest, as the Church is well documented, though the grave does extend the graveyard somewhat further to the east. Of perhaps more significance is the discovery of a fragment of the proposed medieval water pipeline utilised by the White Friars. Such fragments are rarely discovered in Britain and this provides new evidence for the possible route of the pipeline, as such this find could be said to be of perhaps regional significance.

Natural deposits were not exposed in these groundworks, suggesting that earlier remains lie preserved below the depth of impact. It should be noted, however, that with the exception of pit 1, there was no artefactual evidence for occupation between the 16<sup>th</sup> and 20<sup>th</sup> century surfaces. This implies that previous groundwork in the area has removed much of the material relating to the 17<sup>th</sup>-19<sup>th</sup> century, which may well be replicated across the Cornhill area.

### **5.2 Impact**

The development had the potential to have an adverse and direct impact upon any archaeological remains present on the site and lying at a depth where they would be encountered during groundworks. Monitoring confirmed that deposits perhaps as early as the 14<sup>th</sup> century were exposed in the works, with a single medieval inhumation also revealed. The apparent absence of significant, artefactually dated, post-16<sup>th</sup> century deposits in the western half of the site suggests that truncation has already occurred in this area in the past, removing much of the expected post-medieval layers. Further work in the immediate area could be expected to impact on late medieval deposits within 0.5-0.7m of the current ground surface. However, there will be a risk of exposing disarticulated human remains and medieval artefacts within as little as 0.2m across Cornhill due to the presence of residual material in later layers.

### **5.3 Significance of impact**

Due to the known archaeological risk and the depth of excavation, the level of direct impact from the monitored development has, as expected, truncated 14<sup>th</sup>-16<sup>th</sup> century remains, including those related to the former Church of St John the Evangelist. Most significant of these were an inhumation and a partially intact soakaway; the remaining deposits, while worthy of note, are essentially clearance or levelling episodes containing residual architectural stone and medieval ceramics and bone. The fragment of stone water pipe channel is notable and may provide tentative evidence for the proposed route of a water pipeline for White Friars.

Further works in Cornhill Square, such as the excavation of future service trenches, will have a high risk of affecting any further buried remains on the site, including human remains.

## 6 CONCLUSION

The scheme of archaeological monitoring and recording revealed remains dating to the 14<sup>th</sup>-16<sup>th</sup> century, including an inhumation and a possibly contemporary soakaway probably related to the former Church of St John the Evangelist. These remains were located c.0.5-0.7m below the current ground surface and were overlain by a sequence of levelling layers which contained further residual medieval material relating to the post-16<sup>th</sup> century development of the site. Pottery, tile, medieval architectural stone and disarticulated human remains relating to disturbed medieval burials were all present within these layers, implying the landscape has been heavily disturbed and levelled over the years. The lack of post-16<sup>th</sup> century and modern material away from Pit 1 may imply the area around Pits 2 and 3 was also truncated in the recent past, removing any 17<sup>th</sup>-19<sup>th</sup> century layers.

The fragment of water pipeline channel offers a possible clue to the location of the medieval White Friars water supply line and could be considered of regional importance. Any future work in the area will need to be aware of the possibility of further fragments of this pipeline being exposed. Other medieval and earlier remains are likely to exist in the area, including further burials relating to the Church of St John the Evangelist and any future groundwork below 0.5m from the current ground surface will risk impact. Disarticulated remains and residual artefacts could also be exposed as little as 0.2m below the current ground surface.

It is proposed that the human remains are retained by Lincoln University School of Natural and Applied Science for future study alongside their collection of medieval remains from the City.

## 7 ARCHIVE

The documentary archive will comprise:

- A copy of the final report
- Finds catalogues
- Site records, as detailed in the table below:

**Table 6.1: Quantification of the site archive**

<b>Item</b>	<b>Count</b>
Context registers	2
Context sheets	30
Trench sheets	3
Drawing registers	1
Drawing sheets	3
Digital colour photographs	122

On completion of the reporting stages of the project, the archive will be prepared for long-term storage in a format agreed in advance with the relevant local depository. This will be in accordance with guidelines prepared by the UK Institute of Conservation (Walker 1990), the Museums and Galleries Commission (MGC 1992), and the IfA (2009b).

The recipient museum is The Collection, Danes Terrace, Lincoln, Lincolnshire LN2 1LP; tel: 01522 550990, who have assigned this project the accession code LCNCC: 2011.363.

A copy of this report will be uploaded onto Oasis under: **networka2-115512**

The recipient museum will receive the document archive, and with the permission of the landowners, any finds generated from the archaeological works.

Prior to the deposition of the archive, the necessary arrangements will be made with the site owners regarding the transfer of ownership of any archaeological finds to the recipient museums. In the event that deposition of the archive cannot be concluded, Network Archaeology will store the archive to a suitable standard until deposition can be arranged. In this event, Network Archaeology will retain ownership of the document archive until the document archive and its ownership is passed to the recipient museum.

## **8 ACKNOWLEDGEMENTS**

Network Archaeology would like to thank Lincoln BIG for commissioning this work; Mick Jones (Lincoln City Archaeologist), and John Herridge (City of Lincoln Heritage Officer), for their help throughout the project.

Thanks also to finds specialists Anne Irving, Jen Wood and particularly Glyn Coppack, who advised on the architectural stone. Dr Ron Dixon at Lincoln University has kindly agreed to retain and curate the human remains as part of the university's wider work on the medieval population of Lincoln.

For Network Archaeology, the work was managed by Mike Wood and fieldwork carried out by Patrick Daniel and Richard Moore. This report was produced by Mike Wood, and edited by Chris Taylor. Illustrations were by Jacqueline Churchill and David Watt.



## 9 REFERENCES

- BGS 2011, *Geology of Britain viewer*.  
[http://maps.bgs.ac.uk/geologyviewer\\_google/googleviewer.html](http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html). Accessed 4th December 2011
- Department for Communities and Local Government, 2010, *Planning Policy Statement 5: Planning for the Historic Environment*.  
<http://www.communities.gov.uk/documents/planningandbuilding/pdf/1514132.pdf>. Accessed 20th July 2011
- English Heritage, 2010, *PPS5 Planning for the Historic Environment: Historic Environment Planning Practice Guide*. <http://www.english-heritage.org.uk/publications/pps-practice-guide/pps5practiceguide.pdf>. Accessed 20th July 2011
- Heritage Connect Lincoln 2011, <http://www.heritageconnectlincoln.com/lara-raz/st-john-the-evangelist-wigford/1027> . Accessed 7th December 2011
- IfA, 2008a, *Code of approved practice for the regulation of contractual arrangements in field archaeology*. Institute for Archaeologists
- IfA, 2008b, *Standard and guidance for the collection, documentation, conservation and research of archaeological materials*. Institute for Archaeologists
- IfA, 2009a, *Standard and Guidance for an archaeological watching brief*, Institute for Archaeologists
- IfA 2009b, *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives*, Institute for Archaeologists
- IfA, 2010, *Code of conduct*. Institute for Archaeologists
- Jarvis, M., 1999, *Tourist Information Centre, Cornhill Square, Lincoln, Archaeological Recording* City of Lincoln Archaeology Unit. Unpublished Client Report No. 395
- Jones, M, Stocker, D & Vince, A, 2003a, *The City by the Pool, Assessing the Archaeology of the City of Lincoln*, Lincoln Archaeological Studies 10, Oxbow Books, Oxford
- Jones, M, Stocker, D & Vince, A, 2003b, *Lincoln Archaeological Research Assessment: Research Agenda Zones, GIS and Interactive database*. CD-ROM accompanying Jones, Stocker and Vince 2003a
- MGC, 1992, *Standards in the Museum Care of Archaeological Collections*. Museums and Galleries Commission, London
- Network Archaeology Ltd, 2011, *Cornhill, Lincoln: Written Scheme of Investigation for Archaeological Monitoring of Groundworks*. Unpublished
- Walker, K, 1990, *Guidelines for the preparation of excavation archives for long-term storage*. UK Institute for Conservation, London.

LCH11 Appendix A Context Summary

Context	Trench	Type	Dimensions	Description	Interpretation	Date
100	Pit 1	Layer	1m x 1m, 0.15 thick	Concrete	Concrete layer	Modern
101	Pit 1	Layer	uncertain	Cobblestones, with yellow sand bedding layer. Very friable	Remains of recent cobbled surface	Modern
102	Pit 1	Layer	1m x 1m, 0.58m thick	Dark grey, silty clay layer between 101 and 103. Very friable. Frequent scattered inclusions of CBM, small frags of bone, oystershell and pottery throughout	Levelling material	18th-19th C
103	Pit 1	Layer	same as 408	Brownish grey layer of clayey silt, soft and friable. Frequent scattered inclusions of CBM, small frags of bone, oystershell and pottery throughout	accumulation layer	mid 14th-15th C
104	Tr1-2	Finds	n/a	Unstrat finds from Tr 1-2	Probably from a deposit equivalent to 102	n/a
200	Pit 2	Layer	0.2m thick	Concrete	Concrete surface/ surface preparation	Modern
201	Pit 2	Layer	1m x 1m, 0.3m thick	Dark greyish brown clayish silt. Soft and friable	Levelling layer	15-16th C
202	Pit 2	Layer	1m x 1m, 0.12m thick	Yellow band of silty clayish sand. Friable	Uppermost limestone layer in banded sequence of sandy and silty deposits	15-16th C
203	Pit 2	Layer	1m x 1m, 0.11m thick	Dark grey band of clayish silt. Soft and friable. Occasional fragments of bone and clay roofing tile	Possibly soil development but more likely a spread of redeposited material	15-16th C
204	Pit 2	Layer	1m x 1m, 0.1m thick	Yellow mortar band with occasional small stones and fragments of charcoal	Levelling layer	15-16th C
205	Pit 2	Layer	1m x 1m, 0.33m thick	Yellow mortar dump with frequent fragments of limestone. Frequent fragments of clay tile.	Levelling, demolition main deposit of yellow stony material in pit 2	15-16th C
206	Pit 2	Fill	0.2m thick	Grey brown fill	Fill of 208	15-16th C
207	Pit 2	Layer	1m x 1m, 0.22m thick	Yellow grey layer of sandy silt with small limestone/mortar fragments throughout	Demolition layer	15-16th C
208	Pit 2	Cut	0.28m wide x 0.2m deep	Unknown size and function	Undetermined	15-16th C
209	Tr 2-3	Finds	n/a	Unstrat finds from Tr 2-3	n/a	15-16th C
300	Pit 3	Layer	0.2m thick	Concrete	Concrete layer	Modern

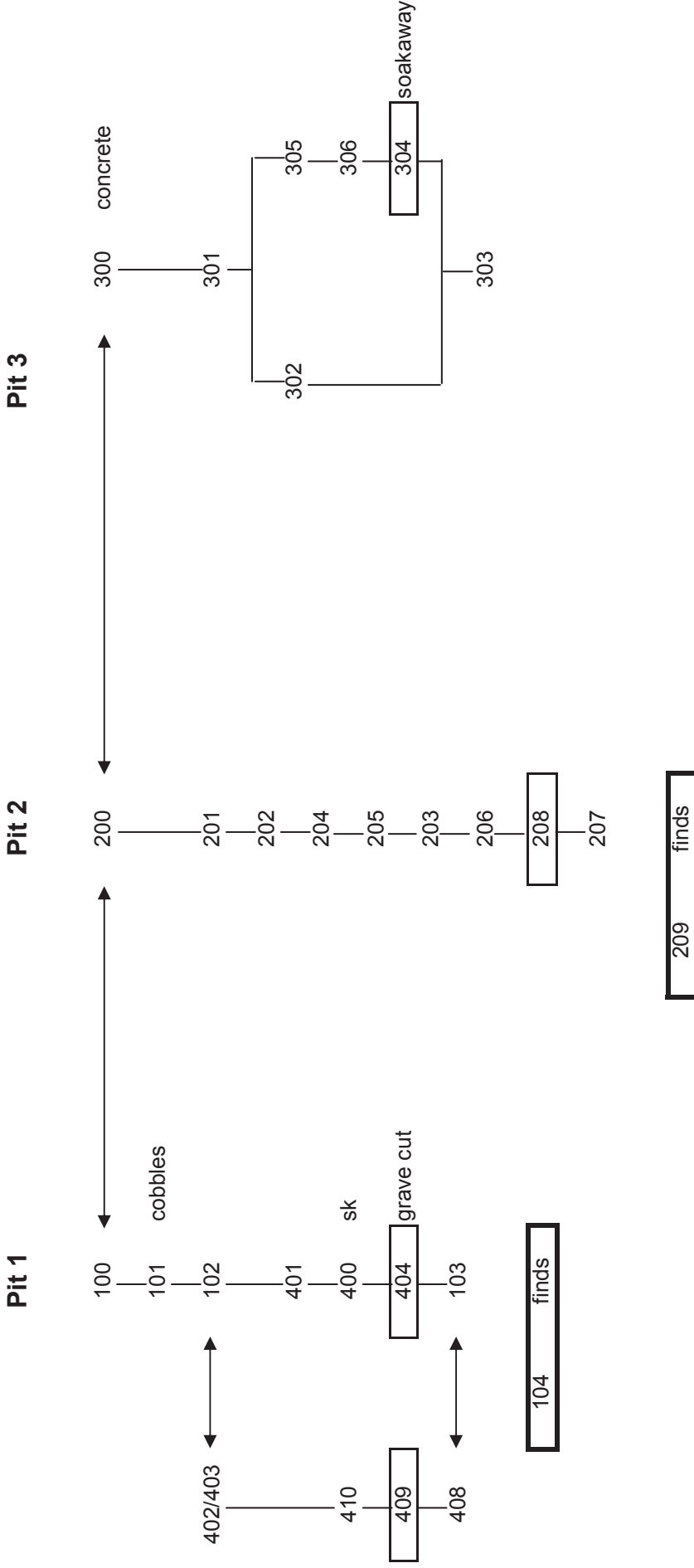
LCH11 Appendix A Context Summary

301	Pit 3	Layer	1.1m x 1.1m, 0.32m thick	Dark grey clayey sandy silt. Friable with occasional small stones. Frequent pieces of oyster shell and charcoal made this layer distinctive	Accumulation during market place	post-16th C
302	Pit 3	Layer	1.1m x 1.1m, 0.48m thick	Layer with frequent fragments of angular limestone and mortar. It contained CBM, bone and one large fragment of dressed limestone masonry.	Demolition or levelling layer	post-16th C
303	Pit 3	Layer	1.1m x 1.1m, 0.3m thick	Yellow grey layer of loose friable sandy silt with fragments of limestone	Demolition or levelling layer	post-16th C
304	Trench 2-3	Fill	0.2m x 0.2m x 0.3m thick	4 roof tiles set vertically into the ground defining a soakaway. Also includes a limestone gap	The lining of a soakaway	post-16th C
305	Trench 2-3	Fill	0.2m x 0.2m x 0.2m thick	Mid grey brown, friable silty sand with occasional fragments of stone, tile and plaster	Uppermost fill of soakaway. Probably demolition material after the lid of the soakaway was smashed off.	post-16th C
306	Trench 2-3	Fill	0.2m x 0.2m x 0.1m thick	Dark grey brown, friable silty sand with tile fragments forming a grille in the base of the soakaway.	Basal fill of soakaway contained a coarse grid of fragments of tile set on their narrow sides and thus forming a grille in the base of the soakaway	15-16th C
400	Pit 1	Skeleton	Remaining length 0.78m	E-W extended, juvenile. 20% remains lie beyond LOE.	Inhumation of juvenile. Substantially disturbed immediately prior to archaeological investigation and recording.	mid 14th- late 16th C
401	Pit 1	Charnal	n/a	disturbed grave material includes parts of sk 400 moved out of situ during discovery.	Charnal from sk 400	mid 14th- late 16th C
402		Layer	0.58m thick	same as 102 and 402, when 'spur' extended to SE	Levelling material	18th-19th C
403		Layer	0.58m thick	same as 102 and 402, extended to edge of square paved area	Levelling material	18th-19th C
404	Pit 1	Cut	VOID	Grave cut for sk 400	Burial	mid 14th- late 16th C
405	VOID	VOID	VOID	VOID	VOID	VOID

LCH11 Appendix A Context Summary

406	VOID	VOID	VOID	VOID	VOID	VOID	VOID
407	VOID	VOID	VOID	VOID	VOID	VOID	VOID
408	Pit 1	Layer	0.76m x 0.6m, 0.2m thick	Same as 103. Brownish grey layer of clayey silt, soft and friable. Frequent scattered inclusions of CBM, small frags of bone, oystershell and pottery throughout	accumulation layer	mid 14-15th C	
409	Pit 1	Cut	0.75m x 0.5m, 0.35m thick	Pit though not fully seen. Fairly abrupt break of slope, steeply sloping sides merged with LOE so base not seen	pit	Post-14th C	
410	Pit 1	Fill	0.35m thick	Sole fill of 409. Dark grey silty clay with a loose texture an occasional small stones inclusions. Same sort of material as 102	Fill of a pit.	Post-14th C	

### Lincoln Cornhill Matrix



## Appendix C: The Human Bone Assessment

*By Jennifer Wood*

### Introduction

An articulated human skeleton and a total of 55 fragments of disarticulated human bone were recovered during a scheme of archaeological works undertaken by Network Archaeology Ltd at Cornhill, Lincoln. The Cornhill area presides over the site of a known cemetery of the Church of St John the Evangelist present from mid 10th- to the late 16th century. The articulated skeleton was initially recovered from two connected deposits (400/401), but on further analysis were discovered to have originated from the same individual and therefore has been discussed here as a single entity.

### Methodology

The skeleton and disarticulated bone was individually catalogued on a database (Appendix 1), with all available scores for sex, age, pathology, metrical and non-metrical traits noted on this primary record in accordance with the guidelines specified by BABAO and the IFA (Brickley and McKinley, 2004). Methods for the individual scored traits are outlined below.

#### *Sex Estimation*

The determination of biological sex is based upon the morphological traits of the cranium and pelvis (Bass 1971, Buikstra & Ubelaker 1994; Schwartz 1995 and Workshop of European Anthropologists 1980). Also using the sexually dimorphic metrics of the post-cranial skeleton where available (outlined in Bass, 1971). Sex was categorised as Female, Possible Female, Indeterminate, Possible Male, Male. No estimation of sex is made for sub-adult remains, as the sexually diagnostic characteristics are often quite ambiguous before puberty. Please note, for disarticulated remains, sexually dimorphic metrics have been used to establish a sex. However, due to the varied nature of genetics, these sex predictions should be used as a guideline only.

#### *Age Estimation*

The determination of the age at death was assessed employing several ageing techniques on the elements available, to provide the most accurate results possible. Dental wear (Miles 1963 Fig 10, Brothwell 1981:72, fig 3.9), Dental development (Gustafson & Koch 1974), Pubic symphysis phase (Brooks & Suchey 1990), auricular surface phase (Meindl & Lovejoy 1989), Ectocranial suture closure (Meindl & Lovejoy 1985) and the sternal end of rib (İşcan and Loth 1986) were utilised where the relative skeletal elements were present. As a multi-factorial approach produces a range of ages, age categories are used for generalisation and comparison purposes. These age categories are listed below (Table 1).

*Table C1. Summary of Age Categories*

<b>Category</b>	<b>Age Range</b>
Foetal	9-39 week gestation
Neonate	Birth- 5 Months
Infant	6 Months – 2 Years
Child	3 - 6 Years
Older Child	7 – 15 Years
Juvenile	Below 15 Years
Adolescent	16 - 20 Years
Young Adult	21 - 35 Years
Middle Adult	36 – 45 Years
Old Adult	45 – 60 Years
Senile	61+Years
Adult	Over 25 Years

## Results

The disturbed remains of a single articulated sub-adult skeleton was recovered from two separate contexts, (400) and (401).

### *Skeleton (400/401) Older Child, 8-10 Years*

#### Dentition

<i>R8</i>	<i>R7</i>	<i>R6</i>	<i>R5</i>	<i>R4</i>	<i>R3</i>	<i>R2</i>	<i>R1</i>	<i>L1</i>	<i>L2</i>	<i>L3</i>	<i>L4</i>	<i>L5</i>	<i>L6</i>	<i>L7</i>	<i>L8</i>
	<i>1xL</i>	<i>1xl</i>	<i>1xL</i>	<i>1xL</i>	<i>2xL</i>	<i>2xL</i>	<i>2xL</i>							<i>1xL</i>	
U	O	Oc	O	O	O	O	O	-	-	-	-	-	-	O	-
NP	O	O	-	-	-	-	-	-	-	-	-	-	-	-	-
		<i>1xL</i>													

#### Key:

- = Jaw missing

X = Lost Ante mortem

B=Broken

A= Abscess

C=Caries

L= Hypoplasia Line

/ = Lost Post mortem

NP= Not Present

RO= Root Only

G= Hypoplasia Groove

The disturbed remains of an older child skeleton was recovered from contexts (400) and (401) during construction works undertaken at Cornhill, Lincoln. Due to the age of the individual, no attempts at sexing the remains were made.

The remains represented approximately 70% of the entire skeleton. The bones were gracile, but had been preserved in a good overall condition with little post-depositional breakage.

The dental health of the surviving teeth was moderate; the majority of the mandible and upper left front dentition were not present. Carious lesions were noted on the upper and lower right first molars, with slight calculus concretions on the upper right 1<sup>st</sup> and 2<sup>nd</sup> molars. In addition, Hypoplastic lines were noted on the upper maxillary teeth in still occlusion.

No evidence of pathology was noted on the remains.

### *Disarticulated Remains*

A total of 55 fragments of unstratified commingled human bone were recovered during further construction works (Appendix 3). The condition of the bone varied from good to moderate, with an average overall condition of good to moderate, many of the remains displayed post-depositional breakage.

Estimations of the entire disarticulated bone assemblage would suggest that a minimum of three individuals were represented. However, due to the nature and the spread of the deposition of disarticulated remains, it is likely that the remains represent several more individuals.

The remains represented a mixture of both adult and sub-adult remains, with a single infant mandible also identified. No perinatal remains were recovered. Identifiable sexual morphological features and metrical indices availability were very limited within the assemblage. However, in conjunction with macroscopic observations, it is suggested that both male and female individuals were present.

Pathological conditions within the commingled remains were limited. Osteophytes were noted on the margins of an auricular articulation of a sacrum recovered from (203) and Enthesiophyte growths were noted on a distal fibula shaft at the ligament insertion site connecting the tibia and fibula from (102), and on the insertion point of the Achilles tendon on a calcaneus (303). A possible Schmorls node was noted on a thoracic vertebra recovered from deposit (209). Schmorls nodes are indentations on the superior and anterior surfaces of the vertebra caused by pressure formed by the herniation of the intervertebral disc

(Rogers and Waldron 1995). The formation of Schmorl's nodes can be attributed to consistent stress on the vertebral column, often in the thoracic and lumbar vertebrae, which may increase with age or through heavy work (Stirland & Waldron 1997).

## **Discussion**

The human bone recovered from the scheme of archaeological works undertaken at Cornhill, Lincoln, represented the remains of a minimum of four individuals, one of which was articulated, the rest of the assemblage was recovered in a commingled state.

The articulated skeleton (400/401) was incomplete with some post-depositional damage. However, the bones were of good preservation, allowing for the recording of demographic, pathological, metrical and non-metric traits. The remains were of an unsexed older child individual, 8-10 years in age. No evidence of pathological change was noted on the post-cranial remains. Carious lesions and hyperplastic lines were noted with the dentition. The presence of hypoplasia in the dental enamel may suggest that the individual may have suffered from poor nutrition or illness in earlier childhood.

The disarticulated remains were all from both immature and skeletally mature individuals, with observations that suggest both male and female sexes present.

The pathological changes displayed within the disarticulated remains could be associated with age related change and continual strenuous activity.

As the area of investigation was previously occupied by the known site of Church of St John the Evangelist, the presence of both articulated and disarticulated remains is to be expected. None of the recovered remains appear to be particularly unusual for the site or time period from which the cemetery was active.



## References

- Bass, W.M. 1987. *Human Osteology: A Laboratory and Field Manual*. Columbia, Missouri Archaeological Society
- Berry, A. C. and Berry, R. J. 1967. Epigenetic Variation in the Human Cranium. *Anatomy* 101, 2:361-79
- Brickley, M and McKinley, J.I. (eds) 2004. Guidelines to the Standards for Recording Human Remains. IFA Paper No. 7. BABAO & IFA
- Brooks, S. and Suchey, J. 1990. Skeletal Age Determination Based on the Os Pubis: A Comparison of the Acsadi-Nemeskeri and Suchey-Brooks Methods. *Human Evolution* 5:227-38
- Brothwell, D. 1981. *Digging Up Bones*. London, British Museum (Natural History)
- Buikstra, J.E. and Ubelaker, D.H. 1994. *Standards for Data Collection From the Human Skeleton*. Arkansas, Arkansas Archaeological Survey Research Series No. 44, Fayetteville
- Gustafson, G. and Koch, G. 1974. Age estimation up to 16 years of age based on dental development in *Odotologisk Revy*. 25 (3): 297-306
- Hillson, S. 1996. *Dental Anthropology*. Cambridge, Cambridge University Press
- Lovejoy, C.O., Meindl, R.S., and Barton, T.J. 1985a. Multifactorial Determination of Skeletal Age at Death: A Method and Blind Test of it's Accuracy. *American Journal of Physical Anthropology* 68:1-14
- Lovejoy, C.O., Meindl, R.S., Pryzbeck, T.R. and Mensforth, R.P. 1985b. Chronological metamorphosis of the auricular surface of the ilium: a new method for the determination of adult skeletal age-at-death. *American Journal of Physical Anthropology* 68:15-28
- Lukacs, J.R. 1989. Dental Pathology: Methods for Reconstructing Dietary Patterns. in Iscan, M. Y. and Kennedy, K. (eds) *Reconstruction of Life From the Skeleton*. New York, Alan Liss, p.261-86
- Meindl, R.S. and Lovejoy, C.O. 1985. Ectocranial Suture Closure: A Revised Method for the Determination of Skeletal Age at Death Based on the Lateral-Anterior Sutures. *American Journal of Physical Anthropology* 68:57-66
- Miles, A.E.W. 1963, The Dentition in the Assessment of Individual Age in Skeletal Material, in D.R. Brothwell (ed) *Dental Anthropology*. Pergamon, Oxford
- Roberts, C. and Cox, M. 2003. *Health and Disease in Britain: From Prehistory to the Present Day*. Gloucestershire, Sutton Publishing
- Roberts, C. and Manchester, K. 1997. *The Archaeology of Disease*. Gloucestershire, Sutton Publishing
- Rogers, J. and Waldron, T. 1995 A field guide to joint disease in archaeology. Chichester, Wiley.
- Schwartz, J. 1995. *Skeleton Keys*. New York, Oxford University Press
- Steele, D.G. and Bramblett, C.A. 1988. *The Anatomy and Biology of the Human Skeleton*. Texas, A&M University Press
- Stirland, A.J. and Waldron, T. 1997. Evidence for Activity Related Markers in the Vertebrae of the Crew of the Mary Rose. *The Journal of Archaeological Science* 24:329-335

## **Appendix D: The Animal Bone**

*By Jennifer Wood*

### **Introduction**

A total of 128 (2293g) refitted fragments of animal bone were recovered during a scheme of archaeological works undertaken by Network Archaeology at Cornhill, Lincoln.

The scheme of works focused on a series of targeted pit excavations, located at Cornhill, an area previously occupied by the Church of St John the Evangelist. All of the remains were recovered from levelling/demolition layers dated from 14<sup>th</sup>-15<sup>th</sup> century, 15<sup>th</sup>-16<sup>th</sup> century and 18<sup>th</sup>-19<sup>th</sup> century.

### **Methodology**

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). 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 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. The data produced the basic NISP (Number of Identified Specimen).

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. Also fusion data, butchery marks (Binford 1981), gnawing, burning and pathological changes were noted when present.

Tooth eruption and wear stages were measured using a combination of Halstead (1985), Grant (1982), Levine (1982) and Payne (1973), 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 condition of the bone is relatively good, averaging between grades 2 and 3 of the Lyman criteria (1996), allowing for measurements and the scoring of butchery, pathology and gnawing where applicable.

#### *Pathology*

No evidence of pathological changes were noted within the assemblage.

#### *Butchery*

A total of 16 fragments of bone, equally spread between each of the pit excavation areas, displayed evidence of butchery. The butchery marks appear to be consistent with jointing of the carcass and meat removal.

#### *Antler and Horn Working*

A total of 4 sheep horn core fragments were recovered from layer (202) within pit 2 and layers (302) and (303) within pit 3. The horn cores had been chopped at the base above the skull, suggesting removal of the horn sheath for working.

### *Gnawing*

A total of 3 fragments of bone recovered from pit 1 layer (104) and layer (209) from pit 2 displayed evidence of probable carnivore gnawing. Gnawing on the remains suggests that some refuse was left open to scavengers after or as part of the disposal process. Although as only a small number of fragments of the assemblage were gnawed it would suggest that most of the remains were rapidly buried after disposal.

### *Burning*

No evidence of burning was noted on any of the remains.

### ***Species Representation***

*Table D1, Hand Collected Assemblage Identified to Taxa, by Trench*

	14th - 15th C	15th - 16th C	18th - 19th C	Unphased	Total			
<b>Taxon</b>	<b>4</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>2</b>			
<i>Equid</i> (Horse Family)	1				1	2		
Cattle		3	3	5	1	1	13	
Sheep/Goat	3	5	1	4	5	3	11	32
Sheep		1	3				1	5
Pig	1		1		1	1	1	5
Bird	1				1			2
Fallow Deer ( <i>Dama dama</i> )							1	1
Roe Deer ( <i>Capreolus capreolus</i> )			1					1
Rabbit ( <i>Oryctolagus cuniculus</i> )							1	1
Large Mammal		4	2	7	5	7	6	31
Medium Mammal	1	6		3	2	4	2	18
Unidentified	2				1	1		4
N=	9	16	11	17	20	18	24	115

Sheep/Goat was the predominant species identified within the assemblage, with 5 fragments positively identified as sheep; no positive identification of goat remains were made within the assemblage. Cattle remains were the next most abundant species, albeit in notably smaller numbers than Sheep/Goat, followed by pig. Small numbers of *Equid* (Horse Family), Fallow Deer (*Dama dama*), Roe Deer (*Capreolus capreolus*), Rabbit (*Oryctolagus cuniculus*) and bird remains were also identified within the assemblage.

The predominance of Sheep/Goat remains is typical for the period. Due to the rising demand for wool in the mid 15<sup>th</sup> -16<sup>th</sup> centuries, sheep farming became increasingly more prominent, with Lincolnshire being a major producer of wool; reaching its peak by c.1700 (Dobney, Jaques and Irving 1996:59). The steady rise of mutton prices by the end of the 16<sup>th</sup> century saw Lincolnshire specialising in hill bred and fen fattened sheep, which were then subsequently driven to the London meat markets (*ibid*).

### ***Discussion***

The animal bone assemblage is small, but well preserved. Animal bone was recovered from most layers within each of the excavation pits. The taxa and skeletal element representation appears to be relatively typical of domestic waste of the represented periods, mostly food waste with some butchery waste included. Although the presence of deer remains within the assemblage may suggest that a slightly richer diet was consumed by some of the local occupants.

Small scale craft industry, such as horn working is indicated within the assemblage. This kind of craft refuse seems to be a relatively common occurrence within assemblages from the period.

Due to the small size of the assemblage, little information on the underlying animal husbandry and utilisation practices can be gained save the generalised observations currently noted.

## 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

Dobney, K.M., Jaques, S.D. and Irving, B.G. 1996 *Of Butchers and Breeds: Report on the vertebrate remains from various sites in the City of Lincoln*. Lincoln Archaeological Studies: No.5.

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.

## Appendix E Architectural Stone Report

Mike Wood BA (hons) MLitt MfA

With identification provided by Dr Glyn Coppack BA PhD FSA

### Introduction

Five fragments of architectural stone were recovered during a watching brief on land at Cornhill Market Place, Lincoln, Lincolnshire. The material was derived from layers 207, 209 and 302 and was visually assessed by Glyn Coppack who has kindly provided information on the form, date and significance of the artefacts recovered.

### Methodology

The material was counted and weighed in grams, then examined visually to identify any diagnostic pieces and the overall condition of the assemblage. A summary of the material is recorded in Table E1.

### Assemblage

Context	Deposit	Form	Date range of stone	Weight (g)	Measurements (mm)	Comments
209	Unstratified find	Plain bell capital	E13th C	1,260	146x138x39	Remains of paint present.
207	Demolition layer	Stiff leafed volute	E 13 <sup>th</sup> C	450	92x60x60	Possibly assoc. with capital.
302	Demolition layer	Unglazed window	L12-13 <sup>th</sup> C	15,800	215x210x218	Remains of paint present on rebate.
302	Demolition layer	Chamfered plinth course	12-13 <sup>th</sup> C	2,400	250x40x115	Claw chisel marks. Probably from a tomb.
302	Demolition layer	Channel for lead water pipes	L12th-E13 <sup>th</sup> C	13,800	130x130x290	Water supply for White Friars?.

Table E1 Architectural stone

### Discussion

The architectural stone all dates from a similar period (late 12<sup>th</sup>-early 13<sup>th</sup> century) though it has clearly been removed from its original context and been incorporated into demolition waste, which contained pottery from the mid 15<sup>th</sup>-16<sup>th</sup> century. The demolition layers are thought to date to the time of the destruction of the church of St John the Evangelist and creation of a new marketplace in the late 16<sup>th</sup> century.

The capital, stiff leafed volute, window and plinth course are all likely to have been associated with the former church of St John the Evangelist, which was founded in the mid 10<sup>th</sup>-11 century. Of more interest is the presence of a carved stone channel for carrying lead water pipes. Dr Coppack has indicated this channel could have carried several pipes given its width of c. 8 inches and is probably a fragment of the water pipeline running from the springs on the steep slope of Lincoln down to White Friars (near the modern St Marks shopping area). As such this is potentially a significant find and may indicate the likely route of the water pipeline.

**Recommendations for further work**

The artefacts are in a stable condition and require no conservation. Illustrations should be made of the bell capital, stiff leafed volute, window and water pipe channel. The stone channel should be archived for future study; long-term storage of the other architectural stone should be agreed in conjunction with Lincoln City Council and the Collection.

# OASIS DATA COLLECTION FORM: England

[List of Projects](#) | [Manage Projects](#) | [Search Projects](#) | [New project](#) | [Change your details](#) | [HER coverage](#) | [Change country](#) | [Log out](#)

## Printable version

**OASIS ID: networka2-115512**

### Project details

Project name	Lincoln Cornhill
Short description of the project	Watching brief on groundwork in Cornhill Square, Lincoln.
Project dates	Start: 26-09-2011 End: 29-09-2011
Previous/future work	Yes / Not known
Any associated project reference codes	LCH11 - Sitecode
Type of project	Recording project
Site status	None
Current Land use	Other 3 - Built over
Monument type	NONE None
Significant Finds	HUMAN BONE Medieval
Significant Finds	POTTERY Medieval
Significant Finds	ARCHITECTURAL STONE Medieval
Significant Finds	CBM Medieval
Investigation type	'Watching Brief'
Prompt	Direction from Local Planning Authority - PPS

### Project location

Country	England
Site location	LINCOLNSHIRE LINCOLN LINCOLN Lincoln Cornhill
Postcode	LN5 7DZ
Study area	245.00 Square metres
Site coordinates	SK 975 710 53.2267957869 -0.539318900595 53 13 36 N 000 32 21 W Point
Height OD / Depth	Min: 13.50m Max: 14.00m

### Project creators

Name of Organisation	Network Archaeology Ltd
----------------------	-------------------------

Project brief originator	City/Nat. Park/District/Borough archaeologist
Project design originator	Network Archaeology Ltd
Project director/manager	Michael Wood
Project supervisor	Patrick Daniel
Type of sponsor/funding body	Landowner
Name of sponsor/funding body	Lincoln BIG

### Project archives

Physical Archive recipient	Lincoln University
Physical Contents	'Animal Bones','Ceramics','Human Bones'
Physical Archive notes	Human remains will be curated at Lincoln University as part of medieval population study.
Digital Archive recipient	The Collection Lincoln
Digital Contents	'Animal Bones','Ceramics','Human Bones','Stratigraphic'
Digital Media available	'Text'
Paper Archive recipient	The Collection Lincoln
Paper Contents	'Animal Bones','Ceramics','Human Bones'
Paper Media available	'Context sheet','Matrices','Photograph','Report'

### Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Cornhill, Lincoln Archaeological Monitoring and Recording
Author(s)/Editor(s)	Wood, M
Other bibliographic details	587
Date	2011
Issuer or publisher	Network Archaeology Ltd
Place of issue or publication	Network Archaeology Ltd Lincoln
Description	A4 spiral bound report with clear plastic cover.
Entered by	Mike Wood (michaelw@netarch.co.uk)
Entered on	8 December 2011

## OASIS:

Please e-mail [English Heritage](#) for OASIS help and advice

© ADS 1996-2006 Created by Jo Gilham and Jen Mitcham, email Last modified Friday 3 February 2006

Cite only: /dl/export/home/web/oasis/form/print.cfm for this page



## PLATES



Plate 1: Excavation of Pit 1 and connecting trench.



Plate 2: Pit 1 looking west



Plate 3: Pit 2 looking west



Plate 4: Pit 3, Soakaway and capstone/ gutter **304** looking south-east



Plate 5: Grave **404**