YORK ARCHAEOLOGICAL TRUST

ALL SAINTS IN THE MARSH, PEASHOLME: EXCAVATIONS AT THE FORMER PEASHOLME HOSTEL AND HAYMARKET CAR PARK, DUNDAS STREET, YORK

1986–2014

ASSESSMENT REPORT

Report Number 2016/49 July 2016

YORK ARCHAEOLOGICAL TRUST

York Archaeological Trust undertakes a wide range of urban and rural archaeological consultancies, surveys, evaluations, assessments and excavations for commercial, academic and charitable clients. We manage projects, provide professional advice and fieldwork to ensure a high quality, cost effective archaeological and heritage service. Our staff have a considerable depth and variety of professional experience and an international reputation for research, development and maximising the public, educational and commercial benefits of archaeology. Based in York, Sheffield, Nottingham and Glasgow the Trust's services are available throughout Britain and beyond.

York Archaeological Trust, Cuthbert Morrell House, 47 Aldwark, York YO1 7BX

Phone: +44 (0)1904 663000 Fax: +44 (0)1904 663024

Email: archaeology@yorkat.co.uk Website: http://www.yorkarchaeology.co.uk

CONTENTS

Figures

Plates

Tables

NON-TECHNICAL SUMMARY

Archaeological interventions carried out at the former site of the Peasholme Hostel and Haymarket Car Park since 1986 have produced a valuable archaeological resource for understanding the community and landscape of All Saints in the Marsh, Peasholme. More than 700 skeletons recovered from the church and grave yard form the bulk of the archaeological assemblage from the site. A pilot study of 30 skeletons from the church and grave yard of All Saints in the Marsh, Peasholme, and the assessment of associated artefact assemblages and primary site archives from interventions commissioned by City of York Council since 1986 comprise a research archive, the integrated analysis and dissemination of which has high potential for community heritage experience and understanding outcomes.

KEY PROJECT INFORMATION

Project Name	Former Hostel and Hay Market Car Park
YAT Project No.	5584
Report status	Completed
Type of Project	Excavation
Client	City of York Council
Planning Application No.	N/A
NGR	SE 6075 5192
Museum Accession Nos.	YORYM:1986.14/ YORYM:2006.5201/ YORYM:2012.2/ YORYM:2014.154
OASIS Identifier	TBA
Author	B.Reeves
Illustrations	B.Savine and B. Reeves
Editor	D. Aspden
Report Number and Date	2016/49 27.07.16

1 INTRODUCTION

In 1827 York's Hay Market was relocated from Kings' Square to the former site of All Saints in the Marsh, Peasholme Green (Tillot 1961, 487) where it remained for nearly a century. The area has since been known as the Haymarket despite having been turned into a car park accessed from Dundas Street in the late 1930s. In the late 1980s the Peasholme Centre, a hostel for homeless people, was built on the west of the site fronting onto Stonebow adjacent to the Black Swan Inn. The Peasholme Centre was demolished by City of York Council in May 2010 for redevelopment. York Archaeological Trust was commissioned to undertake the excavation of the site both prior to the construction of the Peasholme Centre Hostel in 1986 and again in recent years after its demolition along with the adjacent car park to the east.

The archaeological investigations carried out by YAT in the vicinity of the former Haymarket, Peasholme Centre Hostel and Hay Market Car Park have each been allocated intervention numbers to simplify referencing for the purposes of this report (Carver 2009, 382). These are summarised below, and full details for each of the 11 interventions up to the time of writing are given in Table 1.

- **Intervention 1** 1986–7, evaluation (no report) for City of York Council.
- **Intervention 2** 1986–7, excavation carried out prior to the construction of the homeless hostel which occupied the site until recently (Lilley 1991; YAT report 1986/14) for City of York Council.
- **Intervention 3** 2000, evaluation undertaken as part of Phase One of the Hungate Development project (Macnab and McComish 2000; YAT report 2000/27)
- **Intervention 4** 2007, evaluation excavation at the former Dundas Street Ambulance Station and Hay Market Car Park (Antoni 2007; YAT report 2007/57) for City of York Council.
- **Intervention 5** 2010, watching brief (Johnson 2010; YAT report 2010/13) for Hungate Regeneration.
- **Intervention 6** 2010, excavation carried out after the demolition of the former Ambulance Station (Reeves 2010; YAT report 2010/94) for Hungate Regeneration.
- **Intervention 7** 2012, Peasholme Centre Hostel and Haymarket Car Par excavation excluding graves for City of York Council.
- **Intervention 8** 2012, Peasholme Centre Hostel and Haymarket Car Par excavation of graves for City of York Council.
- **Intervention 9** 2014, Peasholme Centre Hostel and Haymarket Car Par excavation excavation of remaining previously inaccessible graves for City of York Council.
- **Intervention 10** 2014, watching Brief for Hiscox Development

The site was known to have been occupied by the medieval church of All Saints, Peasholme Green and it was demonstrated by these archaeological interventions that there were other significant and well-preserved multi-period archaeological remains in the area surrounding the former church yard.

The archaeological investigations carried out in 2012 at the former Peasholme Centre hostel and Haymarket Car Park, Peasholme Green (NGR SE 6073 5193) on behalf of the City of York

Council (CYC) were undertaken in two stages (referred to as Phase 1 excavation and Phase 2 excavation of 2012; Interventions 7 and 8).

Phase 1 (Intervention 7) of the 2012 excavation was designed to characterise the site through targeted excavation and recording (YAT WSI Jan 2012). Initially CYC required only the investigation of the remains of the medieval church of All Saints, Peasholme and characterisation of the surrounding archaeology. The footprint of the church and the associated zone of burials within the excavation were investigated and mapped. Where human burials were encountered they were left in situ, except where the removal of one or more graves was necessary to allow the investigation of underlying deposits. Other archaeological remains were mapped, investigated and sampled through targeted excavation agreed, as the project progressed, during regular visits with the CYC Principal Archaeologist, John Oxley. An archaeological assessment report was completed for Excavation Phase 1 in 2013 (Johnson 2013; YAT Report 2013/03).

Excavation 2012 Phase 1 (Intervention 7) demonstrated the presence of a considerable number of inhumations very close to the modern ground surface. In light of this, it was deemed necessary, by the CYC Principal Archaeologist, to fully excavate part of the church grave yard to mitigate future development of the site. A second phase of excavation was subsequently commissioned by CYC to remove all human remains within the excavation area (2012 Phase 2; Intervention 8). Funding would not be available for the assessment of the skeletal remains until the sale of the land for redevelopment in 2014.

A few smaller areas (Figure 2), previously inaccessible due to services, remained to be excavated after the closure of the Haymarket Car Park. These were excavated in 2014 (Intervention 9) recovering further human remains and adding considerably to understanding of the landscape morphology of the grave yard and its immediate vicinity.

After the hand-over of the site to its new owners, the insurance company Hiscox, a watching brief was also maintained on the ground works for the construction of their new office building (Intervention 10). The primary aim of this report is to assess the archives and assemblages from the 1986 excavations, Phase 2 of the 2012 excavations and the 2014 excavations (Interventions 1, 2, 8, 9).

2 LOCATION, GEOLOGY & TOPOGRAPHY

The site is located within the city walls of York, close to the River Foss (Figure 1) and consists of the site of the former Peasholme Centre hostel, fronting on to Peasholme Green, the access road to the main body of the Hay Market Car Park and a small area of the north-western car park (Figure 2). The site is bordered to the north by Peasholme Green leading in to Stonebow and to the west by Dundas Street. The topography is predominantly flat, with a gentle slope to the south-east. Present ground level is approximately 10.9m OD.

The solid geology is Bunter and Keuper sandstone, laid down during the Triassic period approximately 225 million years ago. Overlying this is a drift geology of Warp and Lacustrine clays formed during the last glaciation (Geological Survey of Great Britain, England and Wales,

Sheet 63 1967). A watching brief and excavation within the former site of the Hungate Ambulance Station revealed that drift geology deposits of reddish-brown sands and clayey silts are present at a depth of approximately 2.1m below the present ground surface, 8.9m OD (Johnson 2010, 8).

3 METHODOLOGY

3.1 Excavation Methodology 2012 and 2014

During 2012 and 2014 York Archaeological Trust carried out a series of excavations on land formerly occupied by the Peasholme Centre hostel buildings, the access road linking Dundas Street to the Haymarket Car Park and a small section of the Car Park's north-western area (Figure 2). The previously unexcavated areas of the car park were stripped until modern overburden and services were removed using a Volvo EC140Blc 15.2 ton mechanical excavator equipped with either a 1m wide toothed bucket or a 1.8m wide toothless bucket where appropriate. The site strip was undertaken by Ross Plant Hire Ltd and all work was monitored by YAT archaeologists, at least two of whom were present on site at all times to ensure safe working conditions.

Following the initial strip, deep modern intrusions, such as the hostel foundations, were mechanically excavated where appropriate. The site was then cleaned by hand and all encountered features were recorded using the standard YAT single context recording system (YAT 2009). Standing sections were drawn and colour digital photographs were taken for detailed recording as well as record and general working shots.

All of the recovered stratified and unstratified finds were retained for assessment. All human remains were recorded following standard YAT procedures and Historic England/English Heritage Guidelines (Historic England 2005). A small number of environmental samples were recovered, recorded and packaged for storage using standard YAT procedures.

Original excavation records, comprising the primary site archive for each intervention are, at the time of writing, stored at York Archaeological Trust under the Yorkshire Museum accession codes listed in Table 1. Details of the recorded contexts were entered into the York Archaeological Trust Integrated Archaeological Database (IADB). Context numbers and the other stratigraphic units for the 1986 excavation (Interventions 1 and 2) were allocated unique prefixes relating to the four evaluation trenches numbered 1–4 (Intervention 1; numbers 1000–, 2000–, 3000– and 4000–) and the main area excavation (Intervention 2; numbers from 5000–). Context numbers allocated during the 2012 excavations (Interventions 7 and 8) have the prefixes 83 or 84 (83000–, 84000–). Context numbers allocated during 2014 (Interventions 9 and 10) begin with 9000–.

3.2 Research Objectives:

The objectives of the project as set out in 2012/03:

- To accurately map the burial zone and gain an understanding of the nature and frequency of inhumations present within the development area.
- To record, excavate and recover all burials and charnel within the development area.
- To investigate spatial arrangement, stratigraphic sequence and morphology across the site through targeted excavation. Of particular interest in this respect were the church of All Saints and the sequence of buildings around the periphery of the Hay Market, building on information derived from the 2010 excavation at the Ambulance Station.
- To investigate and recover evidence for the pre-church archaeology of the site. Of particular interest was to test whether the Roman cemetery and a large Roman defensive ditch, both discovered at the adjacent Hungate Development, Block H1 excavation, continued to the east into the Haymarket excavation area.

4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

A general archaeological and historical background was prepared for a desktop study of the Hungate area for the '*Hungate Development Project'* (Macnab 1999) and more detailed documentary research followed by a documentary assessment was carried out for the former Ambulance Station excavation assessment report by Dr Jayne Rimmer (reproduced in Section 5 of this report). The 1999 desktop study identified 'evidence for the likely preservation of archaeological deposits over the whole site. In the vicinity of Dundas Street archaeological deposits are relatively shallow for York but they increase in depth to over 6m to the east, south and west towards the River Foss, Garden Place and the Northern Electric Headquarters. The deposits include well-stratified and well-preserved waterlogged organic remains, of high archaeological value dating from Roman times to the post-medieval period.'

Previous archaeological works across the Hungate area reveal that in the immediate vicinity of Dundas Street archaeological deposits are relatively close to the surface. In 2009, during the demolition of the Ambulance Station to the immediate south-east of the current site, a watching brief revealed that in situ archaeological deposits within the excavation area were to be found 0.5m below present ground surface (10.4m OD) (Johnson 2010, 9). In addition, intact walls dated to the 13th–16th centuries were identified at around 0.36m below present ground level in the Haymarket car park to the immediate north-east of the Ambulance Station (Antoni 2007, 12).

The area covered by the excavation lies within the former *canabae* of Roman *Eboracum*. The *canabae* was a civilian settlement set up to supply the military garrison with its various needs. During the Anglo-Scandinavian period it is likely that the banks of the River Foss were used for trade. Streets such as Hungate (which lies some 50m to the south-west) would have been lined with timber buildings similar to those excavated at Coppergate. A significant part of the River Foss basin was flooded in the late 11th century when the river was dammed to create a wet ditch around York Castle. The flooding produced the King's Fishpool which was gradually filled with rubbish and river silts in the later medieval period (Macnab, 1999).

The church of All Saints is thought to date to at least the 11th century and the possibility that the church was of pre-conquest foundation has been suggested (Brinklow 1987). It is likely that the church grave yard occupied a sizeable area, now within the Haymarket car park and Ambulance Station complex, indeed the 2010 YAT excavation indicated that the 19th-century Hay Market occupied much the same footprint as the former church yard, with a high density of inter-cutting burials still in situ (Reeves, 2010). The church was partially demolished in 1589–90, but elements are thought to have remained standing into the 18th century when ruins were described by Drake in *Eboracum* (1736). To the south-west of the Church was a residence of Chantry Priests known as the Holy Priests' House (Raine, 1955, 85–6), this was first mentioned in a will of 1386.

Between 1810 and 1815, Dundas Street was constructed and had certainly been completed by July 1815, when an indenture of the period makes direct reference to a "new street to be called Dundas Street" (Rimmer 2008). Dundas Street was constructed across land jointly owned by four landowners to directly link Haver Lane with Palmer Lane. This allowed the surrounding land to be opened up for further development in the early 19th century (Rimmer

2008). During the 19th and early 20th century the current study area witnessed various building phases, the majority of which were domestic in nature. The last of the houses occupying this area were demolished in the late 1930s, as part of the Hungate 'slum' clearances. Twentieth century developments in the area include the construction of a new street, The Stonebow, in 1955, the ambulance station in the 1950s, the massive Telephone Exchange buildings of the late 1950s and 1970s and small-scale warehousing and service industry buildings such as those within the former Northern Electric compound.

5 DOCUMENTARY ASSESSMENT

Dr Jayne Rimmer (from YAT report 2010/94)

5.1 Introduction

Excavations in the Hay Market have provided a further opportunity to investigate the development of the Hungate neighbourhood. Aside from the marshy ground in the elbow of the River Foss, the 19th-century Hay Market was the largest public open space in the area (Figures 3–5). As the archaeological evidence has shown, this square had been preserved in the landscape since the medieval period, when the parish church of All Saints Peasholme occupied this space.

This section explores the long-term development of the square from medieval church to modern market, paying particular attention to its use as a centre for trade and the development of its surrounding buildings. It also identifies some of the more conspicuous owners and occupiers of buildings around the square and examines their relationship with, and attachments to, the Hungate neighbourhood.

5.2 The Parish Church of All Saints Peasholme, York

The earliest known documentary reference to the parish church of All Saints, Peasholme, or All Saints in the Marsh dates to the early 13th century, although earlier archaeological evidence, in the form of floor foundation rafts and wall foundations of small limestone fragments and broken pieces of Roman brick and tile, suggest that it was built as early as the 11th century (Tillott 1961, 371–2; Daniell 1995, 2–19; Norton 2006, 230–6; Brinklow 1987, 1–7; Lilley 1991). The church was in use until 1586, when it was closed by an act of Parliament and united with the parish church of St Cuthbert on Peasholme Green (Palliser 1974, 93, 100, 101). Houses and other buildings were constructed around the church yard, forming a square. John Speed's map of 1610 shows the ruins of All Saints Peasholme, the church yard boundary and the houses and other buildings around it (Figure 5). Some of these buildings were directly connected with the church, such as the Holy Priests' House; a college or residence of chantry priests built in the late 14th century on the south-west side of the square (Raine 1955, 85–7). Other domestic dwellings around the church yard, such as the four houses and several cottages referred to by Robert Foyster in his will of 1584, were probably home to secular residents (BIA Prob Reg 23A, fols 234–6). The church yard was accessed from Peasholme Green and Haver Lane, as Dundas

Street and Brunswick Place were not constructed until the early 19th century. The ruins of the church are thought to have survived into the early 18th century (Drake, cited in P.M. Tillott 1961, 371).

5.3 All Saints Church yard, Later Sixteenth century–Nineteenth century

The former churchyard of All Saints, Peasholme was preserved within the landscape as an open space across the following centuries. It gradually became identified as part of Peasholme Green which, from the late 16th century, attracted fairs and markets. It was well-placed to serve the main commercial area of the town, as well as having good transport links in and out of York via Layerthorpe. In 1572 a pig market was set up in Peasholme Green (Raine 1955, 89). In 1708, the corporation established a wool market in St. Anthony's Hall. This later moved into Peasholme Green itself, where the wool was weighed and tolls collected (Tillott 1961, 487). This market operated here into the second half of the 19th century. Other businesses capitalised on the introduction of the wool market into the area and a public house by the name of the Woolpack Inn was opened on Peasholme Green, directly opposite St Anthony's Hall (Murray 2003, 236).

Many of the plots of land surrounding the former church yard were re-developed across this period. Evidence for stone foundation walls in the vicinity of 14–21 Hay Market and 12 Hay Market, dating to the 18th century, suggest the position of buildings (Figure 3). A property on the site of the Leeds Arms was described in 1795 as a house with stable and coach house or warehouse, with an adjoining parcel of ground (YCA Acc 574). A further property in the location of the Hay Market Inn and 11, 12 Hay Market was in 1779 described as a tenement with a warehouse and a yard containing a stable and a workshop (YCA TC 1669/3). The area of land to the north corner of the Hay Market and Haver Lane was described in 1768 as a large dwelling with a garden and a stable, chaise house and summer house (YCA TC 1696/3). Both archaeological and documentary evidence for this period suggest that the properties surrounding the former church yard of All Saints Peasholme were fewer, but individually much larger, than the following phase of development.

5.4 Nineteenth-Century Development: The Hay Market

In 1827, the hay market was relocated to the former church yard of All Saints Peasholme from King's Square (Tillott 1961, 487). The introduction of this facility created a new focal point within the Hungate area. The former church yard of All Saints Peasholme soon became known as the Hay Market. It also brought change to the economic and cultural character of the neighbourhood, creating new opportunities which were fully exploited by existing residents and new investors alike. Contracts for the construction of a new hay weighing machine were sent out by the corporation in 1826 and on the 22nd September Mr. John Hutchinson of Sheffield was commissioned to prepare a new machine or engine for weighing hay (YCA, E77, 268–9). John Powell, identified in this contract as a stonemason, was contracted to construct a building to house the engine. He and his father, Richard Powell, who were later better known as bricklayers, were responsible for the development of several plots of land in Hungate with

terraced housing and also worked on the construction of the York Union Gasworks (YCA, TC 1453/3; TC 1623/3; Acc 22; NGA, NE:YOG/L/G/1).

The relocation of the hay weigh to the Hay Market coincided with a period of intensive urbanisation in the Hungate area. In the first half of the 19th century, the population of York rose dramatically, and the demand for affordable housing meant that relatively undeveloped areas such as Hungate became prime targets for expansion (Armstrong 1974, 77). By the mid-19th century Hungate had been transformed into a high-density residential neighbourhood. Many of the large open garden and orchard plots of land lying to the south of the Hay Market were sub-divided and sold on to eager developers and building craftsmen.

The lease of the hay weigh was advertised early in 1827, with the specification that the weighing rates would be the same as at the old weighing machine (YCA, E77, 287–8). It was slightly more expensive to weigh hay than straw; with hay priced at 6d for 1 to 79 stone, and straw at 6d for 1 to 99 stone. The landlord of the Wheat Sheaf Inn on Hungate, William Radge, capitalised on this new business opportunity and was the first to take on the lease of the hay weigh from 5th March 1827, at a sum of £85 (YCA, E77, 289).

Several major changes were also made to the layout of the Hay Market at this time. By 1830, a new network of roads had been introduced into the east and south sides of the Hay Market, facilitating access throughout the Hungate area and providing essential new street frontage for the residential developments. Dundas Street was constructed in 1815 and Lower Dundas Street in the 1820s, providing direct access from the Hay Market to the River Foss (see Rimmer 2008). Brunswick Place, Brunswick Terrace and Brunswick Row created new street frontages for the construction of further terraced housing behind the Hay Market. 1–7 Brunswick Terrace had been constructed by 1830 and it is likely that the other houses in this plot of land were constructed around the same time (YCA TC 1547/3). The open plot of land in the vicinity of 9 and 10 Brunswick Place was also developed at this time, and was in 1843 described as a plot of land containing a house and a workshop (YCA, TC 1547/3).

Many of the plots surrounding the Hay Market were also re-developed. In 1822, the plot of land incorporating 14–21 Hay Market and 1–4 Brunswick Terrace came under the ownership of John Wray, a farmer (YCA TC 1476/3). Archaeological evidence suggests that this plot was re-developed at the beginning of the 19th century, using the foundations from earlier buildings. It is possible that this work was undertaken by the new owner. John Wray became a resident of the Hungate neighbourhood and in 1841 he was recorded living in the Hay Market with his family (TNA, HO107/1353/3/4v/3). One of his older sons, Henry Wray, was also living with his wife Noah in St John's Place at this time (TNA, HO107/1353/3/9/12). Hungate also offered John Wray many new business opportunities. He appears to have capitalised on the trade from the hay market, identifying himself as a hay dealer, as well as a farmer (YCA, TC 587/3). He also took advantage of the demand for small, affordable housing in York at the beginning of the 19th century and initiated the construction of many further properties throughout the Hungate area (YCA, TC 587/3). By 1851 John and his wife Sarah had moved to 55 Palmer Lane, where he identified his occupation as a 'proprietor of houses' (TNA, HO107/2355/206/38).

John Wray's investments in the Hungate area prospered, and he and his wife enjoyed a comfortable lifestyle. Fifty-five Palmer Lane (previously numbered 29 Palmer Lane) was an end of terrace house with a sizable garden. When John died in 1863, his last will and testament revealed that he owned 14–21 Hay Market, 1–4 Brunswick Place, 20–29 Palmer Lane 1–4 Wray's Yard and 1–3 St John's Place (YCA, TC 587/3). References to specific household items in his last will and testament also point to a high standard of living. He bequeathed all his household furniture, plate, linen and china and the rest of his household effects to his wife. To his son, George Wray, he left a mahogany chest of draws which was located 'in the front room' of his house. To his daughter Louisa Stanhope he left a clock, and to his grandchildren beds and bed linen. His property was divided among his children, many of whom continued to live in the Hungate area after his death.

Further plots around the Hay Market were also developed across the 19th century. Twelve, and probably 11 Hay Market, were constructed in the early 19th century (Reeves 2010, 36). The Hay Market Inn, with its characteristic six-over-six sash windows, was also probably constructed at this time. This public house was first called the Tower Inn, and a brewhouse was constructed in the yard to the rear. It was re-named the Hay Market Inn between 1854 and 1861, identifying more closely with its geographical location and perhaps solidifying its connection the residents and traders (YCA, TC 1669/3; Murray 2003, 134). A further public house, The Leeds Arms, had been opened by 1838, under the ownership of George Hill, innkeeper (YCA Acc 574). By 1874, the premises had expanded to include a yard, garden, stable, granaries, hay and straw chambers, brewhouse and other outbuildings and premises (YCA Acc 574). A weighing machine was also located in the gateway to the pub. The early 19th century also saw significant changes to the large plot to the north corner of the Hay Market and Haver Lane (YCA, TC 1696/3). By 1848 an open plot of land behind 7, 8 and 9 Hay Market had been separated from the original property and a new entranceway created on Haver Lane. Two new cottages, 9 and 11 Haver Lane, were constructed either side of the new entranceway. In a similar manner to the re-developments in the Hay Market, these new buildings re-used the foundations of the older buildings and outhouses which once stood to the rear of 7, 8 and 9 Hay Market (pers comm. Toby Kendall). Buildings around the Hay Market continued to be altered and developed across the 19th century. 9–10 Brunswick Place were first constructed as a single house, but had been divided into two dwellings by 1879 (YCA, TC 1547/3).

The development of the Hay Market in several different building phases over an extended period of time resulted in a diverse built environment which boasted a variety of building styles. Its long development history meant that its physical character was very different from other areas of the neighbourhood which had been intensively developed with rows of terraced housing within a short period of time at the beginning of the 19th century. It also contained a mix of large and small buildings, attracting owners and residents from wide social backgrounds. Attitudes towards the re-development of the Hay Market also varied from plot to plot. Some developers, such as John Wray, maximised all the available land within a plot; he constructed twelve houses in a relatively small space, some of which (7 and 8 Hay Market) were back-to-back with other houses. Other developers such as Isaac Mason, who constructed the houses on Brunswick Row and Brunswick Terrace, ensured that each property had access

to a relatively large portion of outside space. As mentioned above the relocation of the hay market to Hungate in the early 19th century introduced new economic opportunities into the neighbourhood. Beside John Wray, several hay and straw dealers were attracted to live and work in the Hay Market across the second half of the 19th century, such as Charles Southcote, Thomas Moss and his son George Moss, and Thomas Scott and his son Robert Scott (TNA, HO107/2355/218/02; RG09/3551/091/1; RG11/4723/111/01). On market days, the square would have been a busy and bustling place, and its two public houses, the Leeds Arms and the Hay Market Inn, in addition to the Wool Pack Inn on Peasholme Green, would have played an important role in the business and social relationships of the area.

5.5 The Wray Family and 14–21 Hay Market

The Hay Market was also the setting for a rare insight into 19th-century working-class values relating to inheritance and property. John Wray's property investments not only benefitted his children, but several subsequent generations of the family. John Wray left the properties 14–21 Hay Market and 1–4 Brunswick Place to two of his children, Henry Wray, currier, and Elizabeth Bean (YCA TC 587/3; TC 1476/3). When Henry Wray died in 1891, his portion of this property, 15, 19, 20 and 21 Hay Market, passed onto a further generation of the Wray family. However, Henry Wray died intestate, which meant that it was the responsibility of his immediate surviving descendants to agree how best to divide his estate. John and his wife Noah had four daughters, Sarah Hewison, Catherine Griffiths, Jane Wray and Ellen Guest. John was succeeded by two of them; Ellen Guest had died in 1882 and Jane Wray in 1886. Jane Wray died without having married or having had children. Ellen Guest, however, had a daughter who, on the death of her mother, was eligible to inherit from her grandfather's estate. Catherine Griffiths was living with her family at 15 Hay Market at the time of her father's death (TNA, RG12/3892/56v/12). Sarah Hewison was living with her husband, daughter and eight-year-old niece, Winifred Hannah Guest, in Spurriergate, York (TNA, RG12/3886/82v/10).

John Wray's daughters appear not to have been able to reach an amicable decision over the division of his estate. In March 1892, Sarah Hewison and Winifred Hannah Guest initiated court proceedings against Catherine Griffiths, over Winifred's entitlement to inherit a share of Henry Wray's property (YCA TC 1476/3). The dispute over Winifred Hannah Guest's inheritance entitlement could have arisen out of the circumstances of her birth. She was born in West Derby on the 20th November 1882. Her mother, Ellen Guest, died from a secondary haemorrhage three weeks after childbirth just five months after she had married Richard Guest, a cooper from Liverpool, in July 1882. Ellen Guest's personal situation could have been an underlying cause of the dispute between the two surviving sisters. The court ordered that Winifred Hannah Guest was entitled to a share of the inheritance, and granted her ownership of 20 and 21 Hay Market. In this rare insight into working-class values, social and moral principles played an important role in the family's disagreement over inheritance. It also shows how much personal value was placed in property in the Hungate area. The houses that the family argued over (15, 19, 20 and 21 Hay Market) were among the smallest in this square. 20 and 21 Hay Market consisted only of a kitchen with a bedroom above.

5.6 Conclusion

The Hay Market was an important focal point within the Hungate area, and the city of York as a whole, from the medieval period onwards. During this time it underwent a long-term transformation from a sacred to a secular space. The parish church of All Saints Peasholme, its associated burial ground, and the residency of the Holy Priests' would have together formed a spiritual centre for the residents of this part of the city. Gradually, the square became the host of a series of secular fairs and markets, the most formal of which appears to have been the hay market in the early 19th century. The hay market brought new economic opportunities to the area, attracting a wide group of traders to live and work in and around the open space. The continued development of the plots of land surrounding the square suggests that it retained its popularity as a place to live over an extended period of time. The varying shape and size of the properties surrounding the square suggest that it attracted residents from a wide range of socio-economic backgrounds. While John Wray had prospered from the new business opportunities in the Hungate neighbourhood, the declining economic status of the area across the 19th century meant that his grandchildren had more limited prospects. Nevertheless, buildings continued to retain their value in the eyes of those who owned, or inherited them. The Wray family property dispute provides an interesting counter-point to Benjamin Seebohm Rowntree's depiction of the area as a desperate 'slum' (Rowntree 1901).

6 STRATIGRAPHY AND ARCHIVES

The Haymarket has been subject to a number of archaeological investigations since 1986 and for successful analysis to be undertaken it will be necessary to combine and consolidate data from the separate archives.

One of the primary purposes of this report is to quantify and assess the primary archives for each of the three main interventions and make recommendations for the tasks to be undertaken to complete and compile the research archives and for further analysis. This section will assess the archives of each of the main interventions in order to identify the potential for further work on the stratigraphic records to develop an overall interpretation of the stratigraphic sequence across all the major interventions undertaken on behalf of City of York Council (Interventions 1, 2, 4, 7, 8, 9; Table 1).

Detailed analysis will be undertaken only after the assessment stage is completed, as recommended by the MoRPHE Project Manager's Guide and Project Planning Note 3 (English Heritage 2008, 2015).

6.1 The 1986 Excavation Archive (Ints. 1–2; Project 1986.14)

The principal discoveries relating to the church in 1986 included most of the northern extent of the building and a total of 66 associated burials and a substantial volume of charnel, mainly from within the footprint of the church building. A substantial part of the building footprint was defined, a sequence of alteration phases were identified, and it was discovered that the building had been enlarged with the addition of an aisle to the north of the original church building. The south side and east and west ends of the building lay outside the 1986 excavation area.

The Primary archive

The primary site records of the 1986 excavation have been stored as part of the YAT archive and are well organised and accessible for analysis. A limited number of digital drawings were produced, largely in 1990–1991, but only printed copies have survived as part of the archive. The stratigraphy has been analysed in detail, a comprehensive phasing produced and archaeological narrative drafted. A series of archaeological archive and brief interim reports were produced in 1987 and 1990 (Brinklow 1987; Kemp 1990; Lilley 1990). However, these reports focus specifically on the phasing and dating of the church and they do not cover the whole excavated sequence. Richard Kemp's report extols the benefits of single context stratigraphic analysis and this forms the theoretical framework of a re-interpretation of the site phasing and a critique of David Brinklow's 1987 interim article which had been written without the benefit of full stratigraphic analysis.

The sequence identified in 1986 consisted of a backfilled clay extraction pit of Roman date, remains of the church of All Saints in the Marsh (Peasholme) and associated burials, evidence for post-medieval lime burning and the 19th century weigh-house and weigh bridge associated with the Hay Market.

Although stratigraphic analysis and a draft publication report had been produced by October 1991 it was stated in the report that 'the finds had not been looked at in any way to obtain

dating evidence..[and]..no human bone analysis or environmental work had taken place.' (Lilley 1991, 1). The assessment of this material was undertaken during 2014–2015 and the results are presented in the appendices of this assessment report alongside those for the 2012 Phase 2 and 2014 interventions.

The 1986 Artefact Assemblage

A total of 145 small finds were recovered, 77 skeletons and 319 bulk finds

A total of 31 architectural fragments were originally recovered. A review of architectural fragments carried out by Jane McComish in 2005 (IADB documents 1478/1731) found that only 22 had survived in the collection, the rest having been lost. The remaining 22 fragments were recorded and discarded as part of a rationalisation process of the YAT store in 2005 (see Appendix 2).

1986 Stratigraphy and Phasing

The contexts and stratigraphic relationships have been entered into IADB for 271 Contexts in total from the 1986 excavation. However, the detailed phasing information in the paper archive is yet to be added to the database and this work will need to be done at the analysis stage. Additional information comes from a print out of a file entitled *hay5sa.sa* which was subsequently updated by hand by J. McComish on 17.09.1991 which forms the only record of the final phasing for 1986.

The 271 recorded contexts were organised in to 139 sets, known then as ‘sequences’, which were in turn organised in to 36 phases allocated to 5 periods. A numerical prefix was allocated to the phasing sequence for each of four evaluation trenches numbered 1–4, thus Phase 101 onwards belonged to Trench 1, Phase 201 onwards to Trench 2 and so on. The bulk of the excavated material came from the main excavation area known as Trench 5, thus the majority of contexts fall within Phases 501–520. Presumably, the nature of the deposits excavated during the 1986 excavations did not warrant sampling as none appear to have been taken.

Detailed phase plans were drawn in 1990 using an early CAD programme and were printed on a plotter. The digital versions of these drawings have since been lost but the printed versions could be digitised and re-drawn to ensure compatibility with current production methods.

Although subsequent interventions have added a number of phases to the sequence of periods identified in 1986, this established chronological framework remains broadly valid and is briefly summarised below.

Period 1

Natural consisting of glacial or alluvial sands, silts and clays.

Period 2

Period 2 comprises a series of shallow depressions and deposits under the heading ‘Early Levelling’. No detailed analysis was carried out on this material during 1991.

Period 3

This period covers the active use of the medieval church and associated grave yard. It is divided into the following series of phases.

Period 3a, the construction and use of the original church structure including a lime kiln which may have been used in the construction or perhaps during a later alteration of the building in Period 3b.

Period 3b is described as one of 'major structural developments' consisting primarily of the cobble foundations and robbed-out walls of a substantial buttressed wall added to the north of the building, enlarging it significantly and presumably indicating the addition of an aisle or chantry to the main body of the building.

Period 3c saw further alterations within the building when a clay, mortar, tile and cobble deposit was laid down across the new building footprint sealing earlier burials.

During Period 3d further alterations were made to the structure. A layer of cobbles and tile fragments, L-shaped in plan, 1.5m wide and 3m long was deposited. This is dated by pottery to the 14th/15th century. Cutting these deposits were graves for 12 burials and charnel pits.

The final phase of this period, Period 3z, comprises fourteen burials which are assumed to be medieval but 'float' in the stratigraphic sequence because they have no physical/stratigraphic relationship to deposits in, and therefore cannot be confidently assigned to, any of the above phases.

Period 4

The structure in this phase, interpreted as a post-medieval lime kiln, was initially thought to have been related to the construction of the original church but was re-assigned to a later phase as a result of the stratigraphic analysis undertaken in 1991. No detailed analysis has been undertaken on this structure.

Period 5

Modern intrusions and the 1986 excavation campaign.

Post-Excavation Analysis

Detailed stratigraphic analysis carried out in 1990 by Jane Lilley (now McComish) successfully defined phases and rows of burials, rates of intercutting between burials, instances of coffined and shrouded burials, the presence of grave markers, and the occurrence of various burial positions. However, osteo-archaeological recording and analysis was not carried out on the human remains assemblage.

6.2 The 2012 Excavation Archive and Phasing (Ints. 7–8; Project 5584)

The 2012 archive (Project 5584)

The 2012 archive consists of a total of 1928 contexts which are organised into 700 sets, 59 groups and 23 phases and broadly the same 5 periods as the 1986 excavation. A total of 53 samples were taken. The archive for the first excavation phase has been entered into IADB in its entirety. The basic context and stratigraphic information for the second excavation phase, that of the burials within the grave yard, and the digitisation of grave cuts has been undertaken. The orientations and postures of the individual skeletons have not yet been digitised and this task will need to be undertaken with consideration of how the representations will work alongside those produced for the 1986 assemblage.

The 2012 Artefact Assemblage

Summary:

- 317 small finds
- 507 skeletons
- 1785 bulk finds
- 20 architectural fragments

2012 Phasing

For the purposes of this report only a brief outline of the phasing is given below. For a detailed discussion of the excavation results see Johnson 2012.

No periods were allocated during the assessment of the 2012 excavation, the periods listed below have been allocated for the purposes of this report only.

Summary:

Period 1 Prehistoric

8322 natural glacial deposits

Period 2 Roman

8321 Roman ditch

8320 Roman Pits

8319 Terracing

8318 Roman inhumation

Period 4 Anglian and Anglo-Scandinavian

Period 3 Medieval

8317 Construction of All Saints in the Marsh, Peasholme

8316 North Aisle addition

8315 medieval levelling episode

8314 medieval stone building north-east of grave yard

8313 deposits and features within Phase 8314 building

8312 medieval rubbish pits

8311 extension added to Phase 8314 building

8310 occupation deposits within 8311 extension

8309 medieval burials in grave yard –organised into 16 separate stratigraphic tiers of burials

8308 medieval activity to north of church

Period 4 Early Modern/post-medieval

8307 demolition of medieval buildings

8306 demolition of All Saints

8305 post-medieval construction and dumping

Period 5 Modern

8304 18th and 19th century Hay Market, Leeds Arms and Weigh House

8303 mid-late 19th century activity

8302 late-19th /early 20th century activity

8301 Hostel and Haymarket Car Park

8300 previous YAT excavations

6.3 The 2014 Excavation Archive and Phasing (Int. 9; Project 5761)

The 2014 campaign comprised the removal of all remaining inhumation burials within the development area except those within the designated area for preservation in situ (Figure 2). A more detailed summary of the 2014 excavations is given in Section 3.1.

The 2014 Archive (Project 5761)

The 2014 archive consists of 624 contexts, currently organised into 255 sets, and 35 groups. Minimal stratigraphic allocation has been given to this material in light of the fact that it will need to be considered and combined alongside the previous two interventions. Most of the material excavated will fit into existing phasing although it is likely that additional phases will be necessary. The burials fit mainly within Phase Z of the 1986 intervention which was

allocated to 'floating' burials outside of the church. Burials not stratigraphically related to phases of the church are difficult to phase, and as part of what in 1986 was a much more limited excavation area there was too little information to attempt to refine their phasing further. The interior of the church having been largely removed by the 1986 excavation the focus of the recent interventions has been the exterior.

The 2014 Artefact Assemblage

Summary of the artefact assemblage based on IADB entries at the time of writing:

- 609 finds
- 396 bulk finds
- 5 samples
- 42 small finds
- 161 skeletons
- 5 architectural fragments

All skeletons recovered during the 2012 and 2014 interventions are currently allocated to a 'floating' phase Z, following the methodology of the post-excavation analysis of the 1986 assemblage. However, inhumations from 2012 and 2014 have been sorted on stratigraphic grounds into 'Tiers' of burials and arranged in IADB as 'Objects'. It is anticipated that further analytical work will enable this phasing to be refined to a degree based on closer interrogation of the strata, artefactual evidence and the implementation of a programme of scientific dating. Inhumations from the 1986 excavation may then also be sorted into the same hierarchy of tiers.

Few notable medieval features were identified during the 2014 excavation. However, the identification of two boundary ditches, dated to the medieval period by pottery, is significant in providing information about the extent and morphology of the medieval grave yard boundary.

A small amount of additional information was added to buildings previously identified by Antoni (2007) during evaluation excavation in 2007 and Reeves (2010) during the excavation of the adjacent Ambulance Station site.

The stratigraphic phasing is summarised:

Period 1 Natural topography and prehistoric (1986 Period 1)

The 2014 excavation contributes some information relating to ground levels and landscape formation processes.

Period 2 Roman (1986 Period 2)

No new information relating to the Roman period was added during the 2014 excavation

Period 3 Anglian–Anglo-Scandinavian

A small amount of probable pre-Conquest deposition was identified during the Ambulance Station excavation in 2010 and again during the watching brief during 2014. Residual Anglo-Scandinavian period pottery has been identified from graves suggesting disturbance of deposition pre-dating the grave yard of All Saints by grave-cutting.

Period 4 Medieval (1986 Period 3)

More burials and information about the western end of the church were added in 2014. Boundary ditches were identified adding new information about the extent of the graveyard. This material forms the bulk of the 2014 assemblage and archive and will be the focus for further analysis.

Period 5 Post-medieval (1986 Period 4)

No new information was added during the 2014 excavation relating to post-medieval land use

Period 6 Modern (1986 Period 5)

No additional information was added during the 2014 excavation regarding modern land use

7 METHODOLOGY FOR OSTEOARCHAEOLOGICAL PILOT STUDY

7.1 Selection Criteria for Pilot Study

It is generally accepted that 'well preserved, complete skeletons generally have a greater osteological information content than incomplete poorly preserved material' (APABE 2015 11). To provide a basic feasibility study for further analysis an assessment of skeletal condition and completeness was made during the data entry stage of the post-excavation archive production using context records, skeleton recording sheets and photographs from the primary site archive. This rapid assessment, based primarily on the presence of the skull and pelvis as well as other elements and indicators of condition in accordance with advice by the Advisory Panel on the Archaeology of Burials in England (APABE 2015, 11), provided a basic overview of the assemblage outlined in this section.

This provided a quick and efficient means of assessing the intactness and condition of the 2012–2014 skeletal assemblages. For the 2012 assemblage a list was compiled for all burials with a skull and pelvis and therefore likely to be at least 50% complete (Table 2).

To refine this process more detailed information was recorded for the 2014 assemblage to include the survival of each basic element of the skeletal remains such as left arm/right arm, left leg/right leg, left hand/right hand. From this record it was possible to determine which individuals were the best-preserved from the overall assemblage. From this data, a selection was made of the best preserved of the 50% or more intact skeletons which resulted in a list of 130 individuals.

Following specialist advice that it was desirable to avoid unnecessary multiple handling of the human remains the decision was taken to conduct a small-scale pilot study whereby a relatively small number of carefully selected individuals would be fully recorded within the constraints of the available budget and an assessment and statement of potential for the remaining assemblage would be produced using this data. This approach was agreed by John Oxley, Principal Archaeologist, City of York Council.

Using the data acquired by rapid assessment of the assemblage, a subset was selected from, as broad a spatial and stratigraphic distribution as possible (APABE 2015, 12). This resulted in a total of 30 individuals (Table 3) for which full metric recording was undertaken. The main selection objective was to produce a wide-ranging assemblage for study including examples of all levels of preservation and intactness from the various areas of the grave yard, from inside the church, from the north, east, south and west sides of the grave yard and as far as possible from different stratigraphic 'tiers' of burials.

The inhumations within the church are the best stratified being relatable to the phasing of the church building. To gain a better understanding of burials through the lifetime of the church an initial selection was made from as many of the well-defined phases as possible from the relatively small area within the church. Although this undoubtedly skewed the data in favour of the higher status burials within the church the stratigraphic relationship between these individuals is better understood and a detailed phasing readily available.

Six individuals (5008, 5048, 5089, 5115, 84020) were selected to assess potential limitations resulting from varying levels of preservation caused by severe truncation or soil conditions on the quality of data produced by assessment. A further three were selected for other reasons but also were considered poorly preserved: skeleton 83391 was selected because of the evident pathology noted on the femur which was identified by the excavator as evidence of osteomylitis; Skeleton 5186 because of the association with a papal bulla; 84491 because it was described as being complete but poorly preserved.

Five Roman skeletons are thought to have been recovered from the Haymarket, although this number may increase as a result of further stratigraphic and osteological analysis. One of the better-preserved Roman skeletons was chosen for assessment to compare with the condition of the medieval group.

Condition Assessment of 1986 Skeletal Remains

The 1986 burials were excavated under Licence number 16042 (File Number BUR /86 47/17/2), which expired 23 November 1991.

A draft report to the YAT Human Bones Research Panel by T.P.O'Connor dated 21.12.1987 (1986.14 archive box) overviews the 1986 assemblage. The 77 mostly adult human skeletons was described as of poor preservation with 'considerable fragmentation of the bones' and intercutting of adjacent burials. Dr O'Connor noted that the assemblage was mainly from within the church and therefore likely to represent a different type of assemblage to that from St Helen on the Walls. He also noted that the parish of All Saints included a detached area centred on Heworth and that the graveyard may include individuals from this outlying rural community.

The programme of research outlined by Dr O'Connor which, it was hoped, would begin in May 1989 was not implemented.

Condition Assessment of Skeletal Remains from 2012 and 2014

An overall condition assessment was carried out by the excavators using the excavation records to determine a rudimentary outline of the completeness of the skeletal assemblage. Survival of the skull and pelvis being of primary importance for gender and age assessment (APABE 2015, 11) these elements are also good indicators of inhumations likely to have suffered less than 50% or more truncation (see Section 7.1 above).

Of the combined 2012 and 2014 skeletal assemblages a total of 235 out of 665 skeletons were found to be more than 50% complete (see Table 2).

8 BRIEF CONTEXTUALISATION OF THE 30 PILOT STUDY SKELETONS

This section provides a concise summary of the selection criteria for each of the 30 Skeletons studied as part of the pilot study. For each skeleton the burial location and characteristics are considered with reference to the skeletal analysis to explore the potential of holistic analysis

for the burials as an assemblage. Where relevant, comments on the osteological findings are given so as to assess the analytical potential of the remaining assemblage. All but one of the burials were oriented east / west and supine.

The 1986 Assemblage:

8.1 Context 5002

Skeleton 1986.14/05 was a severely truncated adult skeleton, described by the excavator as 'very poorly preserved [with bones] very brittle and severely cracked'. It was selected for three main reasons: it was buried in the prone position and on the opposite orientation to all other burials at All Saints a practice sometimes associated with 'deviant' burials (Gilchrist 2012, 200-215), and it is located on the north side of the church. As a badly preserved skeleton it would serve as a comparator to better preserved individuals. The unorthodox orientation, position and location in the grave yard make this a unique example at All Saints. Evidence of pathological conditions are sometimes associated with unusual burial practices (Murphy 2008) so any information which might be obtained, even from such a poorly-preserved skeleton may be of interest in understanding this particular inhumation.

Unfortunately this burial was stratigraphically 'floating' and is therefore difficult to place in the sequence or date by stratigraphic means. The pilot study (Appendix 8) has shown that this individual had a possible fracture of the phalanges, degenerative change to the foot bones and a bone growth of the femoral fossa, the head of the femur where it connects to the pelvis. Unfortunately the remains were too badly truncated to yield much other information.

8.2 Context 5008

Skeleton 5008 was a poorly preserved adult of uncertain position in the stratigraphic sequence (stratigraphically 'floating'). The burial was located to the north side of the nave. It was selected as a comparator with better preserved burials and because of its location in relation to the church. The osteological pilot study has shown that this was a young adult of unknown sex with periostitis of the femora tibia and fibula, commonly caused by overuse or external trauma or bone injury.

8.3 Context 5036

Skeleton 5036 was described by the excavator as an adult in 'good condition' cutting the rubble raft within the church towards the south-west end. It was selected because it was well-preserved and because of its position in the stratigraphic sequence within the church. The osteological pilot study determined this individual was probably an adult male aged 18+ years.

8.4 Context 5048

This skeleton was described by the excavator as a poorly-preserved and incomplete juvenile from Phase 31 of the 1986 excavation. It was buried within the church and was described as very fragmented and 'bone mangled' by the excavator. It was selected because it is unusual,

being a juvenile buried within the body of the church and contrasts the condition of adults and better preserved individuals. The osteological pilot study categorises this individual as a young adult rather than 'juvenile' with evidence of periostitis on the femoral shaft, a condition commonly caused by overuse or external trauma or bone injury.

8.5 Context 5089

Skeleton 5089 was described by the excavator as a poorly preserved juvenile, with a crushed skull. It was selected because it was from the middle of the stratigraphic sequence within the north aisle of the church –post-dating the addition of the aisle to the north of the church building. It was selected because of its condition which serves to contrast with the better-preserved individuals and because of its stratigraphic position within the building. The pilot study identified this individual as an older child.

8.6 Context 5115

Skeleton 5115 was described as the partial remains of an adult. It was chosen for spatial and stratigraphic reasons. The grave was part of Phase 508 and was cut through the backfill of the west end of the church nave. This burial serves as a comparator for the better- preserved individuals. The location of the burial suggests an individual of higher social status. The osteological analysis indicates this was an older adult of some 45+ years, who had signs of dental calculus, abscess, gum disease and advanced dental attrition.

8.7 Context 5125

This skeleton was selected because it was described as 'complete and in fair condition'. It was also early in the stratigraphic sequence and was one of the first individuals to have been buried within the north aisle of the church. It was identified by the osteologist as a mature adult of 36-39 years with SDJD affecting the thoracic and lumbar vertebrae with periostitis affecting the ribs. The age of this individual was reflected in the dental pathology, with evidence of ante-mortem tooth loss, periodontal disease, caries and calculus to the teeth.

8.8 Context 5150

Skeleton 5150 was selected because it was early in the stratigraphic sequence, the grave having been cut through the cobble raft of the first phase of church building, Phase 501. It was described by the excavator as being well preserved. The osteological study determined this individual was a mature adult male, aged 36-45, with degenerative joint disease to the spine and a range of dental pathologies evident.

8.9 Context 5179

This skeleton was selected because it was an infant and was early in the stratigrahic sequence, pre-dating the north aisle of the church and described as being in 'reasonable' condition. This individual was identified osteologically as a 3-5 year old with 51-75 percent completeness.

8.10 Context 5186

Skeleton 5186 was selected from the earliest burials in the middle of the nave (Phase 514). It was described by the excavator as being in 'very poor' condition and was substantially truncated. The main reason for its selection was the associated find of a Papal Bulla recovered from this burial in 1986. It was hoped that inclusion in the pilot study would provide more information about the individual despite the poor preservation. The osteological study suggests the individual was an adult over the age of 18. There are signs of possible degenerative joint disease to the head of the femur but unfortunately not enough of the skeleton survives, and what does is in too poor condition to say much more about this individual or to speculate why they may have been buried with a papal bulla.

The 2012 Assemblage:

8.11 Context 83391, Skeleton Number 2012/10

Skeleton 2012/10 was selected despite having been significantly truncated, the right arm and ribs were missing, as interesting and pronounced evidence of pathology was noted in the leg bones such as 'pits, spurs' and other marks indicative of osteomyelitis. The person had significant spinal degenerative joint disease with possible compression fracture and severe osteomyelitis of the right femur. These pathologies would have caused the individual severe pain and discomfort

8.12 Context 83514, Skeleton Number 2012/51

A moderate-poorly preserved adult from multiple a burial thought to date to Civil War period based on stratigraphic and dating evidence. A lead musket ball was recovered from the pelvic region. Although this does not appear to have been fired, the object may have been inside a pocket of the clothing, in a pouch buried with the individual or dropped by one of the people burying the three individuals within the grave. Osteological study of this individual determined that the person was male and aged between 18 and 25. There was evidence for healed periostitis of the femora and tibiae, a condition commonly caused by external trauma or injury to a bone and overuse of a specific body part.

8.13 Context 83516, Skeleton Number 2012/53

This was one of three adults from a single grave thought to date to the Civil War period. See description for 83514, SK 51 above. As with Skeleton 83514 who was buried in the same grave, the osteological study of this individual also found evidence of periostitis of the femora and tibiae. This individual was also male and was aged 26-35 years. It is interesting that the two individuals thought to be post-medieval, possibly Civil War, burials both exhibit signs of periostitis. Both individuals were identified as male and would have been within the age-range for military service. The evidence of periostitis may have resulted from the sorts of stresses caused by military life and taken along with the other archaeological evidence associated with their burial this supports the interpretation of this as a probable Civil War group burial.

8.14 Context 83784, Skeleton Number 2012/138

Skeleton 2012/138, was an almost complete adult, the feet having been truncated by the west wall of the Ambulance Station building. This skeleton was identified by the osteologist as an older adult aged over 45 with advanced attrition to the teeth and other dental pathologies. A very large oval cyst was discovered over the right side of the lower rib cage. Judging by shape of cut it appears to have been a coffined burial. It has been suggested that the ossified growth is rare evidence of a Hydatid cyst (Andrew Jones Pers. Comm.) which is caused by a common dog parasite transmitted to human host. It is a rare condition to find in an archaeological context and is likely to be of some specialist interest in the study of parasites in past communities.

8.15 Context 84014, Skeleton Number 2012/210

This adult burial was from the uppermost tier of burials and was buried around 5m south of the south wall of the church. A papal bulla which had been block-lifted along with the torso of the skeleton was recovered during the washing of the skeleton. The width and depth of the grave suggest a probable coffined burial although no fittings or coffin stain were found. Osteological study suggests this was an adult male of 18 years or more in age who had degenerative joint disease to all his vertebrae and a well-healed fracture of the left clavicle along with periostitis to the femora, tibiae and radii. These pathologies suggest the individual probably undertook hard physical labour.

8.16 Context 84020, Skeleton Number 2012/212

Adult skeleton 2012/212 was selected from the latest stratigraphic tier of burials and because it was buried close to the south wall of the church. It was chosen specifically as it was described as being in poor condition as a comparator for better-preserved skeletons. The individual was aged upwards of 18 years, displayed signs of osteoarthritis in the distal ends of the 4^{th} and 5^{th} metacarpals, and had caries, calculus and periodontal disease reflecting pathologies common among the population of a poor medieval parish, but generally little else could be determined due to the less than 25% survival and poor condition of the remains.

8.17 Context 84491, Skeleton Number 2012/367

This infant burial was selected because although evidently in poor condition it was complete. Stratgiraphically the burial 'floats' having been cut directly into Roman deposits and beneath modern deposits and could lie anywhere in the burial sequence. The osteological study determined this was a neonate aged between 36 and 38 weeks.

8.18 Context 84551, Skeleton Number 2012/387

One of a group of burials near wall 83233, Building 2, Skeleton Number 2012/387 was recorded as being a well-preserved and complete burial. Curvature of leg bones was noted by the excavator and a number of stones were extracted from the mouth. Research may show

whether this is indicative of a superstitious practice or simply a coincidence caused by post-depositional processes. The osteological analysis identified the individual as an older child of 5-7 years old and identified a greenstick fracture of the left tibia and fibula and calculus and enamel hypoplasia – a condition often caused by malnutrition, illness, infection or fever during tooth formation. The osteologist did not identify curvature of the leg bones and the statement by the excavator may have been caused by a visual mis-perception, it is perhaps something to investigate further.

8.19 Context 84668, Skeleton Number 2012/425

Juvenile skeleton 2012/425 was cut into the backfill of pit 83596, which is provisionally dated to the 11th-12th century by pottery. This burial is one of an isolated group in the grave yard area at the east end of the church. It shared a single grave with Skeleton 2012/454 C84755 which was presumably a sibling. This individual was identified by the osteologist as an older child of around 6 years old. The remains were well preserved, being in the 76-100% complete range, but no pathologies were evident.

8.20 Context 84722, Skeleton Number 2012/443

Skeleton 84722 was chosen because it was described by the excavator as being an adult in moderate condition to serve as a comparator for the well-preserved and poorly-preserved individuals. Osteologically it was identified as a mature adult 36–45 years of age and probably female. Signs of spinal degenerative joint disease, schmorl's nodes and compression were identified along with caries, calculus and periodontal disease.

8.21 Context 84737, Skeleton Number 2012/448

Skeleton 84737 was selected on the grounds that it was possibly of Roman date. It was in poor condition but was complete. This individual was identified by the osteologist as an older adult 50–59 years old with signs of bilateral osteoarthritis of the hip joints and periostitis, calculus, periodontal disease and ante-mortem tooth loss, all of which are pathologies concomitant with the age of the person.

8.22 Context 84740, Skeleton Number 2012/449

Skeleton 84740 was selected because it was from the earliest tier of burials. It is possible that this burial is of Roman date considering its stratigraphic position and the fact that only Roman pottery was recovered from the grave backfill. The condition was described by the excavator as moderate. The osteological study identified the individual as a possible female aged 36-45 years with evidence for degenerative joint disease generally concomitant with the person's age.

8.23 Context 84755, Skeleton Number 2012/454

Skeleton 2012/454 was selected because it was one of a pair of juvenile burials (associated with 84668) sharing a grave cut into the backfill of a pit dated to the 11th-12th century by pottery. These are part of an isolated group at the east end of the grave yard where there is virtually no inter-cutting between sparsely distributed groups of burials. The osteological study determined this was a child aged between 1 and 5 years and that the remains were well preserved.

8.24 Context 84827, Skeleton Number 2012/477

This skeleton was selected because it was described by the excavator as a well preserved complete adult, and one of the best preserved burials at the east end of the grave yard. This skeleton was identified by the osteologist as that of an adolescent of around 15 years old who had calculus, periodontal disease and enamel hypoplasia, pathologies suggesting a young person who probably had lived in relative poverty.

8.25 Context 84909, Skeleton Number 2012/503

Skeleton 84909 was described by the excavator as an adult Roman. The burial was oriented east-west and was accompanied by a small grey-ware vessel (Appendix 3; Table A3.2; Context 83908) placed near the head and there was a visible coffin stain around the body.

This skeleton was identified by the osteologist as a mature adult 36–45 years old with dental pathologies concomitant with age of the individual.

The 2014 Assemblage:

8.26 Context 90087, Skeleton Number 2014/18

This skeleton was buried directly outside the west end of the church and was chosen as it was one of few relatively well-preserved burials in an area of extensive truncation and disturbance. This skeleton was identified by the osteologist as a mature adult male aged 36–45 years old with degenerative joint disease of the spine an ddental pathologies concomitant with the age of the individual.

8.27 90107, Skeleton Number 2014/27

Skeleton 2014/27 (Context 90107) was identified by the excavator as an infant burial. It was buried outside, at the west end of the church, with a deliberately placed stone marker at the feet [Context 90108]. Like skeleton number 2014/18 (Context 90087) this was one of the less disturbed at this end of the grave yard. The osteological study showed that this was a young child of 2–4 years old.

8.28 91050, Skeleton Number 2014/32

Skeleton Number 2014/32 was identified by the excavator as an adult burial. This adult burial was largely intact although the feet had been truncated by the Ambulance Station wall construction cut. This skeleton was buried with Neonate 91068 placed to the right of the right

leg. The interpretation of this relationship by the excavator was that this was likely to represent the double burial of a mother and child who died during child birth. The burial was selected as part of the pilot study because of this association and because the grave was one of a number of clusters of burials spread out over the sparsely populated east end of the grave yard. Osteological analysis suggests this person was an adolescent of 15–17 years. The osteological evidence includes various dental pathologies such as caries, calculus, enamel hypoplasia and periodontal disease.

8.29 91068, Skeleton Number 2014/36

Skeleton 91068 was a neonate found in association with C91050, SK 2014/32 described above. Osteological analysis suggests a neonate of 36–38 weeks.

8.30 91323, Skeleton Number 2014/106

Skeleton Number 2014/106 (Context 91323) was identified by the excavator as an adult in fair condition but it was noted that the skull was crushed and lower leg and foot were truncated by another grave. The individual was selected for its stratigraphic and spatial position and as an example of moderate preservation. Osteology suggests this was a mature adult, probably female, of 36–45 years old with degenerative joint disease of the spine and dental pathologies concomitant with the age of the individual.

Discussion:

The evidence from the small number of burials included in the pilot study briefly outlined above shows that burials inside the church were mixed, there being a number of mature adults, young adults, older and younger children. Although the sample has undoubtedly skewed the results of this pilot study in favour of adult males from the rest of the grave yard, the evidence from within the church suggests a greater degree of diversity is likely to be found amongst the burials yet to be studied, as would be expected from a medieval parish church. Integrated analysis considering the groupings of individuals across the burial ground would provide a research archive of potential burial practices and social geography that could be compared with other grave yard excavations, particularly in York.

The spatial context of and treatment of burials within the landscape of the church and graveyard is important as an indicator of status, such as those buried within the body of the church, or practices which reflect concepts of rites associated with death such as skeleton 5002 who may have suffered a ‘bad death’. Although less well preserved, the treatment of 5002 tells an interesting story and we are able to glimpse detail about the person through the osteology; the individual had damaged feet and a femoral foss, a growth of bone on the head of the femur which must have been a painful condition. This older adult was buried in a manner markedly different to what would be considered normal medieval inhumation practices and is possibly indicative of a ‘deviant’ burial (Gilchrist 2012, 200-215). Further research may suggest why this individual was treated in such a way. The prevalence of degenerative joint disease and a number of conditions indicative of poverty and hard physical

labour even in relatively young individuals represents the sort of information that is likely to be attained through the study of more of the skeletal evidence.

The analysis of a significant number of burials from a single medieval parish population is likely to provide information at a number of levels. Firstly, the osteological evidence considered in isolation is likely to find statistical trends visible across the population or sections of the population over time (see Appendix 8). Secondly, certain individuals are likely to be of intrinsic interest because of their specific pathologies. Thirdly, analysis of the osteological information within the wider archaeological framework is likely to develop a deeper understanding of different sections of the community, how groups of burials, areas of the church yard, or phases of burials may reflect differential burial practices. The summary given in this section demonstrates the potential to analyse the evidence produced by the osteological research (see aims and objectives set out in Appendix 8, Section 6) in relation to the archaeological context of the burials and associated material culture and present a number of wider questions which may be considered by an integrated analysis:

- Is there any evidence for differential mortuary treatment of individuals or groups of individuals such as children, women or the elderly?
- Is there evidence to suggest that there are family groupings such as within the east end of the grave yard?
- Does information about dietary base, health, disease, evidence for lifestyle, activity or occupation enable comparisons to be made between groups in different parts of the church or grave yard in terms of affluence or social topography of the churchyard space?
- What material culture is associated with burials and does this suggest any local or regional practices or burial practices which changed over the life time of the church?
- Does the evidence for coffins, grave markers or non inter-cutting of graves tell us anything about different mortuary practices between areas of the grave yard and church?

9 POTENTIAL AND RECOMMENDATIONS FOR INTEGRATED ANALYSIS

Introduction

The parish church was at the centre of medieval life, where the most significant rites of passage in the life course of a medieval person were experienced. The communal significance of the spaces and rituals of the church are reflected in the spatial geography of the building and its graveyard and can be revealed by the traces of material culture and evidence of funerary practices recovered by excavation. It is through holistic analysis that we may begin to develop an understanding of the community and the significance held by this space in their daily lives.

9.1 Stratigraphic Analysis and Compilation of the Research Archive

The following section presents recommendations for further work supported by an assessment of the potential for an integrating artefact and environmental evidence with the stratigraphic record as recommended by Historic England guidelines (Historic England 2008).

Data and Research Archive

The following tasks should be undertaken to complete the research archive, the majority of which currently forms three main interventions:

- All data entry should be completed and the research archive collated for all three main interventions before analysis commences.
- An inventory of all primary archive should be produced as part of the research archive

Stratigraphic Analysis

The stratigraphic record is complex but well organised and the majority of it has been entered into IADB. However, in order to achieve synthesis across the three main interventions additional work on the stratigraphic record will be essential. This must be carried out before other specialist analysis is undertaken so that up-to-date phasing is available. Stratigraphic analysis will be directed towards refining the interpretation of the site record following Historic England guidelines (Historic England 2008, 22) covering the whole of the former Haymarket Car Park and Hostel site and may, where necessary, draw upon excavated evidence from the adjacent site of the former Ambulance Satation.

Proposed stages of post-excavation stratigraphic analysis:

Stage 1 –refine existing phasing for 2012 and 2014 interventions

Stage 2 –establish stratigraphic links between all interventions

Stage 3 –establish a site-wide phasing based on the 1986 and 2012 excavations (Interventions 1 and 5)

Stage 4 –produce site-wide land-use diagram

Stage 5 –write overall stratigraphic narrative

Stage 6 –integrate specialist findings

Stage 7 –write publication text

Although small in scope, the evaluation excavation carried out in 2007 for City of York Council (Table 1, Intervention 3; Antoni 2007) produced high-quality information about a sequence of building phases on the periphery of the church yard and the wider landscape morphology and this evidence merits integration with the proposed analysis work. The same buildings were later investigated during Interventions 4 and 5, the Ambulance Station excavation in 2010 and the first phase of Haymarket excavation in 2012. To properly understand the morphology of these buildings further stratigraphic analysis across these projects will be essential.

Analytical Drawings

Analytical Drawing should be prepared for:

- Roman burials
- Building phases of the church and associated burials
- Each tier of burials to investigate shifts in burial orientation
- Elevation drawings of 12th/13th century Building 1
- Morphological phases of Buildings 1,2 and 3
- A selection of the more unusual burials

9.2 Recommendations for Further osteological work

General:

Excavated human remains and their archaeological context are an important source of direct evidence about the past, providing a range of information about demography and health, disease, diet, growth, activity patterns, genetic relationships, burial practices and related beliefs and attitudes (Historic England 2005, 10).

Scale of assemblage:

The assemblage recovered from All Saints in the Marsh, Peaseholme is one of the largest ever excavated in York and ranks among the largest medieval skeletal assemblages excavated outside London. The sheer number of skeletons recovered will provide sufficient data to make meaningful interpretations about the population of one of York's poorest parishes (see Section 5). The Parish included an extra-mural area centred on Heworth (VCHY 1961, 371). This must be taken into account during analysis, as some burials may have come from this outlying community and this may be evident in the character of the assemblage when compared to others in the city.

Preservation:

The rapid assessment based on the original site records shows that although preservation of skeletons was variable (mostly dependent on where in the grave yard the burials were from) there are sufficient well-preserved skeletons to make full analysis worthwhile. This is backed up by the osteological pilot study (Appendix 8) which has demonstrated the high potential this assemblage has to yield useful information about the population of the parish. As a group of burials the initial results are highly promising and analysis is strongly recommended.

Integrated analysis:

The brief outlines given in Section 7 for each of the 30 skeletons along with the evidence from the pilot study demonstrates that for this assemblage there is a great deal of potential if approached as an integrated analysis considering the context of individuals and groups of burials both spatially and temporally with reference to environmental and artefactual evidence.

In addition to the statistical data that large-scale osteological analysis will produce and the resulting interpretations regarding the population as whole, there is great potential in consideration of relationships between individuals or groups of burials based on the excavation records. For example, the survival of a neonate buried in the grave yard is exceptional. However, integrated analysis with the primary records shows that the neonate was buried alongside a young adult, although of indeterminate sex this was presumably the mother, in the same grave and as such the interpretation of a childbirth death seems most plausible (Skeleton Number 2014/36, Context 91068; Skeleton Number 2014/32, Context 91050).

Integrated analysis is not only important for the more unusual burials, such as the small number of possible 'sibling' burials from this site, burials with interesting pathologies such as osteomylitis or individuals buried on unusual orientations such as the possible 'deviant burial' (see Section 8.1; Context 5002) discovered on the north side of the church nave. Integrated analysis of a much larger assemblage will most likely produce valuable insights into the lives of wider sections of the community through the analysis of groups of burials such as those to the east of the church or within it. The osteological pilot study (Appendix 8) and the initial interpretations given in Section 8 in light of the contextual information for each burial show there is potential to look at the spatial organisation of the grave yard and church, how social stratification or differentiation may be reflected within this landscape, and how this may have changed over time.

Distinct areas are clearly evident from the basic plan of all burials from the three main interventions (Figure 3) and analysis should seek to identify patterns in the skeletal evidence from distinct areas of the grave yard. Such analysis may provide evidence for the preference of particular areas of the grave yard and church as more or less desirable. Christopher Daniell makes the point that although possible this is an often-cited folk tradition for which there is little actual evidence (Daniell 1997, 99).

The comparative analysis of burials from within the church, where burials in medieval churches tend to be from the clergy and wealthier social stratum of the community (Daniell 1997, 96–100), with those from the main burial area to the south and with burials to the east of the church is likely to be informative.

The distinctly different organisation of the east end of the grave yard, where graves clearly respect each other in relatively well-defined rows marks this area out as being potentially very interesting. It is possible that this reflects the sole use of this area by a particular section of the community or maybe an area which was used only for a short period before a change in land use occurred. Of particular interest would be any potential evidence for familial relationships between burials at the east end of the grave yard. Christopher Daniell suggests proximity to family members was perhaps given nearly equal weight in requests for burial locations from medieval wills (Daniell 1997, 101) and a programme of scientific analysis should be devised to test for such relationships at All Saints. Such questions can only be answered by osteological analysis of as many individuals as possible, the integration of scientific analysis and integrated interpretation of all the available evidence.

Wider comparative anaylsis

Comparative analysis with other sites should be considered within the budgetary constraints so as to address questions of similarity and difference between populations. There are good comparata in previous York excavations such as at St Helen-on-the-Walls

Romans:

Analysis of the small number of probable Roman burials is recommended as it may be possible to refine the phasing of these inhumations. On purely stratigraphic grounds there may have been a considerable passage of time between the earliest and latest Roman burials at Hungate. Advice should be sought from a Roman pottery specialist as to whether the dating of the fabrics associated with these is sufficient to accurately date them or whether C14 dating would be advisable. This research may have the potential to contribute significantly to our current understanding of the Roman cemetery in this area which was first identified in the adjacent Hungate Development Block H excavation. Absolute dating would also refine the chronology for the landscape morphology of this area, particularly the time-frame in which the massive Roman landscaping event occurred.

Research Aims and Objectives:

Guidance from Historic England (formerly English Heritage) regarding the formulation of updated project aims (English Heritage 2006, 45) recommends that it is useful to express aims and objectives as questions. The original project aims remain valid but can be refined and supplemented by the following questions:

- What are the physical characteristics of the human remains?
- What date are the human remains?

- How many of the skeletons are Roman?
- How many of the skeletons are medieval?
- Can the multiple burial containing the musket ball be linked to the English Civil War?
- How many of the skeletons are post-medieval?
- What sex are the human remains?
- What is the age at death of the human remains?
- What is the minimum number of individuals within the assemblage?
- Is there any evidence for cause of death?
- What is the skeletal evidence for lifestyle, diet, activity patterns?
- What is the evidence for general health?
- What are the pathologies of this population? What can we say about these people from their pathologies?
- To what extent can the dentition aid in the interpretation of diet, health status and oral hygiene?
- How does this population compare in health and physical attributes to others that are similar in date and type?

Tasks

Osteological Assessment (Task 1)

It is recommended that the remaining skeletons in the assemblage (n=714) are subjected to osteological assessment following standard procedures (Mays et al 2002). Given the issues relating to preservation and completeness discussed above it is clear that a substantial number of skeletons will not require further recording beyond this stage. In the first instance it is proposed that all those skeletons which are less than 25% complete will be fully recorded during this assessment phase. It is acknowledged that this will provide a sample which is not completely 'randomly' selected. However, the quality of osteological data that can be recovered is directly linked to factors of preservation and completeness.

Select Skeletons for Full Analysis (Task 2)

It is intended that a maximum of 400 skeletons will be subjected to full osteological analysis. As stated above, skeletons which are less than 25% complete will be excluded from further analysis. This will apply to all skeletons regardless of date. A total of 5 out of 30 skeletons (17%) included in the pilot study were less than 25% complete. If this ratio holds good for the remainder of the assemblage then a minimum of 121 skeletons will immediately be excluded from further analysis, thus leaving a maximum number of 593 skeletons. It should be borne in mind that some of the 30 forming the pilot study were chosen because they were well preserved. It may then be necessary to exclude a proportion of the skeletons which are slightly better preserved (26–50%) and so on until a maximum figure of 400 is achieved.

Full Osteological Analysis of 400 Skeletons (Task 3)

The human remains are of fundamental importance to the interpretation of the church and cemetery and for this reason the proposed analytical methodologies are set out in some detail (see Appendix 8, Section 8.0).

Produce Catalogue of Human Remains (Task 4)

Archaeological data will be combined with osteological data to produce a grave catalogue for all burials. This will include information on grave orientation, body position, presence of coffins, shrouds, any associated artefacts and phasing.

Produce Osteological Report on Entire Assemblage (Task 5)

See Appendix 8, Section 8.9 below. This task will encompass data entry for the assemblage.

Edit Osteological Report (Task 6)

The osteological report will be edited by the project osteo-archaeologist.

9.3 Pottery

There is limited potential for further analysis of the pottery assemblage. On the whole, this assemblage will be of greatest value for dating eth phases of the church, grave yard and other buildings. There is scope for some targeted analysis however on a few select areas of interest.

The Roman material should be sent to a specialist for further identification and comparison with that from excavations at Hungate. In particular, the amphora and mortaria fragments should be sent to a specialist who may be able to identify their type, date and country of origin.

Sherds of particular interest include the stamped mortaria, decorated fine ?Ebor type (1013) and the sherd with scroll decoration from the same context. It is recommended that they are drawn and reconstructed and shown to a specialist who may be able to shed light on their provenance and date.

The complete Roman grey-ware vessel (BF766; Context 84908; Appendix 3, Table A3.2) found placed at the head of Skeleton Number 2012/503 (Context 84909), should be reconstructed, drawn and photographed for publication (Context 84908; Appendix 3, Table A3.2).

The sparse distribution of Anglian and Anglo-Scandinavian material at the Haymarket suggests peripheral activity and deposition originating from the more intense activity represented during this period at Hungate. Specific sherds of hand-made ware, ‘d’ ware and early glazed ware, as well as shelly ware should be drawn and photographed and studied in relation to the more complete material from excavations at Hungate.

The Cistercian flask, Werra bowl and Raeren stone ware jug (all context 5000) should be analysed further to confirm their functions.

Additional pottery is likely to be recovered from the remaining deposit samples from within Building 2 (Johnson 2013). These should be analysed in relation to the buildings, stratigraphy, micromorphology and environmental samples as this is likely to enrich the already highly promising interpretations regarding the daily lives of the occupants of the building (Miller and Carson 2015).

Depending on the quality of their contexts it may be worth undertaking scientific analysis of a small selection of possible industrial sherds (5145;91128;90064;83783) to determine their possible use.

9.4 Architectural Fragments

There is limited potential for further analysis regarding the architectural fragments from the site. Mainly the potential lies in any information it may provide regarding the appearance of the church and surrounding buildings when considered in relation to phased stratigraphy.

9.5 Ceramic Building Material

It should be noted that the CBM from these sites would be best examined in conjunction with that from a number of adjacent excavations (especially projects 5073 and 5000/82) so as to fully understand the development of the area. Project 5073 in particular produced an exceptional collection of CBM including the only complete curved tile ever excavated by YAT, which is certainly worth illustration, and a group of unusual chamfered bricks which require further research and illustration.

Roman Tile Production

The Roman CBM has little potential in its own right but there is potential for the study of legionary CBM production. There is strong circumstantial evidence that the Roman Legionary Kilns were located nearby in Aldwark, as a number of sites in the vicinity have yielded evidence for dumps of Roman material, and/or for clay extraction pits. As part of a wider analysis of CBM from these sites further work on the material specifically from Roman deposits at All Saints is recommended as it which would be of immense value for Roman ceramic studies in the city.

Curved and Flanged tiles

The collection of curved and flanged tiles is of interest for York as whole, as it offers the a chance to research all tiles of this type from York so as to clarify the date at which they were introduced into the city, their sizes and shapes, and techniques of manufacture (including the fabric types seen) and the use of glazes. Detailed research and publication of curved and flanged tiles from the site is recommended as these are relatively rare tiles, both in York and nationally. Ideally, this research would consider the wider distribution of these types in the area. By plotting the distribution in the Hungate and Haymarket area it may be possible to

provide evidence for the likely origin of curved and flanged tile, whether that be the Norman domestic building, the church or elsewhere.

Grave Yard and Church CBM

This material is mostly residual and further analysis is not recommended. However there is, however, some potential to research plain glazed floor tiles from the 1986 and 2012 sites, together with adjacent sites to test whether they could have come from a single floor from within the church or adjacent buildings.

CBM Related to Buildings

Detailed examination of any tile from the structural contexts on this site is strongly recommended for the potential to refine the construction dates.

Post-medieval and Modern CBM

There is very little material of this date, and it is all typical in terms of the forms, fabrics and methods of manufacture seen. This material offers relatively little potential for further research.

It is recommended that research into a number of unusual long chamfered mullion bricks from project 5073 (Antoni 2007) also be undertaken to clarify their date and function. Analysis and publication of these with consideration of others found in the Hungate area would make a valuable addition to the corpus of forms known from York.

9.6 Scientific Dating

Scientific dating should be undertaken on a selection of skeletons and material recovered from samples in order to clarify specific questions. This would be best carried out at with reference to the finished land-use diagram to resolve questions of:

- Dating phases of Roman burials
- Dating the earliest medieval burials
- Refinement of the church dating and phasing
- Dating and contemporaneity of burials in the eastern end of the grave yard
- Dating of medieval buildings around the perimeter of the site

9.7 Analysis of Medieval Buildings

Research should be undertaken to contextualise the buildings discovered at the site in their local, regional and national setting.

Photogrammetric recording which was carried out on the 12th/13th century building remains should be processed and detailed plan and elevation drawings produced from the digital output.

9.8 Environmental Evidence

Overall the deposits assessed in Appendix 7 demonstrate that due to the wet and often anoxic but not waterlogged conditions have preserved both uncarbonised as well as carbonised organic material to the extent that an holistic interpretation has been highly productive for the small number of samples processed to date. Therefore, further analysis is recommended on a selection of samples where specific research questions may be addressed.

A group of samples taken from floors within Building 2 (Johnson 2013) should be subjected to further environmental analysis. Multiple single context samples were taken from a series of very thin layers of occupation material and floors within the building. One sample, comprising several of these thin occupation layers, was processed (Context 84970, Sample Number 8352) and the results published in Northern Archaeology Today (Miller and Carson 2015, 16–20). The work carried out clearly demonstrates the high potential of samples taken from these occupation deposits.

From this single 10l multi-context sample of occupation deposits evidence was recovered for bread wheat, rye and pulses, figs, eggs, oysters, fish, and meat from mammals and birds. The material reflects background domestic detritus within a fairly wealthy household, supporting the general interpretation of this building. It is suggested that the sample was taken from close to the cooking area but not immediately adjacent to the cooking hearth (Appendix 7; Miller and Carson 2015, 20). Samples taken from the remaining deposits, which comprise a well-stratified and well-recorded sequence of single contexts, are therefore likely to add a significantly to these initial findings and may enable a more detailed analysis of the use of the room over a longer time-frame.

9.9 Artefacts

Interventions 1 and 2 Assemblages (1986)

The two papal bullae are of national significance as these items have very rarely been recovered from graves in parish church grave yards. A full analysis of these has been undertaken by YAT using Arts Council Museum Resilience funding, the results of which will form part of the analysis report.

Analysis and reporting on the painted window glass fragment and parchment pricker is recommended as both are likely to have been associated with the church.

A number of medieval dress fittings including a strap-end and lace tags should form part of an overall artefact analysis report for publication.

Debris from medieval to early post-medieval wire pin making was identified –this was also seen in the 2006–2011 excavations at nearby Hungate. An analysis and discussion of this material is recommended for the potential addition it represents to this activity in the vicinity.

Three objects require further investigative conservation treatment to enable a firm identification. These are; SF68 ?horseshoe nail; SF108 iron object with ?plating; and SF133 copper alloy object.

The four coins (SFs2, 3, 32, 136) and one jetton (SF57) should be referred to a numismatist for identification.

Intervention 7 Assemblage (2012 part 1)

The two medieval horse harness pendants (SFs3 and 265) which represent rare survivors of this artefact type from the city are in very good condition. A full investigation of these very rare objects has been carried out by YAT using Arts Council Museums Resilience funding, the results of which will form part of the analysis report.

Apart from these objects, the Roman military pendant (SF6), and the chair or table leg SF74 are uncommon objects, and are also worthy of further study.

Some of the small finds from the Haymarket excavations are comparable to material recovered during recent excavations carried out by YAT for the Hungate development to the west and south of the Haymarket; for example, the antler offcuts, which probably derive from Anglo-Scandinavian period antler working, a major activity identified at the adjacent Hungate Block H excavations. Similarly, horn-cores, both worked and un-worked have been recovered in great numbers from Anglo-Scandinavian and medieval deposits at the same site, where considerable evidence of medieval wire pin-making was also identified. Post-medieval marbles and gaming pieces, and tobacco pipe fragments were also recovered in large quantities from the Hungate excavations and further analysis of these objects is likely to contribute to enhance our understanding of daily lives of the inhabitants of the area. A ?worked flint (SF168, Context 84919) found in a pit backfill should be referred to a flint specialist for identification.

Five objects have been identified as requiring further investigative conservation treatment to enable a firm identification: these are SF3, 82, SF160, SF263, SF265.

Intervention 8 assemblage (2012 part 2)

This material relates primarily to the grave yard and includes coffin nails and other possible burial fittings. At least two finds were recovered from skeletons, these being a lead shot and a papal bulla. Occasional residual objects were noted, including a Roman hob nail, ?Roman vessel glass and a possible Anglo-Scandinavian dress pin and spindle whorl. Other material includes iron and copper alloy medieval dress accessories, and horseshoes. More evidence of medieval pin-making was also recovered. Three probable worked flints (SF156 context 83205; SF167, Context 83240; SF168, Context 84919) should be referred to a specialist for identification.

Seven objects have been identified as requiring further conservation investigative treatment to enable a firm identification: these are SF40, SF158, SF208, SF215, SF243, SF248, SF249.

Most of the small finds should be retained but the following finds have been identified as either of modern date, or as undiagnostic and so could be discarded.

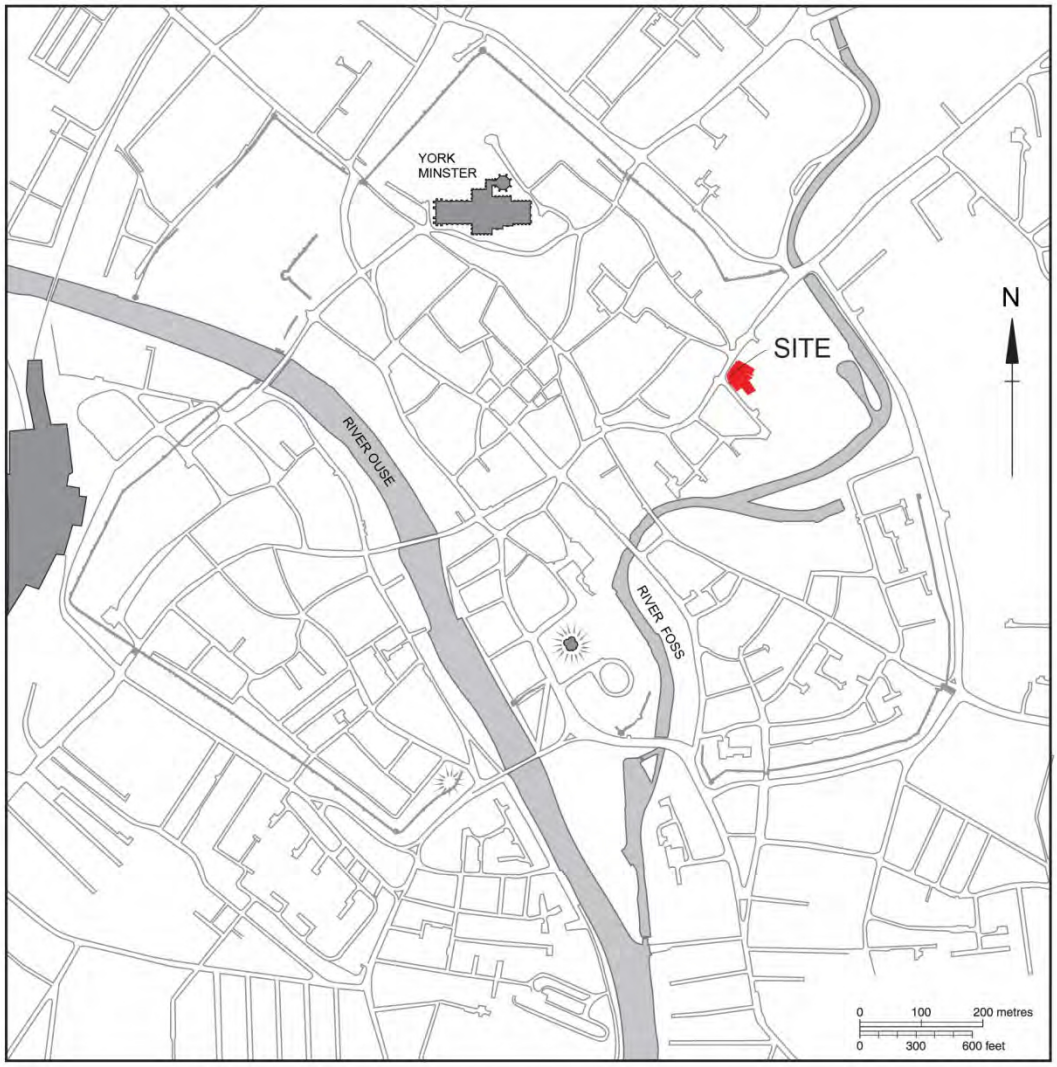
2014 Assemblage (Intervention 9)

This small assemblage also relates primarily to the grave yard, and features little apparently residual material. Although coffin nails were recovered, these appear to be few in number. A number of interesting objects were recovered from burial related deposits including an arrowhead, possible knife blade, finger ring and decorative mount and these objects warrant further analysis for publication.

Coin SF28 should be referred to a numismatist.

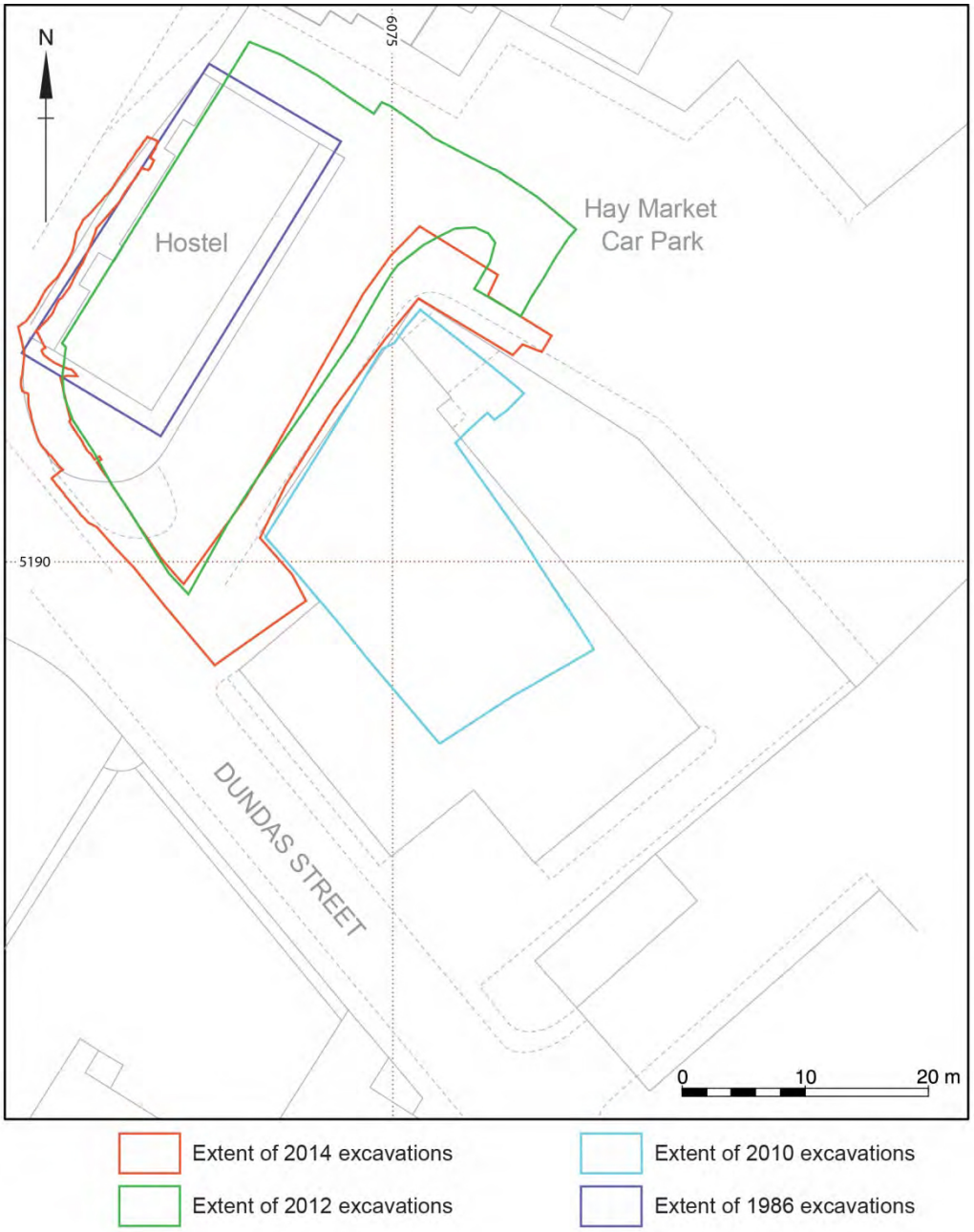
Four objects have been identified as requiring further conservation investigative treatment to enable a firm identification: these are SF20, SF24, SF25, SF32.

Figures



YORK ARCHAEOLOGICAL TRUST

Figure 1: Site Location

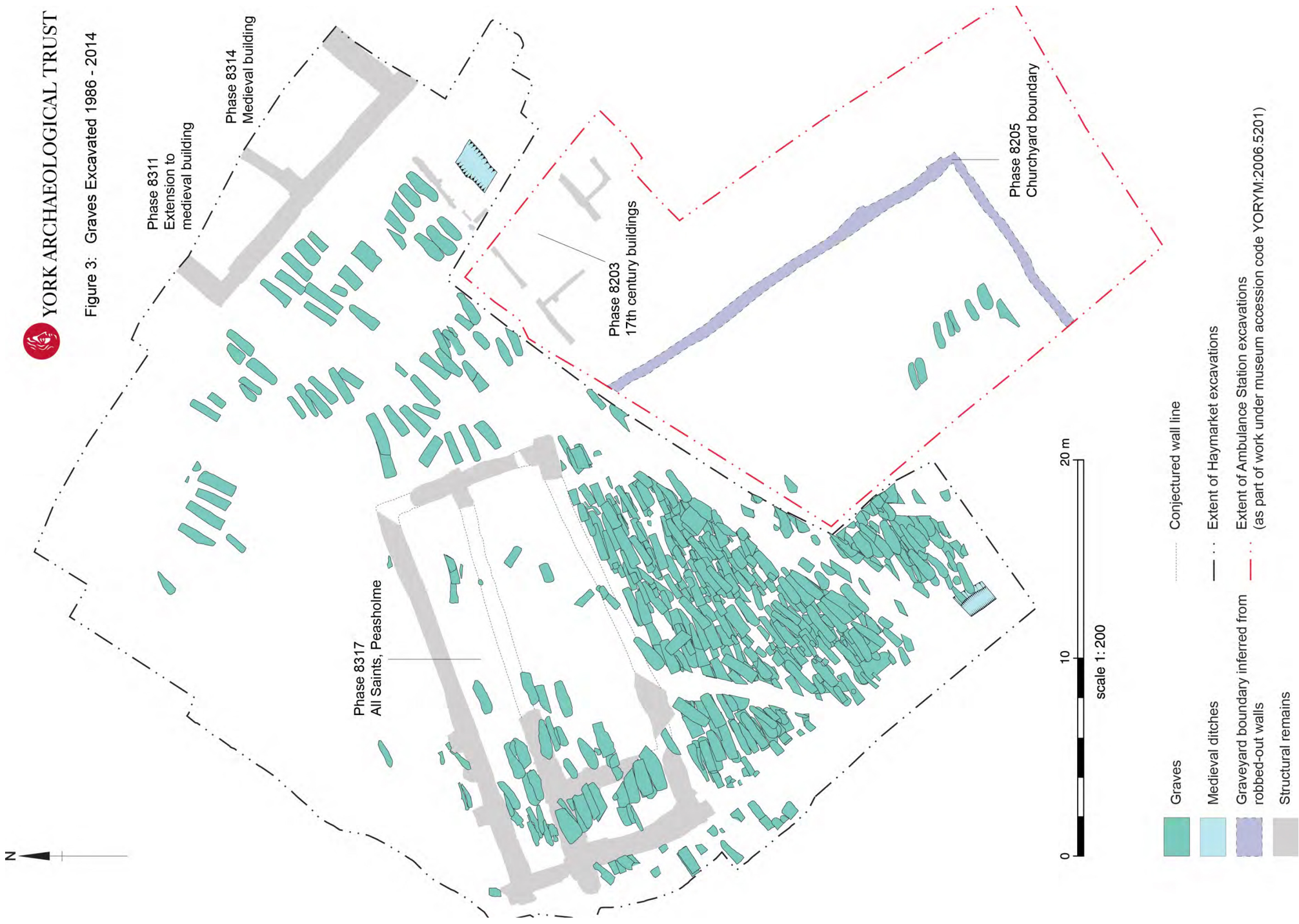


YORK ARCHAEOLOGICAL TRUST

Figure 2: Trench Locations

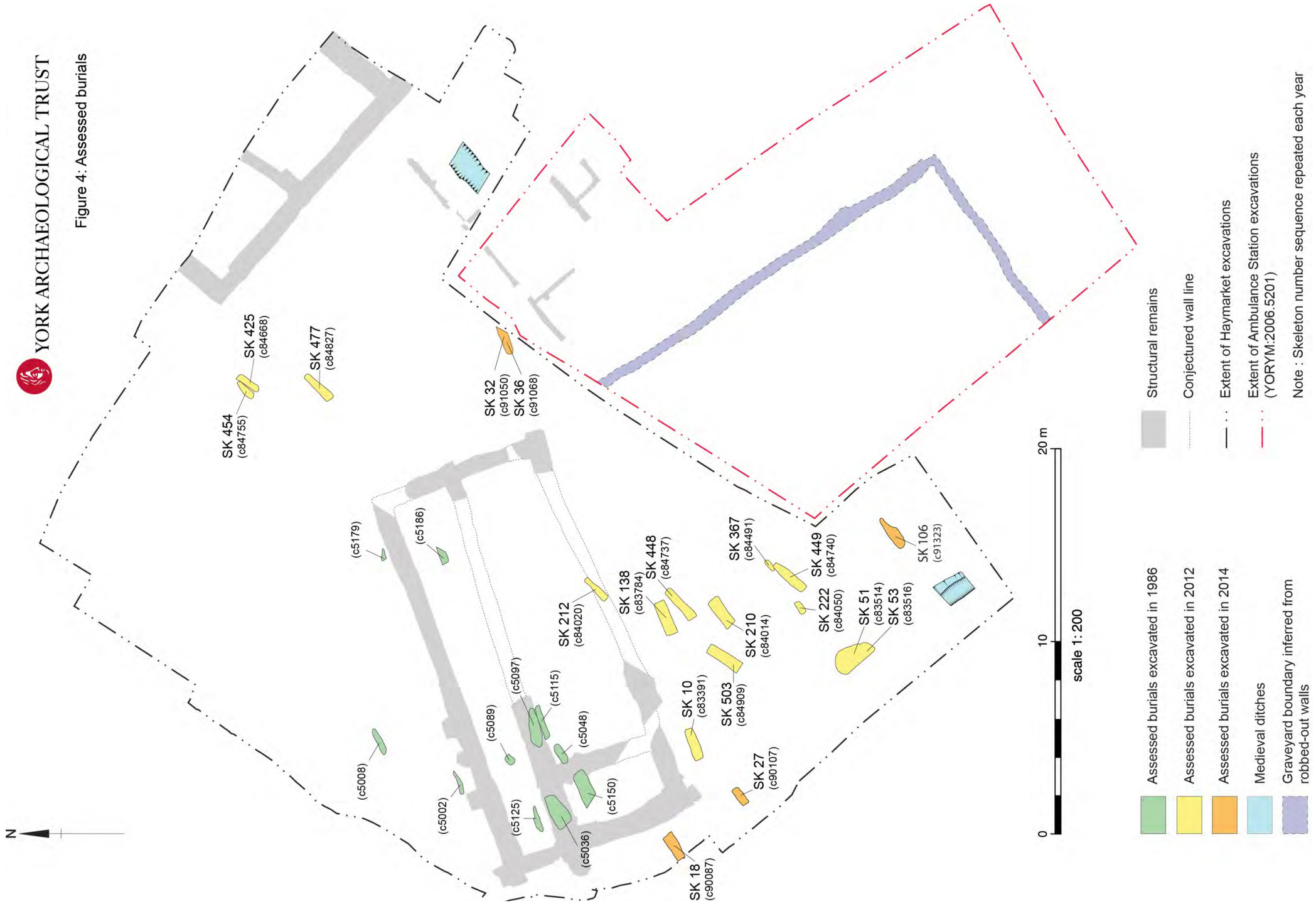
YORK ARCHAEOLOGICAL TRUST

Figure 3: Graves Excavated 1986 - 2014



YORK ARCHAEOLOGICAL TRUST

Figure 4: Assessed burials



TABLES

Table 1 Intervention Numbers Allocated to Investigations within the former Haymarket Hostel, Haymarket Car Park and Dundas Street Ambulance Station and Associated Reports

Inter-vention Number	Year	Name of intervention / Client	Intervention Type	Museum Accession Code	Project No	Ref.	Report No
1	1986	Haymarket Car Park, Peaseholme Green **Client:** City of York Council	Evaluation	YORYM:1986.14	1986.14	No report	N/A
2	1986-7	Haymarket Car Park, Peaseholme Green **Client:** City of York Council	Excavation	YORYM:1986.14	1986.14	Lilley J., 1986 YAT Level 4 archive report 1991.	N/A
3	2000	Hungate Development, York **Client:** Hungate Regeneration Ltd	Evaluation	YORYM:2000.1-YORYM:2000.14	5000	MacNab, N. and McComish, J.,2000. Hungate Development, York. Interim Report on an Arch Evaluation; MacNab N. and McComish, J., 2000. Hungate Development, York. Report on an Archaeological Evaluation.	2000/16 2000/27
4	2007	Ambulance Station, Hay Market Car Park, Dundas Street, York Client: City of	Evaluation	YORYM:2006.5201	5073	Antoni, B., 2007. Ambulance Station, Hay Market Car Park, Dundas Street, York	2007/57

		York Council					
5	2010	The Former Ambulance Station Site, Dundas Street **Client:** Hungate Regeneration Ltd	Watching Brief	YORYM:2006.5201	5000/82	Johnson, A.,	2010/13
6	2010	The Former Ambulance Station Site, Dundas Street **Client:** Hungate Regeneration Ltd	Excavation	YORYM:2006.5201	5000/82	Reeves, B., 2010. The Former Ambulance Station Site, Hungate Development, York	2010/94
7	2012	Hostel and Haymarket Car Park **Client:** City of York Council	Excavation	YORYM:2012.2	5584	Johnson, A., 2013. Former Hostel and Hay Market Car Park, Dundas Street York	2013/03
8	2012	Hostel and Haymarket Car Park **Client:** City of York Council	Grave Yard Excavation	YORYM:2012.2	5584	Reeves, B., 2016. All Saints in the Marsh, Peasholme: Excavations at the Former Peasholme Hostel and Haymarket Car Park, Dundas Street, York	2016/49
9	2014	Hostel and Haymarket Car Park **Client:** City of York Council	Grave Yard Excavation	YORYM:2014.154	5761	Reeves, B., 2016. All Saints in the Marsh, Peasholme: Excavations at the Former Peasholme Hostel and Haymarket Car Park, Dundas Street, York	2016/49
10	2014	Hiscox Development	Watching Brief	YORYM:2014.154	5761	No Report	N/A

		Client: Hiscox					
11	2016	Proposed Hotel, Dundas Street, York **Client:** Vastint Hospitality B.V.	Evaluation	YORYM:2016.251	5897	Johnson, A., 2016. Archaeological Evaluation at the Site of Proposed Hotel, Dundas Street, York	2016/28

Table 2 All Skeletons with Surviving Skull and Pelvis 2012/2014

Context	Keywords
83156	Skeleton [Whole adult]
83207	Skeleton [Whole adult]
83217	Skeleton [Whole juvenile]
83280	Skeleton [Whole adult]
83370	Skeleton [Whole adult]
83371	Skeleton [Whole adult]
83390	Skeleton [Whole adult]
83391	Skeleton [Whole adult]
83392	Skeleton [Whole adult]
83393	Skeleton [Whole juvenile]
83403	Skeleton [Whole adult]
83408	Skeleton [Whole adult]
83409	Skeleton [Whole adult]
83411	Skeleton [Whole adult]
83412	Skeleton [Whole adult]
83413	Skeleton [Whole adult]
83434	Skeleton [Whole adult]
83435	Skeleton [Whole adult]
83436	Skeleton [Whole adult]
83453	Skeleton [Whole juvenile]
83494	Skeleton [Whole adult]
83496	Skeleton [Whole adult]
83500	Skeleton [Whole adult]
83506	Skeleton [Whole adult]
83510	Skeleton [Whole adult]
83514	Skeleton [Whole adult CIVIL WAR]
83516	Skeleton [Whole adult CIVIL WAR]
83542	Skeleton [Whole adult]
83564	Skeleton [Whole adult]
83577	Skeleton [Whole adult]

83583	Skeleton [Whole adult]
83618	Skeleton [Whole adult]
83620	Skeleton [Whole adult]
83636	Skeleton [Whole juvenile]
83638	Skeleton [Whole adult]
83648	Skeleton [Whole juvenile]
83657	Skeleton [Whole juvenile]
83659	Skeleton [Whole adult]
83663	Skeleton [Whole adult]
83667	Skeleton [Whole juvenile]
83680	Skeleton [Whole adult]
83712	Skeleton [Whole adult CIVIL WAR]
83721	Skeleton [Whole adult]
83722	Skeleton [Whole adult]
83725	Skeleton [Whole adult]
83744	Skeleton [Whole juvenile]
83747	Skeleton [Whole adult]
83769	Skeleton [Whole adult]
83772	Skeleton [Whole adult]
83777	Skeleton [Whole adult]
83784	Skeleton [Whole adult]
83790	Skeleton [Whole adult]
83800	Skeleton [Whole adult]
83818	Skeleton [Whole adult]
83821	Skeleton [Whole adult]
83849	Skeleton [Whole juvenile]
83864	Skeleton [Whole adult]
83920	Skeleton [Whole juvenile]
83954	Skeleton [Whole juvenile]
83975	Skeleton [Whole juvenile]
83981	Skeleton [Whole juvenile]
83984	Skeleton [Whole adult]
83999	Skeleton [Whole juvenile]
84002	Skeleton [Whole adult]
84014	Skeleton [Whole adult]
84020	Skeleton [Whole adult]
84029	Skeleton [Whole adult]
84035	Skeleton [Whole adult]
84041	Skeleton [Whole juvenile]
84058	Skeleton [Whole juvenile]
84060	Skeleton [Whole adult]
84087	Skeleton [Whole juvenile]
84090	Skeleton [Whole adult]
84099	Skeleton [Whole adult]

84111	Skeleton [Whole adult]
84117	Skeleton [Whole adult]
84120	Skeleton [Whole adult]
84132	Skeleton [Whole adult]
84144	Skeleton [Whole adult]
84150	Skeleton [Whole adult]
84174	Skeleton [Whole adult]
84180	Skeleton [Whole juvenile]
84183	Skeleton [Whole juvenile]
84207	Skeleton [Whole adult]
84218	Skeleton [Whole juvenile]
84221	Skeleton [Whole adult]
84226	Skeleton [Whole juvenile]
84242	Skeleton [Whole juvenile]
84249	Skeleton [Whole adult]
84252	Skeleton [Whole adult]
84264	Skeleton [Whole juvenile]
84273	Skeleton [Whole juvenile]
84294	Skeleton [Whole adult]
84309	Skeleton [Whole adult]
84312	Skeleton [Whole adult]
84318	Skeleton [Whole adult]
84327	Skeleton [Whole juvenile]
84333	Skeleton [Whole juvenile]
84336	Skeleton [Whole juvenile]
84340	Skeleton [Whole adult]
84348	Skeleton [Whole adult]
84354	Skeleton [Whole adult]
84357	Skeleton [Whole juvenile]
84369	Skeleton [Whole adult]
84372	Skeleton [Whole adult]
84399	Skeleton [Whole juvenile]
84414	Skeleton [Whole adult]
84437	Skeleton [Whole adult]
84443	Skeleton [Whole juvenile]
84446	Skeleton [Whole adult]
84456	Skeleton [Whole adult]
84464	Skeleton [Whole adult]
84467	Skeleton [Whole juvenile]
84479	Skeleton [Whole juvenile]
84491	Skeleton [Whole juvenile]
84506	Skeleton [Whole adult]
84509	Skeleton [Whole adult]
84513	Skeleton [Whole adult]

84518	Skeleton [Whole adult]
84530	Skeleton [Whole adult]
84545	Skeleton [Whole adult]
84548	Skeleton [Whole adult]
84551	Skeleton [Whole juvenile]
84563	Skeleton [Whole adult]
84573	Skeleton [Whole adult]
84580	Skeleton [Whole adult]
84582	Skeleton [Whole adult]
84584	Skeleton [Whole juvenile]
84587	Skeleton [Whole adult]
84593	Skeleton [Whole juvenile]
84599	Skeleton [Whole adult]
84602	Skeleton [Whole juvenile]
84605	Skeleton [Whole adult]
84620	Skeleton [Whole adult]
84629	Skeleton [Whole juvenile]
84635	Skeleton [Whole adult]
84644	Skeleton [Whole adult]
84647	Skeleton [Whole adult]
84653	Skeleton [Whole adult]
84665	Skeleton [Whole adult]
84668	Skeleton [Whole adult]
84671	Skeleton [Whole adult]
84674	Skeleton [Whole adult]
84686	Skeleton [Whole adult]
84701	Skeleton [Whole adult]
84710	Skeleton [Whole adult]
84713	Skeleton [Whole adult]
84716	Skeleton [Whole adult]
84722	Skeleton [Whole adult]
84731	Skeleton [Whole adult]
84734	Skeleton [Whole adult]
84737	Skeleton [Whole adult]
84740	Skeleton [Whole adult]
84755	Skeleton [Whole juvenile]
84761	Skeleton [Whole adult]
84764	Skeleton [Whole adult]
84779	Skeleton [Whole adult]
84782	Skeleton [Whole juvenile]
84785	Skeleton [Whole juvenile]
84788	Skeleton [Whole adult]
84796	Skeleton [Whole juvenile]
84800	Skeleton [Whole adult]

84806	Skeleton [Whole adult]
84809	Skeleton [Whole adult]
84812	Skeleton [Whole adult]
84815	Skeleton [Whole juvenile]
84824	Skeleton [Whole adult]
84827	Skeleton [Whole adult]
84830	Skeleton [Whole adult]
84833	Skeleton [Whole adult]
84835	Skeleton [Whole adult]
84840	Skeleton [Whole juvenile]
84848	Skeleton [Whole juvenile]
84851	Skeleton [Whole juvenile]
84854	Skeleton [Whole adult]
84859	Skeleton [Whole juvenile]
84861	Skeleton [Whole juvenile]
84864	Skeleton [Whole adult]
84870	Skeleton [Whole adult]
84883	Skeleton [Whole adult]
84886	Skeleton [Whole adult]
84893	Skeleton [Whole juvenile]
84895	Skeleton [Whole adult]
84897	Skeleton [Whole adult]
84909	Skeleton [Whole adult]
90026	Skeleton [Near Complete]
90087	Skeleton [Near complete]
90107	Skeleton [Infant complete]
91019	Skeleton [Adult near complete]
91044	Skeleton [Juvenile complete]
91047	Skeleton [Sub-adult near complete]
91050	Skeleton [Sub-adult near complete]
91060	Skeleton [Juvenile complete]
91061	Skeleton [Juvenile complete]
91101	Skeleton [Adult near complete]
91105	Skeleton [Adult complete]
91109	Skeleton [Adult complete]
91112	Skeleton [Adult complete]
91115	Skeleton [Adult near complete]
91118	Skeleton [Adult near complete]
91136	Skeleton [Complete juvenile]
91161	Skeleton [Adult near complete]
91170	Skeleton [Near complete adult]
91174	Skeleton [Complete juvenile]
91176	Skeleton [Near complete infant]

91182	Skeleton [Near complete adult]
91185	Skeleton [Near complete infant]
91188	Skeleton [Near complete adult]
91213	Skeleton [Near complete adult]
91225	Skeleton [Complete adult]
91235	Skeleton [Complete adult]
91241	Skeleton [Complete adult]
91267	Skeleton [Near complete adult]
91270	Skeleton [Complete Adult]
91276	Skeleton [Near complete infant]
91282	Skeleton [Complete adult]
91291	Skeleton [Near complete adult]
91297	Skeleton [Complete Infant]
91308	Skeleton [Near complete adult]
91311	Skeleton [Near complete adult]
91320	Skeleton [Near complete adult]
91323	Skeleton [Near complete adult]
91326	Skeleton [Near complete Infant]
91327	Skeleton [Complete Adult]
91380	Skeleton [Near complete adult]
91403	Skeleton [Complete adult]
91407	Skeleton [Complete adult]
91410	Skeleton [Complete Juvenile]
91421	Skeleton [Near complete adult]
91430	Skeleton [Near complete Infant]
91439	Skeleton [Complete Adult]
91450	Skeleton [Near complete Juvenile]
91465	Skeleton [Near complete Adult]
91471	Skeleton [Near complete Adult]
91478	Skeleton [Near complete Adult]

Table 3 List of Skeletons Selected for Pilot Study

	1986.14 Context number	2012 (Project 5584), Context number (Skeleton number)	2014 (Project 5761), Context number (Skeleton number)
	5002	83391 (10)	90087 (18)
	5008	83514 (51)	90107 (27)
	5036	83516 (53)	91050 (32)
	5048	83784 (138)	91068 (36)
	5089	84014 (210)	91323 (106)
	5115	84020 (212)	
	5125	84491 (367)	
	5150	84551 (387)	
	5179	84668 (425)	
	5186	84722 (443)	

		84737 (448)	
		84740 (449)	
		84755 (454)	
		84827 (477)	
		84909 (503)	
Total number of skeletons	10	15	5

LIST OF SOURCES

BGS (British Geological Survey) Geological Survey of Great Britain (England and Wales), Sheet 63. 1967

BIA (Borthwick Institute for Archives)

Prob Reg 23A, Probate Register.

NGA (National Gas Archives)

NE:YOG. York Union Gasworks Records.

TNA (The National Archives)

H0107. Census Returns for England and Wales, 1841 and 1851.

RG9. Census Returns for England and Wales, 1861.

RG11. Census Returns for England and Wales, 1881.

RG12. Census Returns for England and Wales, 1891.

YCA (York City Archives)

Acc 574, Property Deeds, Leeds Arms Hay Market.

Acc 22, Property Deeds, Low Dundas Street.

A1a, Photograph Albums.

E77, Revenues of the Corporation.

TC 587/3, Property Deeds, 37–41 Palmer Lane, Wray's Yard.

TC 1453/3, Property Deeds, 1–7 Dundas Street.

TC 1476/3, Property Deeds 14–21 Hay Market and 1–4 Brunswick Terrace.

TC 1547/3, Property Deeds, 9–10 Brunswick Place.

TC 1623/3, Property Deeds, 1 Hungate and Warehouses.

TC 1669/3, Property Deeds, Dundas Street and Hay Market.

TC 1696/3, Property Deeds, Hungate and Haver Lane. *Former Hostel and Hay Market Car Park, Dundas Street, York*

BIBLIOGRAPHY

Advisory Panel on the Archaeology of Burials in England (APABE) and Historic England 2015., *Large Burial Grounds*: Guidance on Sampling in Archaeological Fieldwork Projects

Antoni, B., 2007. *Ambulance Station, Hay Market Car Park, Dundas Street, York*. YAT Report 2007/57

Armstrong, A., 1974. *Stability and Change in an English County Town: a social study of York 1801–51.* New York: Cambridge University Press

Betts, I. M., 1990. Building Materials. In J. Schofield, P. Allen, C. Taylor. Medieval Buildings and Property Development in the Area of Cheapside. *Transactions of the London and Middlesex Archaeological Society*, **41**, pp. 220–229

Bond, J. & O'Connor T.,1999. *Bones from Medieval Deposits at 16–22 Coppergate and Other Sites in York*. The Archaeology of York **15/5**; York: Council for British Archaeology

Brinklow, D., 1987. 'Bulls in the Church'. *Interim, Bulletin of the York Archaeological Trust* **12/1**

Carver, M.O.H., 2009*. Archaeological Excavation*. Routledge. (London)

Daniell, C., 1995. 'Family, Land and Politics: Ralph Nuvel's Family and Ancestors in York (c.1120–c.1240)'. *The York Historian* **12**. pp. 2–19

Drake, F., 1736. *Eboracum: or the History and Antiquities of the City of York, from its Original to the Present times*

Dunning, G.C., 1975. Roof-fittings. In C. Platt and R. Coleman-Smith, *Excavations in Medieval Southampton 1953–1969*. Leicester

Historic England (formerly English Heritage), 2005. *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England*

Historic England (formerly English Heritage), 2006 (2015). *Management of Research Projects in the Historic Environment* (MoRPHE)

Historic England (formerly English Heritage), 2008. *Management of Research Projects in the Historic Environment* (MoRPHE), Project Planning Note 3; Archaeological Excavations

Garside-Neville, S., 1996. Ceramic Building Materials. In R. L. Kemp and C. P Graves *The Church and Gilbertine Priory of St Andrew, Fishergate,* **AY 11/2,** pp 294–297

Gilchrist, R., 2012. *Medieval Life: Archaeology and the Life Course*. Boydell Press, Woodbridge

Grenville, J., 1997. *Medieval Housing*

Grenville, J., 2008. Urban and Rural Houses and Households in the Late Middle Ages: a Case Study from Yorkshire, in M. Kowaleski and P. J. P. Goldberg (eds.), *Medieval Domesticity: Home, Housing and Household in Medieval England,* 92–123

Hargrove, W., 1818. *History and description of the City of York*

Johnson, A., 2010. *Ambulance Station, Dundas Street, York,* YAT Report 2010/13 *Former Hostel and Hay Market Car Park, Dundas Street, York*

Kemp, R.L. and Graves, C.P., 1996. The Church and Gilbertine Priory of St Andrew, Fishergate, **AY 11/2**

Lewis, J. M., 1987. Roof Tiles: Some Observations and Questions. *Medieval Ceramics,* **11**, 3–14

Lilley, J., 1991. *'Excavations in the Hay Market, York'.* YAT Report 1986/14

Macnab, N., 1999. *Hungate York, A report on an Archaeological Desk-top Study,* YAT Report 1999/32

Macnab, N., and McComish, J., 2000. *Hungate Development, York. Report on an Archaeological Evaluation.* YAT report number 2000/27

McComish, J., 2006. 'Roman, Anglian and Anglo-Scandinavian activity and a medieval cemetery on land at the junction of Dixon Lane and George Street, York', *The Archaeology of York Web Series:* AYW9

http://www.iadb.co.uk/i3/item.php?ID=IADB:1307:D3476 (Accessed on 8/11/12)

McComish, J., 2012. *An Analysis of Roman Ceramic Building Material from York and its Immediate Environs.* (Forthcoming) MA Thesis, The University of York, Archaeology Department

Murray, H., 2003. *A Directory of York Pubs 1455–2003*

Murphy, E. M., (ed.) 2008. *Deviant Burial in the Archaeological Record*. Oxbow. Oxford

Norton, C., 2006. *St William of York*

Ottaway, P. J., et. al. 2005. *Hungate, York; A Research Design and Scheme of Archaeological Investigation*, YAT Report 2005/41 (3rd revised version)

Palliser, D. M., 1974. 'The Unions of Parishes at York, 1547–1586'. *The Yorkshire Archaeological Journal* **46**. pp. 87–102

Pearson, S., 2007. Rural and Urban Houses 1100–1500: 'Urban Adaptation' Reconsidered, in K. Giles and C. Dyer (eds.), *Town and Country in the Middle Ages: Contrasts, Contacts and Interconnections, 1100–1500,* 43–67

Raine, A., 1955. *Mediaeval York, A Topographical Survey Based on Original Sources Former Hostel and Hay Market Car Park, Dundas Street, York*

Rainsford, C., 2011. *Block H1: The Faunal Remains 1550–1950.* Unpublished report for York Archaeological Trust

Rainsford, C., 2012a. *Hungate Faunal Report: Other Areas, 1550–1950.* Unpublished report for York Archaeological Trust

Rainsford, C., 2012b. *Block H2: The Faunal Remains 1550–1950.* Unpublished report for York Archaeological Trust.

Reeves, B., 2010. *The Former Ambulance Station Site, Hungate Development, York: A Report on an Archaeological Excavation,* YAT Field Report 2010/94

Rimmer, J., 2008. 'Documentary Assessment', in K. Hunter-Mann, *Block D, Trench D4, Hungate Development York: A Report on an Archaeological Excavation.* YAT Report 2008/1, 58–65

Rowntree, B. S., 1901. *Poverty: A Study of Town Life*

Smith, T. P., 1999. London's earliest medieval roofing tiles: a comparative study, *Medieval Ceramics*, **22-23**, 66–71

Taylor, A., 2001. *Burial Practice in Early England*. Tempus. Stroud.

Tillott, P. M., (ed.) 1961. *A History of the County of York: The City of York*

Miller, J. And Carson, S., 2015. A Medieval Vernacular Floor at All Saints Church yard, Peasholme Green, York. *Northern Archaeology Today*, **8**. York Archaeological Trust. York

Turner, E. 2012. Report on the Excavation and Sampling of a Medieval Floor Deposit: Former Hostel and Hay Market Car Park Site, unpub. report prepared for York Archaeological Trust and the University of Bradford

VCHY. The Victoria County History of the Counties of England. A History of Yorkshire, The City of York. For the Institute of Historical Research by Oxford University Press (1961) London.

Warry P., 2006. *Tegulae*: manufacture, typology and use in Roman Britain. *British Archaeological Reports British Series*, **417**, 1–167

White, W., 1988. *The Cemetery of St Nicholas Shambles* (Hampshire)

ACKNOWLEDGEMENTS

Excavation Team: Ben Reeves, Toby Kendall Ian Milsted, Jane McComish, Bry Antoni, Kurt Hunter-Mann (Field Officers);

Ben Savine, Arran Johnson, Gary Millward (Assistant Field Officers);

Mike Andrews (Photographer);

Tom Linington, Tom Coates, Paul Howlett, Paul Renner, Jim Williams, Dani Ramirez Aguiar, Elena Salcedo Lobo, Artemi Alenjandro Medina, Liz Eastlake, Rowan May, Ian Macintyre George Loffman (Excavation Assistants);

Jamie Walker, Clare Rainsford, Greater York Community Archaeology Group, Katherine Crouch (Volunteers)

Author: Ben Reeves

Illustrations: Ben Savine and Ben Reeves

Editor: Dave Aspden

APPENDIX 1 – CERAMIC BUILDING MATERIAL

By J. M. McComish

Methodology

This report relates to three excavations (Assemblages YORYM: 1986.14; YORYM:2012.2; YORYM:2014.154). A total of 520609g of ceramic building material (CBM), together with 11850g of stone roof/floor tile was analysed. The CBM was recorded to a standard YAT methodology.

Project 1986.14 Ceramic Building Material

A total of 57092g of ceramic building material (CBM) has been analysed for the preparation of this report. The CBM ranges in date from Roman to post-medieval, though the overwhelming bulk is of medieval date. The CBM has been recorded to a standard YAT methodology, with only a selective sample being retained for long term storage. In the case of this site 57 sherds have been retained, which account for 21% of the volume of tile excavated. The forms present are summarised in Table A1.3, while Table A1.4 provides context dating. In the interest of brevity, information relating to the various forms which has been given in Table A1.1 is not repeated here.

Roman CBM

The Roman CBM comprised 37.18% of the total volume examined. The Roman CBM comprised, flue, imbrices and tegulae, together with fragments of indeterminate form which are categorised as Roman brick in the recording methodology. All the Roman material was typical for York as a whole in terms of the fabrics present and the surviving dimensions. The only feature of note present was a possible surface keying line on a sherd of Roman brick.

Medieval CBM

The medieval material from the site included a range of roofing tiles (curved and flanged tile, hip tile, nib tile, peg tile, plain tile, ridge tile and crested ridge tile), plain glazed floor tile and bricks; collectively these accounted for 60.63% of the total volume of material examined. The medieval CBM was all typical for York in terms of the dimensions and fabrics present, though the proportion of curved and flange tile present was unusually high.

Seventy-two sherds of curved and flanged tiles were present. No complete length or breadth dimensions were present on these tiles, but of the curved tiles ranged in thicknesses from 11–17mm, while the flange tiles ranged in thickness from 12–23mm, with flanges 23–41mm in height. Four curved tile and two flange tiles sherds had surviving nail holes which were all circular and ranged from 7mm to 11mm in diameter. One of the flange tile sherds had green glaze on top.

The bulk of the medieval tile was plain tile. No length or breadth measurements survived on the plain tiles, but they ranged from 10–23mm in thickness. The only features of note were

that one tile was blown through over-firing and a second sherd had glaze on the broken surfaces indicating it was a waster.

There were 12 sherds of peg tile at the site, though it should be noted that unless corners of the tile are also present such sherds could be from a flanged tile (this is the case for 7 of the sherds). No lengths or breadths survived, but the peg tiles ranged from 12–18mm in thickness. There were nine square peg holes and three circular peg holes, which ranged in size from 10–13mm.

There was one sherd of crested ridge tile and 24 sherds of ridge tile present. In the case of the crested tile only a small portion of the crest survived. The ridge tiles ranged in thickness from 11–22mm.

There were fourteen sherds of 14–16th century plain glazed floor tile present. Four tiles were sufficiently well preserved to have length/breadth measurements, which ranged from 118–126mm, and the tiles ranged from 17–29mm in thickness. Three of the tiles had cream slip and clear glaze on the surface, while the remainder were heavily worn. Four of the tiles had nail holes present, which is a commonly seen feature relating to manufacture.

Ten sherds of medieval brick were present. Only two breadths survived which were 124mm and 136mm respectively, while the nine surviving thicknesses ranged from 29–47mm. Five of the bricks were made in sanded moulds, but no edges survived on the reaming sherds and the method of manufacture is therefore unclear.

Post-medieval CBM

The post-medieval material accounted for 2.19% of the CBM from the site and comprised just three sherds, one of slop moulded brick and two of pan tile.

Project 5584 Ceramic Building Material

A total of 432522g of ceramic building material (CBM), together with 11325g of stone roof/floor tile was analysed from project 5584. It should be noted that the post-excavation work for the site had not been completed at the time of writing, and as a result phasing information was not available for all contexts.

The CBM ranges in date from Roman to modern, though the overwhelming bulk is of medieval date. The CBM has been recorded to a standard YAT methodology, with only a selective sample of 220 sherds being retained for long term storage, amounting to 16.6% of the total volume examined. The forms present are summarised in Table A1.1, while Table A1.2 provides the spot-dating for the contexts concerned. Searches for comparative data within the YAT database (which constantly changes as new material is added) were undertaken on 6th April 2014.

Roman CBM

The Roman CBM comprised 20.49% of the total volume examined. Roman CBM was present in several contexts interpreted (in the stratigraphic analysis) as being of Roman date (Contexts

83208, 83206, 83205, 83269, 83282 and 83230), but the bulk of the Roman CBM occurred residually in contexts of post-Roman date.

The Roman CBM comprised bessalis, flue, imbrices and tegulae, together with fragments of indeterminate form which are categorised as Roman brick in the recording methodology. Much of this CBM was heavily abraded and clearly represented secondary deposition. All the Roman material was typical for York as a whole in terms of the fabrics present, the surviving dimensions and the features present relating to manufacture.

The single example of a bessalis was circular in plan, as opposed to square; circular bessalis are known elsewhere in York, but they are relatively rare (McComish 2012, 136). A sherd of box flue tile with combed keying was present; combed keying is the commonest form of keying in York (McComish 2012, 156). In addition, a second sherd of box flue was present with part of an unkeyed side pierced by a rectangular vent. One imbrex represented a waster, having blown to 26mm in thickness due to overfiring. The Roman brick included one example with knife cut mark on the upper surface, one with two knife cut keying lines on the base, one with finger keying lines on the upper surface, one with part of a signature mark (though too little was present to match to Betts' 1985 typology). One Roman brick had an illegible stamp, while a second example had a 9th legion stamp of type 2462.9a (Collingwood and Wright 1992, 171), which has previously been recorded in York. Twenty-nine of the Roman bricks had reduced cores, while one had an oxidised core, and three were overfired resulting in one vitrified sherd, one blown sherd and one waster. The tegulae included one with a type A2 lower cutaway, one with a type A26 lower cutaway, and two with Type B6 lower cutaways (Warry 2006, 63). These cutaway types have all been recorded in York before (Types A2 and B6 within YAT's collections and A26 within the collections of the York Museums Trust), with type B6 being the commonest form in York (McComish 2012, 226). In addition, there was a tegula which lacked a cutaway which presumably represents a manufacturing error. The tegulae also included one with a knife trimmed edges, one with an upper cutaway, four with pronounced finger groves by the flange and four with reduced cores.

Medieval CBM

The medieval material from the site included a range of roofing tiles (curved and flanged tile, hip tile, nib tile, peg tile, plain tile, ridge tile and crested ridge tile), plain glazed floor tile and bricks; collectively these accounted for 65.15% of the total volume of material examined.

Curved and flanged tiles

Curved and flange tiles came into use in York in the late 11th century, with examples known from 11th century contexts at four YAT excavations (40–45 Parliament Street and 3–9 Pavement, 44 Coney Street, Wellington Row and 41–49 Walmgate). The comparative rarity of these tiles in 11–12th century contexts would suggest that they were used on high status buildings, with thatch/shingles being the norm for the majority of houses. Curved and flanged tiles continued in use until the early 13th century when their use declined as peg/nib tiles came into widespread use (Lewis 1987, 6). Curved and flanged tiles were derived from Roman roofing tile forms (tegulae and imbrices), though there are some notable differences, firstly curved and flanged tiles are much smaller than Roman roof tiles, secondly the flanged tiles

lack the upper and lower cutaways seen on tegulae, and thirdly curved and flanged tiles usually have a nail hole at the upper end to secure the tile to the roof whereas nail holes are relatively rare on imbrices and tegulae (Warry 2006, 103; McComish 2012, 84). In addition, curved and flanged tiles are often glazed, or partially glazed, with examples known from across England, including Southampton, London (Dunning 1975, 190), York, and Scarborough Castle (where glazed examples were re-used in a fireback in the keep). Curved and flange tiles are known from 92 archaeological excavations undertaken by YAT across York, but they usually represent a small proportion of the tile recovered at any given excavation. At Haymarket the curved and flange tiles accounted for 13.62% of the total volume of CBM, which is an unusually high proportion.

No complete length or breadth dimensions were present on the curved or flange tiles, but the thicknesses of the curved tiles ranged from 11–19mm, while the flange tiles ranged from 11–22mm in thickness, with flanges 20–40mm in height. These dimensions are consistent with examples from elsewhere in York. Twelve of the curved tile sherds and six flange tiles had surviving nail holes which were all circular and ranged from 7mm to 10mm in diameter, which falls within the size-range previously recorded in York. The use of circular holes is consistent with the pattern seen across York where circular nail holes dominate, though occasional square and diamond shaped peg holes are known.

One of the larger flange tile sherds was parallel sided. Nationally both straight sided and tapering examples are known, straight sided from Southampton (Dunning 1975, 190) and tapering examples from London (Smith 1998–9, 68).

Four of the curved tiles had pronounced smoothing lines parallel to the long edge of the tile, while fifteen of the flange tiles had smoothing lines parallel to the flange. One flange tile had a cat's paw print on the upper surface, caused by the animal walking over the tile while it was laid out to dry prior to firing.

There were eight curved tile sherds with glaze on the upper surface, which was either clear or green in colour. In two cases it was possible to determine that the glaze had only been put on the lower portion of the tile, and that the tile had then been stacked on its upper end in the kiln, causing the glaze to run down the tile towards the peg hole. None of the flange tile fragments were glazed.

A large proportion of the curved (90 sherds) and flanged tiles (83 sherds) had reduced cores, caused by reduced levels of oxygen in the kiln during firing. It was clear that a number of these tiles (sixteen curved tiles and sixteen flanged tiles) had been reused as general building rubble within walls, as all surfaces, including breaks, were covered with heavy mortar.

Plain tile

The overwhelming bulk of the medieval roofing tile sherds were so fragmented that their original form was unclear, such fragments are termed plain. Sherds without surviving corners (1207 examples) could represent portions of flange, nib or peg tiles and could therefore date from the late 11th century to the 16th century. Sherds with surviving corners (140 examples) could represent portions of nib or peg tiles; these tiles could, therefore, be of any date from the latter half of the 12th century to the 16th century.

No length measurements survived on the plain tiles, but there was one breadth at 206mm wide and the thicknesses (1347 examples) ranged from 10–23mm. A wide variety of features relating to manufacture were present, but all of these have been recorded elsewhere in York. Nine of the sherds had indented borders caused by the edges of clay being tamped down following removal of the mould. There were 184 sherds with smoothing lines parallel to the longer edge, two with smoothing lines on the diagonal and three with smoothing lines in random directions. Eight of the plain tiles have accidental marks or on the upper surface, including three examples with grip marks, two with thumb prints, two sherds with grooves caused by grit being dragged over the surface during smoothing and one sherd with a squashed edge. One tile had a chicken footprint on the upper surface, while three had rain marks on top, indicating that these four tiles at least were laid on the ground to dry prior to firing. Four of the plain tiles had glaze on the upper surface. There were 158 plain tiles with reduced cores caused by a reduction in the oxygen levels within the kiln during firing. Two tiles were over fired, 12 tiles were blown through overfiring and five tiles had blown on the upper surface adjacent to limestone inclusions within the clay. Thirteen of the tiles had sooted breaks showing reuse and a further three had been cut down for use a counters.

It should also be noted that ten of the plain tiles were from context 83269, which has been interpreted as part of a Roman bank; these sherds would therefore seem to be intrusive.

Nib tiles

Nib tiles dating from the second half of the 12th century are known from Wharram and Bordesley Abbey, and they continued in use until the 16th century (Lewis 1987, 7–8). Nib tiles are relatively rare in York, a search of the YAT database revealed just 361 examples, from 52 sites across the city. The rarity of nib tiles in York is confirmed by the fact that none were seen by Betts' in his 1985 survey of tile from York. Nib tiles are similarly rare in London (Smith 1999, 66). Nib tiles can be manufactures in one of two ways, either one or two lumps of clay can be stuck to the back of the tile (the sanded side), or a small portion of clay can be pulled up from the front of the tile and bent over to form the nib, in which case the tile would be laid on the roof with the sanded reverse side facing outwards.

Just seven nib tile sherds were present at the site, five of which had the nib made from a separate lump of clay which had been stuck to the back of the tile, and two of which had the nib pulled over onto the front of the tile. The nib tiles ranged in thickness from 14–19mm, but no lengths or breadths survived. The tiles were typical in terms of the surviving dimensions and fabrics, except for one sherd in fabric M65 which is a relatively rare fabric across York.

Peg tile

Peg tiles range in date from the 13th–16th centuries. There were 101 sherds of peg tile at the site, though it should be noted that unless corners of the tile are also present such sherds could be from a flanged tile (this is the case for 59 of the sherds).

Although no lengths survived on the peg tiles, there were four breadth measurements which ranged from 201–210mm. The peg tiles from the site ranged in thickness from 10–19mm. The dimensions of the tiles are similar to other examples from York. There were 59 square peg holes, 33 circular peg holes and five diamond shaped peg holes, which ranged from 8–14mm in size. The dominance of square holes with smaller numbers of circular then diamond shapes

is typical for York as a whole, as are the peg hole sizes seen. In addition, there were two tiles where the peg hole had been chipped out after firing, presumably because the tiler had forgotten to punch the hole while the tile was still wet. There was also one sherd with both a circular and a square peg hole, which is unusual.

Various features relating to manufacture were present on the peg tiles. An impression from the hole-punch handle was seen on one tile. Four of the peg-holes were off-centre, which has been noted on other sites in York (Garside-Neville 1996, 296). Thirty-four tiles had smoothing lines on the upper surface, four tiles had indented borders where the tiler had tapped the sides of the tile down following removal of the tile from the former, and one of the tiles had two parallel lines drawn next to the peg hole which may represent a tally mark. One tile had a grip mark and a second had a possible thumb print. Accidental marks resultant from manufacture included a possible sleeve print, a smeared surface and two sherds with lines caused by grit being dragged across the surface of the tile while it was still wet. One tile had wire marks on the back suggesting a wire had been used to separate the tile from the workbench. Two sherds had rain marks on the upper surface resultant from being dried outdoors. Eight of the tiles had reduced cores. Three had areas on the upper surface which had blown adjacent to lime inclusions within the clay, and there was one tile which had blown due to overfiring. A single sherd had a fragment of iron adhering to the surface.

Hip tile

There was one sherd of hip tile which had a square peg hole 8mm in size, was 13mm thick and was in a commonly occurring fabric. Hip tiles are present across York, but always form a minor component of the medieval roofing tiles recorded.

Ridge and crested ridge tile

The earliest archaeological and documentary evidence for ridge tiles dates to the 13th century (Cherry 1991, 195) and they continued in use throughout the medieval period.

There were five sherds of crested ridge tile and 106 sherds of ridge tile present. No length or breadth measurements are present on either the ridge or crested ridge tiles, but the thicknesses of the crested tiles ranged from 16–17mm, while the thicknesses of the ridge tiles range from 12–20mm; the dimensions recorded fall within the range previously seen in York. Features relating to manufacture included six ridge tiles with smoothing lines parallel to the long side, seven glazed ridge tiles sherds, six with dark green glaze and one with clear glaze, and 28 of the ridge tiles had reduced cores. The crested ridge tiles were so badly broken that the original design of the crests was unclear in four cases, while the fifth example was in inverted triangle in shape.

Plain glazed floor tile

There were two sherds of plain glazed floor tiles, which range in date from the 14–16th centuries (Stopford 2005, 213). Both sherds had slight bevels and dark green glaze, and one of these sherds had a nail hole near the corner. The tiles were 22mm and 23mm thick respectively. The tiles were typical for York in terms of their size, fabric and characteristics.

Medieval bricks

Medieval bricks range in date from the 14th–16th centuries. The 42 sherds of medieval bricks at the site were typical for York in terms of their sizes (Betts 1985, 455–7), ranging in length from 256–280mm (three examples), in breadth from 122–139mm (16 examples) and in thickness from 30–50mm (33 examples). The majority of these bricks were made in sanded moulds (26 examples), which is the norm for medieval bricks in York (Betts 1985, 401); there were however three sherds made in slop-moulds, which is a technique that is normally associated with the post-medieval period. Some features relating to manufacture were present; two of the bricks had indented borders, nine had smoothing lines on the upper surface parallel to the stretcher, and one of the bricks had rain marks on the upper surface showing that it had been dried in the open air (prior to firing) rather than being dried in a shed.

Post-medieval CBM

The post-medieval material accounted for 8.94% of the CBM from the site. There was a single sherd of pan tile dating to the 17th century or later; this was slightly blown due to over firing. There were 27 sherds of post-medieval brick dating to the 16th–18th centuries, all of which were slop moulded, which was the dominant technique of manufacture for this period in York. The bricks ranged in length from 229–252mm (eleven examples), 105–128mm in breadth (nineteen examples) and 40–67mm in thickness (25 examples). All of the bricks were typical for York as a whole in terms of dimensions, with the exception of one brick at 252 x 110 x 46mm in size; the length of this was more typical of medieval bricks, but the breadth, thickness and use of slop-moulding was typical of the post-medieval period. Two of the bricks had indented borders, one had a thumb print on the back, four had turning marks on the base, one had smoothing lines on the upper surface parallel to the stretcher, and one had heavy wear on one bed, presumably having been used in a floor at some stage.

Modern CBM

Modern material made up just 2.83% of the CBM from the site. There were seven sherds of hand-made bricks dating from the mid-18th century or later; one length survived which was 225mm, and these bricks were 111–115mm in breadth (three examples) and 67–80mm thick (five examples), and all were slop moulded. Machine made sherds dating to the mid-19th century or later included a sherd of drain pipe, a sherd of wall tile, a sherd of machine made nib tile, a sherd of sanitary ware and four sherds of brown glazed sewer pipe.

Stone tiles

There were a small number of flat fragments of stone, accounting from 2.58% of the total volume of material from the site; the thicknesses of the fragments are suggestive of roofing and floor tiles.

There were twelve fragments of stone ranging from 13–25mm in thickness, the thicknesses being suggestive of stone roofing tiles, however, none of the fragments had peg holes surviving which would confirm that they were indeed roofing material. Three of the fragments were of magnesian limestone, one of oolitic limestone and eight were of micaceous sandstone.

Eight fragments of stone ranging from 20–57mm thick were interpreted as possible stone flooring; in one case use in a floor was clearly indicated as the upper surface was heavily worn.

Two of these fragments were of magnesian limestone, one was sandstone, and four were micaceous sandstone.

It is very difficult to date stone fragments such as these, though geology can sometimes help; oolitic limestone was used in Roman York but was not commonly used in the medieval period in York, suggesting that the single fragment of oolitic limestone was probably of Roman date. The magnesian limestone fragments could be Roman or medieval, as the stone was widely used in both periods. The micaceous sandstone fragments could be Roman or post-medieval to modern in date.

In addition to the fragments described above there was one sherd of machine cut white marble was present, which was clearly of modern date; this could have been a floor or wall tile

Project 5761 Ceramic Building Material

A small quantity of CBM and stone tile was revered from the site (135 sherds, collectively weighing 31520g). This ranged from Roman to post-medieval in date, though the bulk was of medieval date. This CBM was all typical for York as a whole in terms of the forms, fabrics and dimensions seen. The only contexts producing post-medieval material were 91007 and 90022. The forms present are summarised in Table A1.5, while Table A1.6 provides context dating. In the interest of brevity, information relating to the various forms which has been given in Table A1.1 is not repeated here.

Roman CBM

The Roman CBM comprised 24.06% of the total volume examined. The Roman CBM comprised imbrices and tegulae, together with fragments of indeterminate form which are categorised as Roman brick in the recording methodology. All the Roman material was typical for York as a whole in terms of the fabrics present and the surviving dimensions. The only features of note present were keying lines on a sherd of Roman brick, grass marks on the base of a sherd of Roman brick and wire-trimming on the base of a tegula.

Medieval CBM

The medieval material from the site included a range of roofing tiles (curved and flanged tile, nib tile, peg tile, plain tile, ridge tile and crested ridge tile) and bricks which collectively accounted for 64.51% of the total volume of material examined. The medieval CBM was all typical for York in terms of the forms, dimensions and fabrics present.

Nine sherds of curved and flanged tiles were present. No complete length or breadth dimensions were present on these tiles, but they ranged in thicknesses from 13–17mm, with flanges 25–34mm in height. One of the flange tile sherds had pronounced smoothing lines parallel to the flange.

The bulk of the medieval tile was plain tile (60 sherds). No length measurements survived on the plain tiles, but there was a single breadth measurement of 195mm and they ranged from 11–17mm in thickness. Features relating to manufacture were seen on some of the tiles including two with indented borders, three with smoothing lines parallel to the long edge, one with grip marks at the top of the tile, one with green glaze on the upper surface, six with

reduced cores and one which was badly warped in firing. One tile had sooted breaks implying that it had been used in a hearth at some stage.

There were five sherds of peg tile at the site (it should be noted that all of these sherds could be from flanged tiles). No lengths or breadths survived, but the peg tiles ranged from 13–16mm in thickness. There were two square peg holes and four circular peg holes, which ranged in size from 10–13mm.

Two sherds of nib tile were present, and in both cases the nib was stuck to the back of the tile. No complete lengths or breadths were present on these tiles, but they were 16mm and 18mm thick respectively.

There was one sherd of crested ridge tile present which was 19mm thick and had a crest in the shape of an inverted triangle. There were also six sherds of ridge tile ranging from 13–23mm in thickness (no other dimensions survive). Four of the ridge tiles had reduced cores.

There were thirteen sherds of 14–16th century brick present. The only length present was 278mm; the four surviving breadths ranged from 113–136mm wide, while the thicknesses ranged from 34–49mm. Nine of these bricks were slop moulded, but it was not possible to determine the method of manufacture in the remaining cases.

Post-medieval and modern CBM

The post-medieval material accounted for 9.76% of the CBM from the site and comprised just three sherds, two of slop moulded bricks and one of pan tile.

Stone tiles

There were two flat fragments of fine-grained stone, accounting from 1.67% of the total volume of material from the site; the thicknesses of the fragments are suggestive of roofing tiles, which could be of any date from Roman to the present.

Summary

The excavations outlined above produced Roman material in forms and fabrics typically seen across York. There were relatively few features of note on this material, but the presence of a legionary stamp is of interest, given that the legionary kilns are thought to have been in the nearby Aldwark area. It should also be noted that a possible Roman clay extraction pit was seen on the 1986 excavations, suggesting that the Haymarket area was a clay source for legionary production.

While much of the medieval and later CBM from the 1986 and 2012 excavations is of types routinely found across York, the excavations are notable for the large collection of curved and flanged tile present. At the 1986 excavations 18.74% of the total volume of CBM was curved and flanged tiles, whereas for the 2012 excavations the equivalent figure was 13.62%, and for the 2014 excavations it was 3.87%. By way of comparison at the sites of St Leonard's Hospital and Hungate (which have yielded the two largest excavated collections of CBM in York) curved and flanged tile accounted for just 0.41% and 0.33% of the total volume of CBM recorded, which is a more typical proportion.

The volume of curved and flanged tile present implies that a high status building of late 11th–early 13th century date existed in the vicinity, and it is tempting to suggest that they originated from the roof of the large stone-building in the south-eastern corner of the excavations that

has been tentatively dated as late 12th–early 13th century. The tiles could also have originated from the church of All Saints, Peasholme Green.

The presence of plain glazed floor tiles at both excavations is of interest; tiles of this type are rare in secular contexts, implying that they originated from All Saints church.

Recommendations for further work

The following recommendations are made for the CBM from the 1986 Haymarket car park excavations and the 2012 Former Hostel and Haymarket Car Park excavations. It should be noted however that the CBM from these sites should be examined in conjunction with that from a number of adjacent excavations (YAT projects 5073 and the portion project 5000 relating to the Ambulance Station) so as to fully understand the development of the area. Project 5073 in particular produced an exceptional collection of CBM including the only complete curved tile ever excavated by YAT, which is certainly worth illustration, and a group of unusual chamfered bricks which require further research and illustration.

Roman tile production

In the case of the 1986 Haymarket Car Park excavations the CBM needs examining in relation to the site stratigraphy to determine which contexts are of Roman date, and how much of the CMB occurs residually in contexts of medieval and later date.

Although there are no Roman structures in this area, and the CBM has little potential therefore for interpreting the structural development of the settlement, it does offer some potential for the study of legionary CBM production. While the legionary kilns in York have never been precisely located or excavated there is strong circumstantial evidence that they were located in the nearby Aldwark area, as a number of sites in the vicinity have yielded evidence for dumps of Roman material, and/or for clay extraction pits. Any future publication on the Haymarket site offers a chance to pull all this evidence together for publication, which would be of immense value for Roman ceramic studies in the city.

Curved and Flanged tiles

The collection of curved and flanged tiles of interest for York as whole, as it offers the a chance to research all tiles of this type from York so as to clarify the date at which they were introduced into the city, their sizes and shapes, and techniques of manufacture (including the fabric types seen) and the use of glazes. Detailed research and publication of these forms, is clearly merited, as it would add greatly to the knowledge of these relatively rare tiles both in York and nationally.

The preparation of distributions maps showing where the curved and flange tile was found across these sites (and adjacent the sites) may help to clarify whether the building in the south-eastern portion of the 2012 site was the most likely source for the curved and flange tile, or if they could have originated from All Saints church.

CBM from church/cemetery related contexts

In the case of the CBM from the cemetery-related contexts on the three excavations, the CBM is clearly the result of the accidental incorporation of sherds within grave fills, and such material is mainly of use for the dating of individual grave cuts.

There is, however, some potential to research plain glazed floor tiles from the 1986 and 2012 sites, together with adjacent sites. The plain glazed floor tiles from all the excavations in the area should be re-examined to determine if all the tiles are likely to have come from a single floor. Plotting the number and distribution of the sherds may indicate if they are present in sufficient numbers to indicate that All Saints Peasholme Green had a tile floor at some stage, or whether they seem to represent the random dumping of material from elsewhere in the city.

CBM relating to the major building in the south-eastern portion of the site

Detailed examination of any tile from the structural contexts on this site must be undertaken so as to clarify the date of construction, and the types of CBM used (if any). This may help refine the date of the building.

Post-medieval and modern CBM

There is very little material of this date, and it is all typical in terms of the forms, fabrics and methods of manufacture seen. This material offers relatively little potential for further research. If, however, the site is published in conjunction with the adjacent sites, notably project 5073, there is more potential for determining what building materials were used in the post-medieval period, whether bricks were obtained from multiple sources (a pattern seen in the post-medieval walling on the Hungate excavations, project code 5000), and how the various buildings were subdivided and adapted over time. Research into a number of unusual long chamfered bricks from project 5073 could also be undertaken to clarify their date and function. In addition a number of mullion bricks from across the Hungate area should be examined and published as they represent a valuable addition to the corpus of forms known from York.

Photography/Illustration

The following sherds from the 1986 and 2012 excavations should be illustrated, and in all cases this could be done photographically.

1986.14 – Plain glazed tiles with full breadths - one or two from Contexts 5019 (2 examples), 3005 and 3004

5584 – Curved tiles with interesting patterns of glazing - Contexts 83318 and 83198

5584 – Flange tile with straight sides – Context 83311

5584 – Flange with smoothing lines – Context 83004

5584 – Flange with reduced core – Context 83166

5584 – Nib tile with pulled over nib – one of two examples Contexts 83004 or 83278

5584 – Nib tile with nib stick to back – one of three examples Contexts 83004

5584 – Medieval brick to show sixe, sanding and rain marks - Context 83211

5584 – Post-medieval brick to shop slop moulded surface and turning mark – Context 83211

5584 – Peg tiles with off centre hole – one of two examples in Context 83106

5584 - Peg tile with centrally placed hole – Context 83106

5584 – Roman brick with legionary stamp – Context 83202

5584 – Tegula with lower cutaways – Context 83166, 83000 and 84919

5584 – Tegula without cutaway – Context 83166

In addition, at least one of the chamfered bricks and one of the mullion bricks from the wider Hungate area should be illustrated.

Retention/Discard

It should be noted that because the CBM has been recorded to a standard YAT methodology the decisions as to what should and should not be retained have already been made, based on a combination of retaining a representative sample for each site as a whole, and of forms that unusual for York as a whole.

Table A1.1 Project 5584, the weight in grams of each form of CBM, the sherd count and the weight in grams of each form expressed as a percentage of the total weight of CBM

Period	Form	Weight in grams	Sherd count	Weight as a % of total weight
Roman	Bessalis	150	1	0.03
	Flue	400	2	0.09
	Imbrex	6175	43	1.39
	Roman brick	61788	291	13.92
	Tegula	22430	80	5.05
Medieval	Crested	490	5	0.11
	Curved	21500	127	4.84
	Flange	38949	221	8.78
	Hip	175	1	0.04
	Medieval brick	26735	42	6.02
	Nib	1775	7	0.40
	Peg	26940	101	6.07
	Plain	159618	1355	35.96
	Plain glazed floor tile floor	150	2	0.03
	Ridge	12835	106	2.89
Post-medieval	Pan	225	1	0.05
	Post-medieval brick	39452	27	8.89
Modern	Brick	10450	7	2.35
	Drain	275	1	0.06
	Marble tile	125	1	0.03
	Nib	100	1	0.02
	Sanitary	375	1	0.08

	Sewer	1360	4	0.31
	Wall tile	50	1	0.01
Roman or later	Stone floor tile	7700	8	1.73
	Stone roof tile	3625	12	0.82

Table A1.2 Project 5584 CBM by context

Context	Dating	Forms present
83000	1850+	Drain, Medieval brick, Plain, Roman brick, Ridge, Tegula
83001	13–16th	Flange, Plain, Curved?
83002	1850+	Curved?, Flange, Medieval brick, Plain, Roman brick, Ridge, Sewer
83004	17th+	Crested, Curved, Curved?, Flange, Flange?, Medieval brick, Nib, Pan, Peg, Plain, Roman brick, Ridge, Stone peg?, Tegula
83008	16–18th	Post-medieval brick
83010	1–4th?	Stone peg?
83012	13–16th	Plain
83013	13–16th	Imbrex, Plain
83014	13–16th	Plain, Stone floor
83015	13–16th	Plain, Ridge, Tegula
83016	13–16th	Flange, Peg, Plain, Roman brick
83017	13–16th	Plain
83019	1750+	Brick, Medieval brick, Post-medieval brick, Peg, Plain, Ridge, Stone peg?
83022	1850+	Curved?, Flange. Flange?, Medieval brick, Peg, Plain, Roman brick, Sanitary, Sewer
83023	13–16th	Flange, Plain, Ridge
83024	16–18th	Post-medieval brick?, Plain
83025	1850+	Peg, Plain, Ridge, Sewer
83028	13–16th	Nib
83031	16–18th	Medieval brick, Post-medieval brick, Plain, Roman brick, Ridge
83033	13–16th	Plain
83037	14–16th	Medieval brick, Plain, Roman brick
83046	13–16th	Ridge
83048	1–4th	Roman brick, Tegula
83050	16–18th	Post-medieval brick
83056	13–16th	Post-medieval brick, Plain, Peg
83057	13–16th	Curved?, Flange, Imbrex, Plain, Roman brick, Ridge, Tegula
83072	16–18th	Post-medieval brick
83076	l11–e13th	Flange
83077	1–4th	Roman brick

83082	13–16th	Plain, Roman brick, Ridge
83084	16–18th	Post-medieval brick
83091	16–18th	Post-medieval brick
83106	16–18th	Curved, Curved?, Flange, Flange?, Medieval brick, Post-medieval brick, Peg, Plain, Roman brick, Ridge, Stone peg?
83115	14–16th	Medieval brick, Peg, Plain
83118	13–16th	Flange, Ridge, Tegula
83123	13–16th	Flange, Peg, Plain, Ridge
Context	Dating	Forms present
83124	1–4th	Roman brick, Tegula
83137	14–16th	Medieval brick, Peg, Plain
83151	13–16th	Peg, Plain
83155	14–16th	Medieval brick, Plain
83166	14–16th?	Curved, Curved?, Flange, Flange?, Imbrex, Medieval brick? Plain, Roman brick, Tegula
83171	1–4th	Roman brick, Tegula
83176	13–16th	Curved, Curved?, Flange, Flange?, Imbrex, Peg, Plain, Roman brick, Ridge, Stone peg, Tegula
83180	1–4th	Roman brick, Tegula
83184	1750–1850	Brick, Flange?, Plain, Roman brick
83186	13–16th	Bessalis, Plain, Roman brick, Ridge, Tegula
83188	14–16th	Imbrex, Medieval brick, Roman brick, Tegula
83190	13–16th	Flange, Peg, Plain
83194	13–16th	Curved, Peg, Plain, Roman brick
83195	13–16th	Flange, Plain, Ridge, Tegula
83196	13–16th	Flange, Plain
83198	1850+	Brick, Curved, Flange, Medieval brick, Peg, Plain
83202	13–16th	Plain, Roman brick, Tegula
83205	1–4th	Imbrex, Roman brick
83206	1–4th	Roman brick, Tegula
83208	1–4th	Roman brick
83209	16–18th	Post-medieval brick, Plain
83211	16–18th	Medieval brick, Post-medieval brick
83212	1–4th	Imbrex
83214	13–16th	Plain
83215	1–4th	Tegula, Stone peg?
83216	16–18th	Medieval brick, Post-medieval brick, Brick
83218	13–16th	Plain, Roman brick
83221	13–16th	Plain, Ridge
83222	13–16th	Peg, Plain, Ridge
83223	13–16th	Peg

83227	13–16th	Peg, Plain
83229	14–16th	Flange, Medieval brick, Peg, Plain
83230	1–4th	Imbrex
83232	13–16th	Peg, Plain, Roman brick, Ridge
83233	13–16th	Flange, Ridge
83238	13–16th	Peg, Plain, Ridge
83239	13–16th	Flange, flue, Peg, Plain, Roman brick, Ridge
Context	Dating	Forms present
83241	13–16th	Flange, Plain
83244	13–16th	Plain, Ridge
83245	13–16th	Plain
83249	13–16th	Peg, Plain
83257	13–16th	Plain, Roman brick, Ridge
83264	13–16th	Plain, Ridge
83269	14–16th	Flange, Medieval brick, Plain, Roman brick
83270	14–16th	Medieval brick, Plain
83271	13–16th	Imbrex, Plain, Ridge
83271	13–16th	Imbrex, Plain, Ridge
83272	13–16th	Flange, Plain, Roman brick, Tegula
83277	13–16th	Peg, Plain, Roman brick, Ridge
83278	1850+	Crested, Curved, Flange, Hip?, Nib, Peg, Plain, Ridge, Wall Tile
83282	1–4th	Imbrex, Roman brick
83285	13–16th	Plain, Roman brick, Tegula
83287	13–16th	Plain, Stone peg?
83288	13–16th	Plain, Flange
83292	l11–e13th	Flange?, Curved
83293	16–18th	Flange, Imbrex, Post-medieval brick, Plain, Roman brick, Ridge, Tegula
83294	13–16th	Plain, Roman brick
83295	13–16th	Flange?, Peg, Plain, Stone floor?
83299	l12–e13th	Curved, Curved?, Flange, Imbrex, Roman brick, Tegula
83311	l11–e13th	Flange, Flange?, Roman brick, Tegula
83312	13–16th	Plain, Ridge
83313	13–16th	Flange, Peg, Plain
83318	13–16th	Curved, Flange, Imbrex, Plain, Roman brick, Ridge, Tegula
83336	13–16th	Plain, Roman brick
83340	13–16th	Plain
83344	13–16th	Plain
83345	1–4th	Roman brick
83354	14–16th	Peg, Plain glazed floor, Plain, Roman brick, Ridge, Stone peg?, Tegula

83358	13–16th	Plain, Ridge
83365	14–16th	Flange, Medieval brick, Plain, Roman brick, Ridge
83366	14–16th	Flange, Medieval brick, Plain, Roman brick
83368	1–4th	Roman brick
83380	13–16th	Plain
83381	1–4th	Stone floor?, Stone peg?
Context	Dating	Forms present
83382	1–4th	Roman brick
83384	13–16th	Plain
83386	13–16th	Plain
83387	13–16th	Plain
83405	13–16th	Plain, Roman brick
83406	13–16th	Plain
83415	13–16th	Imbrex, Plain, Roman brick
83422	13–16th	Nib, Roman brick
83423	1–4th	Roman brick, Tegula
83425	13–16th	Flange, Peg, Plain, Roman brick
83426	14–16th	Flange, Medieval brick, Plain
83427	13–16th	Peg, Plain, Stone peg?, Tegula
83428	13–16th	Plain
83429	13–16th	Plain
83430	13–16th	Peg, Plain
83431	13–16th	Plain
83463	13–16th	Plain, Ridge
83464	13–16th	Plain, Roman brick
83466	13–16th	Plain
83504	1–4th	Roman brick
83522	13–16th	Plain, Roman brick
83525	13–16th	Plain
83533	14–16th	Medieval brick, Plain
83537	13–16th	Plain
83539	13–16th	Plain
83541	13–16th	Plain
83566	13–16th	Flange, Plain
83572	13–16th	Peg
83596	13–16th	Plain, Roman brick
83611	13–16th	Plain
83612	1–4th	Roman brick
83614	13–16th	Plain

83634	13–16th	Plain
83635	13–16th	Plain, Roman brick
83651	13–16th	Curved?, Plain, Roman brick
83671	13–16th	Plain
83672	13–16th	Plain, Roman brick
83673	13–16th	Curved?, Flange, Plain
Context	Dating	Forms present
83688	13–16th	Plain
83692	13–16th	Plain
83695	13–16th	Plain
83709	13–16th	Flange?, Plain
83719	13–16th	Plain, Roman brick
83738	13–16th	Plain
83743	13–16th	Plain
83746	13–16th	Peg, Plain
83756	1–4th	Roman brick
83783	13–16th	Plain
83786	13–16th	Plain
83799	13–16th	Plain, Roman brick
83805	l11–e13th	Flange, Roman brick
83808	1–4th	Roman brick
83817	13–16th	Plain
83830	13–16th	Plain, Roman brick
83860	1–4th	Roman brick
83863	1–4th	Roman brick
83902	13–16th	Plain
83908	13–16th	Plain, Roman brick
83922	13–16th	Peg, Plain
83925	13–16th	Plain
83974	1–4th	Tegula
83980	13–16th	Plain
83983	13–16th	Plain
84004	13–16th	Plain
84007	13–16th	Plain, Ridge
84013	13–16th	Plain
84019	1–4th	Tegula
84024	13–16th	Nib, Plain
84028	1–4th	Roman brick
84034	13–16th	Plain

84043	1–4th	Roman brick
84051	13–16th	Plain, Roman brick
84059	13–16th	Flange, Plain
84077	13–16th	Plain
84089	1–4th	Imbrex
84091	1–4th	Imbrex, Roman brick
Context	Dating	Forms present
84104	13–16th	Plain
84111	13–16th	Plain
84116	1–4th	Plain, Roman brick
84119	13–16th	Plain
84131	14–16th?	Medieval brick?, Plain
84133	13–16th	Plain
84140	13–16th	Imbrex, Plain
84140	13–16th	Plain
84143	13–16th	Plain
84149	13–16th	Plain
84164	13–16th	Plain
84173	14–16th?	Medieval brick?, Plain
84188	13–16th	Peg, Plain, Roman brick
84192	1–4th	Imbrex, Roman brick,Tegula
84209	13–16th	Plain, Roman brick
84210	13–16th	Plain
84211	13–16th	Plain
84212	13–16th	Plain, Ridge, Tegula
84220	13–16th	Plain
84234	13–16th	Plain
84237	13–16th	Plain
84241	13–16th	Peg, Plain
84248	13–16th	Plain
84266	13–16th	Plain
84272	13–16th	Plain
84275	13–16th	Plain
84278	1–4th	Roman brick, Stone floor?
84281	13–16th	Plain
84282	13–16th	Plain
84301	13–16th	Plain
84305	1–4th	Roman brick
84308	13–16th	Curved?, Plain, Roman brick

84326	13–16th	Plain
84329	13–16th	Plain
84332	13–16th	Plain
84339	13–16th	Curved, Flange, Plain, Roman brick
84356	13–16th	Plain
84368	13–16th	Plain
Context	Dating	Forms present
84377	13–16th	Plain, Roman brick
84389	1–4th	Roman brick
84389	13–16th	Imbrex, Plain, Roman brick
84421	1–4th	Roman brick
84424	l11–e13th	Flange
84478	13–16th	Ridge
84505	1–4th	Roman brick
84517	1–4th	Roman brick
84533	1–4th	Roman brick
84553	13–16th	Imbrex, Plain
84556	13–16th	Flange, Plain
84562	1–4th	Plain, Roman brick
84578	13–16th	Imbrex, Plain, Roman brick
84579	13–16th	Plain, Peg
84586	13–16th	Flange, Peg, Plain
84598	13–16th	Plain
84619	13–16th	Plain
84628	13–16th	Plain
84637	13–16th	Plain
84646	13–16th	Crested
84700	13–16th	Plain
84709	l11–e13th	Flange
84712	13–16th	Curved, Plain, Roman brick, Stone floor
84715	14–16th?	Medieval brick?, Plain
84721	1–4th	Imbrex
84730	13–16th	Plain
84778	13–16th	Plain
84823	13–16th	Crested
84826	13–16th	Crested, Plain
84837	13–16th	Imbrex, Plain,Tegula
84875	13–16th	Plain
84878	1–4th	Roman brick

84885	13–16th	Plain, Roman brick
84890	13–16th	Curved, Curved?, Plain, Roman brick
84899	1–4th	Roman brick
84901	13–16th	Imbrex, Plain, Roman brick
84902	1–4th	Imbrex, Roman brick, Tegula
84912	1–4th	Roman brick
Context	Dating	Forms present
84914	1–4th	Flue, Roman brick
84916	1–4th	Roman brick
84919	1–4th	Roman brick, Tegula
84920	13–16th	Plain
84927	1–4th	Imbrex, Roman brick
84929	1–4th	Roman brick
84932	1–4th	Imbrex, Roman brick
84940	1–4th	Imbrex, Roman brick, Tegula
84950	1–4th	Imbrex
85651	13–16th	Plain, Roman brick, Ridge
89913	1–4th	Roman brick, Stone floor?

Table A1.3 Project 1986.14, the weight in grams of each form of CBM, the sherd count and the weight in grams of each form expressed as a percentage of the total weight of CBM

Period	Form	Weight in grams	Sherd count	Weight as a % of total weight
Roman	Imbrex	1360	16	2.38
	Roman brick	12925	41	22.64
	Tegula	6940	17	12.16
Medieval	Crested	50	1	0.09
	Curved	4750	36	8.32
	Flange	5950	36	10.42
	Medieval brick	3745	10	6.56
	Peg	3275	12	5.74
	Plain	11877	131	20.80
	Plain glazed floor tile floor	2825	14	4.95
	Ridge	2145	24	3.76
Post-medieval	Pan	75	2	0.13
	Post-medieval brick	1175	1	2.06

Table A1.4 Project 1986.14 CBM by context

Context	Dating	Forms present
1003	17th+	Plain, Ridge, Crested, Pan
1007	13–16th	Ridge, Peg, Plain, Flange
1008	13–16th	Ridge
1013	13–16th	Ridge, Plain, Roman brick, Flange
2002	13–16th	Curved, Ridge, Plain, Flange, Roman brick
2005	13–16th	Flange, Imbrex, Plain
2006	13–16th	Tegula, Imbrex, Plain, Curved, Flange
3004	14–16th	Plain, Peg, Tegula, Medieval brick, Plain glazed floor
3005	14–16th	Plain, Peg, Plain glazed floor
3006	14–16th	Medieval brick
3007	14–16th	Roman brick, Medieval brick, Plain glazed floor, Plain
3008	14–16th	Plain, Plain glazed floor, Medieval brick
3013	13–16th	Roman brick, Tegula, Plain, Imbrex
3017	1–4th	Roman brick
4002	13–16th	Plain, Roman brick
4011	12–13th	Flange
4085	14–16th	Medieval brick, Peg
5000	17th+	Plain, Pan
5019	14–16th	Imbrex, Plain, Ridge, Flange, Plain glazed floor
5023	14–16th	Plain, Roman brick, Peg, Tegula, Imbrex, Curved, Flange, Plain glazed floor
5025	13–16th	Imbrex, Plain, Curved
5029	13–16th	Plain, Imbrex, Roman brick, Tegula, Ridge, Curved, Flange
5043	13–16th	Plain, Ridge
5083	12–13th	Curved
5096	13–16th	Peg
5102	1–4th	Roman brick
5103	13–16th	Roman brick, Plain
5107	1–4th	Roman brick, Tegula, Imbrex
5110	13–16th	Tegula, Plain
5124	13–16th	Plain, Peg
Context	Dating	Forms present
5138	13–16th	Ridge
5140	14–16th	Plain glazed floor, Plain, Peg
5160	16–18th	Pbrick, Flange
5163	13–16th	Plain
5173	1–4th	Roman brick

Table A1.5 Project 5761, the weight in grams of each form of CBM, the sherd count and the weight in grams of each form expressed as a percentage of the total weight of CBM

Period	Form	Weight in grams	Sherd count	Weight as a % of total weight
Roman	Imbrex	750	6	2.38
	Roman brick	5235	22	16.61
	Tegula	1600	6	5.08
Medieval	Crested	375	1	1.19
	Curved	200	1	0.63
	Flange	1020	8	3.24
	Medieval brick	8225	13	26.09
	Nib	500	2	1.59
	Peg	1425	5	4.52
	Plain	7875	60	24.98
	Ridge	715	6	2.27
Post-medieval	Pan	175	1	0.56
	Post-medieval brick	2900	2	9.20
Roman or later	Stone roof tile	525	2	1.67

Table A1.6 Project 5761 CBM by context

Context	Dating	Forms present
90000	13–16th	Plain
90022	17th+	Plain, Pan, Pbrick
90025	l11–e13th	Flange
90052	13–16th	Plain, Peg, Imbrex, Rbrick
90054	13–16th	Imbrex, plain, rbrick, tegula
90061	13–16th	Plain
90063	l11–e13th	Flange
90064	13–16th	Ridge
90065	l11–e13th	Curved, Flange, Imbrex, Rbrick, Tegula
90066	13–16th	Plain
90067	13–16th	Plain
90082	13–16th	Plain
90086	13–16th	Ridge
90130	13–16th	Plain, Peg, Ridge, Crested
90136	1–4th	Rbrick
91006	14–16th	Mbrick
91007	16–18th	Mbrick, Pbrick
91023	13–16th	Flange, Imbrex, Nib, Plain, Rbrick, Stone Peg?

91026	14–16th	Mbrick, Plain
91028	14–16th	Mbrick, Plain
91030	14–16th	Flange, Mbrick, Mbrick?, Nib, Peg, Plain, rbrick, tegula
91031	13–16th	Peg, Plain
91034	1–4th	Rbrick
91037	13–16th	Plain
91087	13–16th	Imbrex, Plain
91114	13–16th	Plain
91146	13–16th	Plain
91253	13–16th	Plain, Rbrick, tegula
91313	13–16th	Plain

APPENDIX 2 – ARCHITECTURAL FRAGMENTS

By J.M. McComish

Assemblage YORYM:2012.2 (Project 5584)

A total of seventeen architectural fragments (AFs) were recovered from the Former Hostel and Haymarket Car Park excavations and a catalogue of the AFs is given in Table A2.1.

Six of the AFs were probably of Roman origin, given that they were stone types commonly used in Roman York, but not medieval York (four were of millstone grit and two were of oolitic limestone). The original function of these six fragments was unclear as they were all badly battered and/or showed signs of re-use.

The remaining fragments were probably of medieval date, though the majority were too fragmentary to determine the original function or to refine the date; though two fragments were of ashlar, two were from jambs and one was part of a roll moulding. The original function of AF 16 is unclear, but this seems to pre-date 1270 and as such may relate to the large building in the south-eastern corner of the excavation.

Assemblage YORYM:1986.14

A total of 31 AFs were recovered from the Haymarket Car Park excavations and a catalogue is given in Table A2.2. These AFs were not fully recorded at the time of the original excavation, and subsequently a number of the AFs have been lost (AFs 1, 3, 6, 8, 14, 15, 18, and 22–23); the original catalogue entry for these missing fragments are given in Table A2.2. The surviving stones were examined in 2005 as part of a recording and rationalisation programme, when they were all discarded due to their small size, poor quality or damaged state.

It should be noted that when the church of All Saints, Peasholme Green, was demolished in the late 1580s, the stone was used to repair the roads in the Castle Mills area of York (Wilson and Mee 1998, 37); the robbing of the church was clearly very thorough, as relatively few AFs were recovered from the site.

All of the AFs examined in 2005 were of magnesian limestone, and they were probably of all of medieval date, though seven of these were too fragmentary to determine the original function or to refine the date. One block was of ashlar, four were from chamfered blocks, one was a column shaft 108mm in diameter, and eight were small fragments of roll mouldings of 13th century date. At least two types of roll moulding were present, one type being a roll 72mm in diameter (four examples), and the second type being a roll with a quirk, but the remaining rolls were too badly damaged to determine the original design.

According to the descriptions in the original finds register, the missing AFs included one semi-circular shaft, one column shaft 130mm in diameter, one block of possible ashlar, three fragments of window tracery, two fragments of uncertain form and one fragment of string-course with dog tooth moulding. From these descriptions only the string-course is closely datable, the dog-tooth decoration being a 13th century form.

Assemblage YORYM:2014.154 (Project 5761)

A total of five architectural fragments (AFs) were recovered from the excavations, all of which were of medieval date, and a catalogue of these is given in Table A2.3. One was a facing stone and one was a chamfered plinth. The original function of the remaining four fragments is unclear, and they need seeing by an architectural historian to clarify their original use.

Recommendations

Overall the poor quality of preservation means that these fragments have relatively limited research potential. Some analysis of the location of the various sherds on site should be undertaken, to determine if they may have originated from the church, or from the large building to the south-east of the church, or whether they simply represent the random use of whatever was to hand in secular buildings, or the random dumping of waste materials.

It is recommended, however, that Project 5584 AF 16 and project 5761 AFs 1–3 and AF 5 are seen by an architectural historian to determine their original function, and to clarify the dating.

Project 5584 AF16 should be illustrated. The claw tooling on AF11 could be illustrated photographically.

Bibliography

Betts, I. M., 1990. 'Building Materials. In J. Schofield, P. Allen, C. Taylor Medieval buildings and property development in the area of Cheapside'. *Transactions of the London and Middlesex Archaeological Society*, **41**, pp. 220–229

Dunning, G.C., 1975. 'Roof-fittings'. In C. Platt and R. Coleman-Smith, *Excavations in Medieval Southampton 1953–1969*. Leicester

Collingwood, R. G. and Wright, R. P., 1992. *The Roman inscriptions of Britain. Vol. II Fascicule 4.* Stroud: Alan Sutton.

Garside-Neville, S., 1996. 'Ceramic Building Materials'. In R. L. Kemp and C. P Graves *The Church and Gilbertine Priory of St Andrew, Fishergate,* **AY 11/2,** pp 294–297.

Lewis, J. M., 1987. 'Roof Tiles: Some Observations and Questions'. *Medieval Ceramics,* **11**, 3–14

McComish, J. M., 2012. *An Analysis of Roman Ceramic Building Material from York and its Immediate Environs,* MA dissertation University of York.

Smith, T. P., 1999. 'London's Earliest Medieval Roofing Tiles: a Comparative Study', *Medieval Ceramics*, **22**–**23**, 66–71.

Warry P., 2006. 'Tegulae: Manufacture, Typology and Use in Roman Britain'. *British Archaeological Reports British Series*, **417**, 1–167

Table A2.1 Project 5584 Catalogue of Architectural Fragments

Find	Context	Date	Details
AF1	83004	Medieval	Small almost cuboid fragment of magnesian limestone, no worked surfaces.
AF2	83229	1–4th?	Roughly rectangular block of millstone girt, no clear worked surfaces. One of two non-adjoining fragments of millstone grit from this context, this one was retained as a sample.
AF3	83229	1–4th?	Roughly rectangular block of millstone grit, no obvious worked surfaces. One of two non-adjoining fragments of millstone grit from this context.
AF4	83229	Medieval	Small fragment of possible ashlar block, one face surviving with faint striated tooling. Magnesian limestone.
AF5	83299	Medieval	Fragment of magnesian limestone, part of two faces surviving at right angles to one another, both with faint striated tooling on the surface.
AF6	83299	1–4th?	Oolitic limestone fragment, part of one face present (F1). Some striated tooling on F1. Reused as wall core.
AF7	83057	Medieval	Magnesian limestone block, part of two faces present at right angles to one another (F1–F2) all other faces broken off. Striated tooling on F1 and F2. Mortar present on F2 indicating reuse as all core
AF8	83004	Medieval	Magnesian limestone block. Part of two faces present (F1–F2) at an angle of 133 degrees to one another implying the block is part of a jamb. Striated tooling on both faces F1–F2 all other faces broken off Mortar on broken surfaces indicative of reuse as wall core.
AF9	83299	Medieval	Part of a jamb, four faces present (F1–4) all with striated tooling. Other sides broken off.
AF10	83106	Medieval	Small sliver of magnesian limestone, with part of two worked faces (F1–F2) at right angles to one another, both with striated tooling. All other sides broken off.
AF11	83076	1350–mid 16th	Small fragment of roll moulding with a quirk and fillet. Two surfaces present, F1 being the base or top and F2 being the moulded surface. Claw tooling on both faces, with 6 teeth per 10mm.
AF12	83176	Medieval	Magnesian limestone block. Four faces present (F1–4). F1–F3 forming three sides of a rectangular block and F4 being a small fact on F3 which seems to represent an attempt at re-cutting the block. F1 has been drilled through with the bore of the drill being 27mm wide and 123mm long.
AF13	83318	1–4th?	Small badly battered fragment of coarse grained sandstone. Part of two faces present (F1–2) which are at 90 degrees to one another with a rounded arris. Very abraded. No tooling. Geology suggests a Roman date.

Find	Context	Date	Details
AF14	83318	1–4th?	Badly battered block of oolitic limestone, part of two faces present (F1–F2) which are at right angles to one another, all other faces broken off. Vague traces of very coarse chisel marks, but very faint. Original function unclear.
AF15	83293	1–4th	Roughly triangular in plan, with four surfaces surviving, (F1–F4), which form the corner of a block, with F1–2 being the sides, F3 the flat base and F4 a slightly curving upper surface; the remaining two sides are broken off. All sides are eroded and battered. There are two grooves on F4, the better preserved is 125mm long, 17mm wide and 10mm deep, while the fainter of the two extends the width of the block and is 17mm wide and 5mm deep. F4 is irregular, possibly through reuse. The geology of the block, which is millstone grit is suggestive of Roman date. The original function is unknown.
AF16	83220	pre-1270	Large block of magnesian limestone, pierced by a small semi circular arch and part of a circular opening. Part of four original surfaces survive, the exterior elevation F1, the interior elevation F2, the base F3 and one side F4. F3 is very smooth, F4 is very roughly dressed. The small arch is rebated on F2 and chamfered on F1. The round opening is rebated on F2, which very pronounced striated tooling on the

			rebate, with the remains of a badly decayed roll moulding on F1. The original function is unclear, but if may be part of an arcade. It is recommended that this fragment is seen by an architectural historian to determine the function and date.
AF17	83004	Medieval	Magnesian limestone block, three original faces present (F1–F3) representing the corner of a rectangular block. Faint striated tooling on all surfaces.

Table A2.2 Project 1986.14 Catalogue of Architectural Fragments.

Those with at * are missing fragments

Find	Context	Date	Details
AF1*	3005	13–16th	Fragment of window tracery
AF2	3008	13–16th	Magnesian limestone. Base and two chamfered faces surviving (F1–3). No tooling on F1 (base) or F2. Some very faint claw tooling on F3, insufficiently clear to take a rubbing.
AF3*	3003		No description available
AF4	3003	13th	Magnesian limestone. Tiny fragment of roll moulding, too small to determine the diameter of the roll. No tooling.
AF5	3005	Medieval?	Magnesian limestone. An irregularly shaped fragment in poor condition, part of one face surviving (F1). No tooling.
AF6*	5023	13th	String-course with dog tooth decoration
AF7	5023	Medieval?	Magnesian limestone. Roughly dressed block, rectangular in shape, part of 4 faces surviving (F1–4), no tooling marks.
AF8*	5023		No description available
AF9	5023	13th	Magnesian limestone. Badly preserved possible roll moulding, No clear worked surfaces survive.
AF10	5023	13–16th	Magnesian limestone. Chamfered block with four faces surviving (F1–4). F1 and F4 are the internal and external faces of the block and F2–3 are chamfered surfaces of F1 and F4 respectively. They are chamfered at 45 degrees. All surfaces are badly abraded, no tooling visible. Possibly part of a window.
AF11	5023	Medieval?	Magnesian limestone. Roughly dressed block, rectangular in shape, part of 4 faces surviving (F1–4), no tooling marks.
AF12	5023	13th	Magnesian limestone. Tiny fragment of a filleted roll. Roll 72mm in diameter, projecting 49mm from wall (including fillet), fillet 18mm wide and 11mm deep. Base and top missing. No tooling.
AF13	5124	12–16th	Magnesian limestone. Small fragment of ashlar. One face surviving (F1) with claw tooling, 5 teeth marks per 10mm. Other faces broken off.
AF14*	5140		Window tracery
Find	Context	Date	Details
AF15*	5140		Junction of three faces. Probably ashlar.
AF16	5023	Medieval?	Magnesian limestone. Randomly shaped lump of stone. Possibly wall core. No worked faces.
AF17	5023	Medieval?	Magnesian limestone. Roughly dressed wall facing stone, part of one face only (F1) no clear tooling marks. Roughly rectangular in shape.
AF18*	5023		Pilaster shaft
AF19	5023	12–16th	Magnesian limestone. Part of three faces surviving (F1–3) forming the base, vertical face and chamfered surface of a block. Striated tooling on F1–2, but insufficiently clear for a rubbing.
AF20	5023	13–16th	Magnesian limestone. Chamfered block with four faces surviving (F1–4). F1 and F4 are the internal and external faces of the block and F2–3 are chamfered surfaces of F1 and F4 respectively. They are chamfered at 45 degrees. All surfaces are badly abraded, no tooling visible. Possibly part of a window. Identical in design to AF10.
AF21	5023	12–16th	Magnesian limestone. Roughly dressed wall facing stone, some faint striated tool

			marks on the external face (F1). Roughly rectangular in shape.
AF22*	5012		Semi circular flat based shaft
AF23*	5140		Window tracery
AF24	5140	13th	Magnesian limestone. Rough roll moulding with quirk. Very abraded. No tooling visible.
AF25	5140	13th	Magnesian limestone. Tiny fragment of a filleted roll. Roll 72mm in diameter, projecting 49mm from wall (including fillet), fillet 18mm wide and 11mm deep. Base and top missing. No tooling. Same as AF29.
AF26	1	13–16th	Magnesian limestone. Cylindrical column with top and base missing, but exterior surface (F1) preserved. No tooling.
AF27	5140	Medieval?	Magnesian limestone. Roughly dressed wall facing stone, no clear tooling. Roughly rectangular in shape.
AF28	5140	13th	Magnesian limestone. Tiny fragment of a filleted roll. Roll 72mm in diameter, projecting 49mm from wall (including fillet), fillet 18mm wide and 11mm deep. Base and top missing. No tooling.
Find	Context	Date	Details
AF29	5140	13th	Magnesian limestone. Tiny fragment of a filleted roll. Roll 72mm in diameter, projecting 49mm from wall (including fillet), fillet 18mm wide and 11mm deep. Base and top missing. No tooling.
AF30	5140	13th	Magnesian limestone. Tiny fragment of roll moulding, too small to determine the diameter of the roll. No tooling.
AF31	5000	13th+	Mangesian limestone. Small fragment with two roll mouldings (F1) with both curving and flat facets, no other faces surviving. Possibly tracery originally. Some very faint claw tooling on one roll with five teeth per 10mm. Retained.

Table A2.3 Project 5761 Catalogue of Architectural Fragments

Find	Context	Date	Details
AF1	91012	Medieval	Magnesian limestone block. Rectangular in plan with 4 surviving original surfaces (F1–4). F1 is the upper side which has a semi-circular roll moulding 0.63m in diameter at the arris with F3. F2 and 3 are the sides and F4 the base. The roll moulding and F1 are very chipped, but were originally smooth, the remaining sides have coarser striated tooling. Needs seeing by an architectural historian to determine the function.
AF2	91003	Medieval	Moulded magnesian limestone block with four original faces surviving (F1–4). F1 is the top, F2–F3 the sides and F4 the base. Roll moulding around two sides of the top. Striated tooling on the sides. Needs seeing by an architectural historian to determine the function.
AF3	91003	Medieval	Magnesian limestone block. Rectangular in plan with 4 surviving original surfaces (F1–4). F1 is the upper side which has a roll moulding 0.63m in diameter at the arris with F3. F2 and F3 are the sides and F4 the base. The roll moulding and rest of F1 are smooth, the remaining sides have striated tooling. Identical to AF3. AF3 was retained and this block was discarded.

Table A2.3 continued Project 5761 Catalogue of Architectural Fragments

Find	Context	Date	Details
AF4	91003	Medieval	Magnesian limestone block. Part of three original surfaces present (F1–3). F1 and F2 are the original exterior surfaces, and F3 the base. They form the corner of a plinth with both the upper portions of F1 and F2 being chamfered. The vertical portion of F1–2 is 0.25wm high and the chamfered portion 65mm high and at an angle of 0.30 degrees from the vertical. Faint striated tooling on base.

AF5	91003	Medieval	Magnesian limestone. Small squared block with 4 faces surviving (F1–F4) all with faint striated tooling. F1 is the top or base and F2–4 are the sides. Probably a wall facing stone.

APPENDIX 3 – POTTERY

BY A. JENNER

Introduction

A total of 17205 sherds of pottery was retrieved from three separate excavations at Haymarket Car Park, Peasholme Green (York Museum Accession Codes: YORYM:1986.14; YORYM:2014.154; YORYM:2012.2). The pottery from the three excavations is assessed here as one assemblage within this report.

1018 sherds of pottery were retrieved from excavations at Haymarket Car Park, Peasholme Green (YORYM:1986.14). A further 15815 sherds were found during excavations in 2012 (YORYM:2012.2) and a further excavation in 2014 (YORYM:2014.154) produced 372 sherds.

The three, mainly domestic, assemblages range in date from the Roman period to the 19th century. Most of the wares are typical of those found in York during this period and as such provide a slice through time.

Sherds are generally fairly small, but despite soil disturbance due to grave cutting and truncation during the post-medieval period, the sherds are generally un-abraded. This suggests that, although re-deposited in many instances, they have not travelled far from their original primary place of deposition.

The Anglian and Anglo-Scandinavian material, though generally small sherds, is of interest as it provides a dot on the distribution map for activity at this time. Our knowledge of the Anglian period in York was limited and focused mainly around Fishergate and Coppergate, though a scatter of material across York has now been recognised. Comparison could be made with material from these sites and also from excavations at Hungate, where material from Block H provides more complete comparanda.

Methodology

Fabric and forms are identified by eye and using a binocular microscope at x20 magnification. The latest date, or 'spot' date is given for each Context. Where relevant the fabric and form are described in more detail (Orton et al 1993) Made to the reference collection held at York Archaeological Trust and relevant literature. The approach used is based on that recommended by Orton Tyers and Vince (Orton et al 1993).

Discussion

Although the pottery is almost entirely domestic in character, there are a few sherds which may have been involved in some sort of industrial activity (5145; 91128; 90064). The former may have come from a post-medieval kiln (5145, though the latter two may have been used for alchemy or distillation. Similar wares have been noted, in greater quantities, from

excavations at the Bedern, where they are thought to be 15th century (Mainman and Jenner 2013, 1265–1273).

The rim of a Stamford-type crucible (83783) is a 9th century type (Kilmurry 1980, 17–19, forms 16–19). It may have been used for melting precious metals and glass to produce small items.

Roman

The Roman material is also typical for York and much of it may emanate from Britain, though amphora in buff and red fabrics (83674; 84192; 84919) and mortaria (84919; 91014; 91253) may come from further afield.

The range of fabrics include Ebor, samian and colour-coated, from the Nene Valley, as well as black burnished and Dales type wares. These wares span the period from the 1st century to the 3rd century and equate with Monaghan's ceramic phases 1 to 3 (see Monaghan 1997). There is no calcite-gritted ware which might be expected to be found in York in 4th century contexts (Monaghan's ceramic phase 4).

One reconstructable jar (1013) with a fine oxidised fabric similar to Ebor ware has a row of incised curved lines decorating its shoulder. One sherd of the same or similar fabric (1013) is heavily sooted and shows spots of what appears to be glaze. Another sherd, from the same context, with a similar oxidised but coarser fabric, has a row of raised scrolls as decoration. These sherds are unusual and rather fine.

Anglian and Anglo-Scandinavian

There is a notable, though limited, presence of middle Anglian material, which may be 7th to mid 9th century or ceramic phase 6 (see Mainman and Jenner 2013, 1173). Despite some sherds being difficult to assign a date other than somewhere between the Anglian and Anglo-Scandinavian periods, there are a few classic examples from this period. One shelly ware sherd (84569) is a direct parallel for one illustrated previously (Mainman, 1993, 596, fig. 242 nos 2412 and 2421). It was found during excavations at 46–54 Fishergate, where it was in period 3, dated to the 8th and 9th centuries (ibid, 566). It has a raised triangular rim/handle with a hole through it. The base is missing, but the Fishergate example is sooted suggesting its use, perhaps strung over a fire.

There are a few Anglo Scandinavian sherds including York ware, Torksey, 'd' wares and early glazed Anglo Scandinavian wares. Although York wares are not uncommon in York, there are few early glazed wares. Those published are from mid 10th- to mid 11th-century deposits, found during excavations at 16–22 Coppergate (Mainman 1990, 445).

One sherd (91138) appears to be hand-made and trued on a wheel. It has a hard, sandy fabric and coarse inclusions. It has a simple rounded, uneven rim with a patch of soot on the neck. This piece is rather enigmatic as it is not a commonly found local ware. It is in a context with wares which would have been in circulation from the 9th to the 11th century, but may be an earlier, residual piece.

Medieval

The usual sequence of white wares, including York glazed, Brandsby and Hambleton types, span the late 12th to early 15th centuries. Humber wares including sandy red and Walmgate

types are the main red wares dating from the late 13th to the 15th century. There are no surprises amongst the material from this period.

Post-medieval

As might be expected within a 16th century assemblage, there are a handful of Cistercian cups and mug fragments. One very small flask or costrel (SF73, 5023) is a miniature version of a Brears Type 5 form (Brears 1971, 20). Flasks are not as common as mug and cup forms, but it is even more unusual to find one this size (70mm high). This was either a child's toy, or it may have been used for holy water, in the same manner as an ampulla might have been used.

These wares develop into Midland Blackwares (Brears 1971, 37) by the early 17th century and although the repertoire varies slightly, the same form is still being made (Brears 1971, 37, no 8). Brears notes that they were used to contain medicine (Brears 1971, 39). Similar forms have been found from excavation, in their original wooden rack, in a chemists shop (Brears 1971, 39). These are probably housed in the Yorkshire Museum, though Brears does not make this clear (Brears 1971, 153–154, note 12).

There is very little 17th-century material, and virtually no 18th-century wares such as black glazed red earthen wares. There are few Ryedale wares, tin glazed and slip wares which might be at the end of their currency in the early 18th century, and a hand-full of imported wares (see below), but little else from this period. There are only a few sherds of fine white salt glazed wares (mid-18th century) and cream wares (late-18th/19th century), unlike contemporary assemblages from excavations at Hungate. This is presumably because the site was truncated at this time.

The plain utilitarian nature of the 19th-century material reflects an absence of fine wares such as hand painted tea and table wares. This is not reflected in the nearby Hungate excavations, where large quantities of 19th century material were found. The difference in sherd size is also notable, as those from Hungate are generally larger and vessels are generally more numerous and complete. This clearly suggests different methods of deposition and re-deposition as well as variations in activities carried out in the Haymarket and Hungate areas.

Nineteenth century fine wares include white earthen ware, a few transfer printed wares, a mustard pot and a few stone wares, including parts of a flagon and jar. Some brown stone wares may have come from blacking bottles. Ale and porter bottles were perhaps discarded elsewhere.

Imported wares

An Andenne type ware (83719), possibly a flask neck or spout, is an 11th-century type (Vince and Jenner 1981, 104). It may have come from kilns in Andenne or from the Meuse Valley (ibid 104).

There are few medieval imported wares from France. This is unusual, although they are seldom found in any quantity on sites in York.

One large Werra type slipware from that region in Germany, has fine alternating green and brown wavy line decoration. A similar bowl is illustrated from the Van Beuningen collection (Hurst 1986, 243 and 253 pl. XV).

German stone wares occur a little more frequently, from the 14th to the 18th and 19th centuries. These include rather functional Westerwald and one more elaborate Raeren type, though only a small amount of medieval types and a few 17th-century Frechen types. One post-medieval jug is in the same context as a Wera type dish (5000); both of which are quite fine early 17th-century wares.

Conclusion

The wares presented here, are not atypical for York. Even the imported wares turn up on many sites in the area, though in smaller quantities than at ports such as Southampton and London. What is more unusual is the spattering of Anglian material at what must be one of the most north-easterly find spots of the current recorded distribution of Anglian finds in York.

The 19th-century material from excavations at Hungate included a great deal of sponged and transfer-printed tea and table wares. This contrasts strikingly with the plain white earthen wares from Haymarket.

Recommendations for further work

The Roman material should be sent to a specialist for further identification and comparison with that from excavations at Hungate. In particular, the amphora and mortaria fragments should be sent to a specialist who may be able to identify their type, date and Country of origin.

Sherds of particular interest include the stamped mortaria, decorated fine ?Ebor type (1013) and the sherd with scroll decoration from the same context. It is recommended that they are drawn and reconstructed and shown to a specialist who may be able to shed light on their provenance and date.

The sparse distribution of Anglian and Anglo-Scandinavian material at the Haymarket suggests peripheral activity and deposition originating from the more intense activity represented during this period at Hungate. Specific sherds of hand-made ware, ‘d’ ware and early glazed ware, as well as shelly ware should be drawn and photographed and studied in relation to the more complete material from excavations at Hungate.

The Cistercian flask, Werra bowl and Raeren stone ware jug should be analysed further to confirm their function.

There are no other individual sherds that warrant further work.

Retention and discard

The assemblage should be kept in its entirety until comparative work is finished. Once this has been achieved, there is possibly little need to retain the post Cistercian/Midlands Blackware 17th, 18th and 19th-century wares.

It is recommended that any disposal of the collections should first consider use as teaching collections or for creative and training purposes generally.

Bibliography

AY. Addyman, P.V. (ed.). *The Archaeology of York*. (London and York)

16 *The Pottery*

5 A.J. Mainman 1990. *Anglo-Scandinavian Pottery from Coppergate*

6 A.J. Mainman, *Pottery from 46–54 Fishergate.*

9 A.J. Mainman and A. Jenner. *Medieval Pottery from York*

Brears, P.C.D., 1971. *The English Country Pottery; its History and Techniques.* (Newton Abbot)

Hurst, J.G. Neal, D.S. and Van Beuningen, H.J.F., 1986. 'Pottery Produced and Traded in North-West Europe. 1350–1650'. *Rotterdam Papers* **VI**

Kilmurry, K., 1980. *The Pottery Industry of Stamford, Lincs, c. AD 850–1250.* British Archaeological Report Series, **84** (Oxford)

Orton, C. Tyers, P. and Vince, A.G., 1993. *Pottery in Archaeology,* Cambridge Manuals in Archaeology

Table A3.1 Pottery quantification, 1986 assemblage

Context	Find	Quantity	Dating	Details
1002	BF63	4	19th century	1 Humber type earthen ware. 1 pearl. 1 gritty Brandsby type unmarked sherd loose in box. 1 hard unglazed earthen ware.
1003	BF64	31	19th century	1 early York glazed ware handle with flaked glaze slightly abraded. 1 pearl tea cup with part of thin gold band. 1 post-medieval earthen ware bowl or pancheon with internal yellow glaze and area of white slip externally.13 Brandsby type including bowl. 1 Brandsby type unglazed with reduced core. 1 Ryedale type glazed internally. 1 post-medieval earthen ware with fine quality green glaze externally. 2 gritty ware. 1 York glazed jug rim slightly abraded with flaked glaze. 4 splashed fine oxidised type. 2 sandy red ware.1 coarse oxidised gritty Anglo Scandinavian. 1 gritty medieval glazed with blackened external surface. 1 Stamford type white ware jug base abraded ?imported.
1007	BF65	64	Late 13th century	26 Brandsby jug and bowl large and small sherds. 1 early glazed type medium. 2 purplish brown glaze small and medium ?intrusive.12 Roman small. 14 gritty small and medium. 2 York ware type very small. 1 Stamford unglazed very small. 1 fine white gritty small. 1 Stamford yellow glazed small. 1 ceramic building material. 2 splashed coarse reduced small. 1 splashed fine reduced
1008	BF66	10	?11th century	1 white gritty scrap. 1 Roman coarse ware. 1 Roman rustic. 1 ?Roman buff jar rim. 1 Stamford type ?unglazed. 1 oxidised coarse ware bifid rim ?early medieval. 1 oxidised coarse ware with reduced core scrap. 3 Stamford unglazed. All small and medium sherds
1013	BF67	85	Late 11th/12th century	1 English brown stone ware very small intrusive. 21 Roman small to medium. 1 splashed coarse white small. 2 splashed fine white with reduced core small. 3 white gritty jar rim fine walled. 3 gritty jar with hooked rim reduced core and oxidised surfaces medium. 5 York ware gritty transition. 10 gritty jar. 1 fine oxidised costrel rim small. 3 York ware. 3 Anglo Scandinavian coarse wares with brown external surface. 1 coarsely gritted oxidised ware small similar to bifid rim in C 2007. 1

				fine walled lightly oxidised gritty ware small. 1 Roman type fine oxidised fine sandy ware with oxidised ban of stamped scrolls small. 29 Roman to Saxon fine oxidised jar with row of curved incised decoration including one heavily-sooted sherd with spots of glaze reconstruct profile smashed draw.
1014	BF68	11	9th to 11th century	6 Roman. 1 Stamford handle with splash yellow glaze burnt over break. 1 Stamford unglazed. 1 York ware. 1 fine white gritty. 1 early glazed similar to type 5. All small sherds.
1039	BF69	13	Roman	13 Roman small and medium.
1041	BF70	9	9th to 11th century	4 Roman. 2 coarse early glazed small.1 Ipswich type grey ware small. 1 ?Anglian quartz tempered with reduced core and brown surface. 1 oxidised sandy ware with black ?ink over the surfaces and break large.
2001	BF71	21	19th century	3 Hambleton small to medium. 5 Humber small. 1 medieval finely gritted small. 1 coarse oxidised jar base. 1 post-medieval earthen ware pancheon rim with brown banding. 1 transfer printed small. 1 post-medieval open ware with internal green glaze. 1 Roman very small. 7 English stone ware including green and brown glazed small.
2002	BF72	68	Late 13th–14th century	1 white gritty small. 16 Roman. 3 York ware medium. 5 white gritty fine walled jar including two with Anglo Scandinavian rims. 26 gritty ware with square 12th century rims. 1 York white ware. 1 Scarborough II. 5 Brandsby jug with ribbed rod handle large. 2 early York glazed. 1 splashed fine oxidised. 1 Humber. 1 Beverley type jug small. 5 splashed.
2003	BF75	9	9th–11th century	3 wheel thrown early post-Roman small. 2 Roman small. 1 'd' ware very small. 3 fine gritted ware.

2005	BF73	20	11th/12th century	1 Stamford small. 6 gritty jar with small square bifid edged rim. 3 gritty lightly oxidised with fine walls and folded over hooked rim. 1 Anglo-Scandinavian coarse grey ware base. 1 yellow glazed Stamford very even suspension glaze common on later yellow wares, small. 5 splashed including narrow strap handle with deep central groove. 3 coarse oxidised ?Roman with rough whitish deposit over internal surface.
2006	BF74	61	Late 11th/12th century	1 Anglian shelly 1 'd' ware with squared rim large [draw]. 44 gritty jar including oxidised and early fine walled types. 2 Stamford unglazed. 1 crucible rim sooted. 3 splashed white with reduced core large. 6 unglazed slashed fabric jug and jar rim, large. 1 coarsely gritted similar to York ware but thick walled. 1 Stamford yellow glazed small. 1 Stamford unglazed medium to large.
3003	BF76	2	Roman	2 Roman Samian.
3004	BF77	4	Anglian/Anglo-Scandinavian	3 Roman small 1 early glazed [photo].
3006	BF78	7	Roman	7 Roman.
3007	BF79	3	Roman	3 Roman, small.
3008	BF80	4	Roman	4 Roman, small.
3012	BF81	2	Roman	2 Roman, small.
3013	BF82	25	Roman	25 Roman.
4001	BF83	4	19th century	2 transfer printed possible 'fibre' pattern scraps. 1 transfer printed willow small. 1 English stone ware knop of lid or bung abraded.
4002	BF84	13	Late 16th– early18th century	7 Roman small medium. 4 Roman coarse ware slab built abraded. 1 splashed. 1 Ryedale.
4004	BF85	1	Roman	1 Roman.
4008	BF86	6	Roman	6 Roman.
4009	BF87	4	Roman	4 Roman.
4010	BF88	8	Roman	8 Roman.
4011	BF89	1	Roman	1 Roman.

5000	BF90	141	18th century	1 Raeren mug handle. 1 Werra earthen ware with fine alternating green and brown wavy line decoration. 5 French imported jug including Saintonge mottled green glazed type, small. 1 imported fine white ware with brown and yellow streaks. 20 Humber jug. 1 Humber scrap. 4 Hambleton type jug and handled jar. 1 Stamford unglazed. 6 Brandsby jug. 1 Langerwehe purple glazed. 1 German stone ware Raeren type moulded face. 3 brown glazed Humber stone ware jug copy large. 2 purple glazed. 1 Stamford splashed. 5 Roman. 1 Anglo-Scandinavian York type ware. 2 black glazed bowl/pancheon rim. 3 Cistercian ridged cup form type 13. 1 English stone ware small rim. 1 reduced green glazed scrap. 1 post-medieval slip ware. 1 post-medieval high fired reduced ware with green brown suspension glaze. 5 late Humber jar. 3 purple glazed. 8 splashed. 11 gritty. 3 Torksey type grey wares. 10 Roman 2 slip closed forms including marbled and trailed decoration. 2 English brown stone ware. 3 Scarborough Phase I, type 1, post-medieval earthenware with chestnut glaze rim. 12 Brandsby jug. 1 black glazed jar base, abraded. 1 post-medieval plain slip bowl or pancheon. 15 late Humber jars chafing dish. 1 post-medieval earthenware pancheon with brown glaze and slipped bands.
5019	BF99	2	Roman	2 Roman.

5023	BF91	56	16th century +	1 Anglo-Scandinavian gritty ware jar rim with dark reduced core and lightly oxidised internal surface, sooted externally and in a band along the inside of the rim. 1 Stamford unglazed type, white powdery concretion and patch of reduction or soot. 25 Roman, some with white concretion. 4 Cistercian. 1 Anglian shelly. 1 ceramic buildin scrap. 1 English stone ware, grey. 1 Frechen type. 2 purple glazed Humber type. 1 late Humber bowl with lid, seated flange rim. 4 Hambleton abraded. 5 Humber. 1 Scarborough I type, white concretion. 5 Brandsby. 1 coarse ware bowl with hard reduced fabric and green brown splashed glaze internally base. 1 coarse oxidised earthen ware with brown glaze, very small. 1 Cistercian miniature flask sf73.
5025	BF92	8	Late 11th–12th century	6 Roman. 2 fine buff gritty rim with small squared rim and lid seating.
5029	BF93	51	14th century	4 shelly. 1 ceramic building material Roman. 20 Roman. 1 ceramic building material with hole pre firing Roman. 1 Brandsby, complex rouletting, very small. 1 coarse post-medieval red ware with green-brown glaze scrap. 9 buff gritty jar including rim large and small. 5 splashed. 2 splashed fabric unglazed small. 1 Humber fine Minster type jug base. 1 oxidised gritty very small. 4 York ware type small. 1 burnt grey ware small
5051	BF94	2	Early 18th century	1 Roman scrap. 1 white salt glazed scrap.
5065	BF95	1	Late medieval–early post-medieval	1 coarsely gritted with green brown internal glaze.
5069	BF96	3	11th century	1 fine white gritty. 1 York ware. 1 coarse sandy with reduced core and oxidised surfaces base, all small
5085	BF97	6	16th century	3 Roman. 1 Hambleton. 1 Cistercian. 1 purple glazed
5088	BF98	1	15th century	1 Humber type.
5096	BF100	4	Post-Roman	2 Roman. 2 fine purple glazed ?imports.

5102	BF101	2	Roman	2 Roman abraded small and large.
5103	BF102	20	18th century	1 tin glazed scrap. 6 Brandsby very small and large. 4 Humber. 1 English stone ware scrap. 4 Hambleton small and medium abraded. 1 post-medieval earthen ware with amber glaze small. 1 post-medieval earthen ware with brown green glaze internally. 1 German stone ware very small. 1 yellow glazed scrap.
5105	BF103	1	12th century	1 buff gritty jar rim.
5107	BF104	4	Roman	4 Roman.
5110	BF105	105	14th century	3 Samian. 50 Roman mainly small. 24 gritty. 1 splashed fine white handle largest sherd. 1 York glazed. 1 pearl very small intrusive. 1 reduced covered with white powdery concretion. 2 sandy red ware. 3 Humber. 1 coarse oxidised sandy jar with square rim and purplish brown run of glaze internally. 1 brick red fabric coarse splashed. 6 York type ware sooted. 2 shelly small abraded and scrap. 1 splashed oxidised with reduced core. 1 splashed pale reduced fabric. 1 leached shelly abraded ?Anglian. 2 coarse oxidised hard. 1 unglazed splashed fabric. 1 coarse grey ware scrap. 2 fine coarse grey ware early post Roman.
5124	BF106	98	Late 14th century	4 Roman. 1 stone flooring. 1 Torksey type 1 Stamford unglazed. 5 gritty. 25 Brandsby small except for handle. 26 Humber. 2 oxidised fine sandy unglazed. 1 York glazed small form fine walled glazed both surfaces. 1 strap handle amber suspension glaze possibly Dutch. 11 Brandsby Hambleton transition. 1 Stamford type fine white ware large. 4 early York glazed including small rod handle. 4 Stamford glazed including one sooted. 6 splashed. 2 Stamford unglazed sooted. 1 York glazed. 1 splashed coarse pale reduced base. 1 grey coarse ware with square rim with groove along edge.
5135	BF107	5	Roman	5 Roman.
5138	BF108	8	Roman	8 Roman.
5140	BF109	1	Roman	1 ?Roman.
5145	BF110	19	12th century	7 Roman. 1 ?Anglian black core. 1 grey gritty. 1 coarse with drop of glaze industrial. 6 gritty. 1 splashed. 2 York ware. All small
5159	BF111	1	Roman	1 Roman.

5160	BF112	2	Roman	2 Roman.
5171	BF113	10	Roman	9 Roman. 1 shelly base Dales type.
5173	BF114	5	Roman	5 Roman.
5181	BF115	2	13th century	1 Roman. 1 Brandsby.
5188	BF116	1	12th century	1 gritty.

Table A3.2 Pottery quantification, 2012 assemblage

Context	Find	Quantity	Dating	Details	Phase
83000	BF182	188	19th century	24 Roman. 2 Torksey-type ware. 5 gritty wares. 2 Brandbsy-type wares. 12 Brandsby/Hambleton ware. 3 splashed wares. 10 19th century stonewares. 1 Westerwald. 2 Black wares. 3 transfer printed wares. 10 scraps. 1 slip ware base with red fabric and greenish glaze with lattice and dot decoration. 6 English stone ware jar. 1 English stone ware tankard base early. 1 stone ware with yellowish glaze 1 coarse white salt glazed stone ware jar base. 1 fine red ware with yellow suspension glaze. 4 cream ware. 3 pearl. 1 transfer. 9 Humber jug and cistern 4 sandy red jug with rod handle. 1 Yorkshire red ware. 4 Brandsby. 1 Stamford glazed jar rim. 1 Stamford unglazed. 3 white gritty. 5 York white ware, including one with incised wavy line decoration. 2 fine sandy with reduced core and buff surfaces. 1 ?ceramic building. 1 York glazed very abraded. 3 shelly ?post-Roman. 44 Roman including grey Samian and colour coated. 1 fine 12th century redware jar rim with patch of soot. 1 micaceous. 1 ?Anglian oxidised surfaces gritty and dark reduced core abraded. 2 gritty grey ware rims. 2 splashed. 1 reduced Humber tradition. 1 coarse red ware with amber glassy glaze. Many abraded small sherds	8300
83001	BF183	5	19th century	1 Roman. 2 Brandsby-type. 1 19th century pancheon. 1 scrap.	8304
83002	BF184	33	19th century	5 stoneware flagon sherds. 12 sherds of earthenware cistern. 3 salt-glazed earthenware. 8 stoneware. 1 Roman. 1 med. 3 19th century white wares.	8303
83003	BF185	11	19th century	3 medieval sherds. 7 white-glazed earthenware including teapot lid with transfer-print.	8302
83004	BF186	14	15th century	2 Roman. 1 gritty ware. 7 splashed ware. 3 York Glazed ware. 4 Humber wares.	8307
83010	BF187	10	11/12th century	2 Roman. 1 shelly. 4 burned Stamford. 1 Glazed Stamford. 2 splashed.	

83010	BF282	10	11/12th century	2 Roman. 1 shelly. 4 burned Stamford. 1 Glazed Stamford. 2 splashed.	
83011	BF283	3	Roman	3 Roman	8312
83012	BF284	3	Roman	3 Roman	
83013	BF285	11	11/12th century	7 Roman. 1 Anglo-Scan shelly. 1Gritty ware. 2 splashed wares	
83014	BF286	2	13th/14th century	2 York Glazed/ Brandsby-type.	
83015	BF287	6	11th/12th century	3 Roman including head pot. 1 gritty ware. 2 splashed wares.	
83017	BF289	2	Roman	2 Roman.	
83019	BF288	25	late 17th/early 18th cent	7 residual medieval. 10 Humber ware lobed bowl frags. 2 brown wares. 1 yellow banded slipware. 1 salt glazed earthenware. 4 good quality tin glazed earthenware.	8304
83022	BF290	14000	19th century	14 kilos mixed bags of burned (some vitrified) 19th century pancheons, plates, figurines, glass, tin cans, eathernwares. 1 19th-century mustard pot with legend 'MUSTARD' in cartouche 1 ?Roman perfume bottle with slag attached burnt almost complete.	8304
83023	BF291	3	14th/15th century	1 splashed ware. 1 Brandsby-type ware. 1 Humber ware	8304
83025	BF292	10	19th century	6 medieval sherds. 4 white earthenware.	8302
83029	BF293	3	11/12th century	1 Roman. 2 splashed wares	8312
83031	BF294	17	15th century	2 grittyware. 2 medieval. 3 late Humber	8303
83037	BF295	7	19th century	2 grittyware. 1 splashed.1 unknown.3 white earthenware	8301
83045	BF296	2	Roman	2 Roman.	8308
83047	BF297	34	11th/12th century	2 Roman. 2 Torksey-type. 1 Stamford. 5 splashed. 24 gritty wares.	8308
83048	BF298	10	11/12th century	2 Torksey-type. 2 splashed wares. 6 gritty wares.	8308
83057	BF299	3	13th/14th century	3 York Glazed wares.	8306
83076	BF300	22	19th century	9 Roman. 1 Anglo-scan shelly. 1 Torksey-type. 1 gritty ware. 1 splashed wares. 1 York Glazed ware. 17 19th-century earthenwares and white wares. 1 English stone ware.	8302
83077	BF301	10	11/12th century	9 gritty wares. 1 splashed ware.	8308
83078	BF303	3	15th century	1 Humber ware. 1 Hambleton ware. 1 splashed ware.	8304

83082	BF492	12	11th century	7 gritty ware. 5 Roman.	8308
83085	BF302	1	15th century	1 Humber ware.	8303
83093	BF304	1	19th century	1 white earthenware.	8303
83095	BF305	24	19th century	4 white glazed pancheon sherds. 1 Brown ware. 1 med residual. 18 white earthenwares.	8302
83103	BF306	2	Roman	2 Roman.	8308
83105	BF307	11	Roman	11 Roman.	8308
83106	BF308	1	10/11th century	1 Stamford ware.	8307
83106	BF320	1	15th century	1 Humber.	8307
83115	BF326	1	19th century	1 white earthenware.	8304
83115	BF309	7	14th/15th century	1 Hambleton. 3 Humber. 2 Walmgate. 1 Roman.	8304
83123	BF310	23	14th century	5 early Humber. 15 Brandsby. 2 Roman. 1 gritty.	8307
83124	BF311	5	Roman	4 Roman. 1 ?Roman.	8308
83135	BF312	30	19th century	20 19th-century white wares scraps. 10 white stoneware/earthenwares.	8304
83137	BF313	6	15th/16th century	1 Roman. 1 Hambleton. 1 brown ware. 3 splashed.	8305
83155	BF315	12	15th century	2 splashed ware. 1 Stamford ware. 7 Brandbsy-type. 2 Humber.	8309
83159	BF316	7	15th century	1 gritty ware. 1 Hambleton. 3 Brandsby-type. 2 red ware	8309
83166	BF317	1	12th or 15th century	1 splashed/Humber.	8317
83176	BF319	5	11/12th century	5 splashed.	8306
83180	BF318	1	Roman	1 Roman.	8317
83186	BF321	1	Roman	1 Roman.	8303
83188	BF314	1	15th century	1 late Humber.	8303
83190	BF322	7	13th century	1 Roman. 1 gritty ware. 3 splashed. 1 York Glazed ware	8310
83194	BF323	15	14th century	6 sandy red ware. 8 York Glazed ware. 1 Walmgate	8305
83196	BF324	4	?	Scraps.	8307
83198	BF325	4	17th century	1 late Humber. 3 slipware.	8304
83202	BF327	39	11/12th century	24 Roman. 10 Stamford. 4 Torksey type ware. 1 gritty ware.	
83205	BF328	5	Roman	5 Roman.	8321
83206	BF329	20	Roman	20 Roman.	8321
83208	BF330	1	Roman	1 Roman.	8321
83209	BF331	8	18th century	5 post-medieval red earthenware. 1 very good tin-glazed earthenware. 2 late Humber wares.	8303
83212	BF491	1	Roman	Roman.	8321
83214	BF490	8	16/17th century	3 Cistercian. 2 oxidised Ryedale. 1 slipware. 2 medieval.	8304
83215	BF493	17	11th century	12 Roman. 14 Stamford. 1 Torksey-type.	8312

83218	BF335	10	15th/16th century	2 Ryedale. 4 late Humber. 2 reduced green glazed.	8303
83221	BF336	15	11/12th century	2 Torksey-type wares. 3 splashed wares. 10 gritty wares	8307
83222	BF337	3	14th century	1 Anglo-Scan shelly. 1 Walmgate. 1 Brandsby-type	8305
83223	BF338	4	13th/14th century	1 Stamford. 1 grittyware. 1 splashed. 1 York Glazed ware	8307
83227	BF339	2	15th century	2 Humber ware.	8305
83229	BF340	2	15th century	1 Humber1 Hambleton.	8305
83230	BF341	3	Roman	3 Roman.	8319
83237	BF342	2	Roman	2 Roman.	8319
83239	BF343	2	15th century	2 Hambleton.	8310
83239	BF354	5	13th century	1 gritty ware. 1 splashed ware. 3 York Glazed ware.	8310
83241	BF355	2	13th century	2 York Glazed ware.	8310
83244	BF345	1	13th century	1 York Glazed ware.1 early glazed ware.	8310
83246	BF356	49	?	Scraps.	8304
83249	BF344	1	11/12th century	1 Gritty ware.	8304
83250	BF346	4	11/12th century	4 gritty ware.	8314
83251	BF347	1	11/12th century	1 gritty ware.	8314
83257	BF353	2	14th/15th century	1 Humber. 1 Brandsby.	8307
83269	BF348	11	Roman	11 Roman.	8321
83270	BF349	7	15th century	2 Humber. 1 Roman. 1 Torksey. 1 gritty ware. 2 splashed wares.	8305
83273	BF809	1	Roman	1 Roman grey ware.	8313
83274	BF350	3	11/12th century	1 gritty ware. 1 Torksey-type. 1 splashed ware.	8312
83277	BF351	2	11/12th century	2 splashed wares.	8305
83278	BF352	22	13th century	2 Stamford ware. 8 splashed. 3 York Glazed ware. 5 gritty ware. 3 Torksey-type. 1 Anglo-Saxon rim (?).	8314
83278	BF382	23	13th century	3 Roman. 2 grittyware. 14 splashed ware. 1 York Glazed ware. 1 Stamford ware. 1 reduced ware. 1 white gritty.	8314
83279	BF482	4	11/12th century	2 gritty wares. 1 Torksey-type. 1 Stamford.	8313
83280	BF1736	1	?12th century	1 gritty ware scrap, found with SK 4.	
83282	BF379	38	Roman	38 Roman.	8320
83283	BF387	5	11/12th century	3 gritty ware. 1 Torksey. 1 splashed.	8313
83285	BF381	1	15th century	1 Humber ware.	8313
83287	BF472	6	13th century	3 York Glazed wares. 1 gritty ware. 1 Stamford ware.	8315

83288	BF388	1	19th century	1 Black pancheon (Intrusive?)	8306
83292	BF368	1	10/11th century	1 Stamford ware.	8311
83294	BF489	3	14/15th century	2 German stoneware. 1 Roman.	8306
83295	BF380	6	13th century	2 York Glazed ware.3 splashed wares. 1 shelly.	8315
83296	BF188	2	13/14th century	Scraps.	8317
83298	BF480	3	11/12th century	1 Stamford ware. 2 gritty ware.	8315
83311	BF475	1	Roman	Roman.	8317
83312	BF474	1	11/12th century	1 splashed.	8315
83313	BF488	5	Roman	5 Roman.	8315
83328	BF470	2	Roman	1 Roman sn. 8327 Sub. SN. Grid. A2. 1 Roman SN. 8327 Sub. SN. Grid. A3.	8310
83328	BF361	2	Roman	2 Roman SN. 8327 Sub. SN. Grid A1.	8310
83328	BF394	8	13/14th century and Roman	1 scrap ? splashed ? Humber 3 Roman 4 York glazed or Roman green glazed ware	8310
83336	BF383	1	11/12th century	1 gritty ware.	8310
83338	BF483	4	Roman	Roman.	8320
83344	BF484	2	16th century	1 Roman. 1 Cistercian.	
83344	BF473	3	14th century	1 York Glazed ware. 1 splashed ware. 1 Walmgate ware.	
83345	BF487	2	Roman	2 Roman.	8310
83351	BF479	1	Roman	Roman.	8312
83351	BF476	5	Roman	Roman.	8312
83361	BF384	3	19th century	3 19th century white transfer printed ware.	8304
83365	BF471	3	17th century	Post-medieval red wares.	
83366	BF477	1	Roman	Roman.	
83368	BF485	2	Roman	Roman.	
83378	BF385	1	13th century	1 York Glazed ware.	
83379	BF481	4	11/12th century	2 Torksey type.1 splashed. 1 gritty ware.	
83381	BF386	6	11/12th century	4 Roman. 2 splashed wares.	
83382	BF378	4	Roman	4 Roman.	
83384	BF478	1	?	?	
83388	BF486	1	13th century	1 York Glazed ware.	
83389	BF811	1	10th century	1 Torksey.	
83391	BF1739	1	Roman	1 grey ware scrap found with SK 10.	
83393	BF1740	1	?Early medieval	1 gritty ware scrap found with SK 12.	
83422	BF603	2	Roman 2nd century	1 Roman grey ware rim medium. 1 Roman black burnished rim, small.	

83423	BF604	8	Roman	1 Ebor ware bowl large. 1 grey ware rim medium slightly abraded. 5 colour coated small. 1 ?Ebor small.	
83424	BF605	2	Roman	1 colour coated small. 1 ?Ebor small.	
83425	BF606	3	Roman	1 Samian small. 1 colour coated small. 1 grey ware.	
83426	BF607	1	? Roman	1 fine oxidised earthenware.	
83430	BF608	1	14th century	1 Humber small.	
83431	BF609	2	? Roman	1 Roman grey small. 1 scrap York glazed.	
83456	BF391	3	Late 13th/Early 14th century	3 scraps York glazed and Brandsby-type, SN. 8330 Sub. SN. Grid. B2.	
83464	BF610	4	Early medieval	2 Stamford glazed small. 1 Roman abraded small. 1 Ebor type.	
83465	BF611	6	12th century	1 Roman small hard grey dense core brown surfaces. 1 Roman black burnished very small <3cm. 1 York glazed scrap 1. ?Ebor small. 1 ?Argonne type small. 1 Stamford small.	
83474	BF612	5	Roman	5 Roman	
83482	BF613	6	16th century	1 Cistercian small. 1 medieval green glazed rod handle medium. 1 oxidised moderately gritted earthen ware base with chestnut glaze small. 3 splashed small. All abraded except Cistercian	
83522	BF614	3	Roman	3 Roman Ebor, small.	
83533	BF615	2	Roman	2 Roman, small.	
83539	BF616	1	Early medieval	1 Stamford glazed with yellow glaze and incised geometric decoration, small.	
83560	BF393	2	Late 13th/Early 14th century	2 Brandsby-type SN. 8337 Sub. SN. Grid C. or G 2.	
83566	BF617	3	Roman	1 Roman, very small.	
83570	BF618	3	Early medieval	1 Stamford with yellow-brown glaze, small. 1 early splashed fine hard oxidised fabric. 1 Roman abraded very small.	
83572	BF619	1	18th century	1 English brown stone ware very, small.	
83584	BF620	1	13th century	1 York glazed, small.	
83592	BF813	1	Roman	1 Samian.	

83596	BF621	29	Mostly 11/12th century	1 Samian scrap. 1 shelly ware rim medium. 1 Torksey bowl rim with thumbed edge large. 2 coarse oxidised jar rim. 4 York ware rim, small. 3 Stamford unglazed base, medium. 2 splashed with pale reduced fabrics, small to medium. 2 buff white gritty, small. 2 splashed pitcher moderately gritted oxidised rim. 2 splashed moderately gritted reduced, small. 5 Roman, small. 1 coarsely gritted reduced green glazed. 1 unknown incised decoration and splash of dark brown glaze small. 1 amber glazed bowl rim small.	
83602	BF622	1	10/11th century	1 York ware.	
83606	BF623	2	11/12th century	1 Stamford splash glazed. 1 Stamford unglazed.	
83609	BF624	1	Roman	1 Roman grey base.	
83611	BF625	1	Late 12th/early 13th century	1 York glazed.	
83612	BF626	2	13th century	1 Torksey thumbed rim. 1 gritty Brandsby.	
83614	BF627	1	?Roman	1 Roman jar rim.	
83647	BF628	2	10/11th century	1 York ware type oxidised. 1 Stamford unglazed.	
83651	BF1737	5	18th century +	1 Humber medium. 1 post-medieval earthenware with white slip light green glaze on the surface and brown under rimsmall. 1 banded slip plain small. 1 gritty ware scrap. 1 tin glazed scrap.	
83661	BF1738	4	12th century	1 gritty ware, small. 1 splashed, small. 1 Roman grey ware tiny scrap. 1 highly micaceous scrap, found with SK 98.	
83671	BF629	1	12th century	1 buff gritty ware jar rim.	
83672	BF630	1	Roman	1 Roman.	
83673	BF631	1	Roman	1 Roman grey ware.	
83674	BF632	1	Roman	1 Roman buff amphora rim.	
83715	BF633	3	11/12th century	2 Stamford yellow glaze. 1 Roman.	
83717	BF634	1	Anglo-Scandinavian?	1 fine hard gritty lightly oxidised.	
83719	BF635	5	11th century	1 ?Ceramic building material ?Roman. 1 ?Andenne flask rim lightly oxidised fabric. 1 white gritty. 1 Torksey type. 1 gritty grey ware.	

83746	BF636	4	15th century	1 Humber large ribbed strap handle. 1 fine oxidised ware with splash of brown glaze. 1 Humber reduced green glazed. 1 unknown coarse reduced ware with wide oxidised margins and black abraded internal surface.	
83749	BF637	3	10th century	1 Roman scrap. 1 Torksey type grey ware jar rim. 1 Roman white ware rim.	
83757	BF817	1	Ebor	1 Roman.	
83765	BF638	1	10th century	1 Torksey kiln	
83768	BF639	2	10?11th century	1 Torksey. 1 York ware.	
83771	BF640	2	Early medieval	1 medieval splashed base. 1 ?coarse Ebor.	
83776	BF641	1	? Roman	1 Roman scrap.	
83783	BF642	2	9/10th century	1 Stamford crucible. 1 Stamford unglazed.	
83789	BF643	1	Roman	1 Roman. 1 scrap.	
83793	BF644	1	11th century	1 white gritty.	8312
83808	BF645	3	10/11th century	1 Samian. 1 Stamford unglazed. 1 York ware type.	
83820	BF646	4	14th century	3 Roman. 1 Humber.	
83833	BF647	1	Late 12th/early 13th century	1 York glazed.	
83860	BF648	8	10/11th century	2 Torksey type. 1 Stamford unglazed. 3 York ware. 2 Anglo-Scandinavian sparse shell.	
83863	BF649	13	11th century	8 Roman. 1 ?Roman green glazed. 1 Andenne. 1 Stamford glazed. 1 early medieval.	
83887	BF650	1	11/12th century	1 splashed ware with coarse white fabric light green and brown glaze ?IMPORTED.	
83905	BF651	1	10th century	1 Torksey type.	
83908	BF652	3	12th century	1 Torksey 1 early York glazed. 1 fine hard oxidised ware.	
83910	BF653	2	Roman	2 Roman abraded.	
83916	BF654	1	?Roman	1 ?Roman grey external surface oxidised interior.	
83928	BF819	1	14th century	1 late Brandsby type jug rim.	
83946	BF655	1	? Roman	1 coarse jar rim.	
83950	BF656	5	11th century	1 Roman. 3 white gritty with fine walls and hard fabric. 1 Stamford.	

83951	BF781	23	11th century	3 ?Roman coarse Ebor oxidised throughout. 7 York ware jar. 1 fine soapy reduced ware ?goblet rim with buff brown heavily knife trimmed surfaces. 1 Roman base. 7 white gritty with hooked rim 11th century type. 1 Roman shelly 2 'd' ware. 1 oxidised hard gritty with fine wall similar to York ware.	
83962	BF657	1	? Roman	1 ?Roman hard gritty with occasional chalk inclusions.	
83965	BF658	1	Roman	1 fine Roman dish.	
83974	BF659	1	11th century	1 York type ware.	
83981	BF660	2	11/12th century	1 white gritty. 1 Roman.	
83983	BF661	1	Post-medieval	1 post-medieval red ware with watery light green and yellow glaze.	
83995	BF662	1	Roman	1 Roman.	
84001	BF663	1	9/10th century	1 'd' ware.	
84004	BF664	3	Late 16th century	1 post-medieval late Hambleton/Ryedale light green glazed. 1 early York glazed with applied notched strip. 1 Stamford unglazed.	
84011	BF665	1	11th century	1 white gritty jar base, sooted.	
84014	BF666	3	Roman	3 Roman.	
84024	BF667	3	14th/15th century	3 Humber.	
84028	BF668	3	Late 12th/13th century	1 Stamford unglazed. 1 York glazed. 1 finely gritted.	
84031	BF1741	1	12th century	1 gritty ware small.	
84046	BF670	1	Roman	1 Samian.	
84052	BF671	1	9th/10th century	'd' ware.	
84063	BF672	1	Roman	2 Roman.	
84068	BF673	1	?Anglo-Scandinavian	1 micaceous grey ware.	
84074	BF674	1	Roman	1 Roman.	
84077	BF675	1	Roman	1 Roman.	
84092	BF676	1	Roman	1 Roman.	
84093	BF677	1	19th century	1 transfer printed scrap.	
84093	BF823	1	Roman	1 Roman.	
84101	BF678	1	9th–11th century	1 Stamford unglazed.	
84104	BF679	1	12th–13th century	1 Stamford green glazed.	
84119	BF680	1	Late 12th–13th century	1 Early York glazed.	
84128	BF681	1	Roman	1 Roman.	
84129	BF682	1	12th–13th century	1 splashed scrap coarse white fabric yellow and brown glaze.	

84131	BF683	1	Roman	2 Roman.	
84149	BF684	3	16th century	1 Cistercian. 1 York glazed. 1 splashed.	
84155	BF685	2	Roman	1 Roman. 1 sponged scrap.	
84164	BF686	1	14th century	1 Humber with reduced fabric and incised wavy line decoration.	
84173	BF687	1	Late 13th–early 14th century	1 North Yorkshire fine red ware with lustrous green brown glaze.	
84185	BF688	2	Late 12th century	1 Roman. 1 early York glazed.	
84188	BF689	1	9th–11th century	1 Stamford unglazed.	
84192	BF1742	1	Roman	1 Roman amphora red ware with reduced core.	
84209	BF690	2	10th–11th century	1 'd' ware. 1 unknown grey ware with hooked rim abraded.	
84217	BF782	1	9th–10th century	1 grey ware scrap.	
84218	BF691	1	Roman	1 Roman gritty.	
84220	BF692	2	13th century	1 York ware. 1 gritty Brandsby	
84234	BF693	4	Late 13th–14th century	1 ?'d' ware. 1 Scarborough Phase I type. 1 ?Roman coarse Ebor. 1 unknown black core white surfaces burnt ?crucible.	
84241	BF695	1	?Roman	1 Roman.	
84272	BF696	2	12th–13th century	1 splashed handle with central groove. 1 scrap yellow glazed intrusive.	
84273	BF697	1	Late 12th–early 13th century	1 York glazed scrap.	
84284	BF698	2	Late 12th–early 13th century	1 early York glazed. 1 Roman	
84305	BF699	6	Late 12th–early 13th century	2 splashed bowl base and flanged rim. 1 gritty York ware type. 1 early York glazed. 1 York glazed. 1 splashed reduced.	
84308	BF700	1	Late 12th–early 13th century	1 York glazed.	
84320	BF701	1	Roman	1 Roman.	
84326	BF702	1	?Roman	1 ?Roman stone.	
84329	BF703	1	Early 12th century	1 Stamford green glazed.	
84332	BF704	1	12th century	1 Stamford type lightly oxidised yellow and green glaze.	
84339	BF705	8	Early–mid-18TH century	1 Westerwald stone ware. 2 York glazed rim white fine type. 2 Humber. 1 Hambleton/Ryedale scrap. 1 yellow glazed late Humber type. 1 white salt glazed.	
84340	BF706	1	Late 12th–early 13th century	1 splashed/early York glazed.	
84367	BF707	3	Roman	3 Roman.	
84368	BF708	2	13th century	1 York glazed. 1 Humber	
84371	BF709	1	Roman	1 Roman abraded.	

84377	BF710	1	Late 12th–early 13th century	1 York glazed.	
84389	BF711	7	13th–14th Century	1 Humber. 4 Roman. 1 Stamford unglazed. 1 gritty.	
84395	BF712	1	12th century	1 gritty.	
84401	BF714	1	Late medieval	1 late medieval glazed ware.	
84402	BF715	1	Roman	1 Samian.	
84412	BF824	1	Late 13th–early 14th century	1 Brandsby jug rim.	
84412	BF392	1	Late 13th–14th century	1 Brandsby-type jug rim with lip SN. 8340 Sub SN. C. or G. 2.	
84430	BF716	1	11th century	1 early medieval gritty.	
84442	BF717	2	Late 12th century	1 Stamford glazed. 1 York glazed.	
84454	BF718	14	Early 12th century	5 Roman. 2 York ware. 6 'd' ware. 1 Stamford green glazed.	
84455	BF719	2	Roman	2 Roman.	
84461	BF720	1	Roman	1 Roman.	
84490	BF1743	1	?9th–11th century	1 ?York ware rim small.	
84517	BF821	2	12th century	1 Roman 1 splashed.	
84550	BF721	5	Early 14th century	3 Humber. 1 Brandsby. 1 grey ware scrap.	8309
84560	BF722	1	Roman	1 Roman.	
84562	BF723	6	Roman	6 Roman.	
84569	BF724	4	Anglian 9th century	1 shelly Anglian rim with triangular ?handle with hole through, see AY16/6. 2 York ware. 1 ?imported white gritty fine walled.	
84578	BF725	11	Late 13th–early 14th century	2 fine white dark green glazed similar to Scarborough Phase II type. 1 gritty. 1 York ware. 1 white gritty. 5 Roman. 1 Scarborough Phase I type.	
84579	BF726	3	Late 12th–13th century	1 fine white York glazed. 1 Roman red ware. 1 Roman gritty scrap.	
84582	BF727	1	Roman	1 shelly.	
84598	BF728	2	Roman	2 Roman.	
84607	BF729	2	Late 12th–early 13th century	1 splashed. 1 early York glazed.	
84622	BF730	1	Late 13th–early14th century	1 medieval green glazed ?Nottingham type.	
84625	BF731	1	Roman	1 Roman.	
84634	BF732	5	Roman	5 Roman.	
84635	BF733	10	Roman	2 Roman. 8 scraps Roman.	
84646	BF734	4	Late 13th–early 14th century	2 York glazed. 1 Brandsby. 1 splashed.	8309
84647	BF735	1	Roman	2 Roman.	8309
84655	BF736	2	Late 13th–early 14th century	1 Beandsby. 1 York glazed.	
84673	BF825	1	9th–11th century	1 Stamford unglazed scrap.	

84700	BF738	6	Medieval	2 Roman. 1 reduced green glazed base largest sherd. 2 ?Humber. 1 fine walled hard white gritty.	
84721	BF740	3	Late 13th century	1 Roman. 1 ?post-medieval oxidised fine earthen ware with amber glazed scrap. 1 gritty Brandsby type.	
84725	BF741	1	Medieval	1 coarse grey ware with mottled green and brown glaze.	
84731	BF742	2	Late 12th–early 13th century	1 Roman. 1 early York glazed.	
84731	BF826	1	12th century	1 gritty ware rim.	
84733	BF743	2	?Roman	2 gritty.	
84739	BF744	2	Roman	2 Roman.	
84740	BF745	1	Roman	4 Roman.	
84755	BF746	3	? Roman	3 ?Roman, very abraded.	
84757	BF747	1	Early 12th century	1 Stamford glazed very thin watery glaze.	
84760	BF827	2	? Roman	1 ?Roman. 1 ?Roman green glazed.	
84761	BF748	1	?Anglo-Scandinavian	1 ?anglo-scandinavian gritty jar rim.	
84763	BF749	1	Late 12th–early 13th century	1 York glazed.	
84778	BF750	12	12th century	9 Roman. 1 Stamford glazed. 1 splashed. 1 coarse lid seated grey ware jar.	
84781	BF751	2	Roman	1 Roman 1 scrap.	
84796	BF752	1	Roman	1 Roman shelly.	
84806	BF753	1	Roman	1 Roman.	
84811	BF828	1	14th/15th century	1 reduced Humber type ware.	
84814	BF829	1	12th century	1 splashed.	
84817	BF754	1	Late 13th century	1 gritty Brandsby.	
84823	BF755	1	Late 13th century	1 Yorkshire red ware type.	
84826	BF756	1	11th/12th century	1 Stamford unglazed.	
84838	BF757	1	? Roman	1 Roman.	
84842	BF759	1	Roman	1 Roman.	
84885	BF761	3	12th century	1 gritty. 1 splashed. 1 Roman.	
84890	BF762	20	Late 13th–early 14th century	1 Saintonge polychrome. 3 early York glazed. 4 Humber. 2 splashed. 1 early glazed/splashed. 4 Roman. 2 Stamford unglazed. 1 oxidised gritty green glazed small handle from ?anthropomorphic jug. 2 grey gritty ware.	8309
84899	BF763	6	Roman	6 Roman.	8317
84901	BF764	14	12th century	7 Roman. 2 splashed. 1 early glazed type 5. 4 white gritty.	

84902	BF765	12	12th century	1 ?Anglian abraded. 4 Roman. 4 reduced unglazed ware. 3 Stamford type fine walled gritty unglazed.	
84903	BF830	1	Roman	1 Roman.	
84908	BF766	71	Roman	71 Roman grey ware probably all one vessel but smallish sherds. A large number of scraps and dust.	
84909	BF767	1	Anglo-Scandinavian	1 York ware.	
84912	BF768	69	Roman	68 Roman. 1 shelly.	
84916	BF769	1	Roman	1 Samian.	
84919	BF770	90	Roman	89 Roman including Samian grey colour coated beaker mortaria amphora. 1 shelly.	
84920	BF771	1	Roman	1 Roman.	
84927	BF772	10	Roman	10 Roman.	
84929	BF773	3	Roman	3 Roman.	
84931	BF774	5	Roman	5 Roman.	
84932	BF775	12	Roman	10 Roman.	
84933	BF776	3	Roman	3 Roman.	
84937	BF777	1	13th–14th Century	1 splashed Humber type.	
84941	BF778	5	Mainly Roman	4 Roman 1 fine grey gritty.	
84950	BF779	1	Roman	1 Roman.	8321
84951	BF780	2	Roman	2 Roman.	

Table A3.3 Pottery quantification, 2014 assemblage

Context	Find	Quantity	Dating	Details
90000	BF5	18	Roman–19th century	3 Humber oxidised, small. 2 Humber type with lightly reduced fabric light green glaze, small. 1 ?pearl, small. 1 German stoneware jug shoulder with inscription 'DRI:1 KO'?'N', large. 6 Roman Ebor ware, small to medium. 1 Roman Dales type, small. 1 Roman colour coated, small. 2 Roman grey ware, small. 1 Torksey type rim, small.
90005	BF6	1	Roman	1 Roman grey ware, small.
90022	BF7	14	Roman–19th century	2 splashed oxidised surfaces reduced core fine and moderately grited, small to medium. 1 Roman or Anglo-Scandinavian glazed ware, small. 2 tin glazed, very small. 2 transfer printed, very small. 1 earthenware drain, medium. 1 coarse earthenware with mottled brown glaze, very small. 2 Ebor rim and body, small. 1 Humber, small. 1 Hambleton type, small. 1 Stamford unglazed, small.

90025	BF8	4	Early 14th century	1 gritty Brandsby, small. 2 Humber jug rim neck and handle with upturned strap handle and base, large. 1 ?Roman oxidised, small.
90032	BF9	1	?Roman	1 Roman white gritty, small.
90049	BF10	1	?Roman	1 ?Roman oxidised rim, small form, small.
90052	BF12	3	10th century	2 early glazed plaited applied decoration lightly oxidised surfaces and light grey core spots of glaze, small. 1 fine soapy oxidised ?Roman abraded, small.
90054	BF95	2	10th century	1 early glazed type 1, small. 1 Roman grey ware.
90061	BF11	4	Anglo-Scandinavian/Anglian	1 Roman Samian abraded, small. 1 Paffrath area, small to medium. 1 'd' ware, patch of soot outside, small. 1 ?Roman fine hard white-ish rim with hooked squared profile medium.
90064	BF13	26	Roman, medieval and 18th century	2 Hambleton strap handle, large and small. 3 Roman, small. 1 German stoneware jug base, small. 1 drain fragment. 1 Humber strap handle, large. 2 splashed Humber type, small. 1 ?Industrial red sandy with white slip inside, medium. 1 early York glazed, small. 1 pancheon rim with chestnut glaze and slip band at rim, large. 1 tortoiseshell, very small. 1 Humber scrap. 9 Humber jug and bowl, small to large. 1 yellow glazed bowl rim, medium. 1 Osmotherley type green glazed handled jar, large.
90065	BF14	12	Roman	6 Ebor. 4 Roman grey ware. 1 Black burnished. 1 rustic type oxidised. All Roman. All small to medium sherds.
90066	BF16	1	Medieval	1 medieval green glazed with lightly reduced fabric and shiny apple green glaze, small.
90067	BF17	1	Roman	1 Roman grey ware, large.
90073	BF19	5	Medieval +	1 drain, medium. 1 Roman colour coated beaker base. 2 Roman grey ware, including rolled rim of bowl, small and large. 1 Roman oxidised, ware medium large. 1 York glazed type, small. 1 finely gritted wide strap handle with stabbed decoration reduced core and light brown unglazed surfaces, large.
90079	BF15	1	Roman	1 Roman grey, medium.
90080	BF97	3	Late 15th/16th century	1 Cistercian, small. 1 Humber glazed in and out, small. 1 Roman red ware, small.
90082	BF20	5	Late 12th/13th century	1 Saintonge mottled green glaze, very small. 1 York glazed type, finely gritted fine white jug with reduced inner surface and shiny green glaze with brown flecks, medium. 2 Roman grey ware, small. 1 Torksey type medium.

90086	BF18	3	Roman	1 Roman tile. 1 Roman coarse, small. 1 Roman pale ware, small.
90092	BF21	2	Roman	1 Roman grey small. 1 Roman Ebor, small.
90103	BF22	1	Late 13th–early 14th century	1 Yorkshire red ware bowl medium.
90109	BF23	3	10th century	1 Roman coarse, small. 1 Roman grey, small. 1 Torksey type.
90112	BF24	1	Roman	1 Roman grey rim, medium.
90118	BF25	7	1050–1200	2 white gritty, small. 1 ?Andenne type or York glazed copy with good shiny yellow glaze and applied thumbed strip. 2 York ware. 1 Torksey type, medium. 1 'd' ware.
90127	BF26	1	?Roman	2 ?Roman.
90130	BF27	1	Late 13th century	1 coarse Brandsby type dripping dish with mottled copper speckled glaze large.
90131	BF29	5	Early14th century	4 Humber including cauldron handle sooted, small to large. 1 Brandsby.
90135	BF28	10	?11th century	3 white gritty jar small. 1 Stamford yellow glazed small. 1 Roman grey, small. 1 'd' ware, small. 1 Roman Ebor type, small. 1 grey ware Torksey type, small, rolled rim. 2 gritty scraps.
90136	BF30	1	11th/12th century	1 gritty.
91001	BF168	5	16th century +	2 Roman small. 1 Brandsby jug base, medium. 1 Low Countries red ware open form large. 1 Cistercian or early black glazed mug base medium.
91014	BF169	3	Roman	1 Roman coarse bowl or mortaria rim, medium large. 1 Roman coarse, small. 1 Roman fine small bowl or jar rim with sooted edge.
91021	BF243	1	17th century	1 Coxwold Ryedale type dish with wide flange large.
91023	BF125	39	Late 12th/13th century	1 Roman oxidised jar rim, large. 1 Roman grey ware jar rim, large. 1 white gritty large patch soot. 1 early York glazed, small. 1 splashed coarse reduced core, medium. 3 white and lightly oxidised gritty 5 'd' ware, small. 1 splashed oxidised with yellow glaze. 3 gritty oxidised, small. 1 Ebor small. 2 white gritty, small. 1 Stamford unglazed type, small. 3 splashed pale reduced, small to large. 1 fine white mottled green glazed French import, medium. 1 York ware, small. 5 oxidised sandy jar small–medium. 2 'd' ware, small. 2 Stamford unglazed, small. 3 gritty, small–medium. 1 splashed, small. 5 bags [of what?]

91028	BF129	1	12th century	1 gritty sooted, small.
91030	BF127	16	12th century	1 Stamford unglazed, small. 1 Roman Ebor, small. 3 splashed, small. 11 gritty, small–medium.
91034	BF130	1	?Roman 11th century	1 ?Roman oxidised, small.
91039	BF170	5	13th century	1 Roman colour coated, small.1 Stamford yellow glazed, small. 1 ?Brandsby type unglazed, small. 1 'd' ware, small. 1 ?Roman scrap.
91046	BF172	1	9th–11th century	1 Stamford yellow glazed, small.
91087	BF128	12	11th–12th century	5 Stamford unglazed, small. 4 Stamford type yellow glazed, small. 1 ceramic building material. 1 Torksey type medium 1 'd' ware, small.
91088	BF173	5	11th/12th century	1gritty, small. 3 ceramic building material. 1 Stamford yellow glazed, small.
91103	BF174	11	11th century +	2 Stamford glazed small, light green glaze. 3 early glazed, small. 1 Stamford unglazed, small. 1 'd' ware, small. 3 ceramic building material.
91108	BF175	3	11th century	1'd' ware, small. 1 York ware type. 1 scrap.
91111	BF244	16	14th century	1 Brandsby jug rod handle, medium. 1 Humber strap handle large, ribbed. 1 ?Stamford type bowl base, large. 1 Humber jug base, medium. 1 Stamford unglazed, small. 1 white gritty, small. 3 gritty, small. 2 splashed small. 1 Stamford unglazed, small. 1 fine sandy lightly oxidised, sooted, unglazed, small. 1 Brandsby type base but with dark reduced core base, small. 2 Humber type fabric, unglazed.
91120	BF176	1	11th/12th century	1 coarse sandy ware with white slip, very small.
91128	BF177	28	Late 13th century	1 coarse red ware with treacley pitted chestnut glaze, ?early Low Countries, small. 1 Brandsby rod handle from jug with mottled green glaze, medium. 21 Stamford, unglazed, small. 3 York ware, small. 1 Andenne type, small. 1 splashed. 3 bone. 2 white gritty, small. 1 Stamford unglazed type rim, small. 1 York ware, small. 1 white gritty, small. 1 early glazed, large. 1 Roman amphora, large. 1 fine sandy oxidised unglazed splashed fabric, large. 1 Humber type ?industrial with white slip inside, medium. 2 Stamford unglazed, small. 4 'd' ware type, very small including squared rim. 1 gritty fine walled, small. 1 Stamford type, very fine white ware with thin clear glaze, small. 1 Stamford light green splashed glaze, small.

91132	BF178	10	11th/12th century	1 ceramic building material, large. 1 gritty heavily sooted, small. 1 late early glazed splashed, small, coarse hard dense reduced fabric with oxidised margins. 2 unglazed splashed as above, small. 1 gritty, small. 1 early glazed type. 1 heat alterred glaze, small. 3 Stamford unglazed, small.
91138	BF179	2	9th–11th century	1 'd' ware type, small. 1 early hand-made ware type medium ?9th century, thumb marks inside along neck rim join, probably turned on a wheel.
91159	BF180	1	9th–11th century	1 York ware scrap.
91162	BF181	10	11th–12th century	4 stone. 1 fine walled white gritty jar, large. 1 buff gritty, rim small. 1 gritty, lightly reduced, small. 1 York ware, small. 1 York ware type, small. 1 ?Roman reduced fabric with oxidised external margin and external white slip.
91172	BF182	9	12th–13th century	2 coarse oxidised pitted chestnut glaze ?early Low Countries, small. 1 ?Roman green glazed, small. 1 early glazed, small. 3 white gritty ware, small. 1 oxidised gritty small.
91194	BF183	1	14th century	1 Humber large.
91236	BF184	3	Roman	2 Roman Ebor type, small and large. 1 coarse grey scrap.
91245	BF185	7	14th century	1 Stamford unglazed, small. 1 Roman colour coated, small, base complete, base medium. 1 Humber strap handle with ribs and incised lines, large. 2 reduced green glazed Humber type, small. 1 fine white hard gritty, very small. 1 Roman grey, small.
91253	BF124	9	10th century	2 Roman grey ware bowl, large. 1 Roman mortaria medium. 3 Torksey type, small to large. 2 York ware type, small. 1 fine sandy oxidised, small.
91259	BF187	1	Roman	1 Roman grey ware large.
91273	BF126	1	Late 12th–early 13th century	1 Stamford glazed inside with copper flecks, small.
91285	BF188	3	Late 12th–early 13th century	1 York glazed jug handle. 2 coarse gritty red ware, scraps.
91291	BF189	1	Roman	1 ?Roman, very small.
91303	BF190	3	Late 13th–early 14th century	2 York glazed, scraps. 1 Humber, small. 1 sandy red, small.
91305	BF191	4	Late 12th–early 13th century	1 gritty, scrap. 1 York glazed, scrap. 1 ceramic building material. 1 oxidised coarse, scrap. All SK100
91307	BF305	1	Medieval	1 medieval green glazed with reduced fabric, very small.
91343	BF192	8	13th century	1 fine sandy lightly oxidised base, large. 4 York glazed jug, very small. 2 Brandsby. 1 gritty Brandsby.

91366	BF193	2	Late 13th–early 14th century	1 Brandsby jar rim, large. 1 gritty ware, very small.
91397	BF131	3	14th century	1 Humber type rim, small. 1 fine red sandy unglazed, large. 1 Brandsby mottled green glaze small.
91438	BF194	5	13th century	2 York ware rim, small–medium. 1 'd' ware, very small. 1 Brandsby, medium. 1 gritty Brandsby.
91450	BF195	1	?Roman	1 ?Roman ?Ebor, very abraded, very small.
91464	BF196	1	Late 12th–early 13th century	1 York glazed, small.
91494	BF306	1	Roman	1 ?Roman grey ware, very small.

APPENDIX 4 – ARTEFACTS

By Nicky Rogers

Introduction and Methodology

A total of 144 small finds were assessed; of these, 14 objects were identified as being metalworking debris or crucibles, and are reported upon by Rachel Cubitt (Appendix 6).This report summarises the significance of the remaining small finds.

All the finds of iron, copper alloy and silver were X-rayed prior to the assessment being carried out, and identifications of these objects have been made with reference to the X-rays.

The finds by material

Iron

Of 61 iron small finds, 43 finds comprise nails and/or nail fragments, and a clench bolt. Of ten nails identified on site as coffin nails, eight derive from grave backfill Context 5019 (SFs 44–51). A clench bolt (SF90), four nails (SFs 87–88, 95–96) and 12 nail fragments (SFs92–94) were all recovered from grave backfill (Context 5102). Other noteworthy finds are two medieval horseshoe nails (SF68, Context 5023; SF78, context 5000) and a plated object of uncertain function and date (SF108, Context 5013).

Copper Alloy and Silver

There are 23 finds of copper alloy, and 2 of silver: these include one silver coin (SF2, Context 1007) three copper alloy coins (SF3, Context 1007; SF32, Context 5000; SF136, context 5110), and one possible copper alloy jetton (SF57, Context 5000), all of which require identification by a numismatist. Dress fittings also feature, such as 16th–18th century lace tags (SF19, Context 4002; SF56, Context 5000), a medieval strap end (SF91, Context 5110), and a modern button (SF27, Context 5000). Lengths of copper alloy wire, probably debris from local dress pin making, were recovered from several deposits: SFs 29, 30, 77 all Context 5000; SF71, Context 5023; SF106, Context 5013; SFs 107, 128 Context 5124).

Lead alloy

Fourteen lead alloy objects were recovered, including two papal bullae which are the most significant objects within this assemblage: SF123, Context 5110 comes from a levelling deposit laid down between two phases of burials and issue by a Pope Urban indicates a probable date of mid 13th–later 14th century while SF142, Context 5186 issued by a Pope Clement is less precisely dated from mid 13th–16th century, although most probably from the same period as SF123. These may both derive from papal indulgences, and it should be noted here that a third bulla was found in a burial uncovered in 2012 (2012.2 SF309, Context 84014). Many of the other lead alloy finds comprise offcuts (SF1, context 1003; SF5, Context 1007; SFs39, 69 Context 5023; SF58, Context 5000) and metalworking spillage was also recovered (SF63, Context 5049), all of which point to possible lead alloy working on or near the site. SF20, Context 4001 may be a musket ball.

Antler and Bone

Red deer antler offcut SF122, Context 5124 is the only antler from the site, and is likely to date to the 8th–12th century. The four bone finds include a medieval parchment pricker SF119, Context 5124, and two cutlery handles, both of which are probably of post-medieval date (SF21 Context 2000; SF24, Context 2001).

Fired clay

Two fired clay small finds comprise vessels (SF73, SF98) and these are reported on by Anne Jenner (see pottery report). The remaining three small finds are all made up of undated tobacco pipe stems (SF75, Context 5085; SF81, Context 5000; SF109, Context 5103).

Glass

Amongst the 13 glass small finds, there are nine finds of vessel glass, most of which are of post-medieval date; exceptions are SF105, Context 5110 which may be Roman, and SF86, Context 5023 which appears to be medieval. SF127, Context 5140 is a small fragment of medieval painted window glass. Glass bead SF52, Context 5000 appears to be of recent/modern date.

Leather

The only leather small find comprises three offcuts (SF143, Context 5188).

Stone

The only stone objects recovered are a lava quern fragment, which could be Roman–medieval in date (no SF, Context 5023) and a possible gaming marble fragment (SF79, Context 5000). Other fragments are unworked.

Flint

SF145 Context 5110 appears to be unworked.

Table A4.1 YORYM:1986.14 small find assemblage

Find	Context	Name	Material
SF1	1003	Offcut	Lead Alloy
SF2	1007	Coin	Silver
SF3	1007	Coin	Copper Alloy
SF4	1007	Slag	Slag
SF5	1007	Offcut	Lead Alloy
SF6	3006	Nail	Iron
SF7	1007	Nail Fragments	Iron
SF8	1007	Nail	Iron
SF9	1007	Nail Fragment	Iron
SF10	1007	Fragment	Iron
SF11	1007	Fragments	Glass
SF12	1007	Lump	Iron
SF13	1007	Object	Iron
SF14	3009	Fragments	Glass
SF15	2006	Wire	Copper Alloy
SF16	4008	Object	Lead Alloy
SF17	3013	Nail	Iron
SF18	3013	Nail Fragment	Iron
SF19	4002	Lace Tag	Copper Alloy
SF20	4001	Shot	Lead Alloy
SF21	2000	Handle	Bone
SF22	3007	Nail	Iron
SF23	2003	Object	Iron
SF24	2001	Handle	Bone
SF25	2001	Object	Iron
SF26	5000	Nail	Iron
SF27	5000	Button	Copper Alloy
SF28	5000	Perforated Strip	Iron
SF29	5000	Wire	Copper Alloy
SF30	5000	Wire	Copper Alloy
SF31	5000	Button	Copper Alloy
SF32	5000	Coin	Copper Alloy
SF33	5000	Slag	Slag
SF34	5000	Slag	Slag
SF35	5009	Fragment	Iron
SF36	5000	Nail	Iron
SF37	5000	Nail	Iron
SF38	5000	Nail Fragments	Iron
SF39	5023	Offcut	Lead Alloy
SF40	5023	Belt Fitting	Copper Alloy
SF41	5025	Vessel Fragment	Glass
SF42	5025	Vessel Fragment	Glass
SF43	5000	Nail	Iron
SF44	5019	Coffin Nail	Iron
SF45	5019	Coffin Nail	Iron
SF46	5019	Coffin Nail	Iron
SF47	5019	Coffin Nail	Iron
SF48	5019	Coffin Nail	Iron

SF49	5019	Coffin Nail	Iron
SF50	5019	Coffin Nail	Iron
SF51	5019	Coffin Nail	Iron
SF52	5000	Bead	Glass
SF53	5023	Slag	Slag
SF54	5029	Fragment	Iron
SF55	5000	Object	Copper Alloy
SF56	5000	Lace Tag	Copper Alloy
SF57	5000	Jetton	Copper Alloy
SF58	5000	Offcut	Lead Alloy
SF59	5000	Came	Lead Alloy
SF60	5000	Nail	Iron
SF61	5000	Nail	Iron
SF62	5049	Slag	Slag
SF63	5049	Spillage	Lead Alloy
SF64	5000	Nail	Iron
SF65	5049	Fragment	Lead Alloy
SF66	5049	Slag	Slag
SF67	5065	Fragment	Lead Alloy
SF68	5023	Horseshoe Nail	Iron
SF69	5023	Offcut	Lead Alloy
SF70	5023	Fragments	Glass
SF71	5023	Wires	Copper Alloy
SF72	5085	Fragment	Iron
SF73	5023	Vessel	Fired Clay
SF74	5023	Nail	Iron
SF75	5085	Tobacco Pipe	Fired Clay
SF76	5000	Perforated Strip	Iron
SF77	5000	Wire	Copper Alloy
SF78	5000	Horseshoe Nail	Iron
SF79	5000	Object	Stone
SF80	5000	Object	Copper Alloy
SF81	5000	Tobacco Pipe Fragments	Fired Clay
SF82	5000	Pin	Iron
SF83	5110	Fragment	Bone
SF84	5000	Object	Copper Alloy
SF85	5023	Nail Fragments	Iron
SF86	5023	Vessel Fragment	Glass
SF87	5102	Nail	Iron
SF88	5102	Nail	Iron
SF89	5102	Fragment	Iron
SF90	5102	Clench Bolt	Iron
SF91	5110	Strap End	Copper Alloy
SF92	5102	Nail Fragments	Iron
SF93	5102	Nail Fragments	Iron
SF94	5102	Nail Fragments	Iron
SF95	5102	Nail	Iron
SF96	5102	Nail	Iron
SF97	5023	Slag	Glass
SF98	5102	Vessel	Fired Clay

SF99	5000	Nail	Iron
SF100	5000	Nail	Iron
SF101	1002	Fragments	Glass
SF102	5023	Vessel Fragment	Glass
SF103	5023	Vessel Fragment	Glass
SF104	5110	Nail	Iron
SF105	5110	Vessel Fragment	Glass
SF106	5103	Wire	Copper Alloy
SF107	5124	Wire	Copper Alloy
SF108	5103	Object	Iron
SF109	5103	Tobacco Pipe	Fired Clay
SF110	5103	Fragment	Iron
SF111	5103	Nail	Iron
SF113	5023	Fragment	Stone
SF114	5124	Nail Fragments	Iron
SF115	5110	Slag	Slag
SF116	5110	Slag	Slag
SF118	5124	Nail Fragment	Iron
SF119	5124	Parchment Pricker	Bone
SF120	5124	Nail Fragment	Iron
SF121	5110	Slag	Slag
SF122	5124	Offcut	Antler
SF123	5110	Bulla	Lead Alloy
SF124	5124	Nail	Iron
SF125	5124	Nail	Iron
SF126	5110	Slag	Slag
SF127	5140	Painted Window Glass Fragment	Glass
SF128	5124	Wire	Copper Alloy
SF129	5124	Object	Copper Alloy
SF130	5110	Nail	Iron
SF131	5110	Vessel Fragment	Glass
SF132	5110	Slag	Slag
SF133	5110	Object	Copper Alloy
SF134	5145	Slag	Slag
SF135	0	Fragment	Silver
SF136	5110	Coin	Copper Alloy
SF137	5160	Slag	Slag
SF138	5163	Nail	Iron
SF139	5167	Slag	Slag
SF140	5110	Coffin Nails	Iron
SF141	5110	Lump	Lead Alloy
SF142	5186	Bulla	Lead Alloy
SF143	5188	Offcuts	Leather
SF144	5187	Fragment	Stone
SF145	5110	Fragment	Flint

2012 Phase 1 Assemblage

Introduction and Methodology

A total of 229 small finds were assessed; of these, 21 objects were identified as being metalworking debris or crucibles, and are reported upon by Rachel Cubitt. This report assesses the significance of the remaining 208 small finds.

All the finds of iron and copper alloy were X-rayed prior to the assessment being carried out, and identifications of these objects have been made with reference to the X-rays.

The finds by material

Iron

Of 71 iron small finds, 49 comprise nails and/or nail fragments. Other noteworthy finds are two medieval horseshoe nails (SF18, Context 83285; SF55, Context 83190), three hinges (SF17, Context 83003; SF124, Context 83246; SF255), a possible knife (SF82, Context 83269), a fixed lock key (SF118, Context 83246), a buckle (SF123, Context 83246), and a possible medieval arrowhead (SF160, Context 83000).

Copper Alloy

There are 53 finds of copper alloy: of particular interest are two horse harness pendants (SF3, Context 83198; SF265, Context 830188) –these are both probably medieval, both are in excellent condition and both appear to be decorated with enamelled heraldic motifs, which possibly may be identifiable to particular families. Also noteworthy are SF6 Context 83230 which appears to be a Roman military pendant, and medieval chape SF31 Context 83278. Medieval dress/shroud pins include SF47, Context 83184; SF90, Context 83115; SF99, Context 83367; SF112, Context 83096, and wires possibly from their manufacture (SF27, Context 83022; SF57, Context 83030; SF110, Context 83246) were also recovered. More modern (19th–20th century) sewing pins comprise SF35, Context 83022; SF56, Context 83030; SFs77, 109 both Context 83246. Five 19th-century coins were found: SF100, Context 83022 is an 1886 penny, and the four coins of SF108, Context 83246 comprise three dating from 1861–62, and a fourth of 1826.

Lead alloy

Five lead alloy objects were recovered, including lead alloy metalworking spillage (SF104, Context 83358), and a ?modern machinery part (SF38, Context 83095); others are of uncertain identification (SF7, Context 83047; SF41, Context 83380; SF65, Context 83022).

Antler

Four finds of antler comprise an unworked roe deer antler (SF173, Context 83274), and antler offcuts (SF85, Context 83019; SF143, Context 83082; SF144, Context 83011). All of these finds probably derive from Anglo-Scandinavian period activity.

Bone/Ivory

Of the nine finds of bone, six are horn cores comprising 9 unworked cores and core fragments. SF142 Context 83047 is an Anglo-Scandinavian pig fibula pin, and SF159 Context 83282 appears to be a Roman hair pin shank. SF259 Context 83022 is an ivory cutlery handle from a knife and SF185, Context 83030 is an offcut

Fired clay

All bar one of the 19 fired clay finds are of post-medieval date. These comprise tobacco pipe bowls, of which 4 are of ?late 17th-century date (SF84, Context 83019; SF116, Context 83023; SF181, Context 83000). There are two ?18th-century bowls (SFs89, 184, both Context 83022;), one ?19th-century decorated bowl (SF202; Context 83000), and a stamped bowl of unknown date which includes the legend ' O'BRIEN AYO' (SF189, Context 83022). There are also ten stem fragments. Nineteenth and 20th century gaming pieces comprise four marbles (SFs 175, 180, both Context 83022; SF182, Context 83095), and two alley stones (SF297, Context 83095). Fragments of 19th–20th century figurines were also found (SFs266, 301, both Context 83022; SF296, Context 83095). SF298, Context 83022 appears to be a miniature doll's leg.

The object that is not of post-medieval date is fired clay counter SF32, Context 83237 which has been cut from a ?Roman pot sherd.

Glass

Amongst the 19 glass finds, there are vessel glass fragments of probable Roman date (SF149, Context 83230; SF150, Context 83287; SF164, Context 83012), and a possible Roman stirring rod fragment (SF152, Context 83000). SF163, Context 83246 is an undated bead. Large and decorated fragments of 19th–20th century window glass –probably from public buildings of some type– were also identified (SF275, Context 83095; SF276, Context 83076), as were twelve glass marbles (part of SF81, Context 83246; part of SF295, Context 83095).

Leather

The three leather finds comprise two straps (SFs 146, 147, both Context 83095) and an unidentified fragment (SF70, Context 83246).

Stone

A total of seventeen post-medieval stone marbles were found, of which 16 formed part of SF81, Context 83246; the other example is SF188, Context 83022. One large hone (SF169, Context 84962) and two hone fragments (SF22, Context 83368; SF51, Context 83328) are undated. Two slate pencils (SF186, Context 83246; SF267, Context 83022) were also identified.

Wood

An unusual chair or table leg made of birch was found (SF74, Context 83019) –see notes by Steve Allen in the Conservation Report (APPENDIX ?).

Flint

Three finds appear to be worked flints (SF156 context 83205; SF167, Context 83240; SF168, Context 84919.

Miscellaneous

These comprise finds of unidentified metal or of plastic.

2012 Phase 2 Assemblage

Introduction and Methodology

A total of 81 small finds were assessed; of these, six objects were identified as being metalworking debris or crucibles (see Appendix 6), and are reported upon by Rachel Cubitt. This report assesses the significance of the remaining 75 small finds.

All the finds of iron and copper alloy were X-rayed prior to the assessment being carried out, and identifications of these objects have been made with reference to the X-rays.

The finds by material

Iron

Sixty one finds were of iron, and nails form by far the majority of these: 46 finds comprised nails and nail fragments –of these, 18 complete nails and 15 nail fragments had been identified on site as deriving from coffins; the majority of the other nails and nail fragments also come from burial related deposits, particularly grave backfills. Also coffin related, SF238, Context 84944 appears to be a strengthening strap or bracket. Other iron finds include a possible buckle (SF243, Context 84578), possible fittings (SF208, Context 84712; SF215, Context 84052), a hinge pivot (part of SF257, Context 84902), strap hinge (SF255, Context 83382), two horseshoes (SFs206, 244 both Context 84940), and a horseshoe nail (SF250, Context 84490). SF133, Context 84071 appears to be a residual Roman hob nail.

Copper Alloy

Of the 25 copper alloy small finds, several appear to be dress accessories, including medieval dress pins (SF136, Context 84149; SF138, Context 84237; SF209, Context 84389), a possible buckle pin (SF129, Context 83765), and belt mount (SF40, Context 83464). Another dress pin SF216 Context 84795 is a simple ringed pin which is likely to date from the Anglo-Scandinavian period. Possible copper alloy metalworking is indicated by rods (SFs135, 246 both Context 83584), wires (SF137, Context 84225, SF252 Context 84305) and sheet offcut (SF207, Context 84502), which may represent debris from pre-cemetery activity. Other finds are a possible needle (SF132, Context 84049), and an object of uncertain function (SF248, Context 84562); the remaining finds are unidentifiable fragments.

Lead Alloy

Most of the seven lead alloy finds represent lead working debris –four appear to be spillages (SF139 C.83570; SF285, C.83863; SF203, Context 84920; SF214, Context 84559), from grave backfills, whilst SF258, Context 84890 is a lump, also possibly from working, and also from grave backfill. A lead (?musket) shot SF43, Context 83713 was found in the pelvis of a skeleton (Context 83514), buried alongside two others in the same grave –perhaps victims of a military engagement? SF309 Context 84014 is a papal bulla of Pope Urbanus VI (1378–1389) which was found on the torso of a skeleton.

Bone

Only three finds of bone were recovered, one of which SF308 Context 83792 is not an artefact, but appears to be a bony growth found on skeleton Context 83784. The other finds comprise two offcuts of split rib (SF34 Context 83596), and an unworked horn core (SF177, Context 83692).

Fired Clay

The only fired clay artefact is a marble (SF170, Context 83423). This was recovered from charnel soil, but as it must date to the 19th century at the earliest, it appears to be intrusive

Flint

A ?worked flint (SF168, Context 84919) was found in a pit backfill

Glass

Of five finds of glass, four appear to be residual Roman vessel fragments (SF161, Context 84878; SF153, Context 83916; SF165, Context 84517; SF166, Context 84461). The fifth fragment SF148, Context 83472 is too small to identify.

Stone

Two of the three stone finds are spindle whorls: SF42, Context 83596 is of a medieval form, whilst SF130, Context 84043 may be of Anglo-Scandinavian date. SF169, Context 84962 is a very large hone, over 20cms long, which was recovered from a stake-hole, and may represent post-packing?

Table A4.2 2012 Small Find Assemblage

Find	Context	Name	Material
SF1	83077	Offcut	Copper Alloy
SF2	83198	Object	Copper Alloy
SF3	83198	Harness Pendant	Copper Alloy
SF4	83011	Nail	Iron
SF5	83198	Object	Iron
SF6	83230	Pendant	Copper Alloy
SF7	83047	Object	Lead Alloy
SF8	83047	Nails	Iron
SF9	83270	Nail Shank	Iron
SF10	83022	Nail	Iron
SF11	83024	Nail Shank	Iron
SF12	83221	Slag	Slag
SF13	83295	Nail	Iron
SF14	83221	Nail Fragments	Iron
SF15	83123	Nails	Iron
SF16	83279	Nail Shank	Iron
SF17	83003	Hinge	Iron
SF18	83285	Nail, Horseshoe Nail	Iron
SF19	83049	Plate	Iron
SF20	83022	Slag	Slag
SF21	83022	Electrode	Graphite
SF22	83368	Hone Fragment	Stone
SF23	83282	Nail	Iron
SF24	83381	Sheet Fragment	Iron
SF25	83214	Nail Fragment	Iron, Ceramic Building Material
SF26	83022	Crucible, Waste	Fired Clay, Copper Alloy
SF27	83022	Wire	Copper Alloy
SF28	83022	Nail	Copper Alloy
SF29	83004	Slag	Slag
SF30	83022	Nail Shank	Iron
SF31	83278	Chape	Copper Alloy

SF32	83237	Counter Fragment	Fired Clay
SF33	83716	Slag	Slag
SF34	83596	Offcuts	Bone
SF35	83022	Pin	Copper Alloy
SF36	83106	Buckle Pin	Copper Alloy
SF37	83274	Disc	Copper Alloy
SF38	83095	Object	Lead Alloy
SF39	83082	Object	Copper Alloy
SF40	83464	Object	Copper Alloy
SF41	83380	Object	Lead Alloy
SF42	83596	Spindle Whorl	Stone
SF43	83713	Shot	Lead Alloy
SF44	83022	Object	Metal
SF45	83198	Fragments	Iron
SF46	83246	Needle	Iron
SF47	83184	Pin	Copper Alloy
SF48	83222	Fragment	Copper Alloy
SF49	83210	Button	Copper Alloy
SF50	83278	Fragment	Iron
SF51	83328	Hone Fragment	Stone
SF52	83278	Waste	Copper Alloy
SF53	83273	Nail	Iron
SF54	83000	Buckle	Copper Alloy
SF55	83190	Nail, Horseshoe Nail	Iron
SF56	83030	Pin	Copper Alloy
SF57	83030	Wire	Copper Alloy
SF58	83716	Sheet Fragment	Copper Alloy
SF59	83719	Nail	Iron
SF60	83022	Slag	Slag
SF61	83022	Strips	Iron
SF62	83022	Object	Copper Alloy
SF63	83022	Slag	Slag
SF64	83022	Slag	Slag
SF65	83022	Fitting	Lead Alloy
SF66	83022	Object	Metal
SF67	83005	Fragments	Ceramic Building Material, Mortar
SF68	83246	Nails	Iron
SF69	83246	Slag	Slag
SF70	83246	Fragment	Leather
SF71	83246	Object	Iron
SF72	83246	Object	Iron
SF73	83246	Object Fragments	Iron
SF74	83019	Object	Wood
SF75	83004	Slag	Slag
SF76	83115	Nails	Iron
SF77	83246	Pin	Copper Alloy
SF78	83022	Tobacco Pipe	Fired Clay
SF79	83212	Slag	Slag
SF80	83194	Nail Shanks	Iron
SF81	83246	Marbles	Stone, Glass

SF82	83269	Knife	Iron
SF83	83022	Slag	Slag
SF84	83019	Tobacco Pipe	Fired Clay
SF85	83019	Offcut	Antler
SF86	83022	Slag	Slag
SF87	83115	Nails	Iron
SF88	83115	Nail	Iron
SF89	83022	Tobacco Pipe	Fired Clay
SF90	83115	Pins	Copper Alloy
SF91	83022	Vessel Fragment	Iron
SF92	83022	Object	Iron, Copper Alloy
SF93	83022	Strip Fragment	Copper Alloy
SF94	83022	Object	Iron
SF95	83011	Nail Fragments	Iron
SF96	83000	Pin	Copper Alloy
SF97	83246	Nail Shanks	Iron
SF98	83004	Nails, Object	Iron
SF99	83367	Pin	Copper Alloy
SF100	83022	Coin	Copper Alloy
SF101	83221	Strip	Iron
SF102	83004	Slag	Slag
SF103	83221	Nails	Iron
SF104	83358	Spillage	Lead Alloy
SF105	83184	Nail	Iron
SF106	83004	Nail	Iron
SF107	83106	Nail Fragments	Iron
SF108	83246	Coins	Copper Alloy
SF109	83246	Pins	Copper Alloy
SF110	83246	Wire	Copper Alloy
SF111	83246	Wire	Iron
SF112	83096	Pin	Copper Alloy
SF113	83004	Slag	Slag
SF114	83222	Object	Copper alloy
SF115	83354	Nail	Iron
SF116	83023	Tobacco Pipe Bowl	Fired Clay
SF117	83354	Fragments	Copper Alloy
SF118	83246	Key, Nail, Strip	Iron
SF119	83216	Fragments	Iron
SF120	83176	Lump	Iron
SF121	83716	Object	Iron
SF122	83246	Slag, Waste	Slag, Copper alloy
SF123	83246	Buckle	Iron
SF124	83246	Hinge, Washer, Fragments	Iron
SF125	83246	Fittings, Nails	Iron
SF126	83972	Fragment	Copper Alloy
SF127	83980	Fragments	Copper Alloy
SF128	83783	Fragments	Copper Alloy
SF129	83765	Object	Copper Alloy
SF130	84043	Spindle Whorl	Stone
SF131	83758	Nail Fragment	Iron

SF132	84049	Needle	Copper Alloy
SF133	84071	Hob Nail	Iron
SF134	84028	Droplet	Copper Alloy, Stone
SF135	83584	Rod	Copper alloy
SF136	84149	Pin	Copper Alloy
SF137	84225	Wire	Copper Alloy
SF138	84237	Pin	Copper Alloy
SF139	83570	Spillage	Lead Alloy
SF140	83269	Fragment	Glass
SF141	83244	Fragment	Glass
SF142	83047	Pig Fibula Pin	Bone
SF143	83082	Blank Offcut	Antler
SF144	83011	Tine Offcut	Antler
SF145	83047	Fragment	Glass
SF146	83095	Object	Leather
SF147	83095	Object	Leather
SF148	83472	Fragment	Glass
SF149	83230	Rim Fragment	Glass
SF150	83287	Vessel Fragments	Glass
SF151	83283	Fragment	Glass
SF152	83000	Rod Fragment	Glass
SF153	83916	Vessel Fragment	Glass
SF154	84225	Nail	Iron
SF155	83742	Sheet Fragment	Copper Alloy
SF156	83205	Flake	Flint
SF157	83922	Nail Shank	Iron
SF158	83919	Object	Iron
SF159	83282	Hair Pin	Bone
SF160	83000	Object	Iron
SF161	84878	Fragment	Glass
SF162	83246	Fragment	Glass
SF163	83246	Bead	Glass
SF164	83012	Vessel Fragment	Glass
SF165	84517	Vessel Fragment	Glass
SF166	84461	Vessel Fragment	Glass
SF167	83240	Fragment	Flint
SF168	84919	Fragment	Flint
SF169	84962	Hone	Stone
SF170	83423	Marble	Fired Clay
SF171	83137	Horn Core Fragment	Bone
SF172	83202	Horn Core	Bone
SF173	83274	Antler	Antler
SF174	83124	Horn Cores	Bone
SF175	83022	Marble	Fired Clay
SF176	83000	Horn Core	Bone
SF177	83692	Horn Core	Bone
SF178	83046	Horn Core	Bone
SF179	83285	Horn Core	Bone
SF180	83022	Marble	Fired Clay
SF181	83000	Tobacco Pipe Fragments	Fired Clay

SF182	83095	Marble	Fired Clay
SF183	83001	Figurine	Plastic
SF184	83022	Tobacco Pipe Fragments	Fired Clay
SF185	83030	Offcut	Bone
SF186	83246	Slate Pencil	Stone
SF187	83022	Button	Plastic
SF188	83022	Marble	Stone
SF189	83022	Tobacco Pipe	Fired Clay
SF190	83257	Slag	Slag
SF191	83817	Nail	Iron
SF192	83001	Slag	Slag
SF193	83047	Nail Fragment	Iron
SF194	83278	Nail Shank	Iron
SF195	83013	Slag	Slag
SF196	84759	Slag	Slag
SF198	83004	Slag	Slag
SF199	83257	Nail Shank	Iron
SF200	84484	Nail Shank	Iron
SF201	83022	Spoon	Copper Alloy
SF202	83000	Tobacco Pipe Bowl	Fired Clay
SF203	84920	Spillage	Lead Alloy
SF204	83057	Nail	Iron
SF205	84940	Nails	Iron
SF206	84940	Horseshoe	Iron
SF207	84502	Offcut	Copper Alloy
SF208	84712	Object	Iron
SF209	84389	Pin	Copper Alloy
SF210	84535	Fragment	Copper Alloy
SF211	84049	Nail	Iron
SF212	83222	Nail Shank	Iron
SF213	84339	Nail	Iron
SF214	84559	Spillage	Lead Alloy
SF215	84052	Object	Iron
SF216	84795	Ringed Pin	Copper Alloy
SF217	84906	Coffin Nail	Iron
SF218	84944	Coffin Nail	Iron
SF219	84793	Coffin Nail	Iron
SF220	84921	Coffin Nail Fragments	Iron
SF221	84793	Coffin Nail	Iron
SF222	84960	Coffin Nail	Iron
SF223	84906	Coffin Nail	Iron
SF224	84906	Coffin Nail Fragment	Iron
SF225	84906	Coffin Nail	Iron
SF226	84960	Coffin Nail Fragment	Iron
SF227	84944	Coffin Nail	Iron
SF228	84793	Coffin Nail Fragment	Iron
SF229	84944	Coffin Nail Fragments	Iron
SF230	84944	Coffin Nail	Iron
SF231	84944	Coffin Nail	Iron
SF232	84944	Coffin Nail	Iron

SF233	84944	Coffin Nail	Iron
SF234	84944	Coffin Nail	Iron
SF235	84921	Coffin Nail	Iron
SF236	84960	Coffin Nail Fragment	Iron
SF237	84944	Coffin Nail Fragments	Iron
SF238	84944	Coffin Fitting	Iron
SF239	84906	Coffin Nail	Iron
SF240	84906	Coffin Nail	Iron
SF241	84793	Coffin Nail	Iron
SF242	84793	Coffin Nail	Iron
SF243	84578	Object	Iron
SF244	84940	Horseshoe	Iron
SF245	83222	Sheet Rivet	Copper Alloy
SF246	83584	Rod	Copper Alloy
SF247	84586	Waste	Copper Alloy
SF248	84562	Object	Copper Alloy
SF249	84155	Object	Iron
SF250	84490	Horseshoe Nail	Iron
SF251	84535	Nail	Iron
SF252	84305	Wires	Copper Alloy
SF253	84505	Strip	Copper Alloy
SF254	83382	Nails	Iron
SF255	83382	Strap Hinge	Iron
SF256	84919	Nails	Iron
SF257	84902	Object, Nails	Iron
SF258	84890	Lump	Lead Alloy
SF259	83022	Cutlery Handle	Ivory, Iron, Lead Alloy
SF260	83278	Nails	Iron
SF261	83047	Nail	Iron
SF262	83076	Object	Iron, Pot
SF263	83017	Object	Iron
SF264	84610	Nail Fragments	Iron
SF265	83018	Harness Pendant	Copper Alloy
SF266	83022	Figurine	Fired Clay
SF267	83022	Slate Pencil	Stone
SF268	83022	Screw	Iron
SF269	83022	Object	Fired Clay
SF270	83022	Cartridge Case	Copper Alloy, Iron
SF271	83022	Bottle Top	Iron
SF272	83076	Nails	Copper Alloy
SF273	83076	Twisted Wire	Copper Alloy
SF274	84643	Fragments	Copper Alloy
SF275	83095	Window Fragments	Glass
SF276	83076	Window Fragments	Glass
SF277	84733	Nail Shank	Iron
SF278	83541	Nail Fragments	Iron
SF279	84010	Nail	Iron
SF280	83749	Nail Head	Iron
SF281	84763	Nail	Iron
SF282	84389	Slag	Iron

SF283	84389	Fragment	Iron
SF284	84176	Fragment	Iron, Bone
SF285	83863	Spillage	Lead Alloy
SF286	84059	Nail	Iron
SF287	83951	Nail, Clench Bolt	Iron
SF288	84052	Slag	Slag
SF289	84028	Fragment	Iron
SF290	83385	Slag	Slag
SF291	84149	Nail	Iron
SF292	83012	Nail	Iron
SF293	84869	Fragments	Copper Alloy
SF294	83076	Objects	Iron, Copper Alloy
SF295	83095	Objects	Iron, Glass, Fired Clay, Leather
SF296	83095	Figurine Fragment	Fired Clay
SF297	83095	Gaming Pieces	Fired Clay
SF298	83022	Doll Leg	Fired Clay
SF299	83022	Bottle Stopper	Fired Clay
SF300	83022	Can	Tin
SF301	83022	Figurine Fragments	Fired Clay
SF302	83000	Strip	Copper Alloy
SF303	83328	Object	Copper Alloy
SF304	83328	Object	Copper Alloy
SF305	83328	Nail Head	Iron
SF306	83328	Nail	Iron
SF307	83328	Nail	Iron
SF308	83792	Cyst	Bone
SF309	84014	Papal Bulla	Lead Alloy
SF310	84095	Offcut	Antler

Introduction and Methodology

A total of 38 small finds were assessed; of these, four finds were identified as being metalworking debris or crucibles, and are reported upon by Rachel Cubitt. This report assesses the significance of the remaining 34 small finds.

All the finds of iron and copper alloy were X-rayed prior to the assessment being carried out, and identifications of these objects have been made with reference to the X-rays.

The finds by material

Iron

Of 21 iron small finds, 13 comprise nails and/or nail fragments, some of which derive from grave backfills. Other noteworthy finds are a medieval socketed arrowhead (SF25, Context 91313) from grave backfill, a possible knife blade fragment found with a skeleton (SF24, context 91294), and an 11th–13th century horseshoe nail, also from grave backfill (SF33, Context 91111).

Copper Alloy

There are eight finds of copper alloy including a pair of Roman or medieval tweezers (SF15, Context 91000), a possible decorative mount found in grave backfill (SF20, context 91100), a

possible failed buckle casting (SF27, Context 91405), a coin (SF28), and a possible finger ring found on a skeleton (SF32, Context 91285).

Bone

The only bone find is SF22, Context 91253 which is a horn core.

Glass

The only glass find is a small ? Roman vessel glass fragment (SF13, Context 90086).

Stone

Fragments of a largely complete (or possibly complete) millstone (SF31) were recovered from Context 91530.

Wood

A wooden stake (SF14, Context 91017) is reported on by Steve Allen in the Conservation Report

Flint

Flint fragment (SF37, context 91222) appears unworked

Table A4.3 2014 Small Find Assemblage

Find	Context	Name	Material
SF1	90064	Slag	Slag
SF2	90109	Nails	Iron
SF3	90064	Nail	Iron
SF4	90011	Nail Fragment	Iron
SF5	90087	Nail	Iron
SF6	90097	Nail	Iron
SF7	90032	Nail Fragment	Iron
SF8	90000	Nail Fragment	Iron
SF9	90131	Fragment	Iron
SF10	90092	Sheet Fragment	Iron
SF11	90064	Strip	Copper Alloy
SF12	90000	Disc Fragment	Copper Alloy
SF13	90086	Vessel Fragment	Glass
SF14	91017	Stake	Wood
SF15	91000	Tweezers	Copper Alloy
SF16	91007	Disc	Copper Alloy
SF17	91039	Nail	Iron
SF18	91054	Nails	Iron
SF19	91090	Fragment	Iron
SF20	91100	Mount	Copper Alloy
SF21	91103	Nail	Iron
SF22	91253	Horn Core	Bone
SF23	91253	Nail	Iron
SF24	91294	Object	Iron
SF25	91313	Arrowhead	Iron
SF26	91336	Nail	Iron

SF27	91405	Unfinished Object	Copper Alloy
SF28	0	Coin	Copper Alloy
SF29	91049	Slag	Slag
SF30	91471	Slag	Slag
SF31	91530	Millstone Fragments	Stone
SF32	91285	Ring	Copper Alloy
SF33	91111	Horseshoe Nail	Iron
SF34	91259	Object	Iron
SF35	91001	Bolt	Iron
SF36	91402	Nail, Slag	Iron, Slag
SF37	91222	Unworked Fragment	Flint
SF38	91253	Slag	Slag

Conclusions and Recommendations for Further Work (1986.14 assemblage)

Most of this assemblage appears to date from the medieval and post-medieval periods – exceptions to this include some of the four coins which may be Roman, one find of ?Roman vessel glass, and an Anglo-Scandinavian antler offcut. Some of the finds clearly relate to the medieval church and grave yard; these include the two papal bullae (to which a third from the 2012 season of interventions can also be added), which are of national significance as these items have very rarely been recovered from graves in parish church grave yards. The painted window glass fragment and parchment pricker are also likely to have been associated with the church. Medieval dress fittings include a strap-end and lace tags. Debris from medieval to early post-medieval wire pin making was identified –this was also seen in the 2006–2011 excavations at nearby Hungate.

Further Work and Retention

Three objects have been identified as requiring further conservation investigative treatment to enable a firm identification: these are SF68 ?horseshoe nail; SF108 iron object with ?plating; and SF133 copper alloy object.

The four coins (SFs2, 3, 32, 136) and one jetton (SF57) should be referred to a numismatist for identification.

Most of the small finds should be retained but the following finds have been identified as either of modern date, or as undiagnostic and so could be discarded:

Table A4.4 Objects for discard, 1986 assemblage

Find	Context	Name	Material
SF12	1007	Lump	Iron
SF14	3009	Fragments	Glass
SF27	5000	Button	Copper Alloy
SF28	5000	Perforated Strip	Iron
SF31	5000	Button	Copper Alloy
SF35	5009	Fragment	Iron
SF41	5025	Vessel Fragment	Glass
SF42	5025	Vessel Fragment	Glass

SF54	5029	Fragment	Iron
SF65	5049	Fragment	Lead Alloy
SF67	5065	Fragment	Lead Alloy
SF70	5023	Fragments	Glass
SF72	5085	Fragment	Iron
SF75	5085	Tobacco Pipe	Fired Clay
SF79	5000	Object	Stone
SF81	5000	Tobacco Pipe Fragments	Fired Clay
SF89	5102	Fragment	Iron
SF101	1002	Fragments	Glass
SF102	5023	Vessel Fragment	Glass
SF103	5023	Vessel Fragment	Glass
SF109	5103	Tobacco Pipe	Fired Clay
SF110	5103	Fragment	Iron
SF113	5023	Fragment	Stone
SF145	5110	Fragment	Flint

Conclusions and Recommendations for Further Work (2012 part 1 assemblage)

The most interesting and unusual small finds from the Haymarket site are undoubtedly the two medieval horse harness pendants (SFs3, 265) which represent rare survivors of this artefact type from the city, and which appear to be in very good condition; a full investigation of these objects might reveal identifiable heraldic details, information which has rarely, if ever, been found before in archaeological excavations in the city. It is therefore recommended that these objects are fully conserved. Apart from these objects, the Roman military pendant (SF6), and the chair or table leg SF74 are uncommon objects, and are also worthy of further study.

Some of the small finds from the Haymarket excavations are comparable to material recovered during recent excavations carried out by YAT for the Hungate development to the west and south of the Haymarket; for example, the antler offcuts, which probably derive from Anglo-Scandinavian period antler working, a major activity identified at the adjacent Hungate Block H excavations. Similarly, horn-cores, both worked and un-worked have been recovered in great numbers from Anglo-Scandinavian and medieval deposits at the same site, where considerable evidence of medieval wire pin-making was also identified. Post-medieval marbles and gaming pieces, and tobacco pipe fragments were also recovered in large quantities from the Hungate excavations.

Further Work and Retention

Five objects have been identified as requiring further conservation investigative treatment to enable a firm identification: these are SF3, 82, SF160, SF263, SF265.

All the coins are modern, and do NOT require study by a numismatist

Most of the small finds should be retained but the following finds have been identified as either of modern date, or as undiagnostic and so could be discarded:

Table A4.5 Objects for discard, 2012 part 1 assemblage

Find	Context	Name	Material

SF21	83022	Electrode	Graphite
SF35	83022	Pin	Copper Alloy
SF38	83095	Object	Lead Alloy
SF44	83022	Object	Metal
SF45	83198	Fragments	Iron
SF48	83222	Fragment	Copper Alloy
SF50	83278	Fragment	Iron
SF56	83030	Pin	Copper Alloy
SF65	83022	Fitting	Lead Alloy
SF67	83005	Fragments	Ceramic Building Material, Mortar
SF70	83246	Fragment	Leather
SF77	83246	Pin	Copper Alloy
SF117	83354	Fragments	Copper Alloy
SF119	83216	Fragments	Iron
SF120	83176	Lump	Iron
SF183	83001	Figurine	Plastic
SF268	83022	Screw	Iron
SF269	83022	Object	Fired Clay
SF270	83022	Cartridge Case	Copper Alloy, Iron
SF271	83022	Bottle Top	Iron
SF294	83076	Objects	Iron, Copper Alloy
SF295	83095	Objects	Iron, Glass, Fired Clay, Leather
SF300	83022	Can	Tin

Conclusions and Recommendations for Further Work (2012 part 2 assemblage)

This material relates primarily to the grave yard and contains coffin nails and other possible burial fittings. At least two finds were recovered from skeletons, these being a lead shot and a papal bulla (the third from the site overall). Occasional residual objects were noted, including a Roman hob nail, ?Roman vessel glass and a possible Anglo-Scandinavian dress pin and spindle whorl. Other material includes iron and copper alloy medieval dress accessories, and horseshoes. More evidence of medieval pin-making was also recovered.

Further Work and Retention

Seven objects have been identified as requiring further conservation investigative treatment to enable a firm identification: these are SF40, SF158, SF208, SF215, SF243, SF248, SF249.

Most of the small finds should be retained but the following finds have been identified as either of modern date, or as undiagnostic and so could be discarded:

Table A4.6 Objects for discard, 2012 part 2 assemblage

Find	Context	Name	Material
SF126	83972	Fragment	Copper Alloy
SF127	83980	Fragments	Copper Alloy
SF128	83783	Fragments	Copper Alloy
SF210	84535	Fragment	Copper Alloy
SF274	84643	Fragments	Copper Alloy

SF284	84176	Fragment	Iron, Bone
SF289	84028	Fragment	Iron
SF293	84869	Fragments	Copper Alloy

Conclusions and Recommendations for Further Work (2014 assemblage)

This small assemblage also relates primarily to the grave yard, and features little apparently residual material. Although coffin nails were recovered, these appear to be few in number. A number of interesting objects were recovered from burial related deposits including an arrowhead, possible knife blade, finger ring and decorative mount.

Further Work and Retention of 2014 Assemblage

Coin SF28 should be referred to a numismatist.

Four objects have been identified as requiring further conservation investigative treatment to enable a firm identification: these are SF20, SF24, SF25, SF32

Most of the small finds should be retained but the following finds have been identified as being either of modern date or undiagnostic and so could be discarded:

Table A4.7 Objects from 2014 assemblage for discard

Find	Context	Name	Material
SF9	90131	Fragment	Iron
SF12	90000	Disc Fragment	Copper Alloy
SF19	91090	Fragment	Iron
SF35	91001	Bolt	Iron
SF37	91222	Unworked Fragment	Flint

APPENDIX 5 – ARTEFACT CONSERVATION

By M. Felter, S. Allen, C. Wilkinson

Aims and Objectives

This report aims to meet the requirements of MAP2 (English Heritage, 2001) and MoRPHE (English Heritage, 2006) to produce a stable site archive, including X-radiography and an assessment of the condition, stability and packaging of the artefacts.

The condition of the various classes of material is summarised and indicators of unusual preservation noted. The potential of the assemblage for further analysis and research is discussed, and recommendations made for further investigative conservation and long term storage.

This report draws together the finds from three separate excavations at the same site, the first in 1986, the second in 2012 and the third in 2014. The finds will be dealt with in separate sections but with a summary of recommendations and resource requirements for all three sites at the end.

The 1986 Assemblage (YORYM:1986.14)

Table A5.1 Number of artefacts

Material	Quantity
Iron	64
Copper alloy	32
Lead alloy	14
Glass	14
Bone	4
Antler	1
Leather	1

Procedures

One hundred and ten metallic recorded finds (with the exception of Lead alloy) were X-rayed using standard YAT procedures and equipment. Five plates were used, each given a reference number in the YAT conservation laboratory series (X2686, X7732–7735). The X-ray number was written on each small find bag. Each image on the radiograph was labelled with its small find number. The plates were digitally linked to the IADB records for each find. A digital image of the X-ray will also be uploaded onto IADB once this has been scanned. The plates were packaged in archival paper pockets.

All finds were examined under a binocular microscope at X20 magnification. The material identifications were checked and observations made about the condition and stability of the finds, and recorded on IADB record for each find.

As part of the assessment phase all wet packed material was brought to dry storage.

For glass this was achieved in 1992 by immersion in 10% Primal WS24 (acrylic colloidal dispersion) for 20 days followed by air drying.

The leather was treated in 1998 and was washed under gentle running water with a soft brush and pre-treated by immersion in 25% glycerol v/v in water followed by freeze-drying (Freeze drying run number C16).

Condition Assessment Summary

Metals

Copper alloy

The copper alloy is generally in good condition with 27 out of 32 objects being classed as good, seven as fair and none as being in poor condition; only one object shows signs of active corrosion (SF84); this should be kept at bay by dry storage. The X-ray shows the cores of the objects to be mainly robust and even. The X-ray image of SF55 is very dense, suggestive of a high lead content. SF19 appears to be plated and SF135 was labelled as copper alloy but was found to be silver. Mineral preserved organic material was found in SF19, a lace tag. SF80 (Context 5000) had corrosion products indicative of an anoxic/waterlogged burial environment. Ten objects were found to be possible metal working waste (SF4, 53, 115, 116, 121, 126, 132, 134, 137 and 139).

Iron

The iron from this part of the site is generally in good to fair condition, with 34 objects out of 64 classed as good, 30 as fair and none in poor condition. All are encrusted with soil and corrosion products but only eleven have active corrosion present (SF9, 17, 23, 25, 26, 37, 76, 85, 99, 100, 110) and this is mostly limited to isolated spots which have stabilised in dry storage; the dry storage will be essential to keep this, and further, corrosion at bay. The generally stable nature of the iron is due to heavy mineralisation of the cores, as shown by the X-rays, showing that nearly all corrosion reactions have already taken place. Mineral preserved organic material was noted in the crusts of eighteen small finds, nearly all nails with associated wood. SF36, 44, 45, 46, 47, 48, 49, 50, 51, 87, 88, 94, 95, 96, 110, 130 and 140 appear to have enough wood surviving to warrant further study. One object showed evidence of non-ferrous plating (SF108). Two objects labelled as iron were found to be of lead: SF16 and 65. Two objects were found to be possible slag lumps (SF33 and 34).

Lead alloy

The lead alloy was in fair to good condition with 54 out of 14 objects classed as good, seven as fair and none to be in poor condition. Active corrosion on SF69 (spots only) should be kept at bay by dry storage and removal of paper and card (sources of organic acids) from its vicinity.

Some cracking to the cores was noted but this is currently stable. The two Papal Bullae (SF123 and SF142) were assessed and treated in 1987, revealing as much information as possible by removing corrosion mechanically. X-ray fluorescence analysis was also carried out on both Bullae showing them to be made of almost pure lead (please refer to the IADB records of each object for more detailed assessment and treatment records).

Inorganics

Glass

The glass objects from this site ranged in condition with four of fourteen objects classed as good condition, six as fair and three in poor condition. Two fragments (SF14 and SF70) were found to be completely broken down, surviving now only as fragments and crumbs. All except two finds (SF41 and SF105) had layers of corrosion in the form of hydrated silica surfaces. One fragment, SF127, was painted with red pigment and one object, SF52 was a modern bead with copper alloy wire hook.

Organics

Bone

The four bone objects (SF21, 24, 83, 119) were generally in good condition worn, and with no sign of recent deterioration.

Antler

The single antler object, SF122 was a simple off-cut in good stable condition.

Leather

The leather small find, SF143, was in good to fair condition, retaining flexibility but with some torn edges. The good condition of the object shows that waterlogged anoxic conditions was maintained within the context in which the find survived (C5188) up to the time of excavation.

Statement of Potential

Indicators of preservation

Most of the metal work from this site is encrusted with soil and corrosion products indicative of well aerated, damp conditions. One copper alloy object (SF80, context 5000) had corrosion indicative of an anoxic burial environment. The leather small find (SF143) also indicates the waterlogged conditions in Context 5188.

Dating evidence

There were five coins among the copper alloys from this site (SF2, 3, 32, 57 and 136) which might provide useful dating evidence as will the two Papal bullae (SF123 and SF142) recovered from the site (see Appendix 4).

Evidence of technology, craft or industry or anything else of note

Metalworking: there was only limited evidence of metal working in the form of waste, slag and spillage (SF4, 53, 115, 116, 121, 126, 132, 134, 137 and 139). SF116, 121, 132 and 134 are fragments of blue/black vitreous/glassy slag with very little metal content.

One object, SF97, is probably glassy waste (see Appendix 6).

Recommendations for further work are summarised at the end of this report.

The 2012 Assemblage (YORYM:2012.12)

Table A5.2 Number of artefacts

Material	Quantity
Iron	129 (1 of which is tin)
Copper alloy	59
Lead alloy	10
Glass	8
Bone	4 + 7 horn cores
Antler	5 (1 of which is bone)
Leather	1

Procedures

One hundred and fifty five metallic recorded finds (with the exception of Lead alloy) were X-rayed using standard YAT procedures and equipment. Fourteen plates were used, and each plate was given a reference number in the YAT conservation laboratory series (X8119–8132). The X-ray number was written on each small find bag. Each image on the radiograph was labelled with its small find number. The plates were digitally linked to the IADB records for each find. A digital image of the X-ray will also be uploaded onto IADB once this has been scanned. The plates were packaged in archival paper pockets.

All finds were examined under a binocular microscope at X20 magnification. The material identifications were checked and observations made about the condition and stability of the finds, and recorded on IADB record for each find.

As part of the assessment phase all wet packed material was brought to dry storage.

For glass this was achieved by solvent drying by immersion in gradually increasing concentrations of acetone (starting with 30% acetone v/v in water, then 60% and finally 100% acetone). The objects were then consolidated with 10% Paraloid B72 (methyl methacrylate co-polymer) w/v in acetone, by immersion after which they were removed, allowed to dry and packaged. Digital images were taken before and after treatment and added to the IADB.

For bone and antler in good condition this is achieved by air drying under controlled conditions.

The single leather find arrived at the lab already dried.

Condition Assessment Summary

Metals

Copper alloy

The copper alloy is in good to fair condition with 35 out of 59 objects being classed as good, nine as fair and seven as being in poor condition; ten objects show signs of active corrosion, with five of these being Bronze Disease (SF2, 27, 31, 54 and 90); this should be kept at bay by dry storage. The X-ray shows the cores of the objects to range from thin and pitted to robust and even. Two (SF52 (slag) and SF246) are very dense, suggestive of a high lead content. Four objects appear to be plated with tin (SF49, 56, 77 and 109 (these last three are pins), three objects were enamelled (SF3, 39 and 265) and another four objects which were labelled as copper alloy were found to be of a different material: SF58 is probably of tin, SF66 is of tin/pewter, SF270 is a composite of iron and copper alloy and SF284 is iron with vivianite corrosion products. Mineral preserved organic material was noted on two (SF1 and SF37) but these are only fragments. Six objects were found to be corrosion fragments or very tiny undiagnostic fragments (SF117, 127, 128, 155, 274 and 293) and these are recommended to be discarded.

Iron

The iron from this part of the site is generally in very good condition, with 112 objects out of 125 classed as good, ten as fair and only three in poor condition. All are encrusted with soil and corrosion products but only a few have active corrosion present (SF45, 46, 71, 80, 91, 97, 106, 160, 206, 215, 219, 242) and this is mostly limited to isolated spots; dry storage will, however be essential to keep this, and further, corrosion at bay. The generally stable nature of the iron is due to heavy mineralisation of the cores, as shown by the X-rays, showing that nearly all corrosion reactions have already taken place. Mineral preserved organic material was noted in the crusts of twenty small finds, particularly those objects which were identified on site as coffin nails. However, this mostly consists of small fragments of wood. Only SF105, 217, 221, and 238 have enough wood surviving to warrant further study. 6 objects showed evidence of non-ferrous plating (SF44, 72, 92, 101, 208 and 215). Two objects labelled as iron were found to be of a different material: SF259 is a composite of iron, lead and ivory and SF300 is probably of tin. Lastly, four objects were found to be corrosion fragments or very tiny undiagnostic fragments (SF50, 119, 222 and 236) and these are recommended to be discarded.

Lead alloy

The lead alloy was in fairly good condition, active corrosion on SF41 (spots) should be kept at bay by dry storage and removal of paper and card (sources of organic acids) from its vicinity. Six of the small finds were found to be spillage or metal working waste (SF104, 139, 203, 214, 285 and 258). SF309 is a papal bulla and has been investigated to reveal the legend by removing corrosion mechanically from the surface; a full treatment record with images can be found in the relevant IADB record.

Inorganics

Glass

There were eight fragments of glass which arrived at the lab wet-packed. The majority were of blue-green glass with only minimal corrosion and some dirt in the interstices. Only SF152 showed any signs of an iridescent corrosion layer; in this case a yellow/white layer which had spalled off slightly.

Organics

Bone

The bone was in good condition, with no signs of warping, splitting or cracking. Seven of the bone objects were horn-cores (SF171, 172, 174 and 176–179).

Antler

Again, the antler objects were in good condition. One small find, SF173, is a roe deer antler. SF185 was originally labelled as antler, but is of bone.

Leather

The single leather fragment, SF70, arrived at the lab dried out and is hard and brittle.

Statement of Potential

Indicators of preservation

Most of the metal work from this site is encrusted with soil and corrosion products indicative of well aerated, damp conditions. However blue/grey vivianite was noticed on seven objects; SF30 (Context 83022), SF131 (Context 83758), SF157 (Context 83922), SF213 (Context 84339), SF264 (Context 84610), SF280 (Context 83740) and SF284 (Context 84176). Vivianite is an iron corrosion product which usually forms in slightly acidic, anoxic conditions, rich in organic matter and phosphates. Brick red haematite, another iron corrosion product, associated with heat and burning, was noted on one object, SF207, a composite copper alloy and iron object.

Dating evidence

The coins (SFs 37, 100, 108) are good indicators of date as is the papal bulla (SF309) which is of Pope Urban VI 1378–1389 (see Appendix 4) and will already have been noted by the finds researcher, Nicola Rogers. Other items indicative of date will also have been picked up in her report.

Metalworking

The evidence of metal working in the form of waste, slag and spillage (Appendix 6) will already have been investigated by the archaeometallurgist Rachel Cubitt and picked up in her report.

The 2014 Assemblage (YORYM:2014.154)

Table A5.3 Number of artefacts

Material	Quantity
Iron	22
Copper alloy	8
Glass	1
Wood	1

Thirty recorded small finds (with the exception of Lead alloy) were X-rayed using standard YAT procedures and equipment. One plate was used, and given a reference number in the YAT conservation laboratory series (X8496). The X-ray number was written on each small find bag. Each image on the radiograph was labelled with its small find number. The plates were packaged in archival paper pockets.

All finds were examined under a binocular microscope at X20 magnification. The material identifications were checked and observations made about the condition and stability of the finds. This information is recorded on the YAT database, IADB.

The wood object (SF14) was washed under cold running water to remove adhering burial deposits and recorded. Sampling for wood species identification undertaken and completed, artefact returned to original packaging to await implementation of the assessment recommendation. Species identification undertaken under a transmitted light microscope at x40, x100 and x200 magnification. Identification follows Schweingruber 1982.

Condition Assessment Summary

Iron

There are twenty-two iron small finds from this block. Nineteen of these finds were found to be in fair-good condition, with the remaining one found to be in poor condition with a heavily mineralised core. By far the majority of these finds displayed some degree of active orange corrosion but this was in general limited to small areas and should be kept at bay by dry storage. The majority of the collection has mineralised cores while the rest showed cores of mixed condition ranging from solid and even through to severe pitting. Two objects, SF34 from context 91259 and SF36 from context 91402, showed signs of anoxic or waterlogged burial conditions (see below). X-rays indicated that one of the iron objects (the smallest of SF36) was in fact a soil concretion. The collection of ironwork should not suffer in long-term storage provided a dry environment of less than 15% Relative Humidity is maintained.

Copper Alloy

There were eight copper alloy small finds. These were all found to be in fair condition. All showed signs of green powdery active corrosion but this was in general limited to small areas. The metal cores were shown to be intact and even with only some minor damage in the form of pitting.

Glass

There was one glass small find from this block, a small fragment from a larger object. The breaks do not appear fresh. The find is in fair to good condition and does not show signs of glass disease. The material was received dry and although there are visible scratches on the surface it is purely superficial damage. The glass is translucent. The find was covered in a layer of sand and silt which could be removed if necessary. The glass find should not suffer in long term storage. Ideally keep the find in a stable environment of 50–55% Relative Humidity.

Wood

The one wooden artefact recovered (SF14) is the tip of a waterlogged wooden stake and is in fair condition. The artefact has abraded surfaces and tip, the upper end is broken away and missing. Though preserved, the stake had been driven through the context on which it was observed and into damper underlying deposits. Capillary action, and its probable recent date, is enough to explain why only this piece of wood was preserved on site. Though the wood is not stable, this piece is not of sufficient interest to justify retention.

Statement of Potential

Indicators of Preservation

As mentioned above there were two iron objects which indicated anoxic burial conditions in the form of patches of blue vivianite, again, an iron corrosion product which is formed when the burial environment has little oxygen and is rich in phosphate. It is possible that parts of contexts 91259 and 91402 provided this kind of environment. There are no other indicators of specific burial environments suggesting the rest of the finds came from well-aerated terrestrial deposits.

The presence of the waterlogged wooden stake SF14 suggests the existence of waterlogged or at least damper burial conditions below the level at which the stake was found.

Dating evidence

There was one coin among the copper alloys from this site (SF28) which may provide be a good indication of date once conserved.

Although the wood stake, SF14, is not intrinsically datable, it has every appearance of being a relatively recent intrusion into the deposit in which it was found and is of no value for dating purposes.

Evidence of technology, craft or industry or anything else of note

Metalworking: there was only limited evidence of metal working in the form of waste, slag and spillage (SF30 and SF36). SF10 and SF19 are probably also metalworking waste. These small finds will Appendix 6 already have been investigated by the archaeometallurgist Rachel Cubitt and picked up in her report.

Summary of Combined Recommendations and Resource Requirements

Further Investigative Conservation

Investigative conservation is proposed for the following artefacts to aid identification and clarification:

Table A5.4 Proposed conservation for all assemblages

YORYM:2012.12 Former Hostel and Haymarket Car Park, Dundas Street, York		
SF	Material	Aim
5	Iron	Clarify shape of rivet
82	Iron	Aid ID of possible knife
158	Iron	Clarify shape of fitting (if context warrants this)
160	Iron	Aid ID of possible arrowhead
208	Iron	Aid ID of curved object
215	Iron	Aid ID of possible fitting (if context warrants this)
243	Iron	Clarify shape of buckle (if context warrants this)
263	Iron	Clarify shape of fitting
3	Copper alloy	Full corrosion removal of horse harness pendant to clarify shape of enamel and for publication
37	Copper alloy	Clarify possible coin
39	Copper alloy	Clarify shape of enamelled stud
40	Copper alloy	Clarify shape of possible mount
248	Copper alloy	Aid ID of object
265	Copper alloy	Full corrosion removal of horse harness pendant to clarify shape of enamel and for publication
1986.14 Haymarket Car Park, Peasholme Green, York		
SF	Material	Aim
82	Iron	Clarify shape of pin head
108	Iron	Aid ID of possible key
135	Copper alloy	Aid ID of object
YORYM:2014.154 Haymarket Car Park, 2014		
SF	Material	Aim
12	Copper Alloy	Unidentified object with possible MPO in concretion; investigate to aid object identification and consolidate if necessary.
15	Copper Alloy	Possible tweezers; remove surface corrosion to aid object identification. Consolidate if necessary.
20	Copper Alloy	Unidentified object; remove surface corrosion to aid object identification. Consolidate if necessary.
24	Iron	Possible blade fragment; cross-section to obtain object information.
25	Iron	Possible socketed arrowhead; cross-section to obtain object information.
27	Copper Alloy	Possible bit of a key. Remove surface corrosion to aid object identification. Consolidate if necessary.
28	Copper Alloy	Coin. Remove surface corrosion to obtain a date. Consolidate if necessary.
Total (all sites)		

Please note the objects in the table above which are recommended for further work only if the context warrants it; it is recommended that the context should be checked to establish if further work is required.

Analysis and specialist Support

To be arranged after the investigative conservation has been completed and not included in the times itemised below.

XRF: X-ray fluorescence analysis could be carried out on the following finds, to confirm plating materials: SF44, 72, 101, 215 (1986.14) and SF19 and 108 (YORYM:2012.2) and to clarify material ID: SF58, 66, 300 (1986.14).

Numismatics

The two coins (SF100 and 108) and the possible coin (SF37) from 1986.14, the coins (SF2, 3, 32, 57 and 136) from YORYM:2012.2 and the possible coin from YORYM:2014.154 (SF28) should be referred to a numismatist.

Mineral preserved organics: Mineral preserved wood on SF36, 44, 45, 46, 47, 48, 49, 50, 51, 87, 88, 94, 95, 96, 110, 130 and 140 from 1986.14, SF105, 217, 221 and 238 from YORYM:2012.2 and SF23 and SF26 from YORYM:2014.154 can be put forward for further analysis of species using the Scanning Electron Microscope if required. Again it is recommended that this is only done if the context warrants it.

Packaging and Long-Term Storage

All finds were well-packed in suitable sealed containers to provide the appropriate desiccated and damp environments.

All materials used for the storage of the finds are archive stable and acid-free. The metal finds should continue to be stored in a desiccated environment at less than 15%RH. The desiccated environment will need to be maintained.

Bibliography

English Heritage, *Management of Archaeological Projects*, 1991

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

Schweingruber, F. W., 1982. *Microscopic Wood Anatomy*. Second edition, (Zurich)

APPENDIX 6 – METALWORKING DEBRIS

R. S. Cubitt

Methodology

This report summarises the metalworking debris from three separate excavations at the Haymarket site, York. Table A6.1 lists the individual excavations and how much debris was produced in each case. All of this material has been subjected to visual assessment and the resulting identifications are given in Table A6.2.

Table A6.1 Summary of metalworking debris from the three main excavations

Excavation code	Total weight of slag (g)	Total number of items
YORYM: 1986.14	2129	19
YORYM: 2012.2	3627	38
YORYM: 2014.154	180	2

Table A6.2 All three assemblages quantified by type

Activity	Classification	Weight (g)	No. of items
Non-diagnostic ironworking	non-diagnostic iron slag	2234	22
	iron-rich cinder	62	2
Smithing	smithing hearth bottom	762	2
Post-medieval smelting	blast furnace slag	70	3
Copper alloy working	copper alloy droplets	12	4
	copper alloy waste	78	4
	copper alloy miscast	14	1
	copper alloy object (heat affected)	4	1
Indeterminate high temperature process	slag	244	1
	cinder	48	4
	slag/cinder/concretion	28	1
	?glassworking waste	54	1
	slagged shale	468	5
	fuel ash slag	18	2
	clinker	1560	4
	vitrified CBM	272	1
	over fired clay	8	1
	Totals	5936	59

Description of the Material

Iron working is represented by several categories of evidence. There are two smithing hearth bottoms, measuring 110x92x33mm and 79x50x35mm. These are formed from droplets of

metal which accumulate in the hearth while the smith is working. The non-diagnostic ironworking slag could have been produced by either smelting or smithing of iron. It is not possible to tell by morphology alone. Given the presence of smithing hearth bottoms in the assemblage the later is perhaps most likely. Post-Medieval smelting was undertaken in a blast furnace. This intensive high temperature process produces a very distinctive glassy residue, three fragments of which were found at the site.

Copper alloy working is suggested by the presence of waste and droplets – molten material lost during the casting process. Interestingly an object which appears to be a failed casting was identified through radiography of the copper alloy object assemblage (small find 126). A further object which has been subjected to very high heat was also recorded.

The majority of the material collected cannot be linked to a particular activity and is therefore recorded as relating to an indeterminate high-temperature process. For example, cinder is a material formed by the high temperature reaction between fuel ash slag and alkalis in clay. This can take place in the lining of a hearth, furnace or oven and leads to vitrification. Cinder represents fragments which have spalled away from the vitrified lining. A proportion of the cinder found at Haymarket is iron-rich judging by its colour, so these fragments can be linked to ironworking.

In terms of fuel evidence, the slagged shale derives from the use of poor quality coal. 18g of fuel ash slag is further evidence of burning activity although also indeterminate.

One item has been simply termed slag as its identity is currently unknown. It has a purple/white colour and a vesicular appearance. Originally thought to be a fragment of lava quern, this item is probably the product of an undetermined post-medieval process.

One item of potential glass-working waste was recorded. It is more typical of post-medieval glass working slags than of metalworking but requires confirmation by a glass working specialist.

The second largest group of material over all has been termed clinker because of its bloated appearance. Clinker is produced by coal-fuelled processes such as post-medieval iron smelting. The lumps of clinker in this assemblage also incorporate vitrified pot sherds, fragments of copper alloy waste, charcoal, tiny fragments of iron and a black glassy slag. Fragments of vitrified ceramic building material and over-fired clay come from the same context. The ceramic and glass specialists have also identified burnt sherds in the material from this assemblage. It is suggested that this material represents waste from a fire.

Discussion and Recommendations

All three excavations produced a large number of burials. It is clear that many of the fragments of debris recorded have been accidently incorporated into grave yard features. In general, little attention has been paid to the context of the debris at this assessment stage, with the exception of one context from the 2012 excavation.

A large proportion of the debris from the 2012 excavation was recovered from one context 83022 – the infill of a brick chamber, possibly the cellar of the Leeds Arms. 2365g of the 2012 material came from this context and included virtually all of the clinker, copper alloy waste, fuel ash slag, slagged shale and vitrified CBM found in that excavation. It is suggested that the material within the cellar was imported specifically for the purpose of backfilling the underground structure and was probably sourced from one of a number of local iron and brass metal foundries. Context 83246, which is stratigraphically related, also contained clinkery material and slagged shale.

Once the cellar and related material is deducted, the remaining debris is more typical of metalworking and appears to show evidence for iron smithing, copper alloy casting, post-medieval smelting, and possibly glass working. None of the excavations encountered any structural evidence for metalworking, in the form of hearths for example, so it is not possible to relate these finds to processing taking place within the excavation area.

Material of a similar character was recovered from the adjacent Hungate excavations. Both the Roman and post-medieval phases at Hungate included a mixture of debris from different processes coupled with a lack of primary metalworking contexts. The debris from Haymarket appears to follow the same pattern. It is arguable that metalworking took place in the vicinity of these sites but exactly where and when is difficult to determine because the debris is not intrinsically dateable.

The Haymarket assemblage is small and its potential is limited by the likelihood that debris may have been brought onto these sites with other dumped waste which has since been distributed over time. However, it makes a useful addition to the group of sites excavated in the Hungate area which all produced similar metalworking debris and would make a useful addition to a study looking at metalworking in this part of the city over time in a bid to better understand these mixed assemblages.

Retention and Discard

This material should all be retained until the analysis phase when the indeterminate slag and potential glass working items can be identified by other specialists.

APPENDIX 7 – ENVIRONMENTAL SAMPLES

Summary

Holistic interpretation of materials contained within ten bulk samples from the Haymarket in York has revealed evidence of urban practices within the Roman and medieval periods. Ditches were used for dumping of domestic and demolition or industrial waste; a practice that was recorded from both periods. Midden pits and refuse within ditches of medieval date have demonstrated the wide range of cereals grown and the range of other foods consumed, including eggs, fish, fowl and mammals. One fig pip from a medieval building floor of 13–14th century date is a luxury item and confirms the supposed high status of this building. Evidence of flooring rushes within this building is an interesting addition to the archaeological record. Collectively, the analysis of these samples has provided a snapshot of activities in Roman and Medieval York including diet, the dumping of household waste and urban remodelling.

Introduction

Ten bulk samples relating to two phases of excavation (2012; 2014) at the Haymarket in York were submitted to the Dickson Bio-Archaeology Laboratory for sample processing. It was anticipated that an integrated analytical approach would help answer research questions relating to the form and function of each specific context, whilst simultaneously revealing information that would enable a greater understanding of activities and type of occupation of this site over time.

Methodology

Bulk Sample Processing

Bulk samples were received within 10 litre plastic tubs, sealed to exclude light and air. They were described and then floted for the recovery of environmental evidence and artefacts using standard methods and a bespoke adapted Siraf flotation system including a pumped recycled water system with four settling tanks. Samples were disaggregated by agitating in water over a 500µm diameter mesh supported over a flotation drum. Light, primarily organic materials that floated as wash-over (flots) were retained on 500µm and 1mm calibrated mesh diameter Endicot sieves whilst other materials larger than 500µm that did not float remained on the mesh as the retent. Organic materials that were deemed potentially waterlogged were retained in water pending closer laboratory examination, whilst non-waterlogged flots were dried according to standard practice.

Wet retents were spread out on plastic trays and examined visually before being tagged and dried. Flot materials from non-waterlogged deposits were wrapped in blue acid-free paper, tagged and recorded before being air dried on trays in a warm drying room. Once dried, the retents were sieved using 4mm and 2mm Endicot sieves and sorted using magnified illuminated lamps for all categories of artefacts and ecofacts. A magnet was employed to locate magnetized stone and metals. Sorted materials were bagged, labelled for submission to specialists and weighed (where relevant) using an Ohaus CS200 digital scale calibrated to 0.01g. Sorted residues were also weighed on a digital scale, bagged and stored pending decision for disposal.

Sorting of flots was undertaken using a Zeiss Stemi-2000C microscope binocular microscope with associated Schott KL-1500 LCD cold light source. The matrix composition was described according to Hubbard & Clapham's abundance scale (1992). Flot materials deemed potentially waterlogged were examined in water and retained wet pending final decision regarding waterlogging status.

Botanical Material Identification

For each sample, the total volumes of the flot and carbonised botanical material from the sorted retent were recorded separately. The flot was then added to the corresponding retent and the total volume sorted through a stack of 4mm, 1mm and 500µm mesh diameter sieve. The volume of carbonised material from each fraction thus obtained was recorded; this gave a total volume of charcoal present and an indication of fragments size.

Charcoal identification was undertaken using the reflected light of a Zenith Metam P-1 metallurgical microscope at X63 magnification. Depending upon volume present, 100% of the charcoal >4mm fragment size, or a representative sample thereof, was identified as completely as preservation would allow. Weights were obtained. Charcoal >2mm fragment size was scanned, and if necessary and feasible a selection was identified to ensure the identified material provided an accurate representation of the species composition for each sample analysed.

All cereals, other seeds and vegetative macroplant remains were identified as specifically as preservation would allow using a Zeiss Stemi-2000C microscope with independent Scott light source, at variable magnifications of between X4–X45. Flots were examined dry or in water, depending on potential waterlogging status.

Following identification, waterlogged fragile organic materials were stored in water with a preservative mixture of 200ml glycerine, 400ml ethanol and 6ml formalin in accordance with standard methodology. Non-waterlogged fragile materials were stored dry in vials and the rest were bagged. Identified materials from each sample were stored together.

Charcoal identification was undertaken with reference to Schweingruber (1990). Confirmation of cereal morphology was achieved with reference to Jacomet (1987), whilst seed identification was confirmed by comparison with images within Beijerinck (1947) and Cappers (2006) and the Dickson botanical reference collection. Bud identification was achieved with reference to Tomlinson (1985). Plant nomenclature follows Stace (1997) except cereals, which conform to Zohary & Hopf (2000).

Faunal Remains Identification

The faunal remains were examined in laboratory conditions and recorded with guidance from Dobney et al. (1999) and O'Connor (2008). For each context, observations were made on bone preservation, colour, angularity of breaks and fragment size. Evidence of butchery, gnawing, burning or post depositional damage was recorded where present. Identification of species was completed using published identification guides (Pales & Lambert 1971), as well as comparative material from the zoo-archaeological reference collection at the Dickson Laboratory. Wherever specific identification was not possible bone fragments were classified using the categories 'unidentified mammal', 'unidentified bird', or 'unidentified fish'. Mammalian fragments that retained characteristics that enabled estimation of the size of the

animal were assigned to one or more of the following categories: large mammal (the size of horse/cow/large cervid [i.e. deer]), medium mammal 1 (the size of sheep/goat/pig/small cervid), medium mammal 2 (the size of dog/cat/hare), small mammal (the size of rodents, mustelidae etc). Very small bone scraps (usually smaller than 10mm) were recorded as unidentifiable and only counted approximately.

Egg shell was collected, confirmed as such but not further identified.

Shell Identification

Marine bivalves were generally fragmented, although identification was still feasible, achieved with reference to McMillan (1968) and modern reference material.

Molluscs were classified initially by shape/type before specific identification and habitat criteria could be achieved using Evans (1972) and modern reference materials.

Classification of invertebrates

Invertebrate remains were classified to taxonomic order (eg. Coleoptera- beetles; Diptera- true flies), within which body parts were described as head, thorax, wing case, body, leg or egg.

Results

Results are given in Tables A7.1–3 on separate Excel spreadsheets. Table A7.1 tabulates sample processing; Table A7.2, results of flots analysis; Table A7.3 the results of identification of bones from retents.

Context (83208) sample <8303>

Context (83208) was the second fill of a Roman ditch. Small quantities of pottery and bone were recorded from the flotation retent, with one hammerscale spheroid, a fleck of glass and a tiny chip of CBM subsequently being removed from the flot.

The fill was not waterlogged but was pervaded with relatively modern roots. The uncarbonised seeds recorded are amongst the most robust of all taxa, namely elder/red-berried elder (Sambucus nigra/racemosa), and fat hen (Chenopodium album), both of which can persist in soil for hundreds of years. As such they may be later intrusions via root action at any point since deposition, or be residual from a larger contemporaneous seed assemblage that is no longer extant. Occasional beetle remains are considered intrusive. Two indeterminate fragments of charcoal cinder and some glassy wood tar beads concur with the hammerscale to suggest an industrial component, albeit only tentatively.

The bone recovered only amounted to a few small fragments. The majority of these were less than 10mm in size and were recorded as unidentified. The remaining pieces were slightly larger and were assigned to the category of medium to large mammal. The colour of the bone was consistent throughout, and all fragments were noted to be a light yellow-brown, suggesting that they were subject to the same post-deposition taphonomic processes. The small volume and lack of identifiable bone elements concurs with the scarcity of uncarbonised other organic materials to imply a relatively rapid sediment accumulation event above the

natural water table, within which uncarbonised organic materials could not survive well and which contained little evidence of demolition, industrial or other anthropogenic activities.

Context (83212) sample <8307>

Context (83212) was the primary fill of Roman ditch [83219], stratigraphically below (83208). Other than a fragment of possibly worked flint/chert and rare bone, nothing of note came from the retent; the flot was similarly poor. As with the second fill (83208), primary ditch fill (83212) was not waterlogged and contained roots and robust uncarbonised seeds that may be contemporary or of more modern origin.

Very little bone was recovered from (83212), with a total of two unidentified fragments smaller than 10mm, of which one was calcined. This indicates that it was burnt at temperatures in excess of some 600^{o}C in a well oxidised fire.

The similarity between the primary and secondary fills of ditch [83219] suggests either common provenance or a degree of bioturbation.

Context (83215) sample <8306>

Context (83215) was interpreted during excavation as pit backfill of probable medieval period. Sample processing revealed a wide range of materials within the fill, including small volumes each of charcoal, carbonised seeds, bone, pottery, CBM, magnetic material and a curved fragment of worked stone (possibly a partial bead). Collectively, these results are strongly suggestive of a refuse pit containing at least a degree of domestic waste.

Although carbonised plant materials were not abundant, the combination of charcoal of hazel (Corylus) and willow/poplar (Salix/Populus) with carbonised cereals, a pea fragment (Fabaceae) and arable weed seeds indicate domestic hearth waste. Barley (Hordeum sp), wheat (Triticum) and cereal chaff were recorded, whilst burnt seeds of corn cockle (Chrysanthemum segetum), brown/oval sedge (Carex disticha/ovalis) and yellow sedge (C. viridula sl) imply gleaning or parching of cereals for storage or consumption. Roots were not recorded but with the exception of one possibly earlier seed of fat hen, the uncarbonised seeds assemblage is possibly attributable to intrusion during excavation.

Context (83215) contained a range of different bone fragments, although most were unidentified chips less than 10mm in size. However, a minority could be identified further. Fragments of fish, rodent, frog/toad (Rana/Bufo), small mammal, and medium to large mammal were all recorded. The presence of fish and medium to large mammal bone concurs with the hearth waste found to suggest that the context represents domestic waste. This is further supported by the finding that one of the fragmented fish vertebrae was calcined, demonstrating that it had been burnt at a high temperature prior to deposition. The presence of rodent and frog/toad bones in the sample may suggest that the waste was left open for some time, allowing small animals to reside in the pit. The colours of the non-burnt bone fragments ranged from a mid brown to a black-brown, yet all displayed similar levels of angularity in breaks. This suggests that they may have been subject to different taphonomic processes before deposition. They may have originated from different rubbish piles that were then cleared collectively into the pit, or alternatively the deposit could have accumulated over a period of time.

Context (83255) sample <8314>

Context (83255) was a compacted but friable layer of very fine plaster/gypsum. The material had one completely flattened, smoothed face and an opposite side that was very variable in shape, giving an overall depth of material ranging from 20–45mm. Rare inclusions of charcoal, metalworking waste and organic materials including potentially residual fish skin were noted. It is likely that this material was a floor levelling deposit, upon which tiles were then laid but which have not survived in situ or the result of material deposited during internal wall plastering.

Context (84951) sample <8342>

Context (84951) was the fill of a Roman feature, interpreted as a possible ditch. The deposit was not waterlogged and contained numerous roots, considered likely to be later intrusions. This interpretation is supported by the uncarbonised seed assemblage, which included relatively intact seeds of silver/downy birch (Betula pendula/pubescens) (some even retaining their fragile wings) and members of the daisy family (Asteraceae). Prickly and smooth sow-thistles (Sonchus asper, S. oleraceus), dandelion (Taraxacum officinale), great lettuce (Lactuca virosa) and birch seeds are all wind-dispersed and are likely to be intrusive during the excavation, since none are likely to persist for extended periods in non-waterlogged soil.

Although the fill of this feature had an intrusive component, a small but diverse assemblage of other materials was recovered during processing, including charcoal, seeds, bone, pottery and CBM. One brown snail (Zenobiella subfruescens) could imply that the interpretation of the feature as a ditch is correct, further suggesting that it remained open for a period. Similarly, the few tiny fragments of Scot's pine (Pinus sylvestris), indeterminate conifer and oak (Quercus) charcoal reflect burning activities in the vicinity, whether relating to demolition, industry or other provenance. This was the only instance of Scot's pine on this site. Pine is a good structural timber, although the resinous wood makes it also ideal for fire-lighting tapers, whilst the association of oak with durable construction and industry is well understood. No cereals were recorded, but ruderal and grassland weeds were occasional.

Only five fragments of bone were recovered from the sample. Three of these were smaller than 10mm and were recorded as unidentified. The remaining two were noted as medium to large mammal. This amount of bone does not give any information on the nature of the deposit or feature. However the fact that the fragments are all a uniform dark brown colour suggests that there was very little post-depositional disturbance. Collectively, the sample reflects background urban scatter in a period where structural remodelling and small-scale industrial practices abounded.

Context (84970) sample <8352>

Context (83270) was interpreted during excavation as an occupation deposit within a high-status medieval building. Pottery typology suggests occupation dating to 13–14th century. Processing and laboratory analysis confirmed this interpretation is likely to be accurate, with evidence for food processing indicated from both the botanical and zoological assemblages. Additionally, quantities of CBM, metal, mortar and magnetic material were recorded during flotation, possibly reflecting an episode of demolition or alteration to the building. A small concave disc, possibly copper, was of note. The deposit was wet and anoxic but probably only

intermittently waterlogged, as suggested by the presence of uncarbonised remains of very robust taxa. A separate assemblage of very modern Asteraceae seeds and birch tree remains are almost certainly intrusive from the excavation.

The charcoal assemblage was moderately extensive, dominated by oak, with willow also present in smaller quantities. It is unlikely that oak would be burned on a domestic hearth, suggesting that this charcoal could relate to the destruction of structural timbers. Similarly, the willow charcoal recorded may have come from wattle wall panels, although the secondary use of scraps of either species as hearth fuel cannot be excluded.

The cereal assemblage was not extensive and those grains that were recovered were in poor condition. This status is frequently observed with botanical materials that have been subjected to prolonged heating at the edge of a domestic hearth. Bread wheat (Triticum aestivum) and possible rye (Secale cereale) were both recorded, together with field pea (Vicia faba) and less well preserved peas (Vicia/Faba sp). One uncarbonised fig (Ficus carica) pip was of note. Collectively, these food plants support the interpretation of medieval domestic living. Together with fish scales and bones, mammalian fragments and poultry (Galliformes) egg shell, this food debitage collectively supports the interpretation of a domestic area where food was either prepared or consumed, or both.

It is likely that the food waste ultimately found its way into the flooring rushes of the medieval house. That rushes were on the floor here is suggested strongly by the presence of uncarbonised remains of grass culm nodes and numerous leafy shoots of heather (Calluna vulgaris). Bog myrtle (Myrica gale) and lesser spearwort (Ranunculus flammula) may have been included to sweeten the rushes, or have had culinary use. Burnt seeds of probable yellow rattle (Rhinanthus major) and wood forget-me-not (Myosotis cf sylvatica) will also have been brought into the structure with domestic rushes.

The bone assemblage was moderately substantial, although the majority of it was highly fractured and too small for identification. This factor in itself would support the interpretation of an occupation floor with significant human traffic. Occasional fragments displayed characteristics enabling them to be assigned to the categories of small mammal, small to medium mammal, medium mammal 1, medium to large mammal, or large mammal. A single small fragment of unidentified bird was also recovered. The colours of the mammal bone varied considerably, from a light sandy brown to a dark black-brown, suggesting deposition over a period, or variable degrees of post depositional disturbance. The most predominant type of bone was fish, in particular fish vertebrae. The majority of these were fragments, with only the centrum of the vertebra remaining intact; again, this would concur with recurrent disturbance within flooring rushes. However, four vertebrae remained intact and could be identified to order. Two were Gadiformes (cod order) and two from Cyprinidae (carp and true minnow order). The presence of various types of fish is unsurprising given that the context is a medieval occupation deposit. Along with the unidentified bird, medium and large mammal fragments, the presence of the fish bones demonstrates the exploitation of a range of different fauna for subsistence. However it is important to note that despite the high frequency of fish remains, the definitive MNI identifiable is still only two fish; the remains are not conclusive evidence for a large number of individual fishes. Nevertheless, the zoological

and botanical assemblages have revealed evidence for a varied diet within a moderately wealthy household.

Context (91032) sample <0001>

Primary ditch fill (91032) was part of the boundary ditch to the south-east of the grave yard. A wide range of materials were recorded from this fill, suggesting that it was used for dumping domestic debris and possibly also demolition/industrial waste over a period of time. In addition to a large bone collection and some botanical and oyster shell remains, pottery, CBM, magnetic material and mortar were recorded.

The charcoal assemblage suggests local gathering of scrub woodland resources for domestic fuel, with alder (Alnus), apple/rowan type (Maloideae) and especially willow recovered. Oak charcoal from very large timbers concurs with the CBM and mortar to support the interpretation of structural demolition in addition to domestic activity. The cereal assemblage was poorly preserved, with more than 50% being entirely indeterminate. This strongly suggests hearth rake-out. Despite the poor preservation, oat/rye (Avena/Secale) and bread wheat were recorded. As such, this would suggest that the ditch infilling dates to the medieval period or later. One poorly-preserved fragment of a type of pea (Fabaceae) would further support this interpretation. The ditch fill contained some roots but is likely to have been only intermittently waterlogged since inception, as implied from uncarbonised seeds of only the very robust elder/red-berried elder and from the poor condition of the animal bone assemblage.

A significant volume of bone was recovered from the sample, although only one element was identifiable to species. Most fragments were recorded as medium mammal, medium mammal 1, large mammal, medium to large mammal, or unidentified. A small number were also described as unidentified bird and fish. However, a single cow phalanx (toe bone) was recorded. The presence of fractured mammalian remains including cow, plus bird and fish concurs with the botanical remains to imply dumping of domestic food waste within the ditch. The majority of the fragments displayed vivianite, a hydrated iron phosphate mineral that crystallises slowly within wet, organic environments. This suggests that the ditch was at least damp and contained organic waste for prolonged lengths of time.

Context (91130) sample <0002>

Context (91130) was described during excavation as pit backfill, potentially a cess pit. Sample processing revealed a significant volume of charcoal, bone and some shell, together with pottery, metal, magnetic material and mortar, suggesting that the pit was certainly filled with domestic midden, if not literally a cess pit per se, ie containing faecal material. The pit was poorly drained and probably intermittently waterlogged, as implied by the large number of elder/red-berried elder seeds recorded.

The charcoal assemblage contained hazel, ash (Fraxinus), cherry type (Prunoideae), oak and willow. They may reflect a combination of domestic hearth fuel and industrial/structural debitage. Fragments were moderately large and well preserved, suggesting little significant post-depositional alteration. The absence of any yellow/white uric acid inclusions within the vessels of the charcoal would tend to support the interpretation that this feature is a midden rather than a cess pit.

The sample contained a number of bone fragments, although the majority were only able to be recorded as unidentified small mammal, medium to large mammal or large mammal. Several small flecks were completely indeterminate. Two small fragments of mammalian bone were calcined, implying food preparation. Between the flot and retent, six fragments of fish bone were observed, although none were sufficiently preserved for further identification. Eighteen fragments of frog/toad were also recorded in total. This would support the theory that the context originated from a midden that accumulated over time.

One bread wheat grain, rare poultry egg shell and some fragments of oyster shell were the only other food-related remains recorded. The presence of shell further supports the interpretation of a domestic midden, since the strongly acidic conditions of a cess pit would tend to destroy the calcium within delicate shell. It would also have had noticeable negative impact upon bone preservation.

Context (91489) sample <0003>

Context (91489) was the second fill of ditch [91490], stratigraphically above (91509). The deposit contained a significant bone assemblage, but also charcoal and seeds, pottery, metal, magnetic material, mortar and a large volume of CBM. Charcoal cinder and worked stone were also recorded. Collectively the finds imply significant components of both domestic waste and demolition or industrial detritus. The deposit would be described as wet but not definitively waterlogged.

The charcoal assemblage would concur with this interpretation, with alder, apple/rowan and willow suggesting hearth fuel, whilst oak potentially reflecting structural/industrial debitage. Two hammerscale spheroids concur with the metal and magnetic waste found to support the theory of industrial practices nearby. That the deposit has accumulated over time with general urban midden from various sourcesis further implied by the variety of cereal types recorded, including cultivated oats, probable hulled barley (Hordeum vulgare cf var vulgare) and bread wheat, plus many indeterminate grains. Carbonised arable weeds such as wild oat (Avena fatua) and wild mustard (Brassicaceae) highlight daily crop processing. Collectively the assemblage reflects residue from various crops of different status and value; the number of indeterminate grains concurs with the charcoal cinder to imply dumping of domestic hearth rake-out.

The uncarbonised seed assemblage would concur with the deposit accumulating over a period of time. Seeds of ruderal weeds of enriched anthropogenic soils including elder/red-berried elder, fat hen, hemlock (Conium maculatum) and especially white/red dead-nettle (Lamium album/purpureum) imply that the ditch environs supported a waste ground flora.

A significant weight of bone was recovered from the sample, although the majority of this was unidentified fragments smaller than 10mm. Frequent fragments of medium to large mammal were also recorded, in addition to occasional pieces of large mammal and medium mammal 1. A single fragment of unidentified fish was also recovered. Collectively, these remains are likely to have provenance in domestic food preparation. A minority of the bone was identifiable to a closer level. Two fragments of rodent support the theory of an urban midden with vermin feeding on domestic discard, whilst one bone from a cat further implies general urban dumping. Of particular interest was the presence of two adult human teeth. These are unlikely

to indicate an inhumation in situ, but along with the animal, plant and inorganic remains demonstrate a general build up of waste, possibly including redeposited charnel.

Context (91509) sample <0004>

Context (91509) was the primary fill of ditch [91490], stratigraphically below (91489). Very few finds were recorded from this deposit other than CBM, although occasional scraps of bone and charcoal cinder, one poorly preserved indeterminate cereal and two uncarbonised ruderal weed seeds were recorded. These finds may be re-deposited from (91489) or reflect the start of domestic waste discard.

The bone retrieved from this sample consisted of single fragments of large and medium mammals, in addition to smaller fragments of medium to large mammal and unidentified bone chips. These fragments concur with botanical remains to support the interpretation of the start of dumping of domestic waste. Bone fragments all displayed moderate levels of vivianite formation, indicative of a damp depositional environment. This suggests that the ditch was wet or intermittently waterlogged initially. The scarcity of any remains within this deposit would tend to suggest that the ditch was exposed and wet for only a short period before people started to use it as a midden.

Context (91502) sample <0005>

Context 91502) was described as a burnt or occupation deposit, although function was unclear. Laboratory analysis revealed quantities of CBM, bone and metal, with pottery, mortar and magnetic material. Carbonised seeds, cereals and hammerscale spheroids were also noted.

The botanical assemblage was dominated by poorly preserved cereals, although two small pieces of cherry type charcoal were also recorded. The identifiable cereals included bread wheat and others that were in poorer condition but still recognisable as wheat. Two oat/rye grains and rare arable weed seeds were also recorded. This sample contained the largest cereal assemblage from this site and burnt bone was also recorded, yet charcoal was minimal, implying that this deposit was not an actual hearth, but rather contained some rake-out material from one.

The context did not contain any bone identifiable to species, although a small number of unidentified pieces and medium to large mammal fragments were noted. Between the flot and retent, five of the fragments were calcined bone, indicating that they had been burnt at temperatures in excess of 600^{o}C in a well oxidised fire. An additional fragment was also black burnt bone, demonstrating that it had either been burnt at a lower temperature, or further away from the epicentre of the fire.

Collectively, this combination or organic and inorganic remains suggests that this deposit is likely to be a mixture of domestic and either demolition or industrial waste, whether relating to refuse disposal, levelling using midden material or reflecting a domestic occupation floor within a subsequently demolished or re-used structure.

Discussion

Careful analysis and holistic interpretation of each of the samples presented has enabled specific research questions regarding the form and function of each context to be addressed.

On this site preservation overall was key; wet and often anoxic but not waterlogged deposits were recorded, meaning that only the most robust uncarbonised organic remains survived. Nevertheless, the carbonised and uncarbonised organic materials and inorganic inclusions have permitted significant site interpretation, although acknowledging that a great deal of evidence has probably not survived.

The botanical assemblage was never extensive, but has revealed information pertaining to domestic occupation over time, helping to assign chronologies and to identify levels of waterlogging, modern intrusion and the status and activities of the communities involved. Evidence for large timbers including especially oak but also ash and Scot's pine reflects the ongoing structural remodelling that would have been ongoing across the thriving city of York from the Roman period onwards, whilst association with metal and hammerscale hints at the potential for industrial activities as well as probably demolition. Oak especially, but also ash and pine have long association with both industry and construction (eg Tylecote 1962; Coles et al 1978; Fraser & Dickson 1982; Gale & Cutler 2000; Miller & Ramsay 2008). Collection of hearth fuel from locally growing scrub woodland is reflected in the frequent association of hazel, alder, bitch, apple/rowan type, cherry type and especially willow with food processing activities.

Medieval deposits included a range of cereals, bread wheat, oats, rye and barley were recorded. Consumption of other foods is also indicated, including figs, eggs, oysters, fish and meat from mammals and birds, most probably poultry, revealing a varied diet within a moderately wealthy community. Evidence for rushes on the floor (84970) of the medieval building is an unusual and interesting find, owing a great deal to preservation within a wet, anoxic environment.

The few fragments of bone from most samples were often small, although they add to the collective interpretation about the nature of each of the deposits. In particular the fish bone from the medieval occupation deposit (84970) demonstrates the exploitation of a variety of species. Very little bone was found from any of the ditch fills, which is likely to indicate that the preservation conditions for bone were not optimum. Of particular note was the presence of two human teeth in (91489), a ditch backfill close to the grave yard. This most likely represents a general build up of waste, but does suggest that charnel may have been added to this midden material. The presence of frog/toad bones in medieval pit (83215) and midden pit (91130) demonstrates that these were understandably damp features, creating suitable environments for amphibians to reside in; it suggests gradual accumulation of deposits over time.

Bibliography

Beijerinck, W., 1947. *Zadenatlas der Nederlandsche Flora*. Wageningen: Veenman & Zonen

Cappers, R.T.J. Bekker, R.M. & Jans, G.E.A., 2006. *Digital Seed Atlas of the Netherlands*. Groningen: Barkhuis Publishing

Coles, J.M. Heal, S.V.E. & Orme, B.J., 1978. *The Use and Character of Wood in Prehistoric Britain and Ireland*. Proceedings of the Prehistoric Society **44**, 1–45

Dickson, C. A. & Dickson, J. H., 2000. *Plants and People in Ancient Scotland*. Tempus, (Stroud)

Dobney, K., Jacques, D.S., Johnstone, C.J., 1999. 'Protocol for recording vertebrate assemblages', *Reports from the Environmental archaeology Unit*, York, **99**, 15, 1–12

Evans, J.G., 1972. *Land Snails in Archaeology*.: Seminar Press Inc. (London)

Fraser, M. & Dickson, J.H., 1982. Plant Remains. Pages 239–243 in Murray, J.C. (ed.) *Excavations in the Medieval Burgh of Aberdeen 1973–81*. Society of Antiquaries of Scotland Monograph **2** (Edinburgh)

Gale, R. & Cutler, D., 2000. *Plants in Archaeology*. Westbury Publishing (Otley)

Hubbard, R.N.L.B. & Clapham, A., 1992. 'Quantifying Plant Macroscopic Remains'. *Review of Palaeobotany and Palynology* **73**, 382–390

Jacomet, S., 1987. *Prähistorische Getreidefunde, Eine Anleitung zur Bestimmung Prähistorischer Gersten und Weizen Funde,* Herausgegeben im Eigenverlag (Basel)

Miller, J. & Ramsay, S., 2008. 'Botanical Evidence'. In Will, R. & Addyman, T. *The Archaeology of the Tolbooth, Broad Street, Stirling.* Scottish Archaeological Journal **30**, 1–2, 79–159

O'Connor, T., 2008. *The Archaeology of Animal Bones*. Texas A&M University Press, (Texas)

Pales, L & Lambert, C., 1971. *Atlas ostéologique pour server à l'identification des mamifères du quaternaire*, Editions du centre National de la Recherché Scientifique **VII**

Paunovic, M., 1990. *Vodozemci iz prošlosti I sadašnjosti određivanje skeletnih dijelova*. mala znanstvena knjiznica hrvatskoga prirodoslovnog društra (Zagreb)

McMillan, N.F., 1968. *British Shells*. London: Warne & Co.

Schweingruber, F. H., 1990. *Anatomy of European Woods*. Haupt, (Berne & Stuttgart)

Stace, C., 1997. *New Flora of the British Isle*s. Cambridge University Press (Cambridge)

Tomlinson, P., 1985. 'An Aid to the Identification of Fossil Buds, Bud-scales and Catkin-bracts of British Trees and Shrubs'. *Circaea* **3**, 45–130. http://envarch.net/circaea/

Tylecote, R.F., 1962. *Metallurgy in Archaeology*. Arnold, London

Zohary, D. & Hopf, M., 2000. *Domestication of Plants in the Old World*. 3rd Ed. Oxford University Press, (Oxford)

Table A7.1 Flotation results

Haymarket 5761		Sample information (Volumes in L)					Sample weights (g)											
Context	Sample	Type	number of tubs in total	number of tubs processed	sample vol	Retent vol	Charcoal	Nutshell	Bone	Shell	Pottery	CBM	Metal	magnetic material	Mortar	Worked Stone		Other
																flint/chert flake	Masonry	
83208	8303	BS	1	1	9	0.1			1.96		3.5							
83212	8307	BS	1	1	6	0.1			0.14							0.28		
83215	8306	BS	1	1	10	1.6	0.2		9.4		2.74	4		5.09		0.25		curved stone fragment, possible bead? 0.28g ; cinder 4.28g
84951	8342	GBA	1	1	10	1			1.13	0.01	4.85	1.68						
84970	8352	GBA	1	1	6	0.4	3.9		41.17			17.53	10.25	0.82	1.64			small concave disk possibly copper 0.15g
91032	1	GBA.	1	1	9	1.2	1.57	0.01	68.84	0.09	9.6	41.07		2.64	39.75		3.15	
91130	2	GBA	1	1	8	0.9	10.05		163.4	0.36	11.95		41.4	1.51	2.34			
91489	3	GBA	1	1	10	2	0.51		185.7		13.27	192.6	6.86	5.59	10.74		50.04	cinder 6.57g

91502	5	BS	1	1	7	0.1	0.08		2.3			16.24						cinder 2.84g
91509	4	GBA	1	1	4	0.3			24.21		6.44	31.76	10.57	0.67	2.41			

Table A7.2 Flots Analysis

5761 Haymarket	**Year**	**2012**	**2012**	**2012**	**2012**	**2012**	**2014**	**2014**	**2014**	**2014**	**2014**
YORYM: 2012.2	Context	83208	83212	83215	84951	84970	91032	91130	91489	91509	91502
YORYM: 2014.154	Sample	8303	8307	8306	8342	8352	001	002	003	004	005
	Feature type	2ndfill Ro ditch	1stfill Ro ditch	Medie v pit	?Ro ditch	occup floor	1st ditchfill	? Cess pit	ditch backfill	1st ditchfill	burnt patch
Flot total volume		<5ml	<5ml	<5ml	50ml	18ml	30ml	N/A	5ml	<5ml	,5ml
Charcoal Retent volume		-	-	<5ml	-	10ml	5ml	30ml	<5ml	-	<5ml
Waterlogged? Y/N/? (possibly)		N	N	N	N	?	?	Y	?	N	?
Roots		++	++	-	+++++	-	++	++	-	-	-
Wood		-	-	-	-	-	-	+	-	-	-
Charcoal											
Flot & Retent charcoal >4mm		-	-	2ml	-	11ml	10ml	25ml	4ml	-	<1ml
Flot & Retent charcoal <4mm >2mm		<1ml	<0.05g	2ml	<5ml	8ml	6ml	5ml	<2ml	-	-
% ID >4mm		-	-	100%	cv >2mm 100%	50%	50%	50%	100&	-	100%
Charcoal/Cereal AMS option Y / N		N	N	Y (Corylus)	N	Y (Salix)	Y (Salix)	Y (Corylus)	Y (Alnus)	N	? (cereal)
Charcoal	Common Name										

Alnus	alder	-	-	-	-	-	4 (0.16g)	-	1 (0.03g)	-	-
Betula	birch	-	-	-	-	-	-	-	-	-	-
Corylus	hazel	-	-	1 (0.07g)	-	-	-	1 (0.12g)	-	-	-
Fraxinus	ash	-	-	-	-	-	-	8 (1.72g)	3 (0.07g)	-	-
Maloideae	apple type	-	-	-	-	-	2 (0.10g)	-	-	-	-
Pinus sylvestris type	Scots pine type	-	-	-	2	-	-	-	-	-	-
Coniferales NFI	conifer	-	-	-	1	-	-	-	-	-	-
Prunoideae	cherry type	-	-	-	-	-	-	1 (0.13g)	-	-	2 (0.06g)
Quercus	oak	-	-	-	1	21 (2.87g)	14 (0.77g)	6 (1.13g)	10 (0.42g)	-	-
cf Quercus	cf oak	-	-	-	-	3 (0.26g)	-	-	-	-	-
Salix	willow	-	-	-	-	1 (0.15g)	8 (0.38g)	-	-	-	-
Salix/Populus	willow/poplar	-	-	4 (0.05g)	-	2 (0.10g)	-	3 (0.86g)	2 (0.02g)	-	-
indet cinderised charcoal		2 (<0.05g)	-	-	-	-	-	-	5 (0.24g)	-	-
(carb) Cereals	Common Name						-	-	-	-	-
Avena sativa	cultivated oat	-	-	-	-	-	-	-	3	-	-
Avena/Secale	oat/rye	-	-	-	-	-	8	-	6	-	2
Hordeum vulgare cf var vulgare	cf hulled six-row barley	-	-	-	-	-	-	-	2	-	-
cf Hordeum vulgare sl	cf 6-row barley	-	-	1	-	-	-	-	-	-	-
cf Secale cereale	cf rye	-	-	-	-	1	-	-	-	-	-
Triticum aestivum	bread wheat	-	-	-	-	1	3	1	2	-	7
Triticum sp	wheat	-	-	1	-	-	1	-	-	-	6

cf Triticum sp	cf wheat	-	-	-	-	-	1	-	-	-	2
***Triticum* rachis internode**	wheat chaff	-	-	-	-	-	-	-	-	-	1
Cereal indet fgmt	cereal grain fgmt.	-	-	1	-	5	16	-	12	1	27
cereal rachis/glume fgmt	cereal chaff fgmt	-	-	1	-	-	-	-	-	-	-
(carb) Plant Macros	Common Name						-	-	-	-	-
***Alnus* false cone fgmt**	alder seed head fgmt	-	1	-	-	-	-	-	-	-	-
Aphanes arvensis	parsley piert	-	-	-	-	-	1	-	-	-	1
Avena cfatua	wild oat	-	-	-	-	-	-	-	1	-	-
Brassica cf nigra	black mustard	-	-	-	1	-	-	-	-	-	-
Brassicaceae NFI	mustard family	-	-	-	2	-	-	-	2	-	-
Carex disticha/ovalis	brown/oval sedge	-	-	2	-	-	-	-	-	-	-
Carex viridula sl	yellow sedge	-	-	1	-	-	-	-	-	-	-
Chrysanthemum segetum	corncockle	-	-	1	-	-	-	-	-	-	-
***Corylus avellana* nutshell**	hazelnut shell	-	-	-	-	-	2 (0.04g)	2 (0.04g)	-	-	1 (<0.01g)
Lepidum sp	cress	-	1	-	-	-	-	-	-	-	-
Myosotis cf sylvatica	cf wood forget-me-not	-	-	-	-	1	-	-	-	-	-
Poaceae (small)	small seeded grass		-	1	3		-	-	-	-	1
cf Rhinanthus major	cf yellow-rattle	-	-	-	-	1	-	-	-	-	-
Stellaria graminea	lesser stitchwort	-	-	-	1	-	-	-	-	-	-
Vicia faba	field pea	-	-	-	-	2	-	-	-	-	-
Vicia/Lathyrus	pea	-	-	-	-	5	-	-	-	-	-
***Fabaceae* NFI seed fgmt**	pea family seed	-	-	1	-	-	1	-	-	-	-
***Viola* sp fgmt**	violet seed fgmt	-	1	-	-	-	-	-	-	-	-
(uncarb) Plant Macros	Common Name						-	-	-	-	-
***Betula* bud scale**	birch bud scale	-	-	-	-	4	-	-	-	-	-
Betula pendula/pubescens	silver/downy birch	-	-	-	-	3	-	-	-	-	-

catkin bract	catkin										
***Betula cf pendula* winged seed**	cf downy birch seed	-	-	-	-	6	-	-	-	1	-
***Betula cf pubescens* winged seed**	cf silver birch seed	-	-	-	1	3	-	-	-	-	-
***Betula pendula/pubescens* seed (wings lost)**	silver/downy birch seed	-	-	-	3	22	-	-	-	-	-
***Calluna vulgaris* leaf/shoot**	heather leaf/shoot	-	-	-	-	78	-	-	-	-	2
Chenopodium album	fat hen	1	-	1	-	-	-	1	1	-	-
Conium maculatum	hemlock	-	-	-	-	-	-	-	4	-	-
Ficus carica	fig	-	-	-	-	1	-	-	-	-	-
Jacobaea vulgaris	ragwort	-	-	-	-	3	-	-	-	-	-
Lactuca virosa	great lettuce	-	-	1	7	36	-	-	-	-	-
Lamium album/purpureum	white/red dead-nettle	-	-	-	-	-	-	-	>50	1	-
***Myrica gale* seed**	bog myrtle	-	-	-	-	3	-	-	-	-	-
***cf Myrica gale* flower head**	cf bog myrtle flower	-	-	-	-	8	-	-	-	-	-
***Persicaria cf maculosa* fgmt**	cf redshank	-	-	-	-	-	-	-	-	-	1
***Poaceae* culm node**	grass stem node	-	-	-	-	5	-	-	-	-	-
Ranunculus flammula	lesser spearwort	-	-	-	-	1	-	-	-	-	-
Sambucus nigra/racemosa	elder/ red-berried elder	1	1	-	-	-	6	60	6	1	2
Sonchus asper	prickly sow-thistle	-	-	-	3	6	-	-	-	-	-
Sonchus oleraceus	smooth sow-thistle	-	-	2	10	125	-	-	-	-	3
Stellaria media	chickweed	-	1	-	-	-	-	-	-	-	-
Taraxacum officinale	dandelion	-	-	-	1	1	-	-	-	-	-
Indet broadleaf petiole	broadleaf stalk	-	-	-	-	2	-	-	-	-	-
Zoological (uncarb unless denoted)							-	-	-	-	-
Avian shell fgmt	bird's egg shell	-	-	-	-	3	-	3 (<0.05 g)	-	-	-
Fish scale		-	-	-	-	7	-	-	-	-	-

Fish bone fgmt (<5mm) not further Idable (NFI)		-	-	-	-	7	-	3 (<0.05 g)	-	-	-
Fish otolith fgmt NFI		-	-	-	-	2	-	-	-	-	-
Mammalian bone chip (<10mm) NFI		1	-	-	-	1	1 (0.01g)	7 (1.0g)	-	-	-
Amphibian (*cf Rana/Bufo)*	Amphibian, cf frog/toad	-	-	-	-	-	-	7 (0.06g)	-	-	-
Indet bone fgmt (<5mm) NFI		-	-	-	-	2	-	-	-	-	-
(carb) Bone											
Mammalian bone chip (<10mm) NFI		-	-	-	-	-	-	2 (<0.05 g)	-	-	1 (<0.01g)
Shell											
Ostrea edulis fgmt	oyster (marine)	-	-	-	-	-	7 (0.15g)	3 (0.36g)	-	-	-
Zenobiella subfruescens	dusky snail (terrestrial)	-	-	-	1	-	-	-	-	-	-
Invertebrate							-	-	-	-	-
Beetle exoskeleton fgmt	leg/body/wingcase/thorax/head	4	3	-	-	-	-	-	-	-	-
Eggs		-	-	-	-	-	2	-	-	-	-
Other											
Coenococcum geophyllum	fungal resting stage	1	-	-	-	-	-	-	-	-	-
hammerscale spheroid		1	-	-	-	-	-	-	2	-	2
glass fgmt (<4mm)		1	-	-	-	-	-	-	-	-	-
CBM (<5mm)		+	-	-	-	-	-	1 (<0.01 g)	-	-	-
glassy cf wood tar drips		+	-	-	-	-	-	-	-	-	-

Table A7.3 Bone from Retent

Table	**83208**	**83212**	**83215**	**84951**	**84970**	**91032**	**91130**	**91502**	**91489**	**91509**	
Sample	**8303**	**8307**	**8306**	**8342**	**8352**	**1**	**2**	**5**	**3**	**4**	**Total**
weight (g)	1.96	0.14	9.43	1.13	41.17	68.84	163.36	2.3	85.68	24.21	**398.22**
human									2		**2**
cow (B*os taurus*)						1					**1**
cat (*Felis domesticus*)									1		**1**
rodent sp.			1						2		**3**
anura sp. (frog/toad)			1				11				**12**
gadiforme fish sp.					2	1					**3**
cyprinidae fish sp.					2						**2**
small mammal			1		8		1				**10**
small to medium mammal					4						**4**
medium mammal 1					2	1			1	1	**5**
medium mammal 2											**0**
medium mammal sp.						1					**1**
medium to large mammal	6		11	2	50	50	39	3	46	9	**216**
large mammal					1	1	4		4	1	**11**
bird sp.					1	1					**2**
fish sp.			7		74	9	3		1		**94**
unidentified	9	2	34	3	81	92	40	22	101	25	**407**
Total NISP	**15**	**2**	**453**	**5**	**224**	**157**	**98**	**25**	**157**	**36**	**774**

APPENDIX 8 – OSTEOLOGICAL PILOT STUDY AND ASSESSMENT

1 SUMMARY

This document is organised into two sections. The first presents the results of an osteological pilot study of a group of 30 skeletons which are part of a larger assemblage of 744 skeletons recovered from three phases of archaeological excavation in the medieval cemetery associated with All Saints in the Marsh, Peasholme. The second section of the document outlines the potential of the assemblage and presents recommendations for further assessment and analysis of the remaining 714 skeletons. The size of the assemblage makes it one of the largest recovered from a medieval cemetery outside London and as such it is of increased significance. Small numbers of Roman and possible Civil War skeletons were also recovered.

2 INTRODUCTION

The grave yard is located just within the medieval city walls on the north-eastern side of the city and is bounded to the east by the river Foss (NGR SE 60733 51926). Archaeological excavations were carried out during 1986, 2012 and 2014 by York Archaeological Trust and an assemblage of 744 skeletons was recovered. The vast majority of the burials are medieval and form part of the grave yard surrounding All Saints in the Marsh, Peasholme. Five skeletons are believed to be Roman in date. Three are thought to be of Civil War date based on pottery and a musket ball associated with one of three skeletons in a single grave.

3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

All Saints in the Marsh, Peasholme is believed to have been founded around the time of the Norman Conquest. All Saints was one of fifteen York parish churches closed by authority of a local act of parliament of 1547. The group also included St Helen-on-the-Walls, Aldwark, York which was excavated in 1972–6 (Magilton 1980; Dawes and Magilton 1980). Both All Saints and St Helen served relatively poor parishes, and as such, there is much scope for comparison between the two groups. All Saints was deconsecrated in 1586 and extensively robbed out during the 16th and 17th centuries. After the church was demolished the area became part of the Peasholme Green wool market which in turn became the Haymarket during the 1820s. At that point the ground was lowered and levelled. In the recent past the site was used as the Haymarket car park and as the Peasholme Centre Homeless Building. Extensive documentary research was carried out during the initial phase of work (Palliser 1986). Further documentary research was carried out by Dr Jayne Rimmer for the Hungate York Regeneration project (see Section 5).

4 OSTEOLOGICAL PILOT STUDY

After a preliminary stage of post-excavation records-based selection outlined in Section 7 of the main report above, 30 skeletons from a broad stratigraphic distribution across the cemetery were selected for full metric recording and osteological analysis. They were chosen from each of the three main interventions carried out in 1986, 2012 and 2014. Ten of the skeletons were excavated in 1986 (5002, 5008, 5036, 5048, 5089, 5115, 5125, 5150, 5179, 5186) and all are medieval in date, 15 in 2012 (83391, 83514, 83516, 83784, 84014, 84020, 84491, 84551, 84668, 84737, 84740, 84755, 84772, 84827, 84909) and 5 in 2014 (90087, 90107, 91050, 91068, 91326). Skeleton 84909 (SK 2012/503) was selected because it was thought to be of Roman date. 83514 (SK 2012/51) and 83516 (SK 2012/53) are both thought to be post-medieval and possibly of Civil War date. The pilot study was intended to provide a preliminary understanding of the preservation and completeness of the human remains and the likely potential of the complete assemblage for further detailed osteological analysis.

4 METHODOLOGY

4.1 Methodology

The osteological methodology described below in some detail (Section 8.0) was utilised in the pilot study.

4.2 Results

4.2.1 Results of the pilot study on a sample of 30 skeletons

The results of the pilot study on a sample of 30 skeletons are summarised below.

Table A8.1 Summary of Osteological Data

Context	Completeness	Preservation	Sex	Age	Stature	Non-metrics	Skeletal pathology	Dental pathology
5002	51-75%	3	M?	Older adult (45+y)		Exostosis in left trochanteric fossa	Probable fracture of foot phalanges, medial and distal are fused, DJD tarsals, metatarsals, foot phalanges, femoral fossa, left rib head	No dentition
5008	26-50%	4	?	Young adult (18-25 y)	180.2 cm		Periostitis femora, tibiae, fibulae	Caries, calculus, AMTL, periodontal disease
5036	26-50%	1	M?	Adult (18+ y)	165.43 cm			No dentition

5048	0-25%	4	?	Adult (18+ y)			Periostitis on femoral shaft	No dentition
5089	5-25%	2	n/a	Older child (10 y +/- 30 m)				No dental pathology
5115	26-50%	4	?	Older adult (45+yrs)				Calculus, abscess, periodontal disease, advanced attrition
5125	76-100%	3	M?	Mature adult (36-39) years			SDJD affects thoracic and lumbar vertebrae (osteophytes and Schmorl's nodes), periostitis affects ribs	AMTL, periodontal disease, caries, calculus
5150	76-100%	3	M	Mature adult (36-45 y)	160.22 cm		SDJD affects thoracic and lumbar vertebrae	AMTL, caries, calculus, enamel hypoplasia, periodontal disease
5179	51-75%	2	n/a	Young child (3-5 y)				No dentition
5186	0-25%	4	?	Adult (18+ y)			New bone formation on head of right femur, possible DJD	No dentition
83391	76-100%	3	M?	Prime adult (26-35 y)	165.59 cm	Left frontal foramen	Significant SDJD throughout spinal column, possible compression fracture of LV5, right femur has osteomyelitis	Caries, calculus, AMTL, advanced periodontal disease
83514	51-75%	4	M?	Young adult (18-25 y)	165.57 cm		Healed periostitis on femora and tibiae	Caries
83516	76-100%	4	M?	Prime adult (26-35 y)			Periostitis on femora and tibiae	Calculus, periodontal disease
83784	76-100%	4	?	Older adult (45+y)		Transverse foramen bipartite	Large calcified cyst recovered from rib cage, OA in cervical vertebrae	Caries, AMTL, advanced attrition

84014	51-75%	5	M?	Adult (18+ y)			SDJD affects all vertebrae, well healed fracture of left clavicle, displays marked shortening, periostitis affects femora, tibiae, radii	AMTL, calculus
84020	0-25%	5	?	Adult (18+ y)			Osteoarthritis affects distal ends of 4th and 5th metacarpals	Caries, calculus, periodontal disease
84491	76-100%	3	n/a	Neonate (36-38 w)				No dental pathology
84551	76-100%	1	n/a	Older child (5-7 y)			Greenstick fracture of left tibia and fibula	Calculus, enamel hypoplasia
84668	76-100%	2	n/a	Older child (6 y +/- 24 m)				No dental pathology
84722	76-100%	3	F?	Mature adult (36-45 y)	151.13 cm		SDJD, Schmorl's nodes, compression fracture of TV5 and 6	Caries, calculus, periodontal disease
84737	51-75%	4	M?	Older adult (50-59 y)			Bilateral osteoarthritis of hip joints, periostitis	Calculus, periodontal disease, AMTL
84740	76-100%	2	F?	Mature adult (36-45 y)	159.74 cm	Transverse foramen bipartite	SDJD affects thoracic and lumbar vertebrae, Schmorl's nodes, periostitis affects femora and tibiae	Calculus, periodontal disease
84755	76-100%	2	n/a	Young child (1-5 y)				No dental pathology
84827	76-100%	3	n/a	Adolescent (15 y+/- 36 m)		Transverse foramen bipartite		Calculus, periodontal, disease, enamel hypoplasia
84909	26-50%	5	?	Mature adult (36-45 y)				Enamel hypoplasia, calculus, periodontal disease

90087	51-75%	3	M?	Mature adult (36-45 y)	179.72 cm	Transverse foramen bipartite	SDJD, Schmorl's nodes	Calculus, periodontal disease, retention of deciduous lower right molar e
90107	76-100%	2	n/a	Young child (2-4 y)				No dental pathology
91050	76-100%	3	n/a	Adolescent (15-17 y)		Transverse foramen bipartite		Caries, calculus, enamel hypoplasia, periodontal disease
91068	0-25%	3	n/a	Neonate (36-38 w)				No dentition
91323	76-100%	3	F?	Mature adult (36-45 y)	161.11 cm		SDJD affects lumbar and thoracic vertebrae, Schmorl's nodes	Caries, calculus, periodontal disease, advanced attrition

Key: AMTL = ante-mortem tooth loss; SDJD = spinal degenerative joint disease

4.2.2 Preservation and Completeness

The majority of the skeletons fall into the 76–100% category of completeness (n= 15). The pilot study demonstrates that it cannot be presumed sub-adult skeletons, in particular, neonates and infants, will be less complete than adult skeletons. Neonate 84491, young children 84755 and 90107, and older children 84551 and 84668, all fall into the 76-100% category.

Table A8.2 % Completeness of Skeletons in the Pilot Study

Completeness	**Skeleton Nos**	**Total**
0-25%	5048, 5089, 5186, 84020, 91068	5 (16.7%)
26-50%	5008, 5036, 5115, 84909	4 (13.3%)
51-75%	5002, 5179, 83514, 84014, 84737, 90087	6 (20%)
76-100%	5125, 5150, 83391, 83516, 83784, 84491, 84551, 84668, 84740, 84755, 84772, 84827, 90107, 91050, 91326	15 (50%)
Total		30 (100%)

4.2.3 Age and Sex

The age composition of the group appears in Table A8.3 below. There are 10 sub-adults in the group and a fairly wide spread of age ranges among the 20 adults.

Table A8.3 Age Composition

Age category	Skeleton Nos	Total
Pre-term (<37 weeks gestation)		0
Neonate (birth–1 month)	84491, 91068	2
Infant (1–12 months)		0
Young child (1–5 years)	5179, 84755, 90107	4
Older child (6–12 years)	5089, 84551, 84668	3
Adolescent (13–17 years)	84827, 91050	2
Young adult (18–25 years)	5008, 83514	1
Prime adult (26–35 years)	83391, 83516	2
Mature adult (36–45 years)	5125, 5150, 84740, 84772, 84909, 90087, 91326	7
Older adult (45+ years)	5002, 5115, 83784, 84737	4
Much older adult (60+ years)		0
Subadult (<18 years)		0
Adult (>18 years)	5036, 5048, 5186, 84014, 84020	5
Total		30

Superficially it appears that there is a preponderance of males in the group, however one or more of the indeterminate adults could be female (A8.4).

Table A8.4 Sex Composition

Sex	Skeleton Nos	Total
M	5150	1
M?	5002, 5036, 5125, 83391, 83514, 83516, 84014, 84737, 90087	9
?	5008, 5048, 5115, 5186, 83784, 84020, 84909	7
F?	84740, 84772, 91326	3

F		0
Total		20

4.2.4 Stature

It was possible to calculate the stature of nine of the adults using the regression formulae of Trotter (1970). Details appear in Table A8.1.

4.2.5 Skeletal Pathology

Infection

Infection manifests on bone in the form of inflammation and may involve the marrow cavity ('osteomyelitis'); the cortical bone ('osteitis'); or the fibrous sheath that covers the bone, the periosteum ('periostitis'). These changes may be observed as a result of tuberculosis, leprosy, syphilis (among others) or, where the pattern of change is non-diagnostic and the pathogen is unknown, non-specific infection. Infection may arise as a result of pathogens spreading from an adjacent lesion via the bloodstream (for example, as seen in trauma, chronic skin ulceration, paranasal sinusitis, middle ear cavity infection, a dental abscess and visceral rib surface inflammation), or as a result of direct implantation into bone (for example, as seen in puncture and penetrating injuries.

Skeleton 83391, an adult male aged 26–35 years, exhibited a severe case of osteomyelitis affecting the right femur. The condition is likely to have been active at the time of death. The shaft of the bone was extremely thickened, pitted and irregular, and two sinuses or cloacae were present. This is evidence of serious and long-standing infection in this individual. This individual would have been in a lot of pain and mobility would have been affected.

Two skeletons (5036 and 5125) exhibited visceral rib surface inflammation which may be linked to tuberculosis (Roberts 1999). Rib lesions may be associated with the disease, but are not enough on their own to confirm a diagnosis.

A total of seven skeletons (5008, 5048, 83514, 83516, 84014, 84737, 84740) exhibited periostitis which affected the long bones of the lower limbs. Periostitis is the most commonly observed lesion in archaeological populations in this category. The changes may occur as a result of infection, or they may accompany other conditions of a metabolic, neoplastic or traumatic nature (Resnick and Niwayama 1995).

Joint Disease

Degenerative joint disease affected the right femur of skeleton 5186. Osteoarthritis affected the cervical vertebrae of 83784, the fourth and fifth right metacarpals of 84020 and both hip joints of skeleton 84737. A total of nine skeletons (5125, 5150, 83391, 83784, 84014, 84722, 84740, 90087, 91326) exhibited varying degrees of spinal degenerative joint disease.

Schmorl's nodes are very common in both modern and archaeological populations. Clinically, they usually present no symptoms, affect males more than females, and typically appear in adolescence when bone is relatively supple (Hilton *et al* 1976; Kelley 1982). Their cause may

be multi-factorial, but in the palaeopathological literature greater emphasis is placed on their association with repetitive trauma to the spine, usually occurring over a long period of time (Waldron 2007, 94). Schmorl's nodes have been linked to physical activities such as contact sports (Resnick and Niwayama 1988, 1530) and acute trauma (Fahey *et al* 1998). The lower thoracic and upper lumbar vertebrae are most affected in archaeological bone (Rogers and Waldron 1995, 27). The thoracic vertebrae have average mobility but also act as weight bearing, suggesting that Schmorl's nodes here form as a consequence of compression and movement (Knüsel 2000, 12). The occurrence of vertebral and joint degeneration, if excessive, is likely to be a reflection of repetitive strenuous activity from a young age. A total of six adult skeletons (5125, 83391, 84722, 84740, 90087, 91322) exhibited Schmorl's nodes.

Trauma

Skeleton 5002 had a probable fracture of the foot phalanges with fusion of medial to distal and degenerative change to the tarsals, metatarsals and foot phalanges. Skeleton 84014 had a healed fracture of the left clavicle. The break was well healed though exhibited marked shortening. Skeleton 84551 had a healed greenstick fracture of the left tibia and fibula. Skeleton 84722 had compression fractures of the fifth and sixth thoracic vertebrae.

Large Calcified Cyst

A large calcified cyst of uncertain aetiology was recovered from the pelvic area of skeleton 83784.

4.2.6 Dental Pathology

A total of 24 out of 30 skeletons had surviving dentition. Of that number 19 exhibited one or more dental pathological conditions.

Table A8.5 Rates of dental pathology

Pathology	AMTL	Caries	Abscess	Calculus	Enamel hypoplasia	Periodontal disease
TPR	83/518	15/364	1/484	155/364	39/364	211/484
%	16.02%	4.12%	0.21%	42.58%	10.7%	43.59%

Key: AMTL = ante-mortem tooth loss; TPR = true prevalence rate

5 POTENTIAL FOR FURTHER ANALYSIS OF THE COMPLETE ASSEMBLAGE

5.1 Significance

The potential importance of the site is evident from the sheer number of individuals recovered. A population of this size has the ability to contribute significantly to our understanding of the people of York in the medieval period. It is notable that, along with St Helen-on-the-Walls, the church served a relatively poor parish.

Preservation and completeness are key elements to be considered when determining whether or not skeletal human remains have potential for further analysis and at what level that analysis should take place. It is quite common to have only legs, feet, arms and hands in medieval cemeteries where graves are often highly truncated. A variety of factors have affected preservation and completeness of the burials in this assemblage. The continuous use of the cemetery over a period of approximately 500 years would have led to successive use of individual graves and disturbance of earlier graves by the insertion of later ones. Disturbance occurred when the church was robbed in the 16th and 17th centuries and also when it was finally demolished. Further disturbance was caused in the 19th century when the ground was lowered and levelled.

During the 1986 phase of excavation a total of 66 burials and charnel deposits were excavated (Interventions 1 and 2; see Figure 2, Trench Locations). Not all were complete, as some lay partly outside the area of excavation, and others had been partially destroyed, either by later graves or by post-cemetery features.

The archaeological work in 2012 was undertaken in two stages. Phase 1 (Intervention 7) demonstrated the presence of a considerable number of extant human burials in close proximity to the ground surface. Phase 2 comprised the removal of all human burials accessible at that time within the development area (Intervention 8; see Figure 2, Trench Locations), a total of 507 skeletons. Five of these are potentially of Roman date judging by stratigraphic and pottery evidence. The medieval burials exhibited distinct zoning, with the vast majority being tightly packed in the area to the immediate south of the church. To the east of the church, however, graves were spaced out roughly in a series of rows and showed few examples of intercutting.

In 2014 the final excavation campaign (Intervention 9; see Figure 2, Trench Locations) removed the last of the burials beneath a 1m exclusion zone around the south side of the site adjacent to the boundary wall with Stonebow and Dundas Street, a path along the east side of the access road into the Haymarket Car Park, an area of concrete hard-standing which formed the driveway to the ambulance bay of the former ambulance station accessed by Dundas Street and an attenuation tank at the northern end of the access road. A further 161 burials were recovered.

6 RESEARCH AIMS AND OBJECTIVES

This section follows guidance from Historic England (formerly English Heritage) regarding the formulation of updated project aims (English Heritage 2006, 45), which recommends that it is useful to express aims and objectives as questions. The original project aims remain valid but can be refined and supplemented by the following questions:

- What are the physical characteristics of the human remains?
- What date are the human remains?
- How many of the skeletons are Roman?
- How many of the skeletons are medieval?
- Can the multiple burial containing the musket ball be linked to the English Civil War?

- How many of the skeletons are post-medieval?
- What sex are the human remains?
- What is the age at death of the human remains?
- What is the minimum number of individuals within the assemblage?
- Is there any evidence for cause of death?
- What is the skeletal evidence for lifestyle, diet, activity patterns?
- What is the evidence for general health?
- What are the pathologies of this population? What can we say about these people from their pathologies?
- To what extent can the dentition aid in the interpretation of diet, health status and oral hygiene?
- How does this population compare in health and physical attributes to others that are similar in date and type?

7 RECOMMENDATIONS FOR FURTHER WORK

7.1 Osteological Assessment (Task 1)

It is recommended that the remaining skeletons in the assemblage (n=714) are subjected to osteological assessment following standard procedures (Mays et al 2002). Given the issues relating to preservation and completeness discussed above it is clear that a substantial number of skeletons will not require further recording beyond this stage. In the first instance it is proposed that all those skeletons which are less than 25% complete will be fully recorded during this assessment phase. It is acknowledged that this will provide a sample which is not completely 'randomly' selected. However, the quality of osteological data that can be recovered is directly linked to factors of preservation and completeness.

7.2 Select Skeletons for Full Analysis (Task 2)

It is intended that a maximum of 400 skeletons will be subjected to full osteological analysis. As stated above, skeletons which are less than 25% complete will be excluded from further analysis. This will apply to *all* skeletons (Roman, post-medieval and Civil War) regardless of date. A total of 5 out of 30 skeletons (17%) included in the pilot study were less than 25% complete. If this ratio holds good for the remainder of the assemblage then a minimum of 121 skeletons will immediately be excluded from further analysis, thus leaving a maximum number of 593 skeletons. It should be borne in mind that some of the 30 forming the pilot study were chosen because they were well preserved. It may then be necessary to exclude a proportion of the skeletons which are slightly better preserved (26–50%) and so on until a maximum figure of 400 is achieved.

7.3 Full Osteological Analysis of 400 Skeletons (Task 3)

The human remains are of fundamental importance to the interpretation of the church and cemetery and for this reason the proposed analytical methodologies are set out in some detail below (see Section 8.0).

7.4 Produce Catalogue of Human Remains (Task 4)

Archaeological data will be combined with osteological data to produce a grave catalogue for all burials. This will include information on grave orientation, body position, presence of coffins, shrouds, any associated artefacts and phasing.

7.5 Produce Osteological Report on Entire Assemblage (Task 5)

See Section 8.9 below. This task will encompass data entry for the assemblage.

7.6 Edit Osteological Report (Task 6)

The osteological report will be edited.

8.0 OSTEOLOGICAL METHODOLOGY

Standard osteological analyses (eg. Mays *et al* 2002; Brickley and McKinley 2004) will be employed to provide data on the demographic composition of the group. An understanding of assemblage-wide sexual characteristics and the degree of variation amongst male and female traits will be required to do this.

8.1 Estimation of Age at Death

All individuals will be assigned to an age category as defined in Table A8.3 above. A wide range of methods will be employed. For adults, age estimation will consider degeneration of the auricular surface (Lovejoy et al 1985), the pubic symphysis (Todd 1921 a and b; Brooks and Suchey 1990) and dental attrition (Miles 1962). Cranial suture closure (Meindl and Lovejoy 1985) and degeneration of the sternal rib ends will be used as secondary indicators (Iscan and Loth 1980a and b). For sub-adults, age estimation will be based on dental eruption (Moorees *et al* 1963), epiphyseal fusion (Scheuer and Black 2000) and diaphyseal length (Maresh 1970).

8.2 Estimation of Sex

Sexually dimorphic features of the pelvis or cranium will be used to diagnose osteological sex based on standard recommendations (eg. Buikstra and Ubelaker 1994; Schwartz 1995; Mays *et al* 2002; Brickley and McKinley 2004). Osteometric measurements will be used as secondary sexual indicators.

8.3 Minimum Number of Individuals (MNI)

The minimum number of individuals will be calculated using standard procedures (eg. White and Folkens 2005, 340).

8.4 Estimation of Stature

Calculation of stature will be estimated from the maximum length of major long bones (Trotter 1970).

8.5 Skeletal Non-metric Traits and Dental Anomalies

The descriptions given in Berry and Berry (1967) and Finnegan (1978) will be used to record skeletal non-metric traits. Dental anomalies will be described by reference to Hillson (2005). Analysis of the presence/absence of non-metric traits may provide data on the relatedness of the group. For example, can family members be identified among the discrete clusters of burials at the east end of the church or within the body of the church?

8.6 Metrics

Measurements on the skull and post-cranial skeleton will be taken using landmarks described by Brothwell (1981) and Buikstra and Ubelaker (1994). In addition to being employed as secondary indicators in the estimation of sex, they will be used to quantify size and body proportions (such as the platymeric and platycnemic indices) that may be activity related.

8.7 Skeletal Pathology

The terminology and descriptions of skeletal pathology used in the report will be based largely upon standard reference texts, such as Aufderheide and Rodriguez-Martin (1998) and Ortner (2003). Joint disease will be recorded according to the recommendations of Rogers and Waldron (1995).

8.8 Dental Pathology

Dental pathologies will be described in accordance with Hillson (2005), Ortner (2003) and others as appropriate.

8.9 Human Bone Reporting

A comprehensive specialist report will be compiled on the basis of the above data, detailing the demography of the burial population, prevalence of skeletal and dental disease and non-metric traits, and detailing osteometrics. The osteological data will be compared with suitable regional and national assemblages. The Roman skeletons are likely to part of the Hungate Roman cemetery and as such should be considered in the context of this assemblage (Whyte 2014). The discovery of Roman burials within the area of All Saints' cemetery provides valuable new information about the extent of the Roman cemetery and shows that a considerable part of the broader Hungate area was being used as a burial ground during this period. Relevant medieval comparisons include St Andrew's, Fishergate (Stroud and Kemp 1993), Jewbury (Lilley *et al* 1994) and St Helen-on-the-Walls (Dawes 1980; Dawes and Magilton 1980), while groups of Civil War date include the Barbican, York (Chamberlain 2009).

8.10 TASK LIST

It is envisaged that the post-excavation programme will run over a period of 18 to 24 months.

Table A8.6 Task list

Task No.	Task description
1	Osteological assessment of 714 skeletons
2	Select skeletons for full analysis (n = </=400)
3	Full analysis of 400 skeletons
4	Produce catalogue of human remains
5	Produce osteological report on entire assemblage
6	Mentoring
7	Edit osteological report

8.11 BIBLIOGRAPHY

Aufderheide, A. C. and Rodriguez-Martin, C., 1998. *Cambridge encyclopaedia of palaeopathology*, Cambridge University Press, (Cambridge)

Berry, A. C. and Berry, A. J., 1967. 'Epigenetic Variation in the Human Cranium', *Journal of Anatomy* **101**, 361–379

Brickley, M. and McKinley, J. I., 2004. *Guidelines to the standards for recording human remains*, IFA Technical Paper No. **7**, British Association for Biological Anthropology and Osteoarchaeology and the Institute of Field Archaeologists

Brooks, S. and Suchey, J. M., 1990. 'Skeletal Age Determination Based on the Os Pubis: a comparison of the Acsádi-Nemeskéri and Suchey-Brooks methods', *Human Evolution* **5**, 227-238

Brothwell, D., 1981. *Digging Up Bones*, Oxford University Press (Oxford)

Buikstra, J. and Ubelaker, D. H., 1994. *Standards for data collection from human skeletal remains*, Arkansas Archaeological Survey Research Series No. **44**

Chamberlain, A, 2009. 'Bioarchaeology and demography of 17th-century mass graves at the Barbican Site, York, England', *American Journal of Physical Anthropology* **140**, 105

Dawes, J, 1980. *The Church of St Helen-on-the-Walls.* The Archaeology of York. *The Medieval Walled City North-East of the Ouse*, YAT and CBA, AY 12/1

Dawes, J. and Magilton, J. R., 1980. *The Cemetery of St Helen-on-the-Walls, Aldwark*. The Archaeology of York. The medieval cemeteries, YAT and CBA, AY10/1

English Heritage, 2006. *Management of research projects in the historic environment: the MoRPHE project managers' guide*. English Heritage (Swindon)

Fahey, V., Opeskin, K., Silbertsein, M., Anderson, R. and Riggs, C., 1998. 'The Pathogenesis of Schmorl's Nodes in Relation to Acute Trauma. An autopsy study', *Spine* **23**, 2272–5

Ferembach, D., Schwidetsky, I. and Stloukal, M., 1980. 'Recommendations for Age and Sex Diagnoses of Skeletons', *Journal of Human Evolution* **9**, 517–549

Finnegan, M., 1978. 'Non-metric Variation of the Infracranial Skeleton', *Journal of Anatomy* **125**, 23–37

Hillson, S., 2005. *Teeth*, Cambridge Manuals in Archaeology, 2nd edition. (Cambridge)

Hilton, R. C., Ball, J. and Benn, R. T., 1976. 'Vertebral End Plate Lesions (Schmorl's Nodes) in the Dorsolumbar Spine', *Annals Rheumatic Disease* **35**, 127–132

Iscan, M. Y. and Loth, S. R., 1986a. 'Determination of Age from the Sternal Rib in White Females: a Test of the Phase Method', *Journal of Forensic Science* **31**, 990–999

Iscan, M. Y. and Loth, S. R., 1986b. Determination of Age From the Sternal Rib in White Males, a Test of the Phase Method, *Journal of Forensic Science* **31,** 122–132

Jurmain, R., 1999. *Stories from the Skeleton: Behavioural Reconstruction in Human Osteology*. Gordon & Breach (Amsterdam)

Kelley, M. A., 1982. 'Intervertebral Osteochondrosis in Ancient and Modern Populations', *American Journal of Physical Anthropology* **59**, 271–279

Knüsel, C., 2000. 'Activity-Related Change', in V. Fiorato, A. Boylston and C. Knüsel (eds.) *Blood Red Roses: The Archaeology of a Mass Grave from the Battle of Towton AD 1461,* 2000. Oxbow Books (Oxford), 90–120

Lilley, J. M., Stroud, G., Brothwell, D. R. and Williamson, M. H., 1994. *The Jewish Burial Ground at Jewbury*. The Archaeology of York. The Medieval Cemeteries, **12/3,** Council for British Archaeology for York Archaeological Trust

Lovejoy, C. O. Meindl, R. S. Pryzbeck, T. R. and Mensforth, R. P., 1985. 'Chronological Metamorphosis of the Auricular Surface of the Ilium: a new method for determination of adult skeletal age-at-death', *American Journal of Physical Anthropology* **68**, 15–28

Maresh, M. M., 1955. 'Linear Growth of the Long Bones of the Extremities from Infancy through Adolescence', *American J Diseases in Children* **89**, 725–742

Mays, S., Brickley, M. and Dodwell, N., 2002. *Human Bones from Archaeological Sites – Guidelines for producing assessment documents and analytical reports,* English Heritage, (London)

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**, 29–45

Miles, A. E. W., 1962. 'Assessment of the Ages of a Population of Anglo-Saxons from their Dentitions', *Proceedings of the Royal Society of Medicine* **55**, 881–886

Moorees, C. F. A., Fanning, E. A. and Hunt, E. E., 1963. Age Variation of Formation Stages for Ten Permanent Teeth, *Journal of Dental Research* **42**, 1490–1502

Ortner, D. J., 2003. *Identification of Pathological Conditions in Human Skeletal Remains*, (New York) 2nd edition

Palliser, D., 1986. 'Historical Survey', in J. Lilley 1986, *Archaeological Investigations at Haymarket Car Park, Peasholme Green, York*, York Archaeological Trust, unpublished client report

Resnick, D. L. and Niwayama, G., 1988. *Diagnoses of Bone and Joint Disorders*, Saunders

Roberts, C. A., 1999. 'Rib Lesions and Tuberculosis: the Current State of Play', in G. Pálfi, O. Dutour, J. Deák and I. Hutás, *Tuberculosis Past and Present*, 311–316, (Budapest)

Rogers, J. and Waldron, T., 1995. *A Field Guide to Joint Disease in Archaeology*, Wiley

Scheuer, L. and Black, S., 2000. *Developmental Juvenile Osteology*, (London)

Schwartz, J. H., 1995. *Skeleton keys*, (New York)

Stroud, G. and Kemp, R. L., 1993. *Cemeteries of St Andrew's, Fishergate. The archaeology of York: the medieval cemeteries,* Vol **12/2**, York, Council for British Archaeology for York Archaeological Trust

Todd, T. W., 1921a. 'Age changes to the pubic bone: 1. The Male White Pubis', *American Journal of Physical Anthropology* **3**(3), 285–334

Todd, T. W., 1921b. Age Changes in the Pubic Bone, *American J Physical Anthropology* **4**(1), 1–70

Trotter, M., 1970. Estimation of Stature from Intact long limb Bones, in T. D. Stewart (ed.) *Personal identification in mass disasters*, 1970, (Washington)

White, T. D. and Folkens, P. A., 2005. *The Human Bone Manual,* Elsevier Academic Press, California

Waldron, T, 2007. *Palaeoepidemiology: The Measure of Disease in the Human Past, Left Coast Press, Canada*

Whyte, R., 2014. *Roman Hungate, York*. Osteology Report, York Archaeological Trust for Excavation and Research Ltd, unpublished client report

Whyte, R., 2015. *Haymarket Osteology Pilot Study*, York Archaeological Trust for Excavation and Research Ltd, unpublished client report