



114-119 St Aldates and 4-5 Queen Street, Oxford

Post-excavation assessment

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and the British Airways Pension Trust**

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Prepared by: Steve Teague, Project Officer

Checked by: Edward Biddulph, Senior Project Manager

Edited by: Leo Webley, Head of Post-excavation

Approved for Issue by: Carl Champness, Senior Project Manager

Signature:

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OA South

Janus House
Osney Mead
Oxford
OX2 0ES

t. +44 (0)1865 263 800

OA East

15 Trafalgar Way
Bar Hill
Cambridge
CB23 8SG

t. +44 (0)1223 850 500

OA North

Mill 3
Moor Lane Mills
Moor Lane
Lancaster
LA1 1QD

t. +44 (0)1524 880 250

e. info@oxfordarch.co.uk
w. oxfordarchaeology.com

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SAFETY
SCHEMES IN
PROCUREMENT

114-119 St Aldates and 4-5 Queen Street, Oxford

Post-excavation assessment

Written by Steve Teague

With contributions by Leigh Allen, Edward Biddulph, Paul Blinkhorn, Lee Broderick, John Cotter, John Giorgi, David Higgins, Cynthia Poole, Rebecca Nicholson, Ian R Scott and Ruth Shaffrey, and illustrations by Steve Teague

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Summary

Excavations undertaken at 114-119 St Aldates and 4-5 Queen Street, Oxford, shed light on some of the oldest and grandest parts of the medieval city. The earliest archaeology identified appeared to be a backyard surface through which a series of later rubbish pits, dating to the late Saxon and early Norman period, had been cut. The pits contained pottery and bone fragments, denoting general rubbish, as well as the raked-out fuel waste from ovens, fires and hearths. There were also frequent sediments which had the distinctive green colour typical of faecal material, either from humans or animals.

A square stone-lined cess pit cut through the rubbish pits. The pit contained a rich assemblage of 12th-13th-century pottery, animal bone and other domestic material. The well-constructed nature of the pit suggests that it was associated with a house of a wealthy individual. It is known that, during this period, the site was occupied by four properties. Two of the more substantial land holdings were in Jewish ownership and approximately correspond to the modern 114 to 119 St Aldates. Two much smaller properties, held by the Bishop of Lichfield, fronted on to Queen Street.

A stone-built structure, part of a below-ground cellar, lay to the east of the cess pit. The later fills of the cellar contained a small assemblage of late 15th-16th-century pottery, which included stoneware jugs and an intact small drinking vessel. It is possible that the cellar belonged to one of the number of taverns that fronted St Aldates and Queen Street.

The type of deposits and features found during the excavation are consistent with backyards in which rubbish from a succession of properties – grand buildings, commercial properties, smaller dwellings and workshops – was dumped.

This assessment presents the preliminary findings of the fieldwork, specifies what further post-excavation recording and analysis are required, and assesses the potential of the results to address research questions and contribute to a better understanding particularly of Oxford's Saxon origins, its Jewish Quarter and historic inns and taverns. A programme of analysis and publication is proposed.

1 DESCRIPTION OF THE PROJECT

1.1 Introduction

- 1.1.1 Oxford Archaeology (OA) was commissioned by Gilbert-Ash on behalf of Reef Estates and the British Airways Pension Trust with consultation by Will Bedford of Orion Heritage to undertake an archaeological programme of mitigation works at 114-119 St Aldates and 4-5 Queen Street, Oxford, ahead of redevelopment.
- 1.1.2 The work was undertaken as part of a mitigation strategy required by a planning condition. The local planning authority did not set a brief for the work, but discussions with David Radford, Oxford City Archaeologist, established the broad scope of the work required.
- 1.1.3 An evaluation by OA in 2015 (OA 2015) identified extensive remains of undisturbed late Saxon to early medieval horizons preserved underneath the basement levels at the site. Where possible the proposed development was designed to minimise the impact on the archaeological remains. Where impacts could not be avoided, a programme of archaeological excavation and watching brief was devised. A written scheme of investigation (WSI; OA 2016) outlined how OA planned to undertake these archaeological works. All work was undertaken in accordance with local and national planning policies, as outlined in the desk-based assessment (CgMs Consulting 2014a).
- 1.1.4 This assessment presents the preliminary findings of the fieldwork, specifies what further post-excavation recording and analysis are required, and assesses the potential of the results to address research questions and contribute to a better understanding of the site and development of the medieval and post-medieval city. A programme of analysis and publication is proposed.

1.2 Location, topography and geology

- 1.2.1 The area of development consisted of properties at the corner of St Aldates and Queen Street (Fig. 1). The site has an area of approximately 0.135 hectares.
- 1.2.2 The north end of the site lies at about 64.7m above Ordnance Datum (aOD), with a gentle slope to the south. Terraces were created on this slope in order to accommodate the construction of the buildings on the site. The natural fall of the slope is visible along St Aldates. The first river terrace lies approximately 250m to the south at around 58.5m AOD. The River Thames lies 450m to the south of the site.
- 1.2.3 The geology of the area is made up of the second gravel terrace of the River Thames, though the first terrace starts just to the south (Brewer Street). The underlying solid geology is Oxford Clay and Kellaways Beds (British Geological Survey, Sheet 236).

1.3 Archaeological background

- 1.3.1 The general archaeological and historical background to the site has been described in detail in the desk-based assessment and a subsequent addendum (CgMs Consulting 2014a; 2014b), and is summarised here.

Prehistory (c 10,000 BC – AD 43)

- 1.3.2 Prehistoric finds and features have been recorded to the west (UAD 260) and southeast of the site at Christ Church (Sturdy 1961). Other evidence has been recovered elsewhere in the city, such as at the University Science Area and North Oxford.

Roman (c AD 43 – 410)

- 1.3.3 Very sparse evidence of Roman activity has been identified in the area of the site. An area of Roman settlement is known c 1km to the north-east around Mansfield College, though occasional Roman-period finds have been recovered from other parts of the city.

Saxon (c AD 410 – 1066)

- 1.3.4 Early Saxon settlement seems to have been focused further south along the Thames Valley at Abingdon and Dorchester-on-Thames. The earliest Saxon activity in Oxford dates to the early 8th century, with the founding of St Frideswide's minster. The minster is thought to be located at Christ Church Cathedral to the south-east of the site.
- 1.3.5 A burh was founded on the second gravel terrace at Oxford by the start of the 10th century. The site lies in the heart of the Saxon town and just off the Grandpont, one of the principal crossing points over the River Thames. This is documented in the Anglo-Saxon Chronicle and is listed in the Burghal Hidage. The south gate of the town was located at the southern end of St Aldates, with the north gate at the north end of Cornmarket Street. Queen Street was also laid out in the Saxon period.
- 1.3.6 Late Saxon activity was recorded at no. 4 Queen Street (within the north end of the site) in the form of metalled surfaces from roads and markets about 2m below the ground surface (UAD 487). The evidence indicates that the street frontage lay to the south of the market (Collard 1986), but within the site.
- 1.3.7 A late Saxon bun-shaped loomweight (UAD 682) was found beneath 121 St Aldates during building work in 1931. Outside the site, evidence for late Saxon street frontage was recorded up to 3m behind (south of) the modern frontage in excavations at 7-8 Queen Street (UAD 344; Durham 1986). Similar evidence was recorded during investigations at 11-12 Queen Street (UAD 288), and the neighbouring Marks and Spencer site (UAD 482; Halpin 1983).
- 1.3.8 Late Saxon/early medieval activity is recorded along elsewhere on Queen Street (UAD 69 and 697), to the east (UAD 148), to the south (UAD 516) and west (UAD 287 and 493) of the site. The evidence to the south comprised eight charcoal-lined burials and a small area of occupation surface in the nave at St Aldates Church.

Medieval (c AD 1066 – 1550)

- 1.3.9 In the medieval period, the site was located in St Martin's Parish, and street frontages at St Aldates (or Fish Street as it was known) and Queen Street (Butcher Row/Great Bailey) continued to be occupied.
- 1.3.10 The area around St Aldates, including the site, was the Jewish quarter or Jewry of Oxford during the 12th and 13th centuries and probably in the later part of the 11th

century after William the Conqueror invited them to England to establish a network of credit and trading links between his English and French lands. The first written record of the Jewry dates to 1141 when Matilda was besieged at Oxford Castle by Stephen of Blois (Manix 2004). Documentary evidence has survived detailing which properties belonged to which Jews and this information has been compiled (ibid). The Jewry continued to be part of the City of Oxford until the expulsion of the Jews from England by Edward I in 1290.

- 1.3.11 During this period the site was occupied by four properties. Manix (ibid) identifies the two more substantial land holdings fronting St Aldates as being in Jewish hands. The northernmost is the site of Jacobs Hall, possibly one of the most substantial private houses in Oxford at this time, with the southernmost owned by Elias or Elekin. Together these two land holdings approximately correspond to the modern 114 to 119 St Aldates. During the late 19th century, construction works revealed 13th century cellars extending across the whole width of the street at this point, linking properties on either side (UAD 1327).
- 1.3.12 Two much smaller properties, held by the Bishop of Lichfield, fronted onto Queen Street. These are in the north-western part of the site, corresponding with the modern 4 and 5 Queen Street. By the 14th century, all properties were in Christian ownership, with the two St Aldates holdings now marked as being the site of Battes Inn and the Red Lion. Beyond the boundaries of the site to the south-west were two buildings, Gloucester Hall and Hinxe Hall, accessed from St Aldates via Kepeharm's Lane. The New Inn Court archaeological investigations (UAD 288) revealed structural remains of Hinxe Hall (originally known as *domus Kepeharm*) dating from the mid 13th century, when it was a domestic dwelling, to the 16th century (Halpin 1983).
- 1.3.13 To the south-east of the site investigations at the Post Office revealed a 13th century crypt and late medieval finds (UAD 1167). Further 13th century material was recovered from nos 117-118 St Aldates. Excavations to the west along Queen Street recorded further evidence of the medieval street frontage (UAD 344, 482 and 487). A rubbish pit dated to the 13th/14th centuries (6m below the ground surface) was revealed during excavations on the south-west corner of Carfax (UAD 131), and elsewhere road surfaces of probable medieval date have been recorded in excess of 4m below the present Queen Street.

Post-medieval and modern (c AD 1550 – present)

- 1.3.14 Archaeological evidence recorded during the New Inn Court excavations indicated that Hinxe Hall, which had been located here, was demolished during the 16th century and the land laid to garden (Halpin 1983). Loggan's 17th century bird's eye view shows that the medieval plots had been subdivided, particularly those fronting Fish Street, with ranges of buildings around yards constructed over the earlier gardens.
- 1.3.15 The 1876 Ordnance Survey (OS) shows the site was divided into up to six buildings fronting St Aldates (including one marked as a bank), with two on Queen Street (see Fig. 7). The modern street names have been adopted. A similar layout is shown in 1900 and 1921. The 1939 and 1969/70 OS maps show redevelopment having taken place

along St Aldates, with the earlier smaller buildings amalgamated into two main blocks as today.

1.4 Excavation methodology

1.4.1 The archaeological mitigation strategy involved the combination of excavation by hand and machine, and a watching brief on service trenches. The methodology employed is comprehensively described in the WSI (OA 2016). A summary of the areas excavated and how they were approached is provided in Table 1, with their locations shown on Figure 2.

Area	Method	Notes
Area 1	Full excavation to natural	Crane base
Area 3	Full excavation to natural	
Area 4	Plan of exposed archaeological horizon only. Limited excavation along the southern edge of the slab. Watching brief	Removal of existing basement slab
Area 5	Machine assisted excavation to natural	
Area 7	Limited machine-assisted excavation to formation level. Watching brief	Pile cap/groundbeam
Area 8	Limited machine-assisted excavation to formation level. Watching brief	Pile cap/groundbeam
Area 9	Limited machine-assisted excavation to formation level. Watching brief	Pile cap/groundbeam
Area 10	Full excavation to natural	
Area 11	Machine excavation to latest archaeological levels only	
Area 13	Limited machine-assisted excavation to formation level. Watching brief	Service run
Area 14	Limited machine-assisted excavation to formation level	Service run

Table 1: Excavation areas

1.5 Archaeological description

Phase 1 (?Mid – Late Saxon) (Fig. 3)

1.5.1 Several rubbish or quarry pits assigned to the mid-late Saxon period were found within Area 1 and represented the earliest in a sequence of pits. The three pits (1288, 1298 and 1302) all contained pottery that exclusively comprised Late Saxon Oxford Shelly Ware (fabric OXB) generally datable to the late 8th–early 11th century. The absence of St Neots ware (850–1200) and Cotswolds ware (975-1350) could imply that these pits date within the earlier part of this date range, feasibly during the late 8th or 9th century.

1.5.2 Within Area 3, feature 3060, a remnant of a pit, may have been a precursor to cellar pit 3059 (see Phase 2). Only part of its eastern edge was visible and contained a posthole (3084) at its base that predated its filling, suggesting that the pit had originally been timber-lined. A stakehole recorded in section may also relate to a putative wattle or stake lining.

Phase 2 (Early – Late 11th century) (Figs 3 and 8)

- 1.5.3 Several inter-cutting rubbish pits (10024, 10026, 10030 and 10034) found within Area 10 suggest that the pit digging of Phase 1 became more extensive. The phasing of these pits is tentative given the lack of dating evidence obtained from them. Only pit 10026 contained pottery which dated to the early-late 11th century and was the latest in this sequence of pits. It is therefore possible that the earlier undated pits, such as 10030 and 10034, belong to Phase 1. In Area 1, Phase 1 pit 1302 was recut as pit 1330 and contained a sherd of 11th century pottery, suggesting that this area continued to be used for rubbish disposal.
- 1.5.4 A large, probable timber-lined cellar pit (3059) was found within Area 3. It apparently replaced a similar feature that was identified during Phase 1. Its extents all lay beyond the trench edges, but must have measured more than 3.0m x 2.7m and was bottomed at a depth of c 1.84m. A line of four postholes cut into the base of the pit probably supported a post and plank revetment along its southern side. It had a 'floor' of concreted and laminated gravel on which 11th century pottery was recovered. The cellar pit was backfilled by the end the 11th century, after which pit 3027 was cut through its fills. This pit also contained 11th century pottery. It is possible that the cellar extended eastwards into Area 14 where the fill (1485) of a large early feature that encompassed the whole trench was recorded. However, no dating evidence was recovered.

Phase 3 (Late 11th – 12th century) (Figs 4, 9 and 10)

- 1.5.5 This phase saw an increase in the degree of pitting within Area 1, implying that this part of the site continued to remain open and utilised for the disposal of rubbish. Most of the pits contained fills that each contained some amount of waste, suggesting that they were open over an extended of period. One pit (1058), probably a latrine, comprised a rectangular shaft measuring at least 1.1m deep and lined with roughly hewn limestone with an internal wash of mortar. Its basal fill contained a small amount of mineralised remains suggesting cess, but otherwise it had been backfilled with large amounts of kitchen waste, including late 11th-12th century pottery. Area 10 continued to be used for pitting (eg pit 10018), though eventually the area was levelled and a compact gravel yard surface (10014) laid down.
- 1.5.6 Within Area 5 there was a laminated sequence of compacted clay/gravel floors and charcoal-rich occupation deposits and a posthole (5033), suggesting the presence of a structure. These are poorly understood and dating evidence largely absent. However, the earliest deposit contained a single sherd of pottery dated to the late 11th–12th century that, if not intrusive, suggests that the structure that the floors pertain to is of post-Conquest date. Subsequently several pits were cut into these levels, the latest of which (5015) contained a large quantity of late 11th–12th century pottery. Evidence for a structure or fence comprising postholes was found towards the east part of the site within Area 3 and predated a Phase 4 wall. Though no dating evidence was obtained, they post-dated the filling of the Phase 2 timber cellar.
- 1.5.7 Wall 4002 represented the earliest evidence for stone-built buildings on the site and extended along the southern side of Area 4. It terminated and possibly returned towards the south at its eastern extent, suggesting that it formed the north wall of

building that lay to the south outside the excavated area. It appears to have been demolished and robbed before being rebuilt during Phase 4.

Phase 4 (13th – 14th century) (Figs 5 and 10 – 12)

- 1.5.8 The phase probably saw the construction of a major boundary wall that ran alongside the southern edge of Area 4 that marked the division between two properties. Its western part (4050) corresponds with a property boundary shown on H E Salter's *Map of Medieval Oxford* (1934), which marked the southern boundary of a parcel of land that formed part of Battes Inn. The western boundary of this parcel of land was probably marked by wall 4071 and its likely continuation northwards as wall 3036 (visible in section but marked in plan by construction trench 4021/4035). Further probable boundary walls were revealed in Area 3 with wall 3026, which marked the south boundary of the Red Lion Inn, and in Area 11 by N-S aligned wall 3090, which also corresponds with the eastern boundary of a parcel of land located to the rear of a property fronting Butcher Row (now Queen Street). Similarly wall 1048 corresponds to the western (rear) boundary of the Red Lion Inn. Only the boundary wall denoting the southern edge of Area 4 could be dated to this phase with any degree of confidence, based on 13th–14th century pottery found within its foundation trenches.
- 1.5.9 The SW corner of a probable cellared building was revealed in Area 1. This was denoted by walls 1042 and 1054. It was built against the eastern side of boundary wall 1048 and therefore was within the boundaries of the Red Lion Inn. Little of it could be investigated and no dating evidence was obtained from its construction, although it would have appeared infilled by Phase 7.
- 1.5.10 Part of a stone-lined pit (1386), probably a latrine, was revealed in Area 13. Although no dating evidence was obtained, it was apparently abutted by garden soil containing 13th–14th century pottery.
- 1.5.11 This phase saw the apparent cessation of pitting across the site, although it appears from the surviving evidence that most of the site remained open. It is however possible that the some of the pits exposed within the unexcavated Area 4 (see Fig. 6) may date from this time. Probable garden soils were revealed immediately below the modern basement slab across Area 4 and within Areas 7-9. A small area along the southern side of Area 4 was investigated and contained 13th-14th century pottery. Similarly, pottery was recovered from the garden soils recorded in Areas 7 and 8.

Phase 5 (15th – Mid 16th century) (Figs 5 and 9)

- 1.5.12 Little evidence that can firmly assigned to the late medieval period was found. Excavation revealed two E-W aligned walls (5000 and 5009) in Area 5. The southern wall (5000) corresponds within the boundary between Battes Inn to the north and the Red Lion Inn to the south. It is possible that the northern wall formed part of a substantial load-bearing building, as it was built on relieving arches, presumably to carry its load over underlying soft ground because of earlier pitting. The north wall cut a levelling deposit containing 13th/14th century pottery. There was no evidence for internal deposits between the two walls and a garden soil accumulated between them during Phase 6, suggesting that this area remained external.

1.5.13 Evidence for a building (walls 1382 and 1403) were revealed in Area 13 and were probably positioned, according to Salter, within a parcel of land located to the rear of Battes Inn. Pottery dating to the 15th/mid-16th century was recovered from wall 1382, and the building was abutted by garden soils dated to Phase 6. A system of stone drains (Group 13004) located immediately to the north of the building appear to be contemporary, though no dating evidence was recovered.

Phase 6 (Mid 16th – Mid 17th century) (Figs 6 and 12)

1.5.14 A stone-lined latrine (4073) was built against the boundary wall that extended alongside the southern side of Area 4. Its fill was rich in cess-like deposits, one of which (4061) containing an abundance of mineralised fruit remains, largely grape, fig, blackberry/raspberry and elderberry seeds. Pottery dated to the mid-16th/mid-17th century and a large assemblage of clay tobacco pipe fragments dated to the early/mid 17th century was recovered from its fills. It is possible that unexcavated stone-lined well 4193 may also date from this phase, as it apparently cut earlier garden soils.

1.5.15 Drains within Areas 11 and 13 appeared to have been robbed during this phase and the area levelled. Further garden soils were recorded in Areas 5, 11 and 13.

Phase 7 (Mid 17th – Early 18th century) (Fig. 6)

1.5.16 There was little evidence for activity during this phase. The cellared building in Area 1 was demolished, or at least its cellar infilled by this time. Within Area 11, a brick wall (4112) appears to have been built during this phase, as its construction trench contained mid-17th/18th pottery.

Phase 8 (Early 18th – 19th century) (Fig. 7)

1.5.17 Two E-W aligned stone-built walls (1375 and 1443) were uncovered within the southern arm of Area 13. They may date to the 19th century and correspond to the southern extents of buildings depicted on the Ordnance Survey map of 1871 that front a passageway leading from St Aldates and are adjacent to the New Inn. Nineteenth-century pottery was recovered from wall 1375, although the construction dates for the other walls remain uncertain. A stone-lined drain (1017) appears to have cut across the demolished cellar walls in Area 1.

1.6 Statement of potential

General potential and stratigraphy

1.6.1 The investigation revealed a sequence of activity and occupation spanning the late Saxon to modern periods, with pottery potentially extending the chronological reach of the site to the early/mid Saxon period. Excavation areas were relatively small, while the larger area exposed (Area 4) remained largely unexcavated as the much of the archaeology exposed was below the level of impact. Nevertheless, a good understanding of the stratigraphic sequence has been gained, and associated artefactual evidence has allowed preliminary phasing of the site. There is, however, potential to further refine the chronology and place the site within its historical context.

- 1.6.2 In order to prepare a final publication report, it will be necessary to describe the stratigraphic sequence more fully and illustrate the report with sections and detailed plans. Further examination of the artefactual and environmental evidence in conjunction with their associated deposits will shed light on the function and dating of features and the changing character of the occupation at the site.
- 1.6.3 A key question relates to the date of the earliest activity at the site (Phase 1), represented by a number of pits and, potentially, the earliest deposits in a sequence dated to Phase 3 in Area 5; that is, whether this activity is contemporary with or predates the burh founded in the late 9th or early 10th century. Consideration of the ceramic evidence and the radiocarbon dating of plant remains obtained from the earliest occupation deposits in Area 5 may help to resolve this.
- 1.6.4 The excavation is situated within the Jewish Quarter that is known to have existed in St Aldates during the 12th and 13th centuries. Phases 3 and 4 correspond in part to this period, and potentially the features uncovered and their associated evidence may relate to Jewish inhabitation. Examination of the stratigraphy in conjunction with the historical mapping will potentially tie the remains to specific Jewish landholdings (for example Jacobs Hall). It will also be important to refine the Phase 4 sequence and attempt to assign contexts to the periods before or after the expulsion of the Jews in 1290.
- 1.6.5 The later medieval and early post-medieval periods are characterized by structural evidence, pitting, and the deposition of domestic waste. These may be connected to the inns that occupied part of the site, Battes Inn and the Red Lion Inn, and there is potential to relate the archaeological evidence to the inns through examination of historic mapping. More generally, the artefactual and environmental evidence has the potential to reveal more about the character of the occupation, diet, and changing use of the area.

Pottery

- 1.6.6 The pottery assemblage is both large and relatively well-preserved, and offers further insight into both pottery usage and the development of the Anglo-Saxon and medieval towns of Oxford.

Crucible or lamp

- 1.6.7 The vessel should be recorded and written up as part of the pottery assemblage, whether crucible or not. Its local and regional parallels should be discussed. The vessel should be fully illustrated by line drawing and photography. While the vessel contains no obvious residue from metalworking, scientific analysis may determine whether it once contained lipids (oil), which would point to the use of the vessel as a lamp. Discussion of the object should reference the potential crucible recovered from the earlier evaluation on the site.

Clay pipes

- 1.6.8 The closely dated cesspit group (4073) represents a regionally significant assemblage that will also be relevant to national studies dealing with the evolution of stem length

and with 17th-century styles of stem decoration. Moreover, the assemblage, considered in association with the other material from the feature, has the potential to be more closely dated and establish its likely origin (for example, a tavern).

Ceramic building material

1.6.9 The assemblage of ceramic building material amounted to some 1339 fragments weighing c 121.5kg (23 boxes). This comprised almost exclusively medieval roof tile, broadly of 13th-14th century date, based on the general character and finish, the presence of glaze and the range of fabrics noted. This includes peg tile and probably ridge tile.

1.6.10 The assemblage has potential to enhance the understanding and interpretation of the site in relation to the medieval buildings that were standing on the site. The uniform character of the tile is indicative of a building or buildings, which had been constructed or refurbished during the 13th-14th century with a tiled roof that had remained in use for much of the life of the building. The relative absence of later material may be indicative of a change of use or significant truncation of later deposits.

Fired clay

1.6.11 The excavation produced a small quantity of structural fired clay, which probably derives from oven and hearth structures probably of Anglo-Saxon or early medieval date. The fired clay provides evidence of domestic activities related to cooking or food production or artisan activities undertaken on the site during the earlier phases of its use. Two ceramic spindle whorls also probably of Anglo-Saxon or early medieval date would have been personal items and provide evidence for the primary phases of cloth production.

Plaster and mortar

1.6.12 A small quantity of mortar and painted plaster has been assessed from Areas 1, 4 and 5 together with some pieces of cement and concrete of 19th-20th century date. Most of the pieces are made in a sandy or gritty lime mortar, typical of material found throughout the medieval and post-medieval periods. A number of fragments retain paint on the plaster surface with white, pale blue, green and brown present. The colours are of a dull hue and typical of 19th-mid 20th century, though the mortar render itself may be older than this. A number of pieces had lath impressions typically a feature of ceiling plaster, though other pieces are probably all wall render. The mortar and plaster has limited potential to enhance the understanding and interpretation of the interior finish and decor of the buildings that stood on the tenements.

Slag and fossil fuel

1.6.13 A single block of slag, and a small quantity of coal and clinker were recovered from deposits and features dating from late 11th to 17th century. The slab of slag, found in a phase 4 context, retained extensive traces of copper residue, and may encase a block of stone or ceramic that served as a bellows guard. The object provides evidence of metalworking during this phase and may be linked to the crucibles found on the site. The clinker or fuel ash slag found in phases 3 and 4 could provide evidence of early use

of coal as a fuel in medieval Oxford. Records of coal mining occur from the late 12th century onwards, but the use of coal was small scale and confined largely to industrial use, particularly metalworking. However, the reliability of the contexts, in which the clinker occurs, needs to be established before such an assertion can be verified. The fragments of coal relate to later post-medieval phases 6 and 7, when the use of this material for fuel in heating domestic properties was becoming increasingly available.

Glass

1.6.14 The assemblage is comparatively small but contains a number interesting vessels that relate taverns that occupied the site in its earlier years. A selection of the vessel glass including the bottles with seals (context 4014), the complete cylindrical wine bottle of mid 18th-century date (context 1414), the unstratified 18th-century pickle or condiment jar (u/s), and the 16th- to 17th-century pedestal beaker (context 11021) could all be published and illustrated.

Flint

1.6.15 The two undiagnostic and residual flakes recovered have no potential for further work.

Stone

1.6.16 The assemblage mostly comprises roofing material and these have some potential to inform generally about the nature of building materials used on the site, as will the miniature column. A single whetstone is the only stone object, but will add to a general picture of activity on the site.

Metalwork

1.6.17 The assemblage has limited potential for further work. Other than nails, the number of identifiable objects is small and the finds are general in very poor condition. For the most part the assemblage comprises stray losses and undiagnostic structural ironwork recovered from rubbish and cess pits. Some individual items – the scale-pan, the lead weight, the whittle-tang knife and the strap-ends – are of interest, however. The scale-pan is especially noteworthy, given its potential association with weighing coinage or metals. Its context, function and date will be further examined to determine whether it can be linked to the period of Jewish inhabitation or the period that followed.

Worked bone

1.6.18 The two worked bone items – a spindlewhorl and possible pen – have limited potential for further study, though the recovery of the latter in a Phase 2 context (pens of this sort typically date from the 13th/14th century; that is, Phase 4 onwards) is of interest. The object would have been used in writing or drawing, and potentially points to the presence of, say, record-keepers or draughtsmen in or around the site during the 11th century.

Animal bone

- 1.6.19 The excavations provide a rare opportunity, not only to examine the Saxon origins of Oxford, but also to investigate Oxford's Jewry. In the earliest phase, the principal domesticated mammals were present in proportions consistent with medieval British urban sites, despite the small size of the assemblage.
- 1.6.20 The assemblage from phases 3 and 4 are potentially of great significance to the understanding of Oxford's Jewry in the medieval period and to the interpretation of medieval British Christian-Jewish interaction. The high proportion of bird bones recovered from the site is exceptional and demands comparison not only with other British sites of this period, but also with sites in Europe where zooarchaeological investigations into medieval Jewries have been carried out.
- 1.6.21 Zooarchaeological research into medieval European Jewries is still very rare, with only two studies having been published so far and both of them recently (Daróczy-Szabó 2004; Valenzuela-Lamas *et al.* 2014). One of those is from Hungary and the other from Spain, so a British example, however small, is worthy of note.
- 1.6.22 There is also potential to further investigate the spatial patterning of the animal bone on the site, looking in particular at the distribution of the numerous bird bones and scarce pig bones.
- 1.6.23 Small bone fragments in all 26 environmental samples included fairly good amounts in ten samples associated with pit fills in Phase 3 and occupation deposits and pit fills in Phases 4 and 6. The presence of small mammal bones and fish bones may provide additional information on diet and local environmental conditions respectively.

Fish remains

- 1.6.24 The fish remains assemblage is small, but will nevertheless add to our understanding of diet. The absence of eel, a proscribed food for Jews, from Phase 3 deposits and its presence in Phase 4 deposits are potentially of importance for charting the changing occupation of the site.

Marine shell

- 1.6.25 If securely phased then the evidence of oyster in late Saxon/early medieval deposits is worth reporting, with parallels sought from other sites of similar date in Oxford, since this demonstrates the effective transport of perishable goods from the coast as far inland as Oxford at this time. The later material is unremarkable, and warrant only a short note in the final report.

Eggshell

- 1.6.26 Further analysis of the eggshell, probably from chickens, is unlikely to provide additional information about the diet of the medieval inhabitants.

Plant remains

- 1.6.27 Identifiable charred plant remains were present in all 26 of the assessed samples consisting mainly of cereal grains including moderate to rich assemblages in 17 samples. Wild plant/weed seeds were recorded in 20 samples, but with only moderate

to rich assemblages in four samples. There were only traces of cereal chaff in six samples and mainly low amounts of charred hazelnut shell in 19 samples.

- 1.6.28 There were good charred grain assemblages in sampled Phases 1, 2, 3 and 4 but not in Phase 6, while the rich weed seed assemblages were only found in Phase 3. These remains may provide information on crop husbandry from basic data on the range of cereals (and possibly pulses) being used at the site from the late Saxon to the 14th century, the assessment suggesting no significant change in grains, with free-threshing wheat and hulled barley being the main cereals over this period of time. The few rachis fragments may provide evidence on the type of free-threshing wheat(s) being grown. The potential cereal weed seeds found in association with the grains may provide additional information on crop husbandry, including the range of soils being used for cultivation (initial indications suggesting the use of calcareous clay loams), as well as possibly sowing seasons. The paucity of charred weed seeds in all but Phase 3, however, may limit comparisons between phases in crop husbandry practices. The dominance of cereal grains in the charred plant assemblages and relatively few weed seeds except for mainly larger ones (including *Anthemis cotula* seed heads in pit fill 1214) suggest that the cereals were being brought onto site and stored as semi-cleaned crops.
- 1.6.29 'Waterlogged' plant remains were present in 22 flots, but with rich assemblages in only two samples, from occupation deposit 10013 (Phase 4) and cesspit fill 4061 (Phase 6). These remains consisted largely of fruit remains (both cultivated and wild species). Cesspit fill 4061 also contained a rich mineralized plant assemblage, while there was a moderate number of calcified seeds in occupation layer 4014 (Phase 6), the remains in both these samples also consisting largely of fruit seeds. These waterlogged and mineralized fruit remains may provide additional information on diet in Phases 4 and 6 with the remains in the cesspit possibly including human waste. Cereal bran was noted in occupation deposit 10013. Other potential food plants may be represented as 'waterlogged' and mineralized remains, including some of the Apiaceae seeds, while the presence of hemp in occupation deposit 10013 may point to other economic activities close-by.
- 1.6.30 Other 'waterlogged' and mineralized wild plant/weed seeds in these assemblages may shed light on the character of the local environment in the vicinity of the sampled features, but may also be from the collection and use of wild plants, for example sedges as flooring materials subsequently dumped into the pits possibly to dampen down the smells.

Charcoal

- 1.6.31 Variable amounts of identifiable charcoal were present in all 26 samples, with large amounts in 17 samples. The three fills (1057, 1080 and 1101) of a cesspit (Phase 3) contained exceptionally rich charcoal assemblages, possibly dumped into the feature to dampen down the smells. The large amounts of charcoal probably represent raked out and dumped fuel waste from ovens, fires and hearths, the identification of which may provide evidence on the range of woods used as fuel at the site during the late Saxon and medieval periods, although it is not possible to relate this information to fuel selection for specific activities.

General potential of the archaeobotanical evidence

1.6.32 The archaeobotanical data (in conjunction with the other biological evidence) may be able to potentially address the following questions:

- crop husbandry, processing and storage on site
- the range of plant foods used across the site
- differences in diet and status between the properties
- the use of wild plants and the nature of human/economic activities across the site
- patterns and range of refuse disposal across the site
- evidence for stabling
- the nature of the local environment within and in the vicinity of a number of the sampled features

Insects

1.6.33 Insect (beetle and puparia) remains were present in six samples but with only one rich assemblage from occupation deposit (10013) (Phase 4) and a modest amount in cesspit fill 4061 (Phase 6). These remains may provide information on environmental conditions within, and in the close vicinity of, these two sampled features.

1.7 Research aims and objectives

1.7.1 The general aims of the archaeological excavation were:

- i. to provide a record and characterisation of the archaeological remains that will be impacted by the development;
- ii. identify and record any significant archaeological remains or surfaces revealed in the excavations, paying particular regard to the potential for Saxon and medieval remains;
- iii. to record the main kinds of artefactual evidence (including pottery, brick, tile, stone, bone etc.) and collect representative samples;
- iv. to establish the ecofactual and environmental potential of archaeological deposits and features within the site and to take samples where appropriate;
- v. to prepare an appropriate archaeological archive of the site and make available the results of the investigation.

1.7.2 The specific aims and objectives of the excavations were:

- vi. to provide any material culture or structural evidence for Jewish inhabitation at the site;
- vii. to examine fauna remains for the evidence of specific dietary practices at the site;
- viii. to look for evidence of metalworking or specific industries that may have been practised at the site;

- ix. to identify any evidence of brewing or inns that later occupied the site.

Review of existing aims

- 1.7.3 The general aims of the fieldwork have largely been achieved. The excavation resulted in a comprehensive record of the archaeological remains encountered at the site, and representative samples of artefactual and environmental evidence were collected. Research aim (v) is ongoing or will be completed on production of the final report. Section 2.4 below outlines the proposal for the dissemination of the report.
- 1.7.4 Assessment of the stratigraphic, artefactual and environmental evidence has identified the potential for the specific aims to be addressed, and raised additional research aims.
- 1.7.5 The evidence recovered will allow aims (vi) and (vii), and to a lesser extent aim (viii), to be investigated further. The structural evidence potentially ties in with what we know of property divisions during the time of the Oxford Jewry, but the evidence is equivocal, as some of it appears to post-date the expulsion of the Jews from England in 1290. In that light, the remarkable animal bone assemblage, which appears to be consistent with Jewish dietary laws, is highly significant. Objects such as the scale-pan, crucible and metalworking slag, may also add to our understanding of the period of Jewish inhabitation.
- 1.7.6 Crucially, research into this aspect of the site will address one of the research questions of the Urban Archaeological Research Agenda for the city of Oxford relating to Norman Oxford (OCC 2013b): What evidence is there for settlement and activity during the period of Jewish occupation on St Aldates?
- 1.7.7 Specific aim (ix) relates to the later medieval and early post-medieval occupation of the site. The structural evidence potentially ties in with what we know of later medieval property divisions as postulated by Salter, particularly concerning the Red Lion Inn and Battes Inn. Historic map regression combined with further documentary study could enhance our understanding of the layout of the structures found towards the rear of these inns. The rich and closely dated assemblages from Latrine 4073 need to be put into context of the early–mid 17th century activity (for instance that relating to inns) and the people who lived in and around the site. Examination of the ceramic building material will contribute to the question of changing building techniques and status, as highlighted by the Urban Archaeological Research Agenda (OCC 2013c)

The Urban Archaeological Research Agenda (late Saxon Oxford)

- 1.7.8 The stratigraphic and material evidence has the potential to address several research questions of the Urban Archaeological Research Agenda relating to Saxon and Viking Oxford (OCC 2013a). (The sub-headings below are taken from the agenda.)

Chronology

- 1.7.9 The investigation adds to our understanding of the origins and development of early Oxford. The site was occupied from the mid/late Saxon period onwards, and was potentially contemporary either with the use of St Frideswide's minister or the

establishment of the burh. Early/middle Saxon pottery hints at even earlier activity in the area.

- 1.7.10 The agenda notes that refining understanding of the chronology and character of mid Saxon Oxford and the date and phasing of the late Saxon burh is of great importance to the understanding of the origins and development of the town. The evidence from 114-119 St Aldates has good potential to contribute to this through a study of the pottery and radiocarbon dating.

Settlement

- 1.7.11 Further study of the Phase 2 cellar pit and its possible Phase 1 precursor, and the material assemblages associated with both will enhance our understanding of the character and distribution of late Saxon cellar pits and the domestic/commercial character of the late Saxon settlement around St Aldates.

Social organisation, economy and subsistence

- 1.7.12 The Research Agenda highlights the value of late Saxon animal bone assemblages (and other material categories) to address questions of disposal strategies in relation to economic activities and diet and differential status within the burh. The evidence from the site can help address those questions.

Material culture and artefact studies

- 1.7.13 The fish bone (and marine shell) assemblage from the site is small, but nevertheless will be important to note in order to add to our understanding of fish consumption patterns in late Saxon Oxford.

Additional aims

- 1.7.14 The site sequence will be confirmed during the analysis stage, and will be placed in the context of contemporaneous activity in the area. Radiocarbon dating of primary deposits in the Phase 1 pits and from the earliest occupation levels found in Area 5 could refine the dating of these deposits, while analysis of the material from Phase 1 and 2 pits will help characterise occupation in and around the site. Analysis of the plant remains, animal bone and marine shell provides insight into the diet of Oxford's Saxon inhabitants, while pottery and fired clay will reveal something of how the inhabitants prepared and consumed their food.
- 1.7.15 The following additional aims may therefore be proposed:
- x. To refine the chronology of the earliest activity on the site and to place it in its historical context;
 - xi. To examine the artefactual and environmental evidence to gain insights into the character, economy, status and organisation of late Saxon Oxford.

1.8 Scope of the project

- 1.8.1 The post-excavation analysis and publication will encompass the stratigraphic, artefactual and environmental data generated by the excavation and watching brief (WB) fieldwork carried out at 114-119 St Aldates and 4-5 Queen Street (OXSTAD16).

1.9 Interfaces

1.9.1 Where relevant to the understanding and interpretation of the site, the results of the evaluation carried out by OA at the site in 2015 and of fieldwork undertaken across the city, though particularly in the area of St Aldates and Queen Street, will be considered. Consultation of *Oxford Before the University* (Dodd 2003) and *Anglo-Saxon Oxfordshire* (Blair 1994) will be critical in order to help place the site in its archaeological and historical context.

1.10 Communications and project review

1.10.1 The project team will communicate by email and through face-to-face discussions. Post-excavation project manager Edward Biddulph will track progress of the project programme on a weekly basis and ensure that work is being carried out to time and budget. The post-excavation programme will be monitored by Leo Webley, Head of Post-excavation at OA South. Progress updates and details of emerging results will be provided by Edward Biddulph to overall project manager Carl Champness to pass on to the consultant, Will Bedford of Orion Heritage and other stakeholders.

2 RESOURCES AND PROGRAMMING

2.2 Methods statement

Stratigraphy

- 2.2.1 The existing GIS model and site plan will be revised in the light of any corrections or additions to the stratigraphic data or phasing.
- 2.2.2 A narrative of the site sequence, based on the description in section 1.5, will be written. This will be accompanied by plans and selected section drawings. A series of interpretative plans that illustrate the site sequence will be prepared.

Pottery

- 2.2.3 The following is required to produce a publication report:
- Generation of data tables and analysis and discussion of the pottery per ceramic phase
 - Discussion of the pottery in a local and regional context
 - Cross-fit analysis
 - Selection of sherds for illustration and catalogue

Clay pipes

- 2.2.4 The majority of the contexts produced small assemblages of pipes that have been covered in the context summary and do not require any further work. This assemblage from pit 4073 warrants further work and publication as follows:
- 2.2.5 The pipes associated with this feature should be examined in detail to see if any more complete pipes can be reassembled
- 2.2.6 There should be an analysis of the range of bowl forms represented and technical details of their production (burnishing, milling, etc.) so as to characterise these features from this key group as a benchmark for future work
- 2.2.7 Publication quality drawings of the decorated pipes, complete pipes and a representative range of bowl forms should be prepared.
- 2.2.8 A publication text describing the pipes from the pit group and setting them within their regional and national context should be produced.

Ceramic building material

- 2.2.9 The assemblage has only been briefly and incompletely scanned for this assessment. The ceramic building should be fully recorded in accordance with guidelines set out by the Archaeological Ceramic Building Materials Group (ACBMG 2007). A report will be written describing the assemblage, relating it to structures and buildings identified on the site and comparing it to other similar assemblages from Oxford.

Fired clay

- 2.2.10 The structural fired clay should be fully recorded in accordance with standard recommendations for ceramic building material (ACBMG 2006) and the database updated with the site phasing. A brief report should be produced describing the material and relating it to the site and structures. Wider analysis is not warranted, though some reference may be made to nearby sites or comparable material within Oxford.
- 2.2.11 The spindle whorls should be fully described, illustrated and integrated into any report on small finds relating either to personal items or objects related to cloth production. Reference and comparison to other examples from Oxford and the wider region should be included.

Plaster and mortar

- 2.2.12 The assemblage has been recorded on an Excel spreadsheet, which will be updated with the final phasing before further analysis of the data is undertaken. A brief report will be written relating the material to structures that stood on the tenements.

Slag and fossil fuel

- 2.2.13 The assemblage has been briefly recorded based on macroscopic features. Post-excavation analysis should attempt to establish whether the slag does in fact coat an object such as a bellow's guard. The object should be photographed before any attempt is made to expose the interior. If this proves to be primarily another material, it should be incorporated into the report on the stone or fired clay. The clinker from

the medieval deposits could be significant if genuinely medieval but before any analysis is undertaken to establish whether it derives from the use of coal for fuel, a careful analysis of the stratigraphy must establish whether this material may be intrusive from later activity. Advice on further analysis should be obtained from a relevant specialist in metallurgy and metalworking if further analysis is deemed to enhance the understanding of the site. A brief report will be produced or the information incorporated into the synthesis and discussion of the site as appropriate.

Glass

2.2.14 The glass database will be updated, and a report prepared on selected vessels. Five vessels will be illustrated.

Stone

2.2.15 The stone was only briefly scanned during the assessment stage due to time constraints. It is therefore recommended that the roofing be weighed and any complete measurements recorded and that it be assigned to geological type. This should allow for the discard of smaller non-diagnostic fragments (after consultation with the Oxfordshire County Museum Stores). The stone roofing should be compared to other Oxford sites of comparable date and a short report be written that quantifies this material and places it in its Oxford context.

2.2.16 The whetstone and column should be fully recorded and described for publication. This report would include details of the objects' petrology, function, and compare them to similar known finds in Oxford

2.2.17 No items are recommended for illustration.

Metalwork

2.2.18 Further work should include updating the metalwork database and the preparation of a short report on selected items, most notably the scale-pan, the lead weight, the whittle-tang knife and the strap-ends which could be illustrated or photographed for the report. The date and function of the key objects, particularly the scale-pan, will be considered in the overall discussion.

Worked bone

2.2.19 A report based on the assessment report should be prepared for publication. The objects should also be illustrated. The date and function of the possible pen should be considered in the overall discussion.

Leather

2.2.20 The remains of a possible leather shoe were recovered from the organic fill (101) of pit 102, uncovered during the evaluation. Based on the pottery and ceramic building material, the shoe potentially dates to the 13th-14th century. Such organic remains are rare in Oxford, and potentially provide insight into the lives of the people living in and around the site. It is recommended that an archaeological leather specialist examines the leather and writes a report for inclusion in the final publication.

Animal bones

- 2.2.21 Further work analysing the existing data should be carried out. This should involve identification of specimens, visits to external reference collections, data analysis, comparative research, report writing, and photography. Where retention and discard decisions have to be made, the undated material should be considered as the prime candidates for disposal among the fauna remains.
- 2.2.22 The small bone assemblages from occupation deposit 10013 (Phase 4) and cesspit fill 4061 (Phase 6) should also be examined.

Fish remains

- 2.2.23 This small assemblage of fish remains should be fully recorded and reported for the final publication.

Marine shell

- 2.2.24 A report should be prepared for the final publication.

Eggshell

- 2.2.25 As evidence for egg consumption, the quantity of eggshell recovered will be reported, but further work is not required.

Plant remains

- 2.2.26 On the basis of the assessment, it is recommended that analysis (including sorting and quantification) is carried out on the three rich charred plant assemblages (samples 44, 3005, 4010), the seven good-sized assemblages (samples 4, 3000, 3002, 3007, 4004, 5002, 10001) and three moderate-sized assemblages (samples 29, 41, 3003). It is advised that the flots containing the three very rich charred plant assemblages are sub-sampled using a riffle box and only part sorted and quantified, although the remaining fractions should be scanned for additional species. Post-assessment analysis should also be carried out on the two rich waterlogged and mineralized assemblages (samples 4007, 10000) by scanning the flots and recording presence and estimated frequencies of individual species.
- 2.2.27 With regard to the remaining flots it is recommended that the seven samples (samples 24, 36, 42, 56, 4005, 5004, 5007) containing only small plant assemblages (c 30-50 items) should be rapidly scanned and individual species recorded (alternatively the assessment data could suffice). Assessment data from the other four flots (samples 12, 15, 19 and 62) containing only occasional plant remains could also be used in the post-assessment analysis.
- 2.2.28 Dry flots for botanical analysis should be fully sorted and seeds etc. identified using standard reference texts and comparative material. Small flots should be scanned semi-quantitatively. Three very rich flots should be sorted and recorded (samples 44, 3005, 4010) which is likely to involve sub-sampling. Seven good charred plant assemblages (samples 4, 3000, 3002, 3007, 4004, 5002, 10001) should also be sorted and fully recorded and six samples with modest amounts of plant remains (24,

36, 42, 56, 5004, 5007) should be scan-recorded using a semi-quantitative scale where appropriate.

- 2.2.29 Two rich waterlogged and mineralised plant assemblages (wet flots from samples 4007 and 1000) should be recorded using a semi-quantitative scale for common seeds to avoid time-consuming sorting of large wet flots. The smaller wet flot from sample 4005 should be scanned and recorded.

Charcoal

- 2.2.30 The identification of charcoal from different features and phases is only recommended if it is considered important to establish the range of woods being used as fuel during this period. As noted above, however, it is not possible to relate this information to fuel selection for specific activities on the site.
- 2.2.31 The botanical data from the site may be compared to previous research from other late Saxon to early post-medieval deposits from sites in Oxford (eg Giorgi 2015, Smith 2010, Smith, forthcoming) while the environmental remains from the earlier evaluation sample from the site should also be considered in the post-assessment analysis (Meen and Hunter 2015).

Insects

- 2.2.32 It is suggested that analysis should be carried out on the two insect assemblages in occupation deposit 10013 (Phase 4) and cesspit fill 4061 (Phase 6). Such work, however, should only be carried out following the advice and recommendation of the appropriate specialists.
- 2.2.33 Retained sediment from sample 1000 (10013) should be processed using the washover technique followed by paraffin flotation to extract insect remains, sorting and tabulation. Since there is no retained sediment from sample 4007 (4061) the remains in the waterlogged flot should be extracted by paraffin flotation if deemed appropriate by the specialist and the insect remains scanned and semi-quantified.

2.4 Publication proposal

- 2.4.1 While the size of the excavation was relatively small, the results are highly significant, being of local and regional interest, and potentially of national interest if the evidence can be linked with Jewish inhabitation.
- 2.4.2 The programme for additional work will lead to the publication of one short report (c 12-15 pages long) in the county archaeological journal, *Oxoniensia*. The report will summarise the findings of the excavation and place the results in the context of contemporaneous activity in the city.
- 2.4.3 A leaflet and a popular article for *Current Archaeology* focusing on the key aspects of the site (particularly the Jewish evidence) can be produced at extra cost.
- 2.4.4 Publicity may also be gained through posts on Oxford Archaeology's website and social media accounts. This will have no cost impact on the post-excavation project.

2.5 Ownership and archive

- 2.5.1 OA will retain copyright of all reports and the documentary and digital archive produced in this project. It will maintain the archive to the standards recommended by the Chartered Institute for Archaeologists (CIfA 2014), the Archaeological Archives Forum (Brown 2011), and the Oxfordshire County Museum Service.
- 2.5.2 On completion of the reporting stage of the project, the finds and documentary archive will be deposited with the Oxfordshire County Museum Service. The landowner's permission to donate the finds to this repository will be sought.
- 2.5.3 The digital archive will be deposited with Archaeology Data Service (ADS).

APPENDIX B FINDS ASSESSMENTS

B.1 Pottery

By Paul Blinkhorn

B.1.1 The pottery assemblage comprised 2028 sherds with a total weight of 38767g. The estimated vessel equivalent (EVE), by summation of surviving rimsherd circumference was 24.57. It was recorded using the conventions of the Oxfordshire County type-series (Mellor 1984; 1994), as follows:

- OXAC: Cotswold-type Ware, AD975-1350. 268 sherds, 4861g, EVE = 2.78
- OXAG: Abingdon Ware, late 11th-14th c 3 sherds, 94g, EVE = 0.19
- OXAM: Brill/Boarstall Ware, AD1200-1600. 225 sherds, 3717g, EVE = 1.88
- OXAW: Early Brill Coarseware, AD1180-1250. 83 sherds, 2371g, EVE = 1.71
- OXB: Late Saxon Oxford Shelly Ware, late 8th-early 11th century. 121 sherds, 2381g, EVE = 1.09
- OXBB: Minety-type Ware, early 13th-16th century. 4 sherds, 95g, EVE = 0.05
- OXBF: North-East Wiltshire Ware, AD1050-1400. 34 sherds, 798g, EVE = 0.19
- OXBK: Medieval Shelly Coarseware, AD1100-1350. 5 sherds, 79g, EVE = 0
- OXBN: Tudor Green Ware, late 14th-16th century. 2 sherds, 6g, EVE = 0
- OXBS: Beauvais-type Ware, 9th-11th century. 6 sherds, 186g, EVE = 0
- OXBX: Late Medieval Brill/Boarstall Ware, 15th-early 17th century. 29 sherds, 947g, EVE = 1.00
- OXCL: Cistercian Ware, 1470-1600. 10 sherds, 84g, EVE = 0.07
- OXR: St Neots Ware, AD850-1200. 43 sherds, 571g, EVE = 0.68
- OXY: Medieval Oxford Ware, AD1075-1350. 1065 sherds, 17138g, EVE = 12.57
- OXZ: Stamford Ware, AD850-1150. 7 sherds, 55g, EVE = 0.30

B.1.2 The late medieval and early post-medieval wares were recorded using the conventions of the Museum of London Type-Series (eg Vince 1985), as follows:

- BORDB: Brown-glazed Border Ware, 1600-1700. 2 sherds, 6g
- BORDG: Green-glazed Border Ware, 1550-1700. 3 sherds, 44g
- BORDY: Yellow-glazed Border Ware, 1550-1700. 55 sherds, 557g
- CREA: Creamware, 1740-1830. 1 sherd, 6g
- DERBS: Derby Stoneware, 1700-1900. 10 sherds, 17g
- FREC: Frechen Stoneware, 1550-1750. 13 sherds, 553g
- LONS: London Stoneware. 1680+. 6 sherds, 118g

- METS: Metropolitan-type Slipware, 1480-1900. 2 sherds, 34g
- MLOJ: Montelupo Oil Jar, 1750-1900. 1 sherd, 246g
- PMBL: Post-medieval Black-glazed Redware, late 16th-17th century. 1 sherds, 14g
- PMR: Post-medieval Redware, 1550+. 28 sherds, 1852g
- RAER: Raeren Stoneware, 1480-1600. 8 sherds, 992g, EVE = 1.82
- REFW: Refined Whiteware, 1800-1900. 21 sherds, 219g
- STSL: Staffordshire Slipware, 1650-1800. 1 sherd, 4g
- SWSG: Staffordshire White Salt-Glazed Stoneware, 1720-1800. 1 sherd, 2g
- TGW: English Tin-Glazed Ware, 1600-1800. 3 sherds, 23g

B.1.3 The following, not included in the Oxford type-series, were also noted:

- F1: Early/Middle Anglo-Saxon Organic-tempered Ware, 1 sherd, 15g, EVE = 0
- F102: Thetford-type Ware (Rogerson and Dallas 1984). 2 sherds, 48g, EVE = 0.06
- F104: Flemish/Rhenish Greyware, 11th – 12th century. 5 sherds, 138g, EVE = 0
- F401: Spanish Tin-glazed Ware. 15th – 16th century. 1 sherd, 15g, EVE = 0.11
- F1002: Iron Age. 4 sherds, 159g, EVE = 0.07

B.1.4 The general range of pottery types is fairly typical of sites in Oxford, albeit with some exotica in the form of late Saxon, medieval and post-medieval imports. This is a pattern that has been noted in the past at other excavations in the St Aldates area of the city. The excavations in the late 1960s and early 1970s, centred around 79-87 St Aldates (Haldon 1977), produced an assemblage similar to this one. The mid-late Anglo-Saxon assemblage was dominated by OXB, with St Neots Ware (OXR) a relatively minor ware, and a number of mainly Saxo-Norman continental imported types, such as Andenne, North French and Rhenish/Flemish grey wares (Haldon 1977, table 1), also present. Here, pottery from France (Beauvais Ware) and the Low Countries/Germany (Flemish/Rhenish Greyware) is present. Such pottery is fairly rare in Oxford, but similar types were also noted at excavations at nearby Queen Street and All Saints Church (eg Mellor 2003, table 6.7). In most cases, OXB was also the dominant mid-late Saxon pottery type. The sherd of Beauvais ware from this site may all be from the same vessel. This will be examined at the report stage, and any cross-fits noted, as this may provide useful evidence relating to the site taphonomy.

B.1.5 The single sherd of early/middle Anglo-Saxon hand-built pottery is a rare find in the city, although one of the very few relatively large assemblages from Oxford occurred at nearby 31-4 Church St (Mellor 1989, 198). Thetford Ware is also a rare occurrence in Oxford, although some sites have produced one or two sherds, such as Lincoln College (Blinkhorn 2002, 232).

Chronology and pottery occurrence

B.1.6 Each stratified, context-specific pottery assemblage has been given a ceramic phase ('CP') date based on the range of ware and vessel types present, and adjusted

according to the stratigraphic matrix. The chronology, defining wares and the amount of pottery per phase is shown in Table 5.

Phase	Defining wares	Date	No Sherds	Wt. Sherds	Mean Sherd Wt
RB	All Roman	1 st – 4 th C	2	39	19.5g
MSAX	OXB	E8 th – 9 th C	31	741	23.9g
LSAX	OXR, OXZ	10 th C	8	60	7.5g
SN	OXAC, OXBF	E/M - L 11 th C	80	1844	23.1g
M1	OXY	L 11 th – 12 th C	840	13086	15.6g
M2	OXAM	13 th – 14 th C	820	15253	18.6g
M3	OXBX, OXBN	E-L 15 th C	24	851	35.5g
M4	CSTN, RAER	L15 th – 16 th C	44	1757	39.9g
PM1	PMR, FREC, BORDY, BORDG	M-L 16 th C	35	1502	42.9g
PM2	TGW, WEST, PMBL	E-M 17 th C	31	1659	53.5g
PM3	TGW*	M-L 17 th C	1	3	3.0g
PM4	LONS	L17 th – E18 th C	7	500	71.4g
PM5	DERBS, SWSG	18 th C	13	270	20.7g
MOD	WHEW	19 th C	92	1202	13.1g
Total			2028	38767	

Table 5: Ceramic phase chronology, occurrence and defining wares

B.1.7 The data in Table 5 indicate that there was activity at the site from the mid/late Anglo-Saxon period onwards. The largest assemblages, as was often the case in Oxford, date to the late 11th-14th century, with deposition dropping off quite sharply after then. Generally, the mean sherd weight for the Saxon and medieval material is quite high, showing that much of it is very well-preserved.

B.2 Crucible or lamp

By John Cotter

B.2.1 A complete medieval crucible (weight 261g), probably dating to c 1100-1225, is listed as an unstratified find, having been recovered, as the excavators note, by machine from 'behind Area 1' along the 'side of excavation'.

B.2.2 Description:

- Max height: 78mm (upturned). Diam at long axis, along spout: 130mm. Short axis: 109mm. Globular hemispherical form. Competently wheel-thrown with a rounded knife-trimmed base. Probably thrown with a flat base and trimmed to produce a rounded base. Plain or slightly thickened vertical rim with an internal bevel with a slightly concave inner face. The vertical rim apex is quite sharp. The walls are quite thin higher up on the vessel. The vessel has a pulled lip or spout making the vessel slightly pear-shaped or teardrop-shaped in plan. The main circular portion of the vessel in plan is slightly deformed.

B.2.3 Because the vessel is complete, and in a hard reduced dark grey sandy fabric, there is a limited amount that can be deduced from visual examination. There are a couple of very small chips from the rim that allow a microscopic inspection of the fabric. The fabric is a sandy ware densely packed with fine-medium quartz grains, some milky, some clear, mostly sub-rounded and sub-angular. No other obvious inclusions apart

from rare very small calcareous inclusions and possibly rare red iron oxide. Locally the fabric most resembles Medieval Oxford ware (OXY, c 1075-1300), and although this is the most obvious candidate one cannot rule out an alternative source. It is also fairly similar to high medieval crucibles from Lincoln College (OXLG 12), thought to be in early Brill/Boarstall ware (OXAW c 1175-1400), but these generally have a slightly coarser fabric and a lighter/browner colour (when not reduced grey). Other possibilities include London-type ware (LOND, c 1080-1400) and Stamford ware (OXZ, c 850-1250).

- B.2.4 The vessel does not exhibit the signs of intense scorching normally associated with crucibles used for metalworking and so on, but it does show evidence of moderate heating and sooting. The interior is covered all over with a thin sooty deposit, and patches or possibly trails of this occur externally too, including two or three possible sooty trails below the spout. Internally this sooting stops above the base creating a shallow unsooted circular area of lighter grey within the base. This pattern or discolouration makes more sense if the vessel was used as an oil lamp rather than a crucible, and in this instance it is suggested that this was the function of the vessel here. A secondary crusty brown deposit in the lower half of the vessel is of post-deposition origin (from a cess pit?).
- B.2.5 There is some disagreement among pottery specialists as to whether some of these baggy globular Saxo-Norman vessels were purpose-made as oil lamps or whether they are just unused crucibles that were used as oil lamps (eg Stamford ware crucibles/lamps). Several Saxo-Norman industries, including Stamford, also produced tall pedestal-type oil lamps (resembling candlesticks), so it seems odd that they should also be producing globular lamps as well.
- B.2.6 It is worth noting that the evaluation phase (OXSTAD 15) also produced a crucible rim in Medieval Oxford ware (OXY) from context 203. That example shows signs of scorching (OA 2015).

B.3 Clay pipes

By David Higgins

- B.3.1 The excavations produced a total of 160 fragments of pipe (50 bowl, 104 stem and 6 mouthpiece fragments) weighing a total of 1,614g. The pipes were recovered from a total of 22 different contexts in five of the areas examined (Areas 1, 4, 5, 10 and 11). The pipe assemblage as a whole is in very good condition, with many large stem fragments and most of the bowls comprising complete examples.
- B.3.2 One remarkable feature of the assemblage is the fact that almost all the pipes recovered belong to a very narrow time band. Almost all the stems are of general 17th-century types, while the more closely datable bowls range from c 1640-1680, with the majority dating from c 1650-70. The only notable exceptions are two stems of late 18th century or later date from context 1376. From the pipe evidence, it would appear that there was a brief but intense period of activity, resulting in the deposition of archaeological material across this site during the third quarter of the 17th century.

- B.3.3 The majority of the pipes were recovered from the fills of pits or postholes, the most notable of which was a stone-lined cesspit (4073). This feature produced by far the largest number of pipes from the site, with 131 fragments (43 bowl, 82 stem and 6 mouthpieces) probably being associated with it. These fragments are generally in a substantially complete and fresh condition with a very narrow range of bowl forms, suggesting a tightly dated group. The initial analysis of this material suggests that it was deposited around 1650-70, with a date of around 1660 being the most likely.
- B.3.4 There are numerous joins between the fragments from pit 4073, with several substantially complete pipes and two fully complete pipes having already been reassembled. Complete pipes are exceedingly rare and these are thought to be the first two to have ever been recovered from anywhere in Oxfordshire or the surrounding regions. They not only allow the bowl forms to be associated with a specific stem length, but also provide data to compare with other places, such as London, where a small number of complete 17th-century pipes have also been recovered.
- B.3.5 As well as the complete pipes, the pit group also includes one pipe with a band of milled decoration on the stem and another with an elaborate scheme of incised and stamped decoration on the stem. This stem decoration comprises a central section of incised chevrons, 50mm in length, flanked on either side by impressed Oxford style toothed borders, making up a scheme of 126mm in length overall. This is by far the longest decorative scheme so far recovered on a pipe from Oxfordshire, and it is also important in that the scheme is complete and can be related to its associated bowl form. This is a key piece that helps define a distinctive style of stem decoration that was developed in Oxfordshire during the mid-17th century.

B.4 Ceramic building material

By Cynthia Poole

- B.4.1 A fairly large assemblage of ceramic building material amounting to some 1339 fragments weighing c 121.5kg (23 boxes) was recovered. Sixteen boxes were very rapidly scanned to characterise the assemblage and note any items of significance. The majority of the assemblage is fragmentary and broken, having a mean fragment weight of 88g. However, the assemblage does include some complete post-medieval bricks and several roof tiles with complete widths and one with a complete length (Table 6).

Form	Nos	Wt (g)	Spot date	Comments
Roof tile	1148	87643	C13-C14	Flat tile – glazed and unglazed, peg and ridge tile
Brick/paving bricks	18	16000	LC18-EC20	
Sewer pipe	6	1500	LC18-EC20	Glazed stoneware
Wall tile	1	15	LC19-C20	White glazed bathroom type
Indet	13	56		
Total	1186	105214		

Table 6: Ceramic building material

- B.4.2 The assemblage is completely dominated by medieval roof tile (98% by count, 84% by weight), which comprises almost exclusively fragments of flat tile, both glazed and

unglazed. This includes a small proportion that could be positively identified as peg tile and curved ridge tile, with both including glazed examples. Glazes occurred in shades of green, olive, amber and brown, sometimes with darker speckling. No evidence of crested ridge tiles was found.

- B.4.3 The tiles were made in the common red sandy fabrics, predominantly Oxford type IIIB or VIIIB, with smaller quantities of VIIA and B. These were all in use from c 1175-1400. Only four fragments, including both peg and ridge tile, were tentatively identified as the early limestone tempered fabric IB, dated to late 12th-early 13th century, and one small scrap of ridge tile as fabric IIIA, which probably originates from Brill, and is broadly of 14th century date.
- B.4.4 All other material (25 fragments, c 17.5kg) was of post-medieval date, predominantly late 18th-early 20th century, and included brick, paving bricks, stoneware sewer pipe and glazed bathroom type wall tile. The brick included one in a yellow fabric, but the remainder was typical post-medieval red sandy fabric.

B.5 Fired clay

By Cynthia Poole

- B.5.1 A small quantity of fired clay, amounting to 14 fragments weighing 699g from hand excavation, and 68 fragments weighing 783g from sieved samples, was recovered from areas 1, 3, 4, 5, 10 and 11. This comprised structural material and two personal artefacts. The assemblage was rapidly scanned and significant characteristics noted.
- B.5.2 Two rather fine spindles whorls, one complete and one half complete, made in fired clay were found in contexts 1010 and 3071. One was made in the form of a disc with a wide countersunk hollow on one side; the other was hemispherical. Both were pierced by a large cylindrical perforation 12mm in diameter. These are typical of Saxon or early medieval forms of spindle whorl.
- B.5.3 The structural fired clay included several fragments with wattle impressions, one of which had a roughly moulded curving surface with finger marks typical of oven walls. Other pieces had a single flat moulded surface or were amorphous, though one piece may have been shaped into a ball, but this may be the accidental effect of breakage and wear. Fabrics were not examined, but superficially appeared to be a fine silty or sandy clay, though some were gritty and at least one heavily micaceous.
- B.5.4 The structural fired clay derives from oven or hearth structures and is probably of Saxon or early medieval date. Though the fragments are not intrinsically datable, fired clay started to be replaced by brick and tile in the later medieval period for structures such as ovens and hearths that required fireproof materials. The assemblage has limited potential, but can enhance the understanding and interpretation of activities undertaken on or in the immediate vicinity of the site, probably of a domestic character related to food preparation or possibly artisanal.

B.6 Plaster and mortar

By Cynthia Poole

- B.6.1 A small assemblage of mortar and plaster (28 fragments, 1475g) was recovered from areas 1, 4 and 5 of the site. This comprises fragments of wall render usually made in a sandy or gritty lime mortar, sometimes surfaced with a thin plaster veneer and painted. Paint colours included white, pale blue, various shades of green and brown. All appeared to be solid blocks of colour with not hint of decorative design, with colours suggesting the paintwork to be of 19th-mid 20th century date. Most pieces had a smooth flat face, usually with a flattish bonding surface at the back forming slabs 10-24mm thick. Some pieces appeared to be a 'first-finish' render, lacking the final finished surface. Several pieces had lath impressions on the back measuring 17-24mm wide; these are usually indicative of ceilings.
- B.6.2 Most pieces were made in a cream-buff sandy lime mortar (type M1) or a similar type with the addition of coarse grits (type M7). A few fragments of cement render and a lump of pebbly concrete are probably of late 19th-20th century date. A sample of 'mortar' from context 5000 appears to consist of soley of clayey gritty soil, suggesting any lime-based component had been entirely leached away and replaced by soil.

B.7 Slag and fossil fuel

By Cynthia Poole

- B.7.1 A single piece of slag and a small quantity of fuel and clinker was found in areas 1, 4, 11 and 13 in deposits ranging from phases 3 to 7 (11th to early 18th century) (Table 7).

Area	Context	Phase	Count	Weight	Material
1	1020	13-14C	3	22	Clinker
1	1020	13-14C	1	27	Clinker
1	1022	13-14C	6	57	Clinker
1	1024	13-14C	2	21	Clinker
1	1032	L11-12C	1	3	Clinker
1	1064	L11-12C	1	17	Clinker
13	1414	M17-E18C	1	5	Coal
11	11025	M16-M17C	1	8	Coal
4	4098	13-14C	1	191	Slag

Table 7: Slag and fossil fuel

- B.7.2 The slag (191g) was found in a phase 4 occupation layer 4098 dating to the 13th-14th century. It formed a flat slab 105mm x 40-70mm x 22mm thick with fairly straight edges and at one end a curved semi-circular notch 31mm wide. The surface was billowy and fairly smooth on one side and rougher on the other with bright green copper residues adhering to the surface. The fairly sharp edges and angles suggest that the slag was in fact coating another object, such as a slab of stone or ceramic. The semi-circular hole through it may indicate that the slag coats a bellow's plate pierced by a blow hole for the tuyère.
- B.7.3 The fossil fuel and fuel waste included small lumps of coal and lumps of clinker type material or fuel ash slag. The coal was found in features dating to the 16th-18th century, which is consistent with the early domestic use of coal for heating as coal became more readily available for domestic use during this period. The clinker or fuel ash slag formed irregular vesicular lumps and was black in colour, suggesting that they

derived from the burning of coal or coke, probably as a result of some industrial activity. They all derived from deposits in area 1 assigned to phases 3 and 4 dated to 11-12th and 13-14th century. The use of coal is recorded from the late 12th century, though it was only used on a small scale, usually for artisan or industrial activities, especially metalworking.

- B.7.4 If it is possible to establish whether the clinker derives from coal, this would provide evidence for the early use of this fuel in Oxford during the 12th-14th centuries. However, it has been noted that the deposits assigned to phase 4 all contain ceramic building material of post-medieval or 19th century, which suggests that the deposits have been contaminated by later intrusive material, in which case any fossil fuel waste is also likely to be intrusive, or that the context should be assigned a later phase.

B.8 Glass

By Ian R Scott

- B.8.1 The glass assemblage is small but has some interesting elements. The glass was rapidly scanned, identified to form and quantified by sherd count onto an Excel spreadsheet but not fully recorded. The assemblage comprises just 95 fragments mainly of vessel glass. There are just 12 pieces of window glass. More than half the assemblage by number comprises wine bottle sherds.
- B.8.2 The only glass from a Phase 1 context includes four pieces of undoubted wine bottles from context 1305. There is also a small piece of post medieval window glass from the same context.
- B.8.3 Phase 3 contexts also produced four pieces of glass, including two refitting sherds from a wine bottle, or possibly a thick walled flask, in olive green glass. Another sherd from a probable wine bottle in dark green glass was recovered from context 1082. A small sherd of de-vitrified window glass, very possibly medieval, was found in context 1029.
- B.8.4 Phase 4 contexts produced six pieces of glass, including three pieces of window glass. Two large pieces of very pale green window glass, from contexts 1020 and 1022, were very thick (8mm and 8.5mm) and almost certainly not medieval in date and most probably quite recent in date. The third piece of window glass was from context 1390 and is a small sherd with opaque weathering which might be medieval or post-medieval in date.
- B.8.5 The vessel glass from context 4056 comprises a distinctive baluster from a stemmed vessel of early 17th-century date possibly Venetian, but more likely of English manufacture in the Façon de Venise. The upper half of a small squat early 18th-century wine bottle with short tapering neck and cracked-off finish came from context 10012. Finally, there is an indented base from a free blown vessel, possibly cylindrical, from context 10013. The last looks to be post-medieval in date.
- B.8.6 Phase 6 contexts produced 31 pieces of glass, most of which were recovered from context 4014 and come from two 17th-century 'globe and shaft' bottles, both which have datable bottle seals. One seal shows a mermaid, with the waves of the sea in the background, holding a mirror and apparently brushing her hair. The letters 'A H' to the right are the initials of Anthony Hall junior, who was licensee of the 'Mermaid' from

1675-1691. His father, also Anthony Hall, was licensee from c 1664 until 1675 and was mayor of Oxford in 1673-74.

- B.8.7 The second seal has the letters 'W M A' above a crown. The letters form the cipher of William and Anne Morrell, who were licensees of the 'Crown' from 1660 to 1679. William Morrell died in 1679 and his widow Anne continued as licensee until 1696. The Crown was located at what is now No. 3 Cornmarket and is not to be confused with the present Crown Inn at 59A Cornmarket. It is clear that the finds from context 4014 are out of place in a Phase 6 context and would fit better in Phase 7 or more probably in Phase 8. The probable wine bottle base from context 1365 is also too late for this phase.
- B.8.8 However, context 11021 produced two pieces of vessel glass, one a pedestal base, the other a body sherd with optic blown ribs. Although there is no refit, it is possible that the sherds are from the same pedestal beaker. The form dates to the second half of the 16th or first half of the 17th century and would fit well in a Phase 6 context. The final piece of glass is a fragment of dark green window glass from context 11001. This is probably post-medieval in date.
- B.8.9 Phase 7 context 1414 produced a complete large cylindrical wine bottle with long neck, probably dip moulded, and dating to the middle decade of the 18th century.
- B.8.10 Phase 8 contexts produced 27 pieces of glass, mainly vessel glass, but including six pieces of window glass. The glass includes, from context 1003, a complete small moulded bottle (2 sherds), the base of second similar small bottle and two sherds from other moulded bottles. From context 1004 there are five sherds from various bottles of late 19th- or 20th-century date, and two pieces of window glass. The latter include a small edge piece from a disc of crown glass. Glass from context 1006 includes sherds from wine bottles including early 18th-century examples. It also produced part of the neck and rim of a wide necked cap-seated early milk bottle. This type of milk bottle was sealed with waxed card insert that fitted on a seating or ledge inside the rim, and were in use in Britain from the 1910s to the late 1940s. Context 1007 finds included three sherds from a machine moulded bottle in colourless glass and three sherds of window glass. Window glass from context 1015 was possibly modern, while the glass from 1378 was an undiagnostic body sherd in green glass.
- B.8.11 The unstratified and unphased glass included the neck and shoulders of mid 18th-century pickle or condiment jar with cracked of rim and handle applied string rim, necks and body sherds from small cylindrical pharmaceutical bottle or phials of similar date, and more sherds of wine bottles.

B.9 Flint

By Edward Biddulph, with identification by Michael Donnelly

- B.9.1 Two undiagnostic flakes were recovered. Neither flake could be dated closely, and both were found as residual occurrences. One (24g) was from context 1071, a fill of Phase 3 pit 1058, the other (2g) from Phase 4 occupation layer 4047.

B.10 Stone

By Ruth Shaffrey

- B.10.1 A total of 87 pieces of stone were submitted for analysis. These were briefly scanned in order to determine potential.
- B.10.2 The assemblage comprises mainly stone roofing, which appears to be largely limestone, with some slate. Some of these retain their original perforations, but none is complete.
- B.10.3 A single whetstone is the only stone artefact present in the assemblage, and this warrants full recording. There is also a single piece of architectural stone – a miniature column. The whetstone is a small example and is probably indicative of domestic activity, but it should be considered in the light of any other industrial evidence on site, especially metalworking.

B.11 Metalwork

By Leigh Allen

- B.11.1 A total of 157 metal objects were recovered from the excavation. The assemblage comprises 20 copper alloy objects, 132 iron objects (including 109 nails) and 7 lead objects. The metalwork, especially the iron, is in a very poor condition and has been x-rayed to aid identification.
- B.11.2 The majority of the metalwork was recovered from Phase 3 and 4 contexts dating to the late 11th–14th century, with only a small number of objects, mostly nails coming from the other phases.
- B.11.3 The copper alloy assemblage, nearly all from Area 4, Phase 4, comprises personal and domestic items, including strap-ends, a buckle pin, a button, a key, a needle and a length of chain. Worthy of note is a complete shallow, lipped vessel with a small square perforation in the centre of the base, which is possibly a dish from a set of weighing scales.
- B.11.4 The ironwork is mostly structural, and other than nails there are staples and a wall hook present. Two horseshoe fragments were recovered from Phase 3 contexts and a complete whittle tang knife and a socketed implement (possibly a hoe) were recovered from the fills of cesspit 1058.
- B.11.5 The small lead assemblage mostly comprises miscellaneous fragments. However, there is a circular disc with a central perforation, possibly a mount, from phase 7 (the only find from this phase) and a heavy cylindrical object with a domed top, probably a weight recovered from a Phase 1 dump layer (one of only two finds from this the early phase).

B.12 Worked bone

By Leigh Allen

- B.12.1 Two worked bone objects, a spindlewhorl and a possible pen, were recovered. The bone is in good condition and both objects are complete.
- B.12.2 The hemispherical spindlewhorl (SF 100) is made from the head of a bovine femur, with a central perforation and a flat back. The whorl is plain, showing no sign of decoration or polish/wear. Femur head whorls first appear in the Iron Age and continue in use sporadically until the Norman periods when they enjoyed a renewed burst of popularity (MacGregor 1985, 187). This example was recovered from a layer of trample, context 1007 (phase 8).
- B.12.3 The possible pen (SF 3003) is fashioned from a goose radius with the end cut obliquely. The function of these objects is a subject of debate (MacGregor 1985, 125-6). They could have functioned as rudimentary pens, although they lack the cleft point which would have given the necessary flexibility for writing and instead may have been better employed for line drawing. It has also been suggested that they could have been used for holding broken quills (Henig 1977, 163, fig. 38, nos 16-17). These objects first appear in the 13th/14th century. This example from St Aldates was recovered from context 3076, an occupation layer (phase 2)

APPENDIX C ENVIRONMENTAL ASSESSMENTS

C.1 Animal bone

By Lee Broderick

Introduction

C.1.1 A total of 5072 animal bones were recovered from the site, over half of which from contexts associated with phase 3, with phases 2 and 4 also making up significant proportions of the assemblage (Table 8). Some 79% of the material was hand-collected, with 21% resulting from environmental sampling. Environmental sampling particularly increased the number of micro mammal (mouse-sized mammals) and amphibian bones recovered, which is typical of such sampling strategies (Payne 1972), and we should expect that the numbers of these groups of species would increase were all the excavated material to be sieved in the same way. Samples were sieved at 10mm, 4mm, 2mm and 0.5mm fractions.

	1	2	3	4	5	6	7	8	9	Undated
domestic cattle	27	68	190	146	5	10		5		17
caprine	24	53	276	116	4	29	1	9	7	10
pig	12	28	82	20	1	9		2	2	7
horse	1			2						
dog			2	1						
cat		1	13	10						1
European hare			2	2						1
rabbit					1					
black rat						2				
micro mammal	1	2	15	3						
Total Mammal	65	152	580	300	11	50	1	16	9	36
common frog/common toad		2	1							
Total Amphibian	0	2	1	0	0	0	0	0	0	0
bird	1	5	255	58	9	15	1	20	1	7
Total Bird	1	5	255	58	9	15	1	20	1	7
Total NISP	66	159	836	358	20	65	2	36	10	43
Total NSP	159	480	2871	1001	52	206	9	133	30	131

Table 8: Total NISP (Number of Identified SPecimens) and NSP (Number of SPecimens) figures per period from the site. Three most common species for each phase highlighted

C.1.2 All specimens were identified with the aid of the Oxford Archaeology reference collection. Material was recorded on a 'per context' basis. Each bag of material was counted, weighed and assigned a condition value (using Behrensmeyer 1978) characteristic of the majority of the material in that bag. The number of specimens potentially identifiable to each of the domesticated mammals, principal wild-food mammals, birds and other species was also totalled up and recorded on the same record, along with sub-totals for those that could provide biometric, sex, age or pathology data. Taxonomy follows Wilson and Reeder (2005) for mammals and Gill and Donsker (2013) for birds. The word 'caprine' is used when referring to an animal that may be a sheep or a goat.

C.1.3 The bones were generally in moderate condition (Behrenmeyer 1978, stage 3) although this was variable. It was also observed that many of the specimens still had clay concreted to them, hampering the identification not only of condition but also of other surface and morphological features of the bones. Contexts of particular interest are highlighted below.

Phase 1

C.1.4 Phase 1 covers the late Saxon period, from the 8th to the late 10th centuries AD. Sixty-six specimens of 159 are attributable to species. These are typical of a medieval town, being approximately 40% domestic cattle (*Bos taurus taurus*), 40% caprine (sheep – *Ovis aries* and goats – *Capra hircus*) and 20% pig (*Sus scrofa domesticus*), with horse (*Equus caballus*) and bird also present.

Phase 2

C.1.5 Phase 2 comprises the 11th century AD phases of activity on the site and contained 480 specimens, of which 159 were identified to species level. The trends observed in phase 1 continue into this phase.

Phase 3

C.1.6 As mentioned above, phase 3 contained over half of the faunal material recovered from the site. It also marked a significant shift in the species represented on the site, with birds accounting for a third of the skeletal material recovered. This increase came at the expense of domestic cattle and pigs, which both occurred about half as frequently when compared with earlier phases.

C.1.7 This phase dates to the late 11th-12th centuries AD and is of particular interest since the site was, at this time, partly occupied by 'Jacob's Hall' on the edge of Oxford's Jewry. Jewish laws contain specific proscriptions on the types of animals and the parts thereof that can be eaten. This is in contrast to Roman Catholic Christianity, which adopts a far more laissez-faire attitude to what food its followers consume outside fasting periods. This is of importance for the zooarchaeological investigation of the site since the potential for differentiating between these two religious groups might be possible if their refuse disposal on the site was intensive.

C.1.8 Specifically, according to the ways that rabbinic law was interpreted in medieval northern Europe, we would not expect to find any of the following in deposits associated with Jewish site use:

- Any wild animal, including birds
- Pig bones
- Horse bones
- Bones showing pathologies, particularly any which might be linked with TB or other lung diseases
- Bones from the hind-quarters of cattle

- C.1.9 It has already been noted that horse bones disappeared from the site in phase 2. This is probably as a result of the papal decree (contra the Catholic dietary laxity suggested above) forbidding the consumption of horse meat, a decree followed unusually dogmatically in Britain. This indicator, then, is not as strong as it might be elsewhere. The decrease in pig bones at this time might be of more significance, however, particularly as it was observed that most (if not all) of the bird bones recovered from the site were from domestic fowl (*Gallus gallus*) or geese (*Anser* sp.), both of which were considered *kosher* (permitted). The decrease in cattle bones on the site at this time may relate to the *terefah* (unpermitted) status of the hindquarters of these animals but it should be noted that the recording methods adopted for the assemblage preclude this kind of analysis.
- C.1.10 The excavators also uncovered a stone-lined cess-pit (1025) on the site dating to this period which contained high-quality ceramics. Comparing the contents of this cess-pit (NSP = 599) with the three phases which had the most material, it is possible to suggest that the material might fit with the pattern outlined above. The contexts contain a large majority of bird bones and a complete absence of pig bones. It was also noted that none of the specimens from these contexts exhibited any pathologies. Further work needs to take place examining the spatial patterning on the site, in particular in relation to the property boundaries on the site to see if this bird/pig divide carries through the other contexts or is limited to this feature.
- C.1.11 Elsewhere on the site, apart from the observations already made, there are also 13 cat bones in the assemblage, as well as two dog and two hare bones. It could be that these bones derive from furrier work but more detailed examination of the bones is needed into this possibility. The cat and dog bones, in particular, help to illustrate the complex taphonomic pathways of bones on medieval urban sites. As such, it may be more important that the overall picture from this phase of activity is skewed towards the pattern described above and away from those of the earlier phases, which are more typical of British urban medieval sites, than that it should conform precisely to the pattern. The cesspit, although amplifying these trends, is possibly the most helpful contribution to interpreting site occupation at the time as a sealed feature containing around a fifth of the assemblage.

Phase 4

- C.1.12 The trends observed in phase 3 could be said to reverting in phase 4 without altogether reverting to the earlier, more typical, pattern. The proportion of cattle specimens in the assemblage, in particular, recovers to its earlier levels of c 40%. This is primarily at the expense of birds but also of pigs, which continue to fall, to just 5% - a very low percentage for archaeological sites of this type.
- C.1.13 Phase 4 encapsulates the 13th to 14th centuries AD on the site and it was during this time (AD1279) that the site passed into Christian ownership. It is difficult, therefore, to know what to make of this material from a cultural point of view without more precise dating. The trends observed would argue in favour of much of it deriving from the pre-1275 occupation however.

Phases 5-9

- C.1.14 Phases 5-9 contain 430 specimens in total and follow much the same pattern as each other so will be discussed together here. Of most interest is the fact that the high proportion of bird remains first observed on the site in phase 3 continues. Phases 5, 7 and 8, in particular, all have assemblages which contain between 45% and 55% bird specimens – since the largest of these is phase 8 though, at just 36 identified specimens, little can be read into these figures. In fact, when summed, the combined NISP for these phases is 133 – less than any of the earlier phases individually.
- C.1.15 It is possible that some of the material might be residual or deposited, always a problem on urban sites, but even if not it would be unwise to read too much into so little.

Undated

- C.1.16 The undated fraction of the assemblage was the sixth largest by NISP (43) and seventh by NSP (131), accounting for just 2.58% of the total assemblage.

C.2 Fish remains

By Rebecca Nicholson

- C.2.1 For an urban site with medieval and post-medieval deposits, including cesspits, the fish assemblage recovered by hand and from the residues of sieved soil samples is particularly small, comprising less than 100 identifiable fragments. This is all the more surprising given that the bones which are present are in very good condition, with even a fish scales recovered. The remains recovered by hand and extracted from the residues of processed soil samples were quickly scanned for this assessment.
- C.2.2 The most notable feature of the assemblage is several cleithra and other bones from the back of the head and posterior part of the spine of extremely large ling (*Molva molva*) in Phase 6 cess pit fill 4067. The exclusive presence of these elements, together with cut marks to a post-temporal and to a cod (*Gadus morhua*) supracleithrum in 4061 from the same cess pit 4089 suggests these were dried fish – stockfish.
- C.2.3 From the sieved soil samples, several bones from eel (*Anguilla anguilla*), herring (*Clupea harengus*), flatfish and small gadid (Gadidae) including haddock (*Melanogrammus aeglefinus*) were recovered, as well as single elements from thornback ray (*Raja clavata*), pike (*Esox lucius*), and salmon or sea trout (*Salmo salar/trutta*).
- C.2.4 As a fish without scales, eels should have been avoided by any Jewish inhabitants (kosher fish including only those with fins and scales, following Leviticus 11:9); eel bones have been recovered from deposits assigned to Phase 2, possibly predating the Jewish occupation in St Aldates, and from a Phase 4, 13th-14th century, layer (10013) in Area 10, possibly contemporary with or a little later than the Jewish occupation of the area.

C.3 Marine shell

By Rebecca Nicholson

C.3.1 A total of 273 fragments of marine shell, weighing 3034g, was hand recovered from the excavations, with an additional 73g of shell extracted from sieved soil sample residues (Table 9). The material was rapidly scanned and appears to comprise exclusively valves of European flat oyster (*Ostrea edulis*) in variable condition and size, although lacking very large examples. Most contexts include between 1 and 3 valves.

C.3.2 Oyster shells are a common find in medieval and post-medieval assemblages, and the assemblage from St Aldates confirms that they must have been regularly eaten, although not in large amounts in the properties relating to this site. Only three fragments come from deposits provisionally phased as late Saxon (Phase 1) – from 1095, 1286 and 1293 – and ten contexts phased as early-late 11th century (Phase 2).

Context	No frags (excl. sieved)	Shell (weight in g)	Shell - sieving (weight in g)
0	13	164	
1003	3	35	
1006	15	94	
1007	36	311	
1010	1	24	
1014	1	12	
1015	1	21	
1020	2	19	
1022	11	47	
1029	1	3	
1030	1	12	
1031	1	12	
1033	1	3	
1034	1	28	
1035	5	60	
1040	3	15	
1041	1	26	
1042	3	25	
1050	2	13	
1060	1	53	
1061	2	21	
1063	6	97	
1065	2	81	
1066	3	15	
1069	9	60	
1077	6	81	
1082	3	10	
1088	1	3	
1090	1	44	
1094	1	9	
1095	2	36	
1097	6	162	

1104	2	6	
1116	2	18	
1122	9	48	
1138	1	11	
1139	1	30	
1165	1	17	
1170	1	2	
1174	2	60	
1180	2	35	
1181	7	32	
1212	1	29	
1217	4	84	
1218	3	5	
1224	2	28	
1226	1	61	
1229	3	27	
1231	1	22	
1232	1	10	
1248	2	6	
1274	7	16	
1278	3	24	
1286	1	4	
1290	1	33	
1293	1	5	
1301	1	45	
1306	2	22	
1326	2	6	
1333	0	0	6
1365	4	20	
1376	2	13	
1383	1	4	
1389	1	10	
1390	1	2	
3028	1	6	
3029	1	9	
3032	2	8	
3056	4	33	
3068	0	0	15
3069	3	20	
3071	1	7	
3933	1	18	
4013	1	18	
4028	1	32	
4044	1	48	6

4047	3	24	
4049	2	27	
10006	13	121	
10007	2	28	
10008	10	136	
10011	5	153	
10013	0	0	33
10019	2	10	18
10021	2	5	

Table 9: Catalogue of marine shell

C.4 Eggshell

By Rebecca Nicholson

C.4.1 A small quantity of avian eggshell, weighing 4g in total, was recovered from sample 15, Phase 3 cesspit fill 1080, and from sample 44 from Phase 3 pit fill 1214. Although further identification of eggshell is possible using scanning electron microscopy (Sidell 1993), it is very likely that these are the remains of domestic fowl (chicken) eggs.

C.5 Charred, mineralised and waterlogged plant remains

By John Giorgi

Introduction

C.5.1 Environmental bulk soil samples were systematically collected from late Saxon to early post-medieval features for the potential recovery of biological materials. The following report is mainly concerned with the assessment of charred, mineralized and 'waterlogged' plant remains from these samples and the information that this material may provide on human/economic activities at the site and the nature of the local environment in the vicinity of the sampled features. The presence of other biological remains was also recorded during the assessment for additional economic and environmental information. The earlier assessment of a 13th to 14th century pit fill sample taken during the archaeological evaluation at the site showed good preservation of organic material, including charred, waterlogged and mineralized plant, as well as insect remains (Meen and Hunter 2015).

Sampling, recovery and identification methods

C.5.2 Twenty-six environmental samples were processed, a subset of those collected on site from a range of features, from (cess)pit fills (ten samples), occupation deposits and dumps (five samples each), pit fill/leveling deposits and occupation deposits/dumps (two samples each) and single samples from a cellar fill and posthole. The majority (16) of the samples were from late 11th-12th century (Phase 3) features, with one sample from the late Saxon (Phase 1) period, four from early to late 11th-century (Phase 2) contexts, three from 13th to 14th-century (Phase 4) deposits, and two from mid-16th to mid-17th century (Phase 6) deposits.

- C.5.3 The volume of the 26 soil samples ranged from 9 to 40 litres, although most were at the upper end of this scale, 18 samples being greater than 20 litres. Virtually all the samples were processed for the recovery of charred and mineralized remains using a Siraf-style type flotation tank with mesh sizes of 0.25mm and 0.5mm for the recovery of the flot and residue respectively; the flots were dried along with the residues, which were sorted for biological and other archaeological materials. The sample from cellar fill 1333, along with one-litre sub-samples from occupation layers 4014, 10013 and cesspit fill 4061, was processed for the potentially recovery of 'waterlogged' plant remains by wash-over onto a 0.25mm mesh. These flots were subsequently kept wet to limit potential damage to any fragile organic material.
- C.5.4 The size of the 25 dry and four wet flots ranged from 11ml to c 1600ml, although most were large, over half being greater than 100ml and three measuring more than 1000ml; this necessitated sub-sampling (50%) of the two largest flots from pit fill 1101 and occupation deposit 10013, while some of the finer sieve fractions from the largest flots were also sub-sampled for the purpose of assessment.
- C.5.5 The flots were divided into fractions using a stack of sieves for ease of assessment and scanned using a stereo-binocular microscope with a magnification of up to x40. The presence and abundance of charred, mineralized and 'waterlogged' plant remains was recorded, along with the frequency of charcoal fragments larger and smaller than 2mm, the larger fragments being potentially identifiable. Quantities of other biological remains, insects (beetles, puparia), bone fragments and snails in the samples, were also noted. Item frequency of all environmental materials was scored using the following scale: + = <5 items; ++ = 5-25 items; +++ = 26-100 items; ++++ = 101-300 items; +++++ = >300 items. Recommendations for analysis was based on the size of the plant assemblages in each sample in terms of the number of identifiable items, with the following codes being used to define their potential: A = rich plant assemblages (containing more than 300 identifiable items); B = good assemblages (between 100 and 300 identifiable items); C = moderately good remains (between 50 and 100 identifiable items); D = poor assemblages containing less than 50 and usually less than ten items); and F (unproductive flots with no identifiable plant remains). Provisional identification of the charred, mineralized and 'waterlogged' botanical remains was carried out during assessment although without direct comparison to reference material and seed reference manuals. Nomenclature used for these identifications followed Stace (2005).

Results

- C.5.6 The flot assessment results for the individual samples are listed by phase in Table 10. This table shows the frequency of the different biological remains in the individual flots and comments on each assemblage, including provisional identifications of any botanical materials. Variable amounts of identifiable plant remains (consisting of a mix of charred, waterlogged and mineralized material) were present in all 26 samples; five produced rich (A) botanical assemblages, seven contained good (B) amounts of material, nine had moderate (C) sized plant assemblages, and five contained only small amounts (D) of botanical remains.

Charred plant remains

- C.5.7 The charred plant remains in all 26 of the processed samples consisted mainly of cereal grains and wild plant/weed seeds with smaller amounts of *Corylus avellana* (hazel) nut shell and occasional fragments of cereal chaff.
- C.5.8 Charred cereal grains were present in all 26 flots, with preservation being variable but generally good particularly in the larger assemblages; there were two very rich grain assemblages from occupation layer 3071 (Phase 2) and pit fill 1214 (Phase 3), with good amounts in another seven samples; from occupation layer/dump 3088 (Phase 1), dumps 3055, 3058 (Phase 2), pit fills 1035 and 10019 and occupation deposit 5027 (Phase 3), and pit fill 4044 (Phase 4). Moderate numbers of grains were recorded in eight and occasional to small amounts in nine samples.
- C.5.9 The identifiable grains consisted mainly of *Triticum* (wheat) and *Hordeum vulgare* (barley) in most of the samples, with the short squat rounded morphology of the well-preserved wheat grains most closely resembling free-threshing types of wheat, either hexaploid and/or tetraploid types. The well-preserved barley grains were hulled with twisted as well as straight grains showing the presence of six-row hulled barley. Much smaller numbers of *Secale cereale* (rye) and *Avena* (oat) grains were noted in nine and 15 samples respectively.
- C.5.10 Occasional charred cereal chaff was recorded in six samples consisting of a few free-threshing but very fragmented wheat rachides, possibly belonging to hexaploid wheat, plus traces of oat awn fragments; cereal rachis fragments including rye were also noted in an earlier evaluation sample from the site (Meen and Hunter 2015). A few charred culm node fragments in several samples may belong to cereals and/or wild grasses.
- C.5.11 Other charred plant remains consisted largely of wild plant/weed seeds in 20 samples with rich assemblages in two, from pit fill 1214 and occupation layer/rubbish deposit 4105 (Phase 3) and moderate amounts in pit fills 1129 and 10019 (Phase 3). The other 16 samples contained only occasional or small amounts of wild plant/weed seeds.
- C.5.12 These remains represent a wide range of species, many of which may be from arable weeds given their presence in cereal grain assemblages; well-represented potential cereal weeds included *Agrostemma githago* (corn cockle), *Bupleurum rotundifolium* (thorow-wax), *Anthemis cotula* (stinking chamomile), *Bromus* (brome) and mineralized seeds of *Lithospermum arvense* (corn gromwell). Other characteristic arable weeds included *Galium aparine* (bedstraw), *Fallopia convolvulus* (black bindweed) and *Valerianella dentata* (common corn salad). The wild plant/weed seeds, however, could also be indicative of the local environment around the sampled features, for example *Carex* (sedges), and *Eleocharis* (spike-rush), pointing to damp conditions or representing the residues of plants collected for use as building (flooring) materials. Other weeds, such as *Urtica dioica* (common nettle), found in nitrogen-rich soils, may be indicative of areas of refuse disposal.
- C.5.13 There was occasional evidence for the potential residues of other foodstuffs, with the presence of large legume (*Vicia/Lathyrus/Pisum*) seeds in some samples, possibly representing cultivated pulses. A few seeds of *Rubus* (brambles) and *Sambucus* (elder) in several samples may be the residues of gathered and consumed wild fruit or incidental finds from these plants growing close-by, while hazelnut shell fragments in 19

samples may represent the by-products of consumed foods with good amounts in dump 3058 (Phase 2) and occupation deposit 4105 (Phase 3).

Charcoal

C.5.14 Variable amounts of charcoal were present in all 26 samples in both flots and residues, including potentially identifiable fragments (>2mm) in large quantities in 17 samples. There were particularly rich charcoal assemblages (dominating the flots) in pit fills 1057, 1080 and 1101 (Phase 3), which included fragments up to 60mm in size. The charcoal included both rectilinear and round wood fragments with the presence of *Quercus* (oak) and non-oak species being noted.

'Waterlogged' plant remains

C.5.15 Un-charred or 'waterlogged' plant remains were present in 22 flots although 17 of these samples contained only occasional or very small numbers of seeds of mainly *Sambucus* and *Rubus*, which may be intrusive, although such seeds may survive for longer periods of time in the soil because of their robust seed coats. Moderate amounts of 'waterlogged' seeds were found in three samples; from dump deposit 1188, posthole fill 5034 and pit fill 10019 (all Phase 3).

C.5.16 However, two samples (both partially processed for 'waterlogged' remains) produced rich 'waterlogged' plant assemblages, from occupation deposit 10013 (Phase 4) and cesspit fill 4061 (Phase 6). There was good species diversity in both but particularly in 10013, consisting largely of fruit remains with numerous *Prunus* fruit stones, including *Prunus domestica* type (plum/bullace), *Prunus avium* type (cherry) and *Prunus spinosa* (sloe/blackthorn) and frequent seeds of *Vitis vinifera* (grape), *Ficus carica* (fig), *Malus/Pyrus* (apple/pear), elder and blackberry/raspberry, and occasional finds of *Morus* (mulberry) and possibly *Fragaria* (strawberry). Other potential economic plants included evidence for *Cannabis sativa* (hemp) in occupation deposit 10013, while some of the Apiaceae seeds may be from herbs and flavorings used in food.

C.5.17 There was a modest range of wild plant/weeds represented by the uncharred seeds, including frequent records for *Carex* and occasional seeds of *Chenopodium/Atriplex* (goosefoots/oraches) and *Stellaria media* (common chickweed). It was interesting to note the presence of seed testa fragments of *Agrostemma githago* (corn cockle) in the same subsample from occupation deposit 10013 as probable very fragmented cereal bran. Corn cockle is an arable weed often incidentally milled along with grain because of the difficulty of removing and separating this large arable weed seed during cereal processing. Very fragmented wood was also noted in the 'waterlogged' sub-samples while fragments of moss (Bryophyta) were present in occupation deposit 10013.

Mineralized plant remains

C.5.18 Mineralized plant remains were present in four samples consisting only of calcified weed seeds of *Lithospermum arvense* in two of these, from dump (3068) and occupation deposit 3071 (both Phase 2). The cesspit fill 4061 (Phase 6), however, produced a rich mineralized plant assemblage, while there were moderate amounts of calcified plant material in occupation layer 4014 (also Phase 6), with evidence in both the dry and the 'waterlogged' flots from these two samples. These remains consisted largely of grape, fig, blackberry/raspberry and elderberry seeds although it is often

difficult to distinguish the mineralized from the 'waterlogged' seeds of the smaller fruit seeds such as fig and elderberry without dissecting the remains. There were also the calcified seed remains of apple/pear, Apiaceae, *Carex* and Poaceae (grasses). Both samples also contained mineralized ribbed stem fragments, possibly the residues of flooring/stabling materials, as well as large amounts of mineralized (?cess) material/concretions. Small mineralized concretions were also noted in cesspit fill (1101) (Phase 3).

Other biological remains

C.5.19 Other biological materials included variable amounts of small mammal, fish and possibly bird bones (occasionally burnt) in all 26 flots, with ten fairly good assemblages in pit fills 1035, 1057, 1080, 1101, 1129, and 10019 (Phase 3), occupation deposit 10013 and pit fill 4044 (Phase 4), and occupation deposit 4014 and cesspit fill 4061 (Phase 6). Very occasional snails were also noted in four samples.

C.5.20 Insect remains were present in six samples and mainly in the 'waterlogged' sub-samples consisting largely of puparia of Diptera (flies) with a rich assemblage in occupation deposit 10013 (Phase 4) and moderate numbers of mineralized examples in cesspit fill 4061 (Phase 6). Fragments of beetle (Coleoptera) were noted in all four waterlogged flots but only in occasional or small amounts in cellar fill 1333 (Phase 4), occupation deposit 4014 and cesspit fill 4061 (both Phase 6) although there were good amounts of beetle remains, both in the dry and wet flots, from occupation deposit 10013 (Phase 4). Abundant remains of fly puparia and beetle fragments were found in a 13th to 14th-century pit fill sample from an earlier evaluation at the site (Meen and Hunter 2015).

Results by phase

Phase 1: Late Saxon

C.5.21 Just one sample was recovered from this phase, from an occupation layer/dump (3088), and produced a good charred plant assemblage consisting largely of well-preserved cereal grain and a small number of charred weed seeds and traces of hazelnut shell. The sample also contained a good number of identifiable charcoal fragments. There were few other biological remains in the flot except for a small amount of fragmented bone.

Phase 2: Early to late 11th century

C.5.22 The four samples from Phase 2, from dump deposits 3055, 3058, 3068 and occupation deposit 3071, produced broadly similar charred plant remains containing mainly well-preserved cereal grains, including a particularly rich assemblage in occupation layer 3071, together with small or modest numbers of charred wild plant/weed seeds in all four samples and variable amounts of charred hazelnut shell especially in dump 3058. All four samples had large amounts of identifiable charcoal fragments. Other environmental remains in these flots included occasional or small amounts of fragmented bone.

Phase 3: Late 11th to 12th century

- C.5.23 Sixteen of the 26 samples were from this phase, from eight pit fills, two dumps and occupation deposits, a posthole and three layers/pit fills, and produced variable amounts of mainly charred plant material.
- C.5.24 The two richest charred plant assemblages were from pit fill 1214, which contained very large amounts of grains and weed seeds, and occupation layer/rubbish dump 4105, which produced a very rich weed seed assemblage but few grains. Good sized charred plant assemblages were found in pit fill 1035, 10019 and occupation deposit 5027, each containing c 100 grains and small to moderate numbers of weed seeds.
- C.5.25 More modest amounts of charred plant remains were found in eight samples from layers 1103, 1158, pit fills 1257, 1279, dumps 1181 and 1188, occupation deposit 5031, and posthole fill 5034, which contained mainly grain and smaller amounts of weed seeds, although pit fill 1279 produced a good number of charred weed seeds. The other three samples from pit fills 1057, 1080 and 1101 only contained occasional charred plant remains.
- C.5.26 Uncharred seeds were recorded in 15 samples but only in low numbers, except for a fairly good assemblage in pit fill 10019, which included fig seeds, and modest amounts in dump 1188 and posthole fill 5034.
- C.5.27 All the Phase 3 samples produced large amounts of charcoal with large quantities of identifiable fragments in virtually all the flots, particularly in the three fills (1057, 1080, 1101) of a cesspit, the large flots (400ml to 1600ml) from which consisted virtually entirely of charcoal including numerous very large fragments up to 60mm in size.
- C.5.28 The only other significant biological remains in the flots were variable amounts of small mammal and fish bone in all 16 samples, with good amounts in five pit fills 1035, 1080, 1101, 1129 and 10019.

Phase 4: 13th to 14th century

- C.5.29 The biological remains from three samples were assessed from this phase: a 'waterlogged' sample from a cellar fill 1333, two dry flots from a pit fill 4044, and occupation deposit 10013, with a subsample from the last also being processed for 'waterlogged' remains.
- C.5.30 There was a rich 'waterlogged' plant assemblage in occupation deposit 10013 consisting largely of fruit stones and fruit seeds, plus the remains of other potential economic plants (hemp) and a few wild plant/weed seeds. Cereal bran was also noted in the waterlogged subsample from this context. A good charred plant assemblage was present in pit fill 4044, consisting mainly of fairly well-preserved charred grain and small numbers of wild plant/weed seeds. The wet flot from the cellar fill 1333 produced only a small number of uncharred seeds and traces of charred grain.
- C.5.31 Other environmental remains in these three flots included variable amounts of small mammal and fish bone, while there was a good insect assemblage consisting of very large amounts of puparia and good numbers of beetle fragments in occupation deposit 10013. The cellar fill (1333) sample only produced small amounts of beetle fragments and occasional puparia.

Phase 6: Mid-16th to mid-17th century

C.5.32 There were two samples from Phase 6; from an occupation layer (4014) and a cesspit fill (4061), with one litre sub-samples from each also processed for 'waterlogged' remains

C.5.33 Cesspit fill 4061 produced a rich 'waterlogged' and mineralized plant assemblage consisting largely of fruit seeds, while occupation layer 4014 contained only a modest sized botanical assemblage also consisting mainly of mineralized and waterlogged fruit remains. Good amounts of small mammal and fish bone were present in both samples, while there were small to modest numbers of mineralized puparia and occasional to small numbers of beetle fragments in the two samples. There were also large amounts of mineralized concretions in both deposits.

Table 10: Environmental samples. Flot assessment results by phase

Phase	sample	context	feature	proc. soil vol (l)	flot vol (ml)	charcoal >/<2mm	chd grain	chd chaff	chd seeds	chd HNS	min seeds	unchd seeds	bone	insect	moll	botanical potential	comments
1	3007	3088	Occupation layer/dump	40	205	+++++/++++	++++		++	+			++		+	B	Good nos (c 100) fairly well-preserved grains mainly <i>Triticum aestivum</i> type & <i>Hordeum vulgare</i> (6x hulled), <i>Secale cereale</i> grain in residue; small nos chd weed seeds (<i>Agrostemma githago</i> , <i>Bromus</i> , Poaceae (large)); occ chd <i>Corylus avellana</i> nut shell fragments; good nos pot id'ble charcoal (rectilinear occasional small roundwood including non- <i>Quercus</i>) fragments (>10mm in residue); small nos small bone fagments including fish bone; occ snails; 25% flot <1mm scanned
2	3000	3055	Dump deposit	38	36	++++/++++	++++		++	+		+	+			B	Good nos (c 100) well preserved grains mainly <i>Hordeum vulgare</i> (hulled) & <i>Triticum aestivum</i> type, occ <i>Secale cereale</i> & <i>Avena</i> ; small nos chd weed seeds (<i>Ranunculus</i> , <i>Agrostemma githago</i> , <i>Plantago lanceolata</i> , <i>Rumex</i> , <i>Eleocharis</i> , <i>Bromus</i> , Poaceae (large)); occasional <i>Corylus avellana</i> nut shell fragments; good nos pot id'ble charcoal (rectilinear <i>Quercus</i> & non- <i>Quercus</i>) fragments (>4mm in residue); occ uncharred seeds (<i>Chenopodium</i>); small nos small bone fagments including small mammal & fish bone; >sediment crumb
2	3002	3058	Organic dump deposit	40	105	+++++/++++	++++		++	+++			++		+	B	Good nos (c 100) very well-preserved grains mainly <i>Triticum aestivum</i> type; also <i>Hordeum vulgare</i> (hulled); modest nos chd weed seeds (<i>Fallopia convolvulus</i> , <i>Urtica dioica</i> , <i>Medicago/Trifolium</i> , <i>Valerianella dentata</i> , <i>Medicago/Trifolium</i> , <i>Carex</i> , <i>Bromus</i> , Poaceae (large)); good nos chd <i>Corylus avellana</i> nut shell fragments; good nos pot id'ble charcoal (rectilinear occasional small roundwood including <i>Quercus</i>) fragments (>10mm in residue); small nos small bone fagments including small mammal & fish bone; occ snails
2	3003	3068	Dump deposit	40	220	+++++/++++	+++		++	++	+		++			C	Mod nos (c 50) grains (<i>Hordeum vulgare</i> (hulled) , <i>Triticum aestivum</i> type, <i>Triticum</i> , <i>Secale cereale</i>); small nos chd weed seeds (<i>Vicia/Lathyrus/Pisum</i> (large), <i>Anthemis cotula</i> , <i>Medicago/Trifolium</i> , <i>Carex</i> , <i>Bromus</i>) & <i>Corylus avellana</i> nut shell fragments; occ mineralized seeds (<i>Lithospermum arvense</i>); >nos pot id'ble charcoal (round wood and rectilinear including non- <i>Quercus</i> fragments (also >10mm in residue); small nos small mammal and fish bone fragments; coal/clinker; mod amount fine sediment crumb; 50% flot <2mm scanned
2	3005	3071	Occupation layer	40	655	+++++/++++	+++++		++	+	+	+	+++			A	Rich (100s) well-preserved grains mainly <i>Triticum aestivum</i> type & <i>Hordeum vulgare</i> (hulled), also <i>Secale cereale</i> , <i>Avena</i> ; occ sprouted grains; small nos chd weed seeds (<i>Agrostemma githago</i> , <i>Vicia/Lathyrus</i> , <i>Bromus</i>); occ chd <i>Corylus avellana</i> nut shell fragments; > nos pot id'ble charcoal (rectilinear & roundwood including <i>Quercus</i> and non- <i>Quercus</i>) fragments (>10mm in residue); occ min seeds (<i>Lithospermum arvense</i>) & uncharred seeds (<i>Raphanus raphanistrum</i>); small nos small mammal

																	& fish bone fragments; occ coal/clinker; mod amount fine sediment crumb; 50% flot <2mm scanned; SUB-SAMPLE
3	4	1035	Pit [1038] fil	40		+++++/++++	++++		++			++	+++				B Good nos (>100) moderately well- preserved grains mainly <i>Hordeum vulgare</i> (hulled) & <i>Triticum aestivum</i> type, occ. cf <i>Avena</i> ; mod nos (20-30) chd weed seeds (<i>Agrostemma githago</i> , <i>Polygonum aviculare</i> , <i>Rumex</i> , <i>Atriplex</i> , <i>Vicia/Lathyrus/Pisum</i> (small), <i>Sambucus</i> , <i>Carex</i> , <i>Bromus</i> , <i>Poaceae</i> (small)); good nos pot id'ble charcoal (rectilinear & round wood) fragments (>10mm in residue); small nos uncharred seeds (<i>Sambucus</i>); good nos small bone fragments (occ burnt) including small mammal, fish; >sediment crumb; 50% flot <1mm scanned
3	12	1057	Pit fill (cesspit)	25	400	+++++/++++	+		+	+		+	+++				D Virtually all charcoal (>nos pot id'ble fragments (also >10mm in residue) including <i>Quercus</i> & non- <i>Quercus</i> ; occ chd grains (<i>Hordeum vulgare</i> (hulled), cf <i>Triticum</i>) chd seeds (<i>Vicia/Lathyrus/Pisum</i> (large)) & <i>Corylus avellana</i> shell fragments; occ.uncharred seeds (<i>Rubus</i> , <i>Sambucus</i>); mod nos small mammal & fish bone; 50% flot <2mm scanned
3	15	1080	Pit fill (cesspit)	32	1100	+++++/++++	++			++		+	++++				D Virtually all charcoal (>nos pot id'ble fragments (also 50+ fragments >10mm-50mm in residue); occ chd grains (<i>Hordeum vulgare</i> (hulled), <i>Triticum aestivum</i> , cf. <i>Secale cereale</i>); occ chd <i>Corylus avellana</i> shell fragments, occ.uncharred seeds (<i>Rubus</i>); good nos small mammal & fish bone (occ burnt); 50% flot 2->4mm scanned; 25%<2mm scanned
3	19	1101	Pit fill (cesspit)	40	1600	+++++/++++	+	+		+			++++				D Virtually all charcoal (>nos pot id'ble fragments (<i>Quercus</i> & non- <i>Quercus</i>) (also 100s of very large charcoal fragments (>10mm-60mm+) in residue); occ chd grains (cf <i>Triticum aestivum</i> type), free-threshing wheat rachis, culm nodes and <i>Corylus avellana</i> shell fragments; good nos small mammal & fish bone; small mineralized concretions; 50% flot assessed; 50% 2-<4mm scanned; 25% 1-<2mm scanned; 5%<1mm scanned
3	24	1103	Layer (pitfill or levelling)	13	42	+++++/++++	+++		+	+		++	+				C/D Mod nos (c 30) grains (not >preservation) (<i>Hordeum vulgare</i> (6x hulled), <i>Triticum aestivum</i> type, <i>Triticum</i>); very occ chd weed seeds (<i>Poaceae</i> (large)) & <i>Corylus avellana</i> nut shell fragments; mod nos pot id'ble charcoal (rectilinear including ? <i>Quercus</i> fragments (>10mm in residue); occ uncharred seeds (<i>Sambucus</i>); occ small mammal bone fragments; >sediment crumb
3	29	1129	Pit [1279] fill	16	135	+++++/++++	+++		+++	+		++	+++				C Mod nos (c 20-30) grains (<i>Hordeum vulgare</i> (hulled), <i>Triticum aestivum</i> type, <i>Avena</i>); fairly good nos (30-40) chd weed seeds (especially <i>Carex</i> & <i>Poaceae</i> (small), also <i>Bupleurum rotundifolium</i> , <i>Chenopodium</i> , <i>Medicago/Trifolium</i> , <i>Bromus</i> , <i>Lolium</i> , <i>Vicia/Lathyrus</i>) & occ <i>Corylus avellana</i> nut shell fragments; occ chd culm nodes & ribbed stem fragments; good nos pot id'ble charcoal (rectilinear including <i>Quercus</i>) fragments (>10mm in residue); small nos uncharred seeds (<i>Sambucus</i> , <i>Chenopodium</i>); good nos bone fragments including small mammal & fish bone; >fine sediment crumb

3	36	1158	Layer (pitfill or levelling)	40	59	+++++/++++	+++		+	++		+	++			C/D	Mod nos (c 30-40) grains (not >preservation) (<i>Hordeum vulgare</i> (hulled), <i>Triticum aestivum</i> type, <i>Triticum</i> , <i>Avena</i>); very occ chd weed seeds (Poaceae (large), small rounded legumes) & small amounts of <i>Corylus avellana</i> nut shell fragments; mod good nos pot id'ble charcoal (rectilinear including ? <i>Quercus</i> & non- <i>Quercus</i>) fragments (>10mm in residue); occ uncharred seeds (<i>Sambucus</i>); small amounts of bone fragments including small mammal & fish bone; > fine sediment crumb
3	41	1181	Dump deposit	38	28	++++/++++	+++		+	++		+	++			C	Mod nos (c 50) fairly well-preserved grains (<i>Hordeum vulgare</i> (6x hulled), <i>Triticum aestivum</i> type, <i>Triticum</i> , <i>Avena</i>); occ chd weed seeds (<i>Eleocharis</i> , Poaceae (large)) & <i>Corylus avellana</i> fragments; mod nos pot id'ble charcoal (rectilinear including <i>Quercus</i> & non- <i>Quercus</i>) fragments (>10mm in residue); occ uncharred seeds (<i>Sambucus</i>); mod nos small bone fragments including small mammal & fish; >sediment crumb
3	42	1188	Dump deposit	18	89	+++++/++++	+++		++	++		+++	+			D	Mod nos (c 30) grains (not >preservation) (<i>Hordeum vulgare</i> (hulled), cf <i>Triticum aestivum</i> type, <i>Triticum</i> , <i>Avena</i>); occ chd weed seeds (<i>Vicia/Lathyrus</i> (large), small round legume seeds, <i>Rumex</i>) & <i>Corylus avellana</i> nut shell fragments; good nos pot id'ble charcoal (rectilinear including <i>Quercus</i>) fragments (>10mm in residue); mod nos uncharred seeds (<i>Sambucus</i> , <i>Carex</i> , <i>Eleocharis</i>); occ small mammal/bird, fish bone fragments
3	44	1214	Pit fill	9	135	+++++/++++	+++++	+	+++++	+		+	+			A	Very rich grains (>100) poorly preserved mainly <i>Triticum aestivum</i> type & <i>Hordeum vulgare</i> (hulled), <i>Avena</i> ; very rich chd weed seeds (especially <i>Lithospermum arvense</i> (min) & <i>Anthemis cotula</i> (including seed heads); also <i>Ranunculus</i> , <i>Polygonum aviculare</i> , <i>Rumex</i> , <i>Chenopodium</i> , <i>Vicia/Lathyrus</i> (large), <i>Vicia/Lathyrus/Pisum</i> (small), <i>Carex</i>); occ chd <i>Corylus avellana</i> nut shell fragments; occ free-threshing wheat rachis & culm node fragments; good nos pot id'ble charcoal (rectilinear & round wood including non- <i>Quercus</i>) fragments (>10mm in residue); occ uncharred seeds (<i>Sambucus</i>); occ bone fragments (occ burnt) including fish; >sediment crumb; 25% flot <2mm scanned
3	56	1257	Pit fill	12	155	+++++/++++	++	+	++	++		++	+	+		C/D	Small nos (c 20) grains (<i>Hordeum vulgare</i> (6x hulled), <i>Triticum aestivum</i> type, <i>Triticum</i> , cf <i>Avena</i>) & chd weed seeds (20-30) (<i>Rumex</i> , <i>Rubus</i> , <i>Medicago/Trifolium</i> , <i>Vicia/Lathyrus</i> (large), <i>Carex</i> , <i>Eleocharis</i> , Poaceae (large)) & <i>Corylus avellana</i> nut shell fragments; traces chaff (<i>Avena</i> awn, culm nodes); good nos pot id'ble charcoal (rectilinear, occ roundwood including non- <i>Quercus</i>) fragments (>10mm in residue); small nos uncharred seeds (<i>Sambucus</i> , <i>Potentilla</i> , <i>Carex</i> , <i>Eleocharis</i>); occ small mammal & fish bone fragments; occ puparia; some fine sediment crumb
3	4010	4105	Occupation layer/rubbish dump	20	150	+++++/++++	++		+++++	+++		+	++			A	Small nos (c 20) grains (<i>Hordeum vulgare</i> , <i>Triticum aestivum</i> type, <i>Avena</i>) & rich chd weed seeds (100s) (especially <i>Bupleurum rotundifolium</i> , <i>Carex</i> , also <i>Agrostemma githago</i> , <i>Chenopodium</i> , <i>Fallopia convolvulus</i> , <i>Ranunculus</i> , <i>Medicago/Trifolium</i> , <i>Centaurea</i> , <i>Plantago lanceolata</i> , <i>Eleocharis</i> , <i>Euphrasia/Odontites</i> , <i>Bromus</i> , Poaceae (large,

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Figure 1: Site location

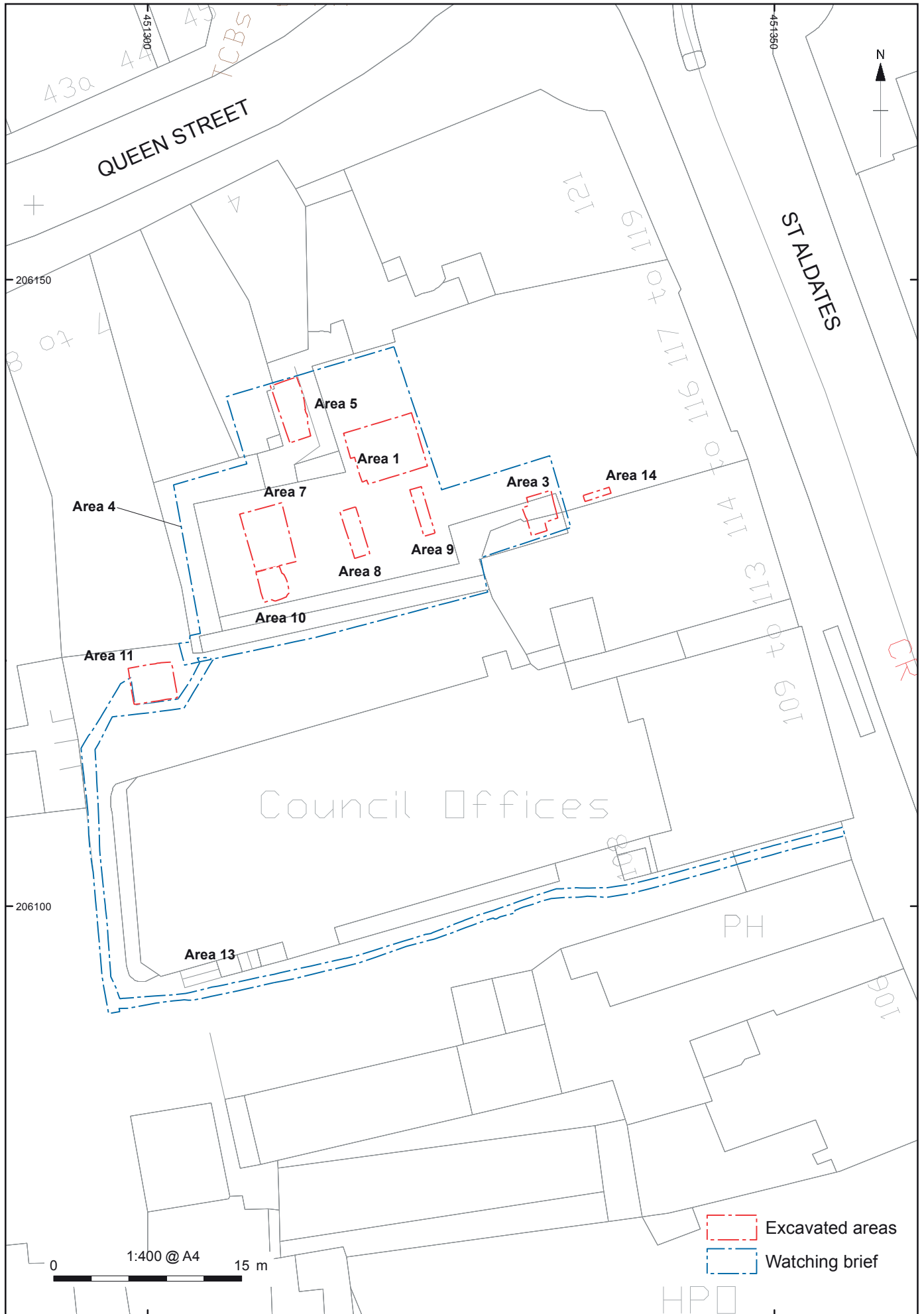


Figure 2: Trench location

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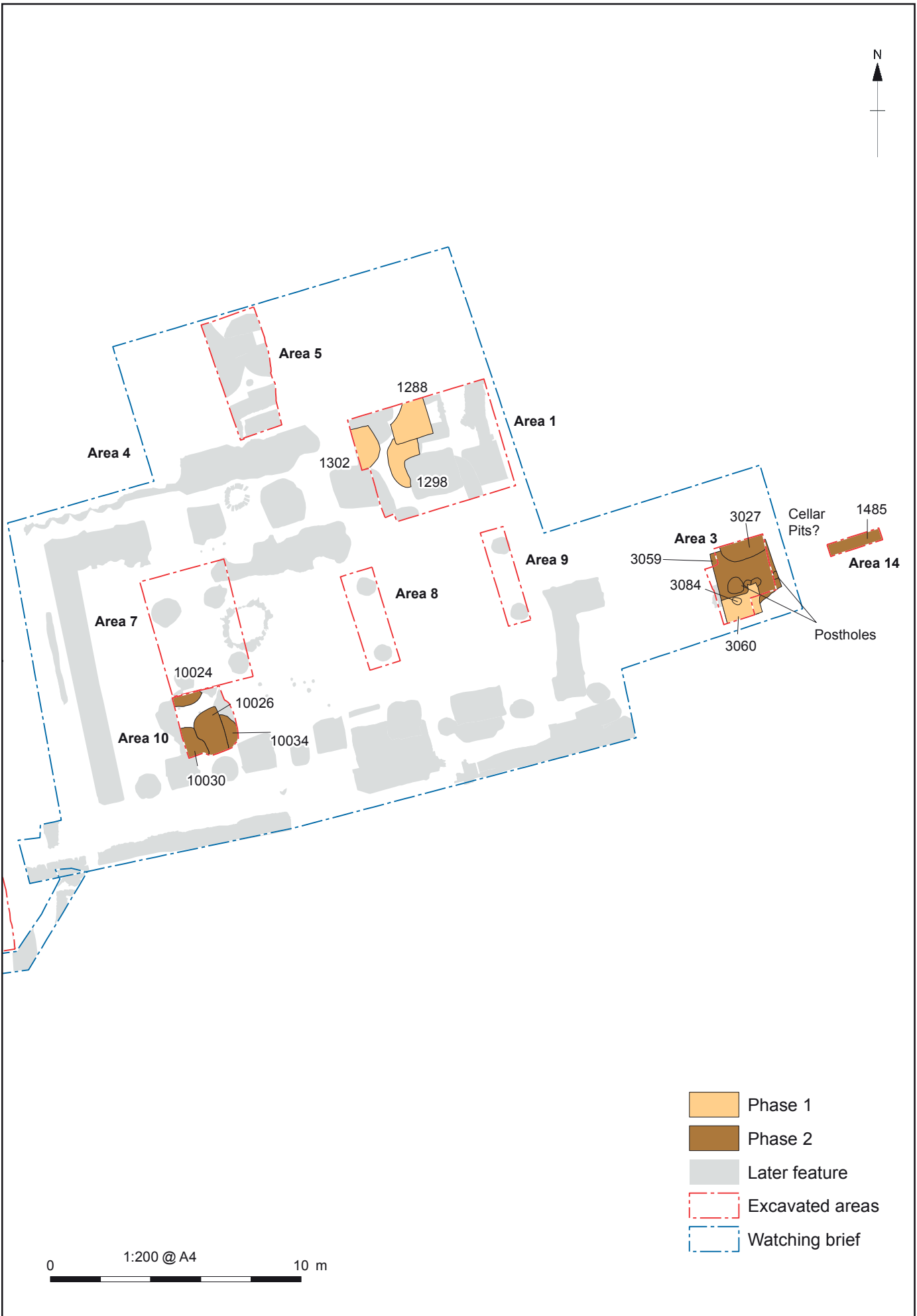


Figure 3: Phases 1 and 2

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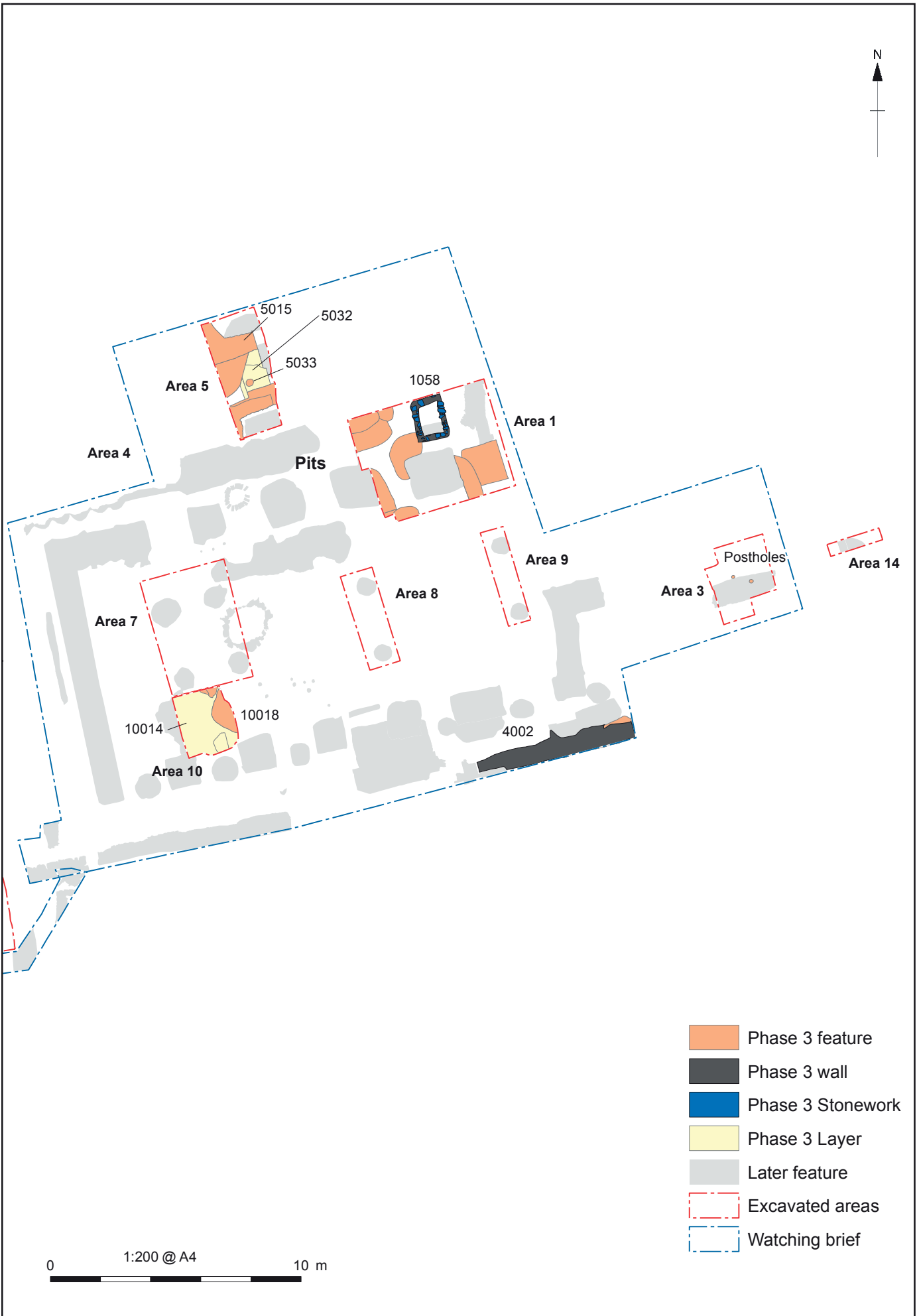


Figure 4: Phase 3

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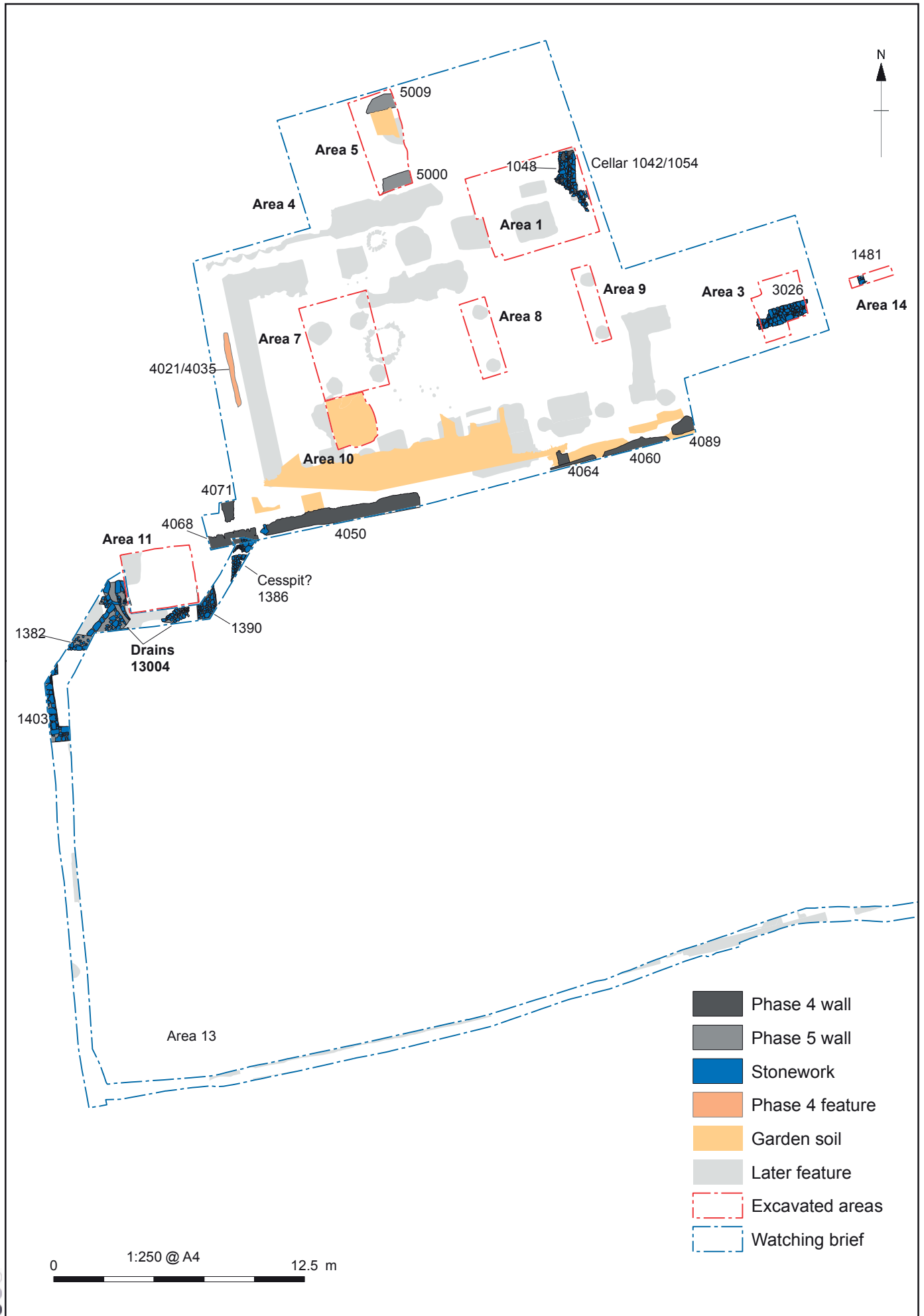


Figure 5: Phases 4 and 5

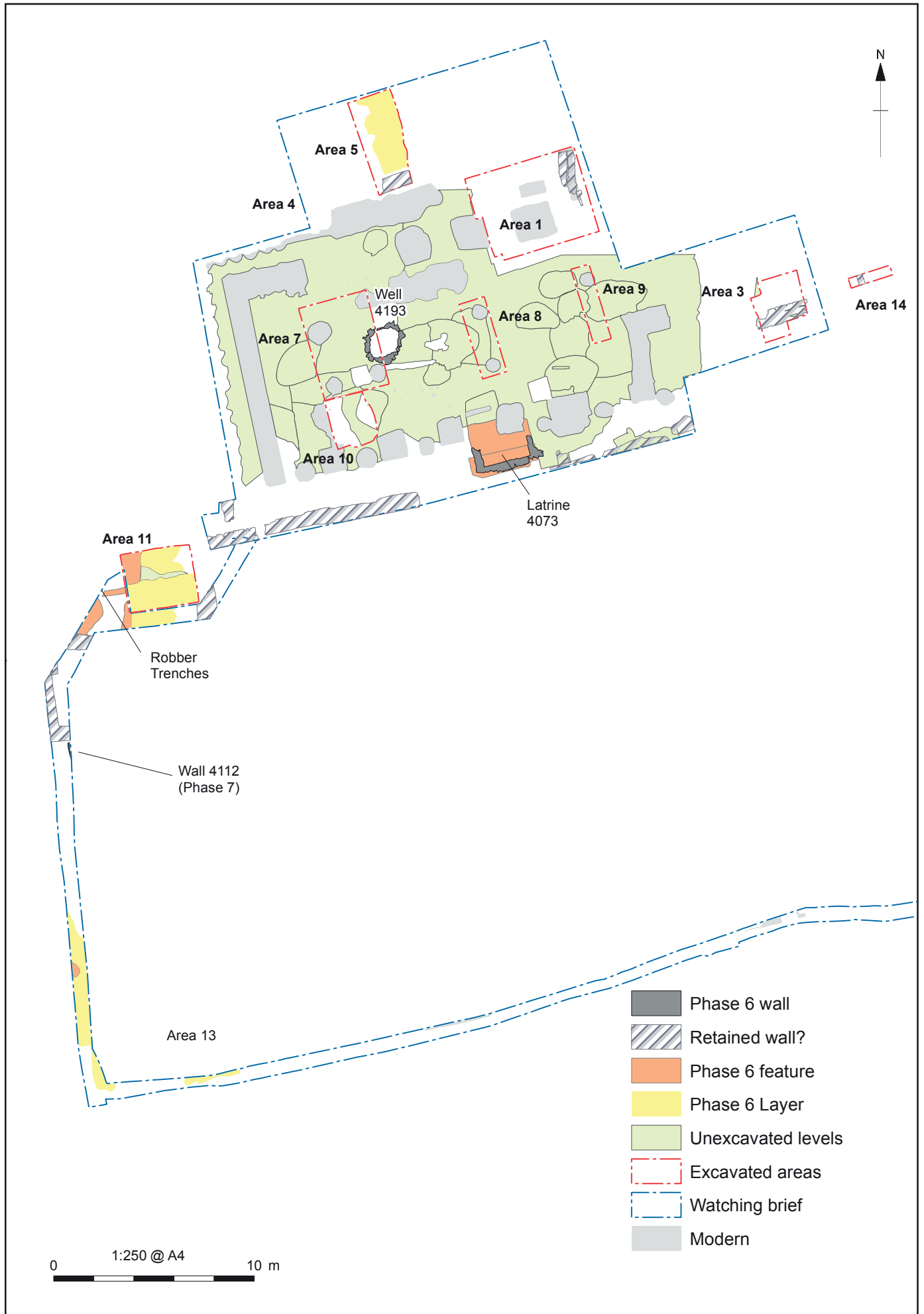


Figure 6: Phases 6 and 7

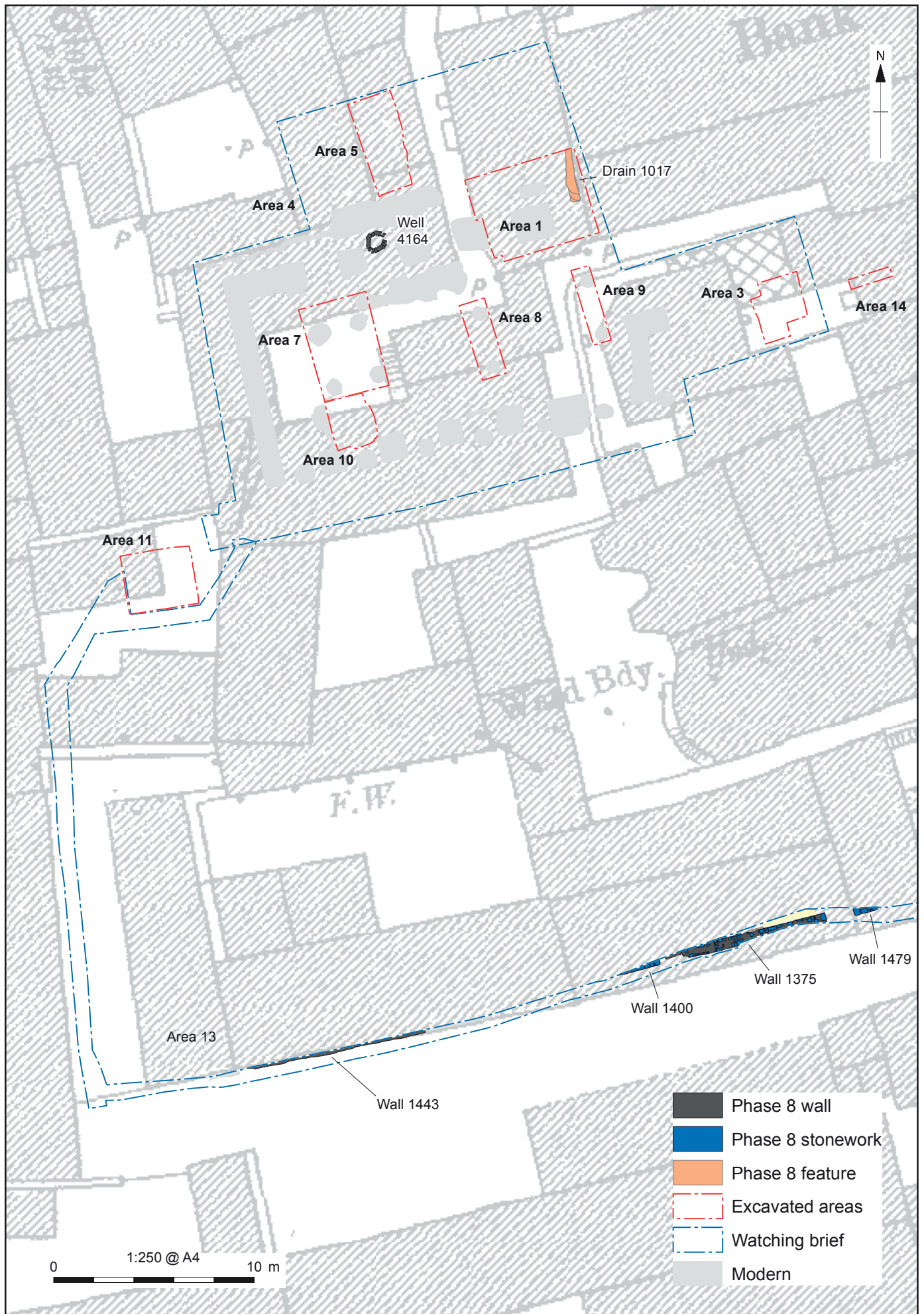


Figure 7: Phase 8 (with the Ordnance Survey map of 1876)



Figure 8: Cellar pit 3059 in Area 3, Phase 2, looking SE



Figure 9: Area 5, showing Phase 3 floors with Phase 5 wall 5009, looking NW



Figure 10: Area 1 under excavation showing Phase 3 latrine 1058 within Phase 4 cellar walls 1042/1054, looking SW



Figure 11: Southern edge side of Area 4 showing Phase 4 boundary wall 4050, looking NE



Figure 12: Area 4 after removal of basement slab showing unexcavated levels, Phase 6 stone-lined latrine 4073, looking SW



Figure 13: Some of the many finds from the site



Figure 14: A complete ceramic jug

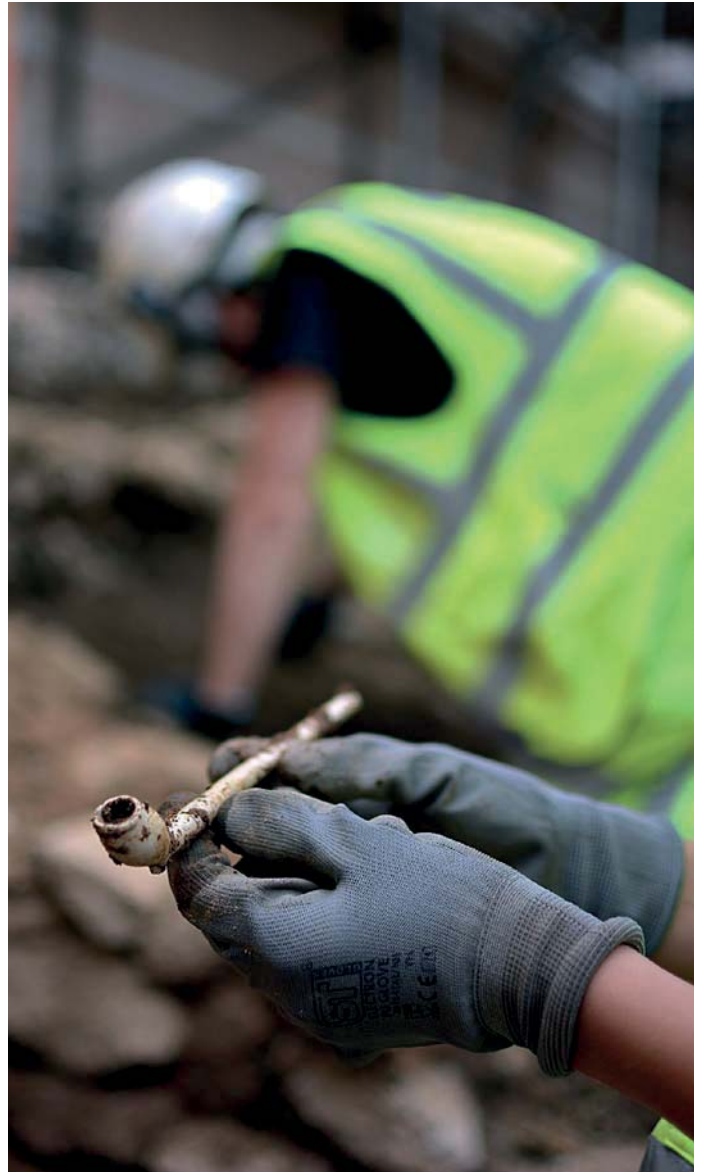


Figure 15: A complete clay pipe



**Head Office/Registered Office/
OA South**

Janus House
Osney Mead
Oxford OX2 0ES

t: +44 (0) 1865 263 800
f: +44 (0) 1865 793 496
e: info@oxfordarchaeology.com
w: <http://oxfordarchaeology.com>

OA North

Mill 3
Moor Lane
Lancaster LA1 1QD

t: +44 (0) 1524 541 000
f: +44 (0) 1524 848 606
e: [oanorth@oxfordarchaeology.com](mailto: oanorth@oxfordarchaeology.com)
w: <http://oxfordarchaeology.com>

OA East

15 Trafalgar Way
Bar Hill
Cambridgeshire
CB23 8SQ

t: +44 (0) 1223 850500
e: [oaeast@oxfordarchaeology.com](mailto: oaeast@oxfordarchaeology.com)
w: <http://oxfordarchaeology.com>



Director: Gill Hey, BA PhD FSA MCifA
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