Chester Northgate Redevelopment: Phase 1 Post-Excavation Assessment Report

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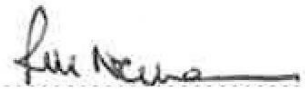
Signature:	

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Chester Northgate Redevelopment: Phase 1

Post-Excavation Assessment Report

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Summary

In 2019, Oxford Archaeology (OA) North was commissioned by Vinci Construction UK Ltd to undertake a programme of archaeological mitigation in respect of the Chester Northgate scheme. This is a mix of retail, residential and leisure development on a large site in the heart of the historic city centre, bounded by Watergate Street and Northgate Street, two of the city's principal historic thoroughfares, on the south and east, and by Hunter Street and St Martin's Way, to the north and west (NGR centred on SJ 40367 66480).

Proposals for the redevelopment of the Northgate area had been under consideration for many years but work on developing the adopted scheme began in 2014, with the plans undergoing a series of revisions prior to the commencement of construction works in 2020. The scheme was divided into two main construction phases, with work commencing on Phase 1, between Hunter Street and Princess Street, in an area wholly within the Roman legionary fortress. One of the key elements of the scheme was to limit the amount of disturbance. of the Roman remains in particular, the brief providing for a maximum of 3% disturbance. Careful and early detailed design limited the disturbance to a planned maximum of 3.91%, and, in the event, disturbance of only 2.4% of the significant deposits in Zones 1 and 2 of the Phase 1 area was achieved. Detailed plans for Phase 2 of the scheme are still under development.

This report presents the results of a post-excavation assessment of the data recovered from investigations to mitigate the impact of Phase 1 on Northgate's buried archaeology. In view of the status of the site, which lay wholly within Chester's legally-protected Area of Archaeological Importance (AAI), the key mitigation strategy adopted was one of *in situ* preservation. In the limited areas where disturbance was unavoidable, strategies of archaeological excavation, strip-and-record, and watching brief were adopted, the response in any particular area being dependent on the nature of the proposed below-ground construction works, which included the excavation of pile caps, lift pits and service runs, and the stripping/breaking out of modern topsoil/overburden, as well as the significance and level of preservation of the archaeological deposits affected. The fieldwork was undertaken on the Phase 1 redevelopment between 3rd February 2020 and 28th January 2021, commencing with the service-diversion works.

In addition to Phase 1 of the Northgate site, this assessment also encompasses archaeological monitoring carried out during construction of two 'off-site' features associated with the wider Northgate development. These were a drain to remove surface water from the site, by means of a tunnel to the River Dee (from SJ 40249 66479 to SJ 40489 65629), and two electricity-cable routes, both extending from the main redevelopment site at SJ 40249 66479 down St Martin's Way and Nicholas Street, with one extending to the west along Grey Friars (SJ 40209 66059), whilst the second extended to the east along Weaver Street (SJ 40371 66144).

Assessment of the stratigraphic data from the Phase 1 area has identified, in addition to natural geological deposits, several phases of human activity, from the immediate pre-Roman period to the twentieth century. The earliest deposits (Period 1) comprised a few patchy buried soils, pre-dating the establishment of the Roman legionary fortress in *c* AD 75, and a single probable tree throw; no evidence for prehistoric activity was recorded. Remains of the fortress were encountered in most of the areas investigated, including deposits dating to the

late first/second century AD (Period 2), remains associated with the later phases of occupation (Period 3), dated to the third-fourth century, and with the abandonment/dereliction of the fortress at the end of the Roman period (Period 4).

The archaeological works extended across three *insulae* in the fortress's central range, one containing barrack blocks, another occupied by a building, or building complex, of uncertain purpose (possibly a stores/workshop complex), and the third by a huge courtyard building, the function of which is also unclear. Elements of several of the barracks, including (in one of the structures) the centurion's quarters, furnished with plastered walls, were recorded, together with small fragments of buildings and associated deposits in the other two *insulae*.

Only a few features could be assigned to the post-Roman period, direct evidence for occupation being limited to a few pits and other cut features, the early medieval, later medieval and early post-medieval periods being characterised, over much of the site, by thick accumulations of dark soil. This is consistent with the earliest maps of Chester, which suggest that, away from the main street frontages, much of the Northgate area remained open as late as the nineteenth century. Archaeological evidence for nineteenth-century occupation was limited to a few poorly preserved walls and associated deposits (including part of a cellar on Princess Street), and the remains of Victorian buildings that had fronted the adjacent streets, which had been cleared during the later twentieth century.

In addition to the stratigraphic data, this post-excavation assessment, encompasses the associated finds and palaeoenvironmental assemblages. It also highlights the significance of these datasets, in terms of local, regional, and national research frameworks, presents an updated series of research aims and objectives, and sets out a methodology and resource requirements for post-excavation analysis and publication of the most academically important data, as well as the successful mitigation methodology in limiting the archaeological disturbance to less than 3%.

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For OA North, the project was managed by Paul Dunn and the fieldwork was directed by Bryan Antoni, Ian Smith, Helen Stocks, and Anne Templeton, with assistance from Lauren Basnett, Charlotte Brunt, Grahame Botham, Steve Clarke, Zoe Clarke, Faye Corbett, Megan Daniels, Selina Dean, David Eastman, Katie Fox, Kelly Griffiths, Alice Hayes, Robert Howarth, Joanne Instone-Brewer, Ashley Joynes, Patrick Lambert, Timothy Lewis, Harlie Mason, George Pearson, Jane Roberts, Aurelian Rusu, George Sellwood-Richards, Alicia Senelle, Edwin Victorine Jr, and Holly Wright.

The assessment report was written by John Zant, illustrated by Mark Tidmarsh, and edited by Rachel Newman. Specialist assessments were undertaken by the following OA personnel: Karen Barker (Roman wall plaster); Edward Biddulph (samian ware); Denise Druce (charred plant remains and charcoal); Neil Hall (metalworking residues); Rebecca Nicholson (fish bone); Ian Smith (animal bone and marine mollusc shell); and John Zant (coins). Assessment of the other Roman-period pottery, and of the post-Roman pottery, metalwork, and all other artefacts, was undertaken by Ruth Leary and Christine Howard-Davis, formerly OA North's Finds Manager, both of whom are highly experienced freelance specialists. Processing, storage, and overall management of the finds was undertake for OA North by Karen Barker, who also provided input to the assessment with regard to recommendations for specialist conservation of sensitive artefactual materials and archiving.

1 INTRODUCTION

1.1 Background

1.1.1 In 2019, Oxford Archaeology (OA) North was commissioned by Vinci Construction UK Ltd to undertake a programme of archaeological mitigation in respect of the Chester Northgate scheme, a mix of retail, residential and leisure development in the heart of the historic city centre (NGR: SJ 40312 66457; Fig 1). Within this area, all buried archaeological remains are legally protected as part of Chester's Area of Archaeological Importance (*Section 1.2.1*).

1.1.2 Proposals for the redevelopment of the Northgate area had been under consideration for many years, though the precise nature of these evolved considerably over time. To inform the various proposals, the site had, prior to the development of the present scheme (*Section 1.1.4*), been the subject of numerous small-scale archaeological investigations, summarised in the site-wide archaeological desk-based assessment prepared for the current scheme (OA North 2016a). A Brief and Specification for archaeological mitigation works, prepared in 1997 by the former Chester City Archaeologist in respect of an earlier development proposal (Morris 1997), was later substantially revised, and was presented as an annex to the current Northgate development brief.

1.1.3 In its entirety, the Northgate development site covers approximately 5.6ha and extends over a substantial part of the north-west corner of the historic city centre. It takes in an area bracketed, for the most part, by Hunter Street to the north, Northgate Street to the east, and Watergate Street to the south. On the west, the site boundary extends, for most of its length, across the carriageway of St Martin's Way, though some parts of the roadway itself lie outside the site boundary.

1.1.4 Work on developing the present scheme began in 2014, with plans undergoing a series of revisions prior to the commencement of construction works in 2020. The scheme is divided into two main construction phases (Phases 1 and 2), with work commencing on Phase 1 (*c* 1.53ha) in the northern part of the site (Fig 2), between Hunter Street and Princess Street (and encompassing the carriageways of these streets); the rest of the site is due to be developed during Phase 2.

1.1.5 The present assessment encompasses the archaeological investigations undertaken to mitigate the impact of Phase 1 on Northgate's nationally significant buried archaeological resource. The scope of these works, and the rationale behind the fieldwork methodologies employed, are described in *Section 4*. However, given the national importance of Chester's buried archaeological resource (*Section 1.2.1*), the key mitigation strategy adopted for the Northgate project was one of *in situ* preservation where possible (*Section 4.1.5*).

1.1.6 Apart from a small amount of preparatory work, largely comprising test-pitting and borehole monitoring, undertaken in the period 2015-17 (*Section 2.2.4*), no archaeological investigations have been carried out within the Phase 2 area, between Princess Street and Westgate Street, since detailed plans for this part of the scheme are still under development. Consequently, Phase 2 is excluded from the present assessment, and will be subject to a separate assessment upon completion of any

investigations that are required to mitigate the archaeological impact of development in this area.

1.1.7 Prior to the beginning of construction works, the Phase 1 area incorporated a variety of topographical areas and features (Fig 2). These comprised a landscaped, largely grassed, area immediately east of St Martin's Way (referred to colloquially as the 'grassy knoll' or 'pocket park', the former being preferred for the present assessment), and the former bus exchange, further to the east.

1.1.8 In addition to the work undertaken in the Phase 1 area itself, the present assessment also encompasses archaeological monitoring carried out during groundworks associated with the construction of two 'off-site' features, namely a large surface-water drain and an electricity cable. Both were associated with the overall Northgate scheme but were beyond the development site itself. To minimise the disturbance to the archaeological resource, the drain was largely tunnelled through the natural geology, extending from St Martin's Way, on the north, to an outfall on the River Dee, to the south-east (Fig 3), *via* Nicholas Street, Grosvenor Road, and Castle Drive, passing approximately 8.5m beneath the medieval city wall at 9.5m aOD, entirely within the natural sandstone bedrock. The cable trench extended south from Hunter Street, along the eastern edge of St Martin's Way and Nicholas Street to White Friars, where it turned north once more to extend up Weaver Street to the junction with Commonhall Street. Another branch of the cable crossed Nicholas Street and extended westwards along Greyfriars to Nun's Road.

1.2 Legislation, Policy and Guidance

1.2.1 ***Legislation***: with regard to the below-ground archaeological resource within the Northgate area, the key piece of national legislation is the Ancient Monuments and Archaeological Areas Act (1979), as amended by two revisions of the National Heritage Act (1983; 2002). Under the terms of the Act, Chester's historic city centre was designated an Area of Archaeological Importance (AAI), one of only five such areas in the country, signifying that the city's archaeology is of national significance. Within the boundaries of the AAI, all archaeological remains are treated in the same way as Scheduled Monuments; consequently, Historic England (HE) is a statutory consultee in all matters pertaining to the archaeology within the AAI.

1.2.2 ***The National Planning Policy Framework (NPPF)***: published in 2012 by the then Department for Communities and Local Government (DCLG 2012), the National Planning Policy Framework was updated by the Ministry of Housing, Communities and Local Government (MHCLG) in July 2018 (MHCLG 2018), again in February 2019 (MHCLG 2019), and most recently in July 2021 (MHCLG 2021). The most recent revision includes a section (section 16) on conserving and enhancing the historic environment, in which individual elements of the historic environment, such as buildings, monuments and sites, are considered as heritage assets (paragraph 184). Such assets are considered to be an irreplaceable resource, which should be conserved in a manner appropriate to their significance. The *Framework* requires that plans should set out a positive strategy for the conservation and enjoyment of the historic environment by present and future generations (paragraph 185), and highlights the need for local planning authorities to require applicants to describe the

significance of any heritage assets affected by a proposed development (paragraph 189). The *Framework* further states that great weight should be given to the conservation of heritage assets, especially those that are designated. Indeed, the *Framework* stipulates that substantial harm to, or loss of, assets of the highest significance should be 'wholly exceptional' (paragraph 194). Therefore, preservation *in situ* is the preferred course relating to such sites unless exceptional circumstances exist.

1.2.3 Advice on good practice in implementing historic environment policy as set out in the NPPF is provided in Historic England's (HE) Historic Environment Good Practice Advice in Planning Note 2: *Managing Significance in Decision-taking in the Historic Environment* (HE 2015). This includes guidance for assessing the significance of heritage assets, the use of appropriate expertise and the use of appropriate historic environment records.

1.2.4 ***Local planning policy***: the Chester District Local Plan, adopted by Cheshire West and Chester Council (CWaC) in 2006, underwent revision in January 2015, with some policies being deleted or replaced. Policies retained in the 2015 version of the Plan include that pertaining to sustainable development, section 10 of which covers the local authority's policy regarding the historic environment and archaeological interest (CWaC 2015, 47-8). This states (section 10.3) that 'in city centre locations, consideration should be paid to preserving any archaeological remains that lie beneath the surface' (*op cit*, 47), whilst Key Principle 10 aims to 'protect and enhance the District's historic, cultural and archaeological value (*op cit*, 12). The Council's policy relating to the impact of proposed developments on heritage assets of national, regional/county, and district/local significance is set out in Policies Env 31, Env 33 and Env 34 of the Plan. Part 2 of the local plan was adopted in 2019 and includes policies specifically related to the historic environment (section 17), with specific reference to archaeology (sections 17.17-23; CWaC 2019).

1.2.5 ***Chester Archaeological Plan***: the Chester Archaeological Plan (Beckley and Campbell 2014) was funded by English Heritage (EH; now HE) as part of the Chester Urban Archaeological Database (UAD) Project (*Section* 1.4.1). The Plan was endorsed by the Cheshire West and Chester Local Development Framework Panel as a key Evidence Base Document supporting the preparation of the Local Plan (M Leah *pers comm*). It includes a series of guidance notes pertaining to development within the city's Archaeological Character Areas, which were also defined as part of the UAD Project (*Section 1.4.1*).

1.3 Geology and Topography

1.3.1 The solid geology of Chester is characterised as Triassic sandstone and conglomerate sedimentary bedrock (BGS 2021). The overlying drift geology is characterised as alluvium, comprising a mix of clay, silt and sand, forming slightly acidic loamy clayey soils (Cranfield University 2021).

1.3.2 The wider development site occupies much of the north-western part of the Roman legionary fortress of *Deva* (Rivet and Smith 1981, 336-7), the largest of the nine such installations established by the Roman army in Britain, and one of only three (the

others being York and Caerleon) that were in use for most of the Roman period. The site also extends over a considerable area of the north-western quarter of the medieval and post-medieval city, north of Watergate Street and west of Northgate Street, which form two of the city's principal medieval and modern thoroughfares.

1.4 Archaeological Characterisation and Zoning

1.4.1 ***Archaeological Character Areas***: the Cheshire Historic Environment Record (HER), held and maintained by the Cheshire Archaeological Planning Advisory Service (CAPAS), is the principal source of information for Chester's historic environment, including its internationally significant buried archaeological resource. Of particular importance is the Chester Urban Archaeological Database (UAD), which forms a subset of the HER, since this synthesises all available information on the city's archaeology and can therefore be regarded as the baseline for all such data. The UAD holds records of all known archaeological interventions ('Events') within the city, each identified by an unique Event Number, and also of the principal archaeological and historical features ('Monuments', each referenced by a Monument Number) recorded by these Events. The UAD project also produced the Chester Archaeological Characterisation, which established a series of Archaeological Character Areas covering the city's main Conservation Areas (Beckley and Campbell 2014, 9-11). These were created by consolidating a period-based characterisation of Chester's archaeological resource, in terms of the predominant archaeological remains within each zone and their significance. The Character Areas were further grouped into Primary and Secondary Zones of importance (*op cit*, 15, fig 7) on the basis of a series of nationally recognised significance criteria (*op cit*, 10, table 1). A summary statement was created for each zone, highlighting its archaeological character, significance and potential, and key considerations for future development. Of the 16 Character Areas identified during this process, four (Areas 2, 4, 5 and 7 (OA North 2016a, fig 3)) lie partially within Phase 1 of the Chester Northgate development site (Table 1), all of which fall within the Zone of primary importance.

Character Area No	Character Area Name
2	Northgate Street
4	St Martin's Fields
5	Princess Street/Hunter Street
7	Princess Street/St Martin's Way

Table 1: Chester Archaeological Character Areas within Phase 1 of the Northgate development site

1.4.2 ***Zones of archaeological sensitivity***: in line with the National Planning Policy Framework (*Section 1.2.2*), the archaeological brief prepared in response to the proposed redevelopment of the Northgate area (Morris 1997; *Section 1.1.2*) stated that, where archaeological deposits of any period survived within the site, consideration should be given to their *in situ* preservation. This was particularly the case where remains survived that could be regarded as being of more than regional significance. However, it was acknowledged that the importance and survival of archaeological remains across the site varies considerably, and that this variation had the potential to affect the nature and level of permissible below-ground disturbance significantly. Consequently, the brief identified four zones of differing archaeological

potential (Zones 1-4), in terms of the likelihood (or otherwise) for the survival of significant below-ground archaeological remains (Fig 4).

1.4.3 *Zone 1*: within the zone of greatest archaeological sensitivity (Zone 1), the likelihood for the survival of archaeological remains of all periods up to the post-medieval period is stated in the brief. In particular, the potential for excellent, and widespread, survival of deposits pertaining to the Roman fortress, including the fortress's western defences, were highlighted as an outstanding feature of this zone. Consequently, the brief stipulated that there should be a presumption in favour of *in situ* preservation of archaeological deposits within this zone, with an intrusive impact of no more than 3% where damage or destruction of archaeological remains was unavoidable.

1.4.4 *Zone 2*: for Zone 2, the brief considered that there was potential for the survival of archaeological remains of similar importance and preservation as those in Zone 1, though the available information was less certain. Consequently, there should be a presumption for *in situ* preservation over most of the zone, with an intrusive impact of no more than 3%, where disturbance was unavoidable.

1.4.5 *Zone 3*: in Zone 3, the level of archaeological survival was generally unclear, though some modern disturbance could be anticipated. An appropriate level of archaeological mitigation would be required, where archaeological deposits warranting 'preservation by record' were found to exist (*Section 4.6.3*).

1.4.6 *Zone 4*: this zone comprised underground car parks, basements and other deep intrusions where all or most archaeological levels were likely to have been completely destroyed. There was, however, the potential for limited survival of some particularly deep archaeological features in these areas, and an appropriate mitigation strategy to allow for this possibility was required (*Section 4.1.12*).

1.4.7 The zoning plan established by the archaeological brief represented a key evidence base that was of fundamental importance in informing the design and configuration of the Northgate development scheme, particularly in relation to foundation design and other major groundwork issues. Within Phase 1, the main area of archaeological sensitivity, as represented by Zones 1 and 2 (with a combined area of *c* 0.7ha), covered much of the western part of the site (Fig 4), west of the former bus exchange. Most of the eastern part of the Phase 1 area, including the bus exchange itself and its immediate environs, were located within Zone 3, because it had been presumed that earlier excavations had removed most or all of the significant archaeological horizons, whilst an area of modern cellaring in the extreme western part of the site was assigned to Zone 4.

2 ARCHAEOLOGICAL BACKGROUND

2.1 Introduction

2.1.1 The following section provides a summary of the historical and archaeological background of Chester, to locate and contextualise the Northgate development site within the historic cityscape. The summary has been compiled largely from secondary sources and is intended to provide a context for the results of the Phase 1 assessment.

2.2 Previous Archaeological Work

2.2.1 Whilst a considerable amount of archaeological work has been carried out within the boundaries of the Chester Northgate site over the last 100 years or so, much of this was undertaken south of the Phase 1 area, often under extremely unfavourable conditions during earlier phases of redevelopment, especially in the 1960s. Consequently, the data recovered are of extremely variable quality, and much remains unpublished, being available (if at all) in summary form in 'grey literature' reports. Indeed, even published accounts (*eg* Strickland 1982; Ward 1994) frequently lack information pertaining to such things as the depth of significant archaeology below the modern ground surface, or the overall thickness of archaeological strata. Some reports may also only present the evidence pertaining to a particular chronological period (for instance, the occupation of the Roman fortress), whilst ignoring (or, at best, summarising) the data pertaining to other phases of activity.

2.2.2 In addition to archaeological works carried out within the development boundary, there are also large numbers of interventions that have been undertaken in the near vicinity. Some of these have yielded evidence for archaeological features that, whilst not directly evidenced by archaeological excavation within the development site itself, can, by extrapolation, be deduced to have extended within the site boundary. This is particularly so in the case of linear features such as roads or streets, the extrapolated alignment of which can be predicted with some confidence.

2.2.3 A full listing of all archaeological interventions undertaken within the development site, together with a plan, was presented in the archaeological desk-based assessment (DBA) compiled for the Northgate scheme as a whole (OA North 2016a). The archaeological and historical monuments identified are also fully listed and are located on a series of period-based plans (*ibid*).

2.2.4 Prior to the commencement of the Phase 1 mitigation works in 2020, the Northgate site had, since 2015, been subject to a range of archaeological surveys and investigations undertaken to inform the design of the current development, to ensure that the archaeological impact of construction works did not exceed the 3% constraint stipulated in the project brief for the most important archaeological remains within Zones 1 and 2 (*Sections 1.4.3-4*), which was also a condition of the planning consent granted for Phase 1 (Table 2). An archaeological plane, defining the level at which significant deposits were likely to be encountered, was developed to assist in the design of the development, this plane being based upon the results of known interventions prior to OA North's involvement. The plane was further refined through OA North's evaluation work since 2015 and formed a part of the planning application

for the development. Most of the interventions encompassed all parts of the development site but a few were limited to the Phase 2 area only and/or to areas outside the site (and therefore beyond the scope of the present assessment, although the off-site drain and cable route are included in this document).

Date	Survey description	References
April/May 2015	Trial-trenching, Hunter Street (Phase 1) and Trinity Street (Phase 2)	OA North 2015
May 2016	Desk-based assessment for the whole development site (Phases 1 and 2)	OA North 2016a
July 2016	Desk-based assessment for off-site drainage proposals (off-site)	OA North 2016b
July 2016	Desk-based assessment for proposed off-site electricity substation, New Crane Street (off-site)	OA North 2016c
March/April 2016	Trial-trenching and borehole monitoring, site wide (Phases 1 and 2)	OA North 2016d
September 2017	Rapid desk-based assessment of burial records for the former Unitarian chapel, Trinity Street (Phase 2)	OA North 2017a
November 2017	Desk-based assessment for the former Unitarian chapel and burial ground, Trinity Street (Phase 2)	OA North 2017b
November/December 2017	Test-pitting and borehole monitoring, site wide (Phases 1 and 2)	OA North 2018a
January 2018	Archaeological monitoring of boreholes for proposed off-site drainage route (off site)	OA North 2018b
March 2018	Trial-trenching, Princess Street (Phase 1)	OA North 2018c
May 2019	Supplementary desk-based assessment for Phase 1 (Phase 1)	OA North 2019a
June 2019	Watching brief on an area west of Northgate Street (Phase 1)	OA North 2019b
August 2019	Archaeological strip-and-record on the 'grassy knoll' between Hunter Street and Princess Street (Phase 1)	OA North 2019c
August 2019	Test-pitting in the carriageway of Hunter Street (Phase 1)	OA North 2019d
September/October 2019	Watching brief, Princess Street/Hunter Street (Phase 1)	OA North 2019e
December 2019	Evaluation and watching brief between Hunter Street and Princess Street (Phase 1)	OA North 2020a
January 2020	Watching brief, Hunter Street/St Martin's Way (Phase 1)	OA North 2020b

Table 2: Preliminary archaeological works undertaken in respect of the current Northgate redevelopment scheme

2.3 The Prehistoric Period (to *c* AD 75)

2.3.1 There is very little evidence for prehistoric occupation within Phase 1 of the Northgate site, though several stone axes, presumably of earlier neolithic date (*c* 4000-3000 BC), are known from the vicinity of Hunter Street (Beckley and Campbell 2013, 11). More generally, neolithic pottery and flints, several Bronze Age artefacts, and traces of Iron

Age roundhouses and ploughing have been found at other locales within the modern city centre (*op cit*, 11-13; Ward 2009, 5).

2.4 The Roman Period (*c* AD 75-*c* AD 410)

2.4.1 ***Possible pre-fortress activity***: in view of Chester's strategically important position relative to early Roman campaigning in Wales and northern England, it is likely that a Roman military presence was established before the foundation of the legionary fortress (Shotter 2002). However, conclusive proof of this remains elusive, though several features certainly pre-dating the earliest fortress buildings, possibly representing two phases of early military activity, were identified in the 1960s towards the centre of the wider Northgate development site (Mason 2012, 35-6), immediately south of the Phase 1 area.

2.4.2 ***The legionary fortress and associated settlement (c AD 75-410)***: the fortress (Fig 5) was established by *Legio II Adiutrix*, probably in *c* AD 75 (Mason 2012, 49-50; Beckley and Campbell 2013, 17), and was occupied to the middle of the fourth century AD at least (Mason 2007, 14). As was usual, the interior was divided into three principal areas: the central range (*latera praetorii*), containing many of the most important buildings; the front (*praetentura*), which at Chester lay south of the central range; and the rear (*retentura*). The Phase 1 development site lay mostly within the central range, occupying much of the western half of this important zone.

2.4.3 Each of these three areas was further sub-divided into rectilinear plots (*insulae*), for which a modern numbering system (*Insula I*, *Insula II*, and so on) has been established (*op cit*, 56, fig 20b). Of the 13 *insulae* within the central range, the Phase 1 area encompasses all of one (*Insula XXII*), most of another (*Insula XXI*), and the western part of a third (*Insula XVI*), together with the north/south streets between these (Fig 6).

2.4.4 During the Roman period, an important settlement (the *canabae legionis*) grew up outside the fortress, principally, it would seem, to the south and west, adjacent to the River Dee (Mason 2012; Beckley and Campbell 2013, 17). This grew to a considerable size and was occupied for much the same length as time as the fortress. However, the Chester Northgate development does not impinge upon any part of the settlement.

2.4.5 With certain exceptions, all the primary buildings within the fortress were wooden, but reconstruction in stone (or possibly in timber on stone footings) occurred during the late first- to early second century AD (Mason 2012, 138). Over its ramparts, the installation covered 24.4ha (just over 60 acres), some 20% bigger than the near-contemporary fortresses at York and Caerleon (*op cit*, 54-7). The extra space was required for a group of highly unusual buildings within the central range. This, it has been suggested, formed part of an enclave designed for the imperial governor of Britain (Mason 2001a, 91-5, fig 93; 2002, 47, fig III IV.14; 2012, 102-8), though its actual significance remains a matter for debate. Certainly, the plan of the fortress as a whole (Fig 5) gives the impression of a standard layout modified and distorted to accommodate these structures, presumably for some very specific, and highly important, purpose, whilst the stone wall enclosing the fortress also seems to have been unusually elaborate (Mason 2012, 97).

2.4.6 In the AD 80s, *Legio II Adiutrix* was replaced in garrison by *Legio XX Valeria Victrix*. However, for the greater part of the second century, much of the Twentieth was itself absent from Chester, employed either in building Hadrian's Wall or in the construction and garrisoning of the Antonine Wall, with the result that large areas of the fortress seemingly became derelict (Mason 2012, 164). This event has been attested at several sites by the discovery of evidence for an 'occupation hiatus'. The fortress was, however, extensively rebuilt and refurbished in the early third century, as part of a more general reorganisation of the northern frontier (*op cit*, 177). Some elements of the legion continued to be outstationed, however, and it is possible that the legion as a whole was withdrawn, or even ceased to exist, sometime in the fourth century (*op cit*, 217). It is clear, though, that the fortress remained an important military base, since almost all of the major buildings investigated, together with at least some of the barrack blocks, continued to be maintained and refurbished into the mid-fourth century at least (*ibid*; Hoffmann 2002, 80-2). Coinage of the AD 380s occurs at Chester, and late fourth-early fifth-century pottery, including some Mediterranean imports, are known, though in small quantities (Ward 2009, 22). That said, detailed analysis of the coins and other mid-late fourth-century artefacts suggests a major drop off in activity after *c* AD 350, compared with other military sites in the region (Mason 2007, 19; Hoffmann 2002, 82-3). It has been suggested that, following the departure of the legion, be that in *c* AD 350 or before, Chester became a civilian settlement (Strickland 1984). However, the fate of the garrison at the very end of the Roman period is not known, and it is conceivable that a residual military presence continued later than has been suggested. Certainly, the paucity of late Roman military equipment from Chester cannot be taken, of itself, as proof of an absence of soldiers, since this is also the case at other late Roman military sites in Britain (Hoffmann 2002, 85-6).

2.4.7 *The Phase 1 area within the Roman fortress*: Phase 1 of the Northgate site lies almost wholly within the central range of the fortress (Fig 6). Consequently, the area encompasses many Roman-period buildings and other features, recorded on the Chester UAD, that relate to its occupation.

2.4.8 The main east/west road (*via principalis*), which extended between the west and east gates of the fortress, lies some distance south of the Phase 1 site, beneath modern Watergate Street (Mason 2012, 54). The north side of the central range was defined by a second important east/west road, the *via quintana*, which separated it from the *retentura*. At Chester, this road was not straight but contained two 'dog-legs', to accommodate an exceptionally large courtyard building, located centrally in the central range, within *Insula XVI* (*Section 2.4.12*). As with the *via principalis*, this road lay outside the Phase 1 area, except, possibly, for its extreme southern edge in the western part of the site. The western boundary of the site extended across the line of the fortress's western defences and the adjacent intervallum zone. However, prior to the commencement of the archaeological mitigation works, it was considered likely that archaeological deposits in this area had probably been wholly or largely destroyed during the construction of St Martin's Way and the basements of St Martin's House, the latter being proven in 2015 by evaluation trenching to the south of Hunter Street (OA North 2015, 25-7). Consequently, most of the area was regarded as being of low archaeological potential (Zone 4; Fig 4).

2.4.9 In terms of the modern topography of the site immediately prior to redevelopment (*Section 1.1.7*), *Insula XXII* corresponded, approximately, to the area of the grassy knoll. *Insula XXI* lay mostly in the western and central parts of the former bus exchange, extending north and south of Hunter Street and Princess Street, whilst that part of *XVI* available for investigation occupied the eastern part of the bus exchange, extending east to Northgate Street and beneath Hunter Street and Princess Street.

2.4.10 ***Insula XXII***: on the evidence of the archaeological zoning developed during the 1990s (*Section 1.4.2*), the zone of greatest archaeological sensitivity within the Phase 1 area lay largely beneath the grassy knoll, corresponding, approximately, to *Insula XXII*. This seemed to contain barracks for one of the legion's ten cohorts (Mason 2012), with the archaeologically sensitive zones (Zones 1 and 2) encompassing parts of all six barrack blocks that are believed to have existed there (Fig 6), together with the associated centurions' quarters, which were placed at the western ends of the blocks, and the narrow lanes or alleyways between the barracks. It is thought that the primary timber barracks were rebuilt, also in timber, around the time *Legio XX Valeria Victrix* replaced *Legio II Adiutrix* in the late AD 80s (*Section2.4.6*). They were rebuilt again, either in stone or with stone footings, in the first two decades of the second century (Mason 2012, 141). Some at least were abandoned *c* AD 120 and allowed to decay thereafter (*op cit*, 167), until being reconstructed (possibly in timber on stone sills (Strickland 1982, 9)) in the early third century, along with many of the other buildings. Elsewhere in the fortress, many of the third-century barracks continued to be occupied into the mid-late fourth century, but those in *Insula XXII* were seemingly in disrepair by the mid-late third century, and the site was still derelict *c* AD 350 (*op cit*, 221).

2.4.11 ***Insula XXI***: immediately east of the barracks in *Insula XXII* was *Insula XXI*, most of which lay beneath the former bus exchange, largely assigned to Zone 3 (*Section 1.4.5*). In the early Roman period, this *insula* was bounded on its south and east sides by narrow timber structures, perhaps storage buildings (Mason 2012, 59). These were replaced in stone in the early second century, but the rest of the area seems to have remained largely open for a long period (*c* 150 years) following the fortress's construction. A few features dating to the late first-second century were found elsewhere within the *insula* (*eg* Dodd 2018, 27-8), but much of the area appears to have remained open and was used for the deposition of refuse, including considerable quantities of industrial debris (Strickland 1982). It was only during the early third century that the area was extensively built up, when a complex interpreted as a 'stores compound' or 'depot'' was erected (*ibid*; Mason 2012, 187).

2.4.12 ***Insula XVI***: this extremely large, rectangular block, aligned north/south, was situated east of *Insula XXI*, with the greater part of the area available for investigation designated as Zone 3. The *insula* seems to have been occupied by a huge (*c* 160 x 65m) rectangular courtyard building, or perhaps a complex of structures arranged around, and within, a courtyard (Mason 2012, 80-1), which was also unusual in being stone-built from the beginning. One possible interpretation is that this was the fortress's hospital (Strickland 1982, 21), but this is uncertain. The south-west quadrant was excavated at the Old Market Hall site in 1967-9 (*op cit*, 183), and further elements were found to the east of Hunter's Walk in the late 1970s-early 1980s (*ibid*; Strickland 1982). Subsequent observations on Hunter Street and in the Market Square suggest

that ranges of rooms identical to those recorded on the south and west also existed on the north and east sides of the complex (Mason 2012, 80-1). The structure was not completed until the early second century, but it utilised the foundations of an unfinished building of probable late first-century date. The purpose of these structures is not certainly known, but the second-century building underwent a thorough reconstruction in the first half of the third century (*op cit*, 183), and continued to be maintained and used well into the fourth century (*op cit*, 231).

2.5 The Early Medieval Period (*c* AD 410-1066)

2.5.1 The nature of settlement at Chester in the earlier post-Roman period is difficult to determine. In view of its long history as a major Roman military and civil centre, and its position at the hub of a system of roads, the settlement may well have persisted as the principal military and commercial centre of the region (Mason 2012, 233), possibly (though evidence is entirely lacking) serving as the administrative centre of a sub-Roman polity that eventually passed under the control of the British kingdom of Powys (Ward 1994, 115; 2009, 23). That Chester may have also developed importance as an ecclesiastical centre is suggested by the fact that the settlement was chosen to host a major synod of the British church in *c* AD 601 (Mason 2007, 29-30; Ward 2009, 23).

2.5.2 It seems likely that the population of Chester in the fifth/sixth- to eighth century lived within what was essentially an extensive Roman ruin (Ward 1994, 16-17), within which some Roman buildings would have been substantially intact, some semi-ruinous, whilst others may have almost completely disappeared beneath mounds of demolition debris. It seems probable that use was made of upstanding Roman remains, perhaps with some modification (in timber, or reusing Roman stones), both for accommodation and for other purposes (*eg* animal pens), but archaeological evidence for this is extremely slight. Certainly, the pattern of occupation would have been greatly influenced by the layout of the Roman fortress generally, and by the more detailed pattern of upstanding Roman ruins, debris from collapsed Roman structures and comparatively open areas, where roads had once existed or where Roman buildings had vanished completely.

2.5.3 The documented history of the Anglo-Saxon town begins in AD 907, with its refortification as a stronghold (*burh* (Thacker 2003; OA North 2016, fig 8) by Aethelflaed, Lady of the Mercians. The catalyst for this may initially have been Viking incursions in the Wirral (Mason 2007, 79-80, figs 19, 20), although the move was part of what seems to have been a concerted policy by members of the House of Wessex, since the *burh* was one of several created in Cheshire during this period (Thacker 2003). There is evidence for the refortification of parts of the Roman fortress defences, and much of the modern street plan probably originated at this time (Ward 1994, 7), when Chester seemingly prospered as an administrative and trading centre (Ward 2009, 28). However, this period of prosperity and stability did not last, being ended in the late tenth century by the onset of wars between the English king, Ethelred II ('the Unready'), and the kings of Denmark. The city was raided by the Vikings in AD 980 (Ward 2009, 30), and it is possible that the loyalty of its mixed population was viewed with suspicion. However, more settled times returned in the first half of the eleventh century, under Cnut, and later, the restored English king,

Edward the Confessor, and the ealdormen of Mercia again became important figures (*ibid*). On the eve of the Norman Conquest, the *burh* had a well-developed legal code (Mason 2007, 136-9) and, according to the Domesday Survey of 1086, contained 487 houses (*op cit*, 145).

2.5.4 ***The Phase 1 site within the early medieval settlement***: there is very little evidence to show what was happening in Chester in the earlier part of the post-Roman period (Mason 2007, 27). Archaeological remains of the fifth- to eighth centuries are likely to be ephemeral and difficult to interpret, except where exposed over large areas (*op cit*, 3). Within the Phase 1 area, dark soils, possibly formed during this period by cultivation and/or animal husbandry, have been found (*op cit*, 235; Ward 1994, 116; *Appendix B*), and slight traces of other activities, including robbing of Roman building stone, have also been recorded. However, the significance and date of these deposits is very difficult to determine.

2.5.5 Across the city as a whole, several excavations have revealed evidence for intensive activity during the tenth- to eleventh century, following the establishment of the *burh*, suggesting that occupation was widespread, both within the Roman fortress and outside, though in many areas buildings were dispersed, with extensive patches of open ground between them, either used for cultivation/livestock or merely containing the derelict remains of Roman buildings (Mason 2007, 113). Within the wider Northgate site, finds of early medieval pottery, metalwork and other artefacts have been made, and structural evidence of buildings and other features have been revealed by excavation, though most of the evidence comes from the area south of Princess Street. Within the Phase 1 area itself, early medieval remains were found during excavations in the late 1970s-early 1980s at Hunter Street School and to the east of Hunter's Walk, in the vicinity of the former bus exchange and library. At the former site (Strickland 1982; Ward 1994, 43-53), substantial evidence for tenth- to eleventh-century occupation was found, including a probable resurfacing (with worn paving) of a Roman street (Mason 2007, 108). This was subsequently built across by a substantial post-built timber building (*ibid*; Ward 1994, 48-9), probably in the mid-late tenth century, and other, broadly contemporary features were also recorded. West of this street, the excavations at Hunter Street School found that much of the area was given over to cultivation or market gardening in the tenth century, though a sunken-floored building (Monument **9020**) and a pit were also found in this area (*op cit*, 60-4; Mason 2007, 109, 111, fig 33).

2.6 The Later Medieval Period (1066-1540)

2.6.1 Following the Norman invasion of 1066, Cheshire initially became a focus for Mercian resistance to the new king, William I ('the Conqueror'), with the result that the region was laid waste when William and his army marched west from Yorkshire in the winter of 1069-70 (Mason 2007, 144; Ward 2009, 34). William consolidated his hold by building a castle at Chester, in the south-west corner of the *burh* (Mason 2007, 145), and by establishing a powerful earldom there (Ward 2009, 34). The earls of Chester remained amongst the wealthiest and most powerful nobles in the country into the thirteenth century, when the line of descent expired and the earldom was retained by the king, being held thereafter by the monarch's eldest son (*op cit*, 35). The degree to

which the town suffered during the Norman 'harrying' can be gauged from the fact that, in 1071, nearly half (205) of the houses standing in 1066 had been lost (Mason 2007, 145), the settlement being described as 'thoroughly devastated'. However, by 1086, the town appears to have recovered significantly, since its rents to the Crown were valued at £70, as opposed to only £30 in 1071 and £45 in 1066 (Ward 2009, 43).

2.6.2 Whilst the basic pre-Norman street plan, based on Roman roads and largely established in the early tenth century (*Section 2.5.3*), may have been retained, there was probably a very extensive replanning within the defences during the early Norman period, since wherever pre-Conquest buildings have been excavated, occupation does not seem to have continued into the late eleventh century (Mason 2007, 145). This was when the system of long, narrow burgage plots extending back from the street frontages, which remained largely unchanged into the nineteenth century, probably emerged (*ibid*). Many medieval houses still survive in Chester, often behind more recent frontages, and the famous Rows, unique to Chester, also date to this period. These comprise galleries that run through the fronts of the houses at first-floor level, and are to be found on the frontages of the four main streets (*op cit*, 50).

2.6.3 Medieval Chester was, to modern eyes, small and compact (Lewis 2011, 42-3), with a population, in the mid-late eleventh century, of *c* 2-3000, according to one estimate (Ward 2009, 43; Laughton 2008, 11), and possibly as much as 4-4500 by the late fourteenth century (*op cit*, 11-12). By contemporary standards, however, it was a fairly substantial settlement and, as the dominant commercial, administrative and religious centre for many miles, it enjoyed a prominence greater than its size might suggest (*ibid*). The medieval town was also the second largest port on the west coast of England (after Bristol), and regularly served as an important military base for campaigns into Wales or Ireland. Consequently, it attracted many of the region's most wealthy and influential inhabitants, whose presence provided a stimulus to the urban economy (*ibid*). The streets and lanes would, for the most part, have been densely built up with private houses and shops occupying the frontages of narrow burgage plots running back from the roads (*op cit*, 52). The 'backlands' of these tenements, though more open, would have contained a wide range of features, including yards, kitchen gardens, refuse pits, latrines, animal pens and other outbuildings (*op cit*, 85-7).

2.6.4 The city walls, fronted by a ditch, were constructed by the earls of Chester during the twelfth century, the circuit perhaps being completed first during the 1160s (Laughton 2008, 60; Lewis 2011, 43). On the north and east these followed the line of the Roman fortress defences and those of the later *burh*, but to the south they extended to the river front, along which a wall was built (Ward 2009, 37), whilst the western wall lay over 150m west of the fortress. In 1075, the bishop of Lichfield transferred his see to Chester (Doran 2011, 59), the minster church of St John becoming the cathedral (Ward 2009, 43), but this was short-lived, since the bishopric was moved to Coventry in 1102, Chester being considered too humble and impoverished a place to be worthy of this honour (Doran 2011, 59). In 1092, the minster of St Werburgh's, itself destined to be elevated to cathedral status in the sixteenth century (*Section 2.7.1*), was refounded as a Benedictine abbey (*op cit*, 44), and it was during the twelfth century that Chester received its full complement of nine parish churches, together with the Benedictine

nunnery of St Mary's (*op cit*, 45-6). Three friaries were also established at Chester during the thirteenth century (*op cit*, 51-2).

2.6.5 Chester reached the peak of its prosperity and importance (both military and political) in the late thirteenth-early fourteenth century (Laughton 2008, 17), in large part due to its role as a base for Edward I's campaigns in north Wales (*op cit*, 19), but subsequently suffered decline, its importance thereafter being largely regional (*op cit*, 17). As elsewhere, the town doubtless suffered badly during the first half of the fourteenth century, when England was struck by a series of famines, and by the arrival of the Black Death in 1348-9, though few records of the effects of these disasters have survived (Ward 2009, 55). However, in 1356-7, the mayor reported that empty and ruined tenements, including some shops, were to be found throughout the city, revenues from the mills on the River Dee fell sharply, and building projects on the castle, the abbey and the Dee bridge were seemingly interrupted for several years (Laughton 2008, 25). By the mid-fourteenth century, too, silting of the Dee was becoming a problem, making it increasingly difficult for ships to reach the quays, and nearby Liverpool had already begun to emerge as a rival by the end of the fifteenth century (*op cit*, 17). Consequently, during the mid-late fifteenth century, the town's economic fortunes slumped, and, despite a modest recovery towards the end of the century, the annual rental paid by the city to the king was reduced from £100 to £50 and, later, to £30 (Ward 2009, 56). A further reduction, to £20 in 1486, appears to have been a reward for the citizens' 'good and laudable' service to the new Tudor king, Henry VII (Laughton 2008, 38), rather than further evidence of economic problems. In 1506, Henry also granted Chester its 'Great Charter', which, amongst other things, formalised its constitution and gave the town county status (*op cit*, 39).

2.6.6 ***The development site within the medieval town***: most of the modern streets and lanes within the wider development site were in existence by the early twelfth century (OA North 2016, fig 9), if not well before, including Northgate Street, Parsons Lane (modern Princess Street), and Crofts Lane (beneath modern St Martin's Way). Hunter Street, however, was a late nineteenth-century creation (*Section 2.7.7*). Investigations in 1980 at Hunter's Walk found evidence for occupation from at least the thirteenth century (Emery 1995), comprising a sequence of timber-framed buildings with associated cess- and rubbish pits. Some of the larger pits yielded well-preserved organic remains, and evidence of medieval bronze-working was also recovered. Similar remains were found further west along Princess Street but were seemingly less well preserved (*ibid*). Behind the street, the land appears to have been largely open, though two kilns were found; the earlier, dating to the thirteenth century, was used for drying corn, whilst the later, of fifteenth/sixteenth-century date, was possibly used for malting (*ibid*). Many other sites yielding evidence of medieval occupation are also known within the southern part of the development area, which, together with chance finds of pottery and other artefacts from various locations, demonstrate the widespread nature of activity in the Northgate area during this period, though the evidence suggests that the most intensive activity occurred, as might be expected, in close proximity to the street frontages.

2.7 The Post-medieval Period (From *c* 1540)

2.7.1 In Chester, the Dissolution of the Monasteries, ordered by Henry VIII, passed off peacefully, with all three friaries, St Werburgh's Abbey and the nunnery being surrendered without incident between August 1538 and January 1540 (Ward 2009, 58). The abbey itself was subsequently reconstituted as a cathedral for the new diocese of Chester, so the abbey church and other buildings survived the Dissolution (*op cit*, 60). The other religious establishments passed into private ownership and their buildings were ultimately wholly or largely demolished, though some were retained for a time, being used for other purposes (*op cit*, 62).

2.7.2 Despite continued silting of the River Dee, Chester remained quietly prosperous during the sixteenth century and the first half of the seventeenth century, with the housing stock being regularly rebuilt or refurbished (Ward 2009, 59). During the English Civil Wars, the city was an important Royalist stronghold and extensive outworks were constructed around the suburbs on the northern and eastern sides of the medieval walled city (*op cit*, 65, fig 78). The city was besieged by Parliamentary forces in the winter of 1644, but was relieved in February 1645, following which the northern outworks were abandoned and those on the east were rationalised (*op cit*, 67-8, fig 83). The city was besieged again for much of the following year, the suburbs having been taken in September and the walled city having been attacked on several occasions (*op cit*, 69-70). Plague in 1647-8 killed 2000 people and the city was largely deserted for a time (*op cit*, 71). However, Chester recovered during the late seventeenth century and developed as a prosperous county market town throughout the eighteenth century (*op cit*, 73-4). The dilapidated city walls were renovated in the early eighteenth century and turned into a fashionable promenade (Lewis and Thacker 2003). Many of the existing timber-built medieval/early post-medieval buildings on the main street frontages were refaced in the Georgian style with brick or stone, though the rest of the structure was often left largely unchanged. Subsequently, many buildings were constructed or modified in the 'black and white' style of the late Victorian Gothic revival, which was considered appropriate for Chester's emerging reputation as a pleasant, historic, place to visit, and which created the appearance and character of much of the modern city (Ward 2009, 86-7).

2.7.3 For the most part, the Industrial Revolution of the late eighteenth- and nineteenth centuries passed Chester by, and the city lost its position as the largest and most important settlement in the county to growing industrial centres such as Macclesfield and Stockport (*op cit*, 93). The Chester to Nantwich Canal, opened in 1779, was connected to the Mersey in 1795 (*op cit*, 88-9), and the railways arrived in 1840, when lines to Birkenhead and Crewe were opened (*op cit*, 90). These were later extended, and a new railway station was opened in 1848, with City Road being built in 1860 to connect the station directly with the city centre. On the eastern edge of the Northgate site, a new Town Hall and a Market Hall were built on the west side of Market Square in 1869 and 1863 respectively (*op cit*, 91). As elsewhere, the nineteenth century saw a great expansion in population, from 15,000 in 1801 to over 38,000 by the end of the century, as the city rapidly expanded beyond its medieval boundaries.

2.7.4 Despite the fact that Chester was not a major industrial centre, there were many urban poor, living mainly in crowded courts that had been built in the formerly open back lands at the rear of the medieval burgage plots (*op cit*, 93). One of the worst areas, around Princess Street and Crook Street, was cleared in the 1930s (*op cit*, 108). Traditional Chester industries, such as leather-working, linen and shipbuilding, died away during the course of the century, to be replaced by new ones associated with engineering and the railways, but these did not continue to expand and much of Chester's prosperity at this time derived from its role as a centre for retail, service and, increasingly, tourism (*op cit*, 102-3). By the outbreak of the First World War, Chester was an old-fashioned, declining county town with stagnant or dying industry, with only high-quality shopping outlets providing any vibrancy (*op cit*, 106).

2.7.5 The inner ring road, built in the 1960s, destroyed many historic buildings, and cut through the city's north wall (*op cit*, 115). The area behind the Town Hall was cleared for the Forum, completed in 1972, which contained shops, the market, council offices and car parks (*ibid*). This and other developments led to the destruction of large areas of Chester's below-ground archaeological heritage, including substantial areas within the wider Northgate development site, though the precise extent of much of this destruction is unclear, even in those areas that saw extensive rescue excavations in the 1960s and early 1970s.

2.7.6 ***The development site within the post-medieval city***: the earliest surviving maps of Chester, produced during the 1580s (Braun and Hogenberg *c* 1580; Smith 1585 (OA North 2016, figs 10, 11)), show the bulk of the Northgate site as densely built up, with, on Smith's map at least, numerous structures seemingly within the backlands, as well as on the street frontages. Braun and Hogenberg's map is somewhat different, however, in showing much of the Phase 1 development area, north of Parson's Lane (Princess Street), as largely open, away from the street frontages, being occupied by what appear to be orchards and formal gardens.

2.7.7 The first really detailed map of Chester, published by the engineer and surveyor, Alexander de Lavaux in 1745 (de Lavaux 1745; OA North 2016, fig 12), is broadly consistent with the earlier plans in showing the street frontages within the development site as being densely built up (though relatively few individual buildings are shown in any detail), with much of the Phase 1 area to the rear of the properties on Parson's Lane/Princess Street still being occupied by formal gardens and orchards, as was the case over 150 years earlier. Indeed, the maps produced during the late eighteenth century and the first half of the nineteenth century (*eg* Stockdale 1795; Batenham 1816; Wood 1833) are consistent in depicting much of the Phase 1 area as open ground, contrasting with the area to the south, which became increasingly densely built up, and the situation had changed little by the time the first edition Ordnance Survey mapping was surveyed in 1872 (Ordnance Survey 1874a; 1874b (Fig 7)), In fact, on cartographic evidence (*eg* Ordnance Survey 1910), it would seem that infilling of this area only commenced following the construction of Hunter Street. The eastern end of this street was in existence, in the form of a lane or alleyway extending west from Northgate Street, by 1833 (Wood 1833), but it was not extended westwards to St Martin's Fields (now St Martin's Way) until the very end of the nineteenth century, *c* 1895 (Ordnance Survey 1899; Ward 1994, 43). Hunter's Walk was also in

existence by 1833, extending south to Princess Street from the western end of the lane that subsequently became Hunter Street (by the end of the nineteenth century, it linked Hunter Street and Princess Street), but it was moved westwards to its present position in 1981 (Emery 1995, 4).

2.7.8 In the 1990s, investigations on Princess Street, probably at Hunter Street School and east of Hunter's Walk (though details are sketchy), found 'extensive' remains of post-medieval buildings, with associated yards, pits, and so on (Emery 1995, 4). Behind the street frontage, though, much of the area was open, but several large seventeenth-century rubbish pits were found in these areas (*ibid*). Elsewhere on Princess Street, a post-medieval malting kiln has been excavated and waste from the manufacture of clay tobacco pipes has been recovered (*ibid*). The Chester UAD records a large number of post-medieval monuments within the wider development area, though many of these relate to artefact findspots or to isolated features or relatively ephemeral occupation evidence. However, there are also records of many post-medieval buildings, including, within the Phase 1 area, the Bishop Graham Memorial Ragged School, on Princess Street, a Methodist chapel on Hunter's Walk, the Hunter Street School and the former Masonic Hall, also on Hunter Street, and a carriage works on Northgate Street.

3 ORIGINAL RESEARCH AIMS AND OBJECTIVES

3.1 General Aims

3.1.1 ***Phase 1 mitigation***: the research aims for the Phase 1 mitigation works were set out in three Written Schemes of Investigation (WSIs), which were approved by the Development Management Archaeologist at CAPAS, in consultation with Historic England (OA North 2019f; 2020c; 2020d). The main aim was to ensure the *in situ* preservation of the great bulk of the significant archaeological remains within the site, particularly within Zones 1 and 2, where disturbance of these levels was strictly limited (to a maximum of 3%) under the terms of the Brief and Specification for the project (Morris 1997; *Section 1.1.2*), but also in all other areas (particularly Zone 3) when this was practicable. This was achieved through an iterative process of design, consultation, and (where necessary) redesign of foundations, lift pits, service trenches, and all other below-ground features, including the location, where possible, of such features in areas of lower archaeological potential (Zones 3 and 4), where the 3% constraint did not apply, and the adoption of a foundation design that minimised disturbance.

3.1.2 Where *in situ* preservation was not feasible, the aim was to 'preserve by record' all archaeological remains threatened with damage or destruction, through hand-excavation and recording. In Zones 1 and 2, this strategy was adopted only in very limited areas (shown on Figure 8) where penetration of sensitive archaeological levels was unavoidable, and was also followed, so far as was reasonably practicable, in Zone 3.

3.1.3 In areas where all or most significant archaeological remains were believed to have been destroyed (Zone 4), a strategy of watching brief (the continuous archaeological monitoring of groundworks) was adopted. This strategy was also adopted during the removal of modern topsoil/ overburden and the breaking-out of existing slabs in all parts of the Phase 1 area. In order to achieve these aims, it was agreed that a permanent archaeological presence was required during all groundworks associated with the development.

3.1.4 The areas where these differing mitigation strategies applied were based on the best evidence for the character, preservation and depth (below the modern surface) of significant archaeological remains within the Phase 1 site (as evidenced by the preliminary phases of archaeological works undertaken in respect of the scheme (*Section 2.2.4*), and earlier investigations and observations in the area (*Section 2.2.3*)), and taking into account the formation levels of the various below-ground elements of the development. These were identified and agreed in consultation with the Development Management Archaeologist at CAPAS.

3.1.5 ***Off-site drain and electricity cable***: the aims of the archaeological works associated with the construction of the off-site surface-water drain (*Section 1.1.8*) were set out in a WSI (OA North 2020e), which was approved by the Development Management Archaeologist at CAPAS. In discussion with the CAPAS archaeologist, it was agreed that the methodology set out in this document would also cover the archaeological monitoring of the cable trench. The main aim of these works was to maintain a

continuous watching brief during the machine excavation of trenches and other below-ground construction features. The main objective was to identify, expose, and record any significant archaeological remains encountered.

3.2 Specific Objectives

3.2.1 The specific objectives of the Phase 1 archaeological works can be summarised as follows:

i. to adhere to and fulfil the agreed programme of works;
ii. to ensure that remains to be preserved *in situ* were undisturbed by construction works;
iii. to excavate fully and record any archaeological remains impacted upon by construction works;
iv. to determine or confirm the general nature of any remains present;
v. to determine or confirm the approximate date or date range of any remains;
vi. to compile a professional archival record of any archaeological remains recorded;
vii. to disseminate the results of the archaeological investigations in a suitable fashion upon completion of the project.

4 METHODOLOGY AND SCOPE

4.1 Phase 1 Mitigation Fieldwork

4.1.1 The CAPAS-approved WSIs (OA North 2019f; 2020c; 2020d) were adhered to as fully as possible throughout the investigation, with any minor variations being agreed with the Development Management Archaeologist at CAPAS. All works were consistent with the relevant Chartered Institute for Archaeologists (CIfA) and Historic England guidelines (CIfA 2020a; 2020b; 2020c; 2021; HE 2014), as well as those of the European Association of Archaeologists (1998). A permanent archaeological presence, in the form of suitably qualified, and experienced, professional archaeological personnel, was maintained during all below-ground construction works.

4.1.2 The fieldwork involved the monitoring of all groundworks undertaken in respect of the Phase 1 scheme, including the construction of structural elements, such as pile caps, lift pits, and drainage and utility service runs, as well as modern topsoil/overburden stripping and breaking-out of existing slabs. By no means all below-ground works revealed archaeological deposits; indeed, great care was taken to ensure that as few of the individual construction features as possible penetrated into significant archaeological levels, though some disturbance was unavoidable (Fig 8; though this also shows those areas which resulted in no disturbance to significant archaeological horizons). Notable areas where archaeological excavation and recording were required, and which are, accordingly, referred to frequently in the present report, include the surface-water drainage trench on the south side of Hunter Street (Fig 8; Pl 1), another service-diversion trench on the west side of Northgate Street, the lower foundation pile mat for the new market and cinema, within the former bus exchange, and an area on the southern edge of the grassy knoll (on the north side of Princess Street), known as Core Base 1, which was required for a lift shaft and stairwell associated with a new multi-storey car park.

Plate 1: The surface-water drainage trench on the south side of Hunter Street, looking east

4.1.3 The archaeological mitigation strategy was fourfold in nature, comprising *in situ* preservation wherever possible, excavation, strip-and-record, and watching brief. The former was the 'default' strategy, to be applied to archaeological deposits encountered in all parts of the site, but specifically in Zones 1 and 2.

4.1.4 The mitigation fieldwork was almost entirely undertaken during the COVID-19 pandemic, which, due to social distancing requirements, minimised the number of archaeological staff who could work on the site at any one time. Although the methodology implemented, of only excavating those small areas of archaeological remains directly impacted by the construction works, this did still pose programming difficulties, and, early on in the project, staffing issues.

4.1.5 During the mitigation works, the Development Management Archaeologist at CAPAS was afforded the opportunity to view and to sign off the works prior to the installation of construction features and services, or their backfilling. Proposals either to increase the previously agreed size of below-ground construction features, or to change the agreed positioning of these, were subject to consultation with, and the agreement of, the CAPAS archaeologist, and any such changes were recorded.

4.1.6 Where possible, the construction methodology was to build up the levels on site to ensure archaeological remains were not damaged, for instance, by increasing the thickness of the pile mat. Following the construction of pile mats across the site, piles were installed prior to the excavation of the pile caps, thereby ensuring that these were not excavated in the wrong location or over-excavated.

4.1.7 **In situ *preservation methodology***: following mechanical removal of modern overburden, which was subject to constant monitoring through the maintenance of a watching brief (*Section 4.1.12*), stripped areas were rapidly surveyed, in order to locate them spatially and to provide a record of the formation levels in relation to the archaeological plane. This was undertaken using appropriate GPS equipment, accurate to ±30mm, or a Total Station, based on a site grid related to the national grid. Altitude information was established with respect to OS Datum. For archive purposes, a photographic record of the works was made using high-resolution digital cameras.

4.1.8 Constant supervision and monitoring by suitably experienced archaeological personnel ensured that the mechanical plant used for the stripping did not disturb the top of significant archaeological levels. Stripping was undertaken in spits using a toothless ditching bucket, to create a smooth, even, and clean surface. In many areas, the slab formation level for the new development lay well above the top of significant archaeological deposits, so that the latter were preserved *in situ* beneath a 'buffer' of modern material. However, in some parts of Zones 1 and 2, the formation level lay closer to the uppermost archaeological horizons, and these areas were, consequently, subject to particularly careful monitoring.

4.1.9 No machinery or other heavy plant was permitted to track over unprotected stripped areas, either during the initial site stripping or at any other time during the construction works, to prevent the 'churning-up', rutting and/or compaction of sensitive archaeological deposits. Protective coverings were laid over stripped areas as soon as removal of the overburden was completed, to afford protection to the underlying archaeology and to identify these areas further as 'off limits' to plant.

4.1.10 ***Excavation methodology:*** areas requiring excavation (*Section 4.1.2*) were fully controlled by archaeological personnel at all times, who, in addition to undertaking the hand excavation and recording of significant archaeological remains (Pl 2), were also responsible for controlling the removal of overlying modern deposits, either by machine or by hand (by non-archaeological personnel provided by the Principal Contractor). All archaeological remains were cleaned, excavated to the formation level required in each area and recorded by suitably qualified and experienced archaeologists, or to the natural geology, whichever was reached first. Any archaeological deposits extending below formation level were retained, in accordance with the strategy for *in situ* preservation (*Sections 4.1.5-7*).

Plate 2: Hand-excavation of archaeological deposits within pile cap C8, looking south-west

4.1.11 All archaeological information identified in the course of the site works was recorded stratigraphically, on *pro-forma* context sheets, using a system adapted from that used by the former Centre for Archaeology of English Heritage. Sufficient numbers of site drawings were prepared (on *pro forma* permatrace sheets) to identify and illustrate individual features and deposits, including plans and sections at appropriate scales (plans 1:20 and sections 1:10). Primary records were available for inspection at all times.

4.1.12 A detailed photographic record was also compiled, including images of individual features and deposits and general views of the site. Photography was undertaken using high-resolution digital cameras, and all frames include a visible, graduated metric scale.

4.1.13 ***Strip-and-record methodology***: within those areas of the site targeted for archaeological strip-and-record, mechanical removal of modern overburden and other modern deposits proceeded as elsewhere on the site, under constant archaeological supervision, down to the top of the uppermost significant-archaeological strata. Where formation level lay below this horizon, archaeological remains were dealt with in the same way as those in areas subjected to formal excavation (*Sections 4.1.8-10*), down to formation level or the top of the natural geology. All archaeological deposits extending below formation level were retained *in situ* (*Sections 4.1.5-7*).

4.1.14 ***Watching-brief methodology***: an archaeological watching brief was maintained during the mechanical removal of overburden and other modern deposits in all parts of the site, the stripping being undertaken under constant archaeological supervision. This was carried out either to formation level, or the top of the uppermost significant archaeology, or to the surface of the natural geology, whichever was reached first. Where archaeological remains were encountered, these were preserved *in situ* wherever possible, in accordance with the project's principal mitigation strategy (*Sections 4.1.5-7*), except in those limited areas where this was not feasible, when strategies of excavation (*Section 4.1.8-10*) or archaeological strip-and-record (*Section 4.1.11*) were adopted.

4.2 Off-site Drainage and Cable Trench Fieldwork

4.2.1 ***Drainage route***: archaeological works associated with the construction of the off-site surface-water drain, which extended along St Martin's Way, Nicholas Street, Grosvenor Road, and Castle Drive, to the River Dee (*Section 1.1.8*; Fig 3), conformed to the methodology set out in the WSI (OA North 2020e). Over much of its length, the drain was drilled or tunnelled through the natural bedrock, to keep archaeological disturbance to an absolute minimum, including at the locale where the drain passed beneath the upstanding medieval city wall on Castle Drive (Fig 3), As Chester's city walls are legally protected, scheduled monument consent was required for this work, which was monitored archaeologically. The wall itself was also closely monitored by the tunnelling contractor for an extended period following completion of the tunnelling, to check for any movement or other evidence of instability.

4.2.2 Additionally, a watching brief was required at several locales where mechanical excavation, undertaken by the Principal Contractor, was unavoidable. This included the construction of a series of ten 6m-diameter inspection shafts (Shafts 1-7, 9, 10, and 10a), located at intervals along the route (Fig 3), topsoil stripping in two areas, and the excavation of some stretches of open-cut trenching, including drainage and service-diversion trenches. In these areas, mechanical excavation proceeded down to the formation levels required, or to the top of significant archaeological deposits, whichever was reached first. Any archaeological remains encountered were then hand-excavated and recorded (using the same methodologies employed in the Phase 1 mitigation works (*Section 4.1*)), either to formation level or to the top of the natural geology (though, in fact, very little archaeology was found during these works; *Section 5.10*).

4.2.3 ***Cable trench***: the off-site cable trench (*Section 1.1.8;* Fig 3), was *c* 0.6m wide and up to 1m deep and was mechanically excavated along its entire length. The excavation was subject to a continuous archaeological watching brief, so that any significant archaeological remains encountered could be identified, excavated, and recorded. However, in the event, nothing of archaeological importance was found.

4.3 Finds Retrieval and Palaeoenvironmental Sampling

4.3.1 In view of the nature of the archaeological works associated with the new off-site drainage system and the insertion of the off-site electricity cable (*Section 4.2*), no palaeoenvironmental sampling was undertaken, and almost no significant artefacts were recovered. For the Phase 1 mitigation works, artefact recovery and palaeoenvironmental sampling were carried out in accordance with current best practice, following CIfA (2020b) and Historic England (Campbell *et al* 2011) guidelines, and subject to expert advice, in order to minimise deterioration. All artefacts recovered were retained and their stratigraphic positions were accurately recorded, as were those of the bulk soil samples. The latter were between 10 and 40 litres in volume (depending on the size of the deposit to be sampled), except in those cases where the entire deposit amounted to less than 10l, in which case the whole context was sampled. These were taken from appropriate sealed deposits for the purposes of assessing the analytical potential of any preserved plant and insect remains, and for the recovery of small artefacts and cultural residues.

4.4 Post-excavation

4.4.1 The data recovered during the fieldwork were processed and assessed with reference to the project's objectives (*Section 2*). The entire paper, digital, photographic, and material archive was processed and examined for the purposes of the assessment. This included the stratigraphic records (context sheets, plans, and sections), the photographs, and the survey data, as well as the finds, palaeoenvironmental and faunal remains. The methods of processing and assessment used varied with the class of information examined, although in each case it was undertaken in accordance with guidance provided by the Association of Local Government Archaeological Officers (ALGAO) and Historic England (ALGAO 2015; HE 2014), and with the approved project WSIs (OA North 2019f; 2020c; 2020d). During the assessment, the quantity, range, variety, provenance, and condition of all classes of data were evaluated.

4.4.2 ***Stratigraphy***: assessment of the stratigraphy, the results of which are presented in *Section 5*, was facilitated by the digitisation of the context record and the site drawings, together with other relevant documentation, for example the context, finds, and sample indices. The assessment comprised a quantification and qualitative appraisal of the data, resulting in the establishment of a provisional phasing sequence for the site and a preliminary stratigraphic narrative. Spot-dating of stratified pottery and (to a lesser degree) the coins and other datable artefacts recovered, allowed the phasing to be refined slightly during the assessment process, though more detailed stratigraphic work, in conjunction with detailed analysis of the associated artefacts and ecofacts, is required to produce a 'definitive' record of human activity on the site (*Section 9.4*).

4.4.3 ***Finds***: all artefacts underwent visual inspection, and an outline computer record was created using Microsoft Access. Data were recorded in a standardised format, noting provenance, type of object, material, period, and a brief written description. Iron objects were subject to x-radiography and all materials were processed and stored in accordance with current best practice (CIfA 2020b), and subject to expert advice. The results of the assessments for each material category are presented, in a slightly abridged form, in *Section 6*; the full, unabridged specialist reports are lodged in the project archive.

4.4.4 ***Palaeoenvironmental samples***: material from every sample taken was processed for assessment in accordance with current professional guidance (Campbell *et al* 2011) and, in each case, a sub-sample was retained for other forms of specialist analysis. During processing, 10-40l of each sample was hand-floated, and the flots were collected on a 250µm mesh and air-dried. The heavy residues were sorted, and any charred/waterlogged plant remains (CPR/WPR), or charcoal fragments over 4mm in size, were extracted.

4.4.5 Preliminary identification of plant remains and charcoal was made with reference to standard texts (Cappers *et al* 2006; Hather 2000) and a reference collection of modern material. Classification and nomenclature follow Stace (2010) and Hather (2000). The suitability of the samples for analysis and scientific dating was also noted. As with the artefacts, slightly abridged reports on the results of the palaeoenvironmental assessments are presented in this document (*Section 7*), the full reports being lodged in the project archive.

4.4.6 ***Archive***: on completion of the project, a full professional archive will be compiled, in accordance with the project WSIs (OA North 2019f; 2020c; 2020d) and with current CIfA and Historic England guidelines (CIfA 2020c; HE 2015). An OASIS form has been opened (reference: oxfordar2-398982; *Appendix D*). The archive will be deposited with the Grosvenor Museum in Chester.

5 FACTUAL DATA: STRATIGRAPHY

5.1 Archaeological Impact Percentage

5.1.1 Within Zones 1 and 2 (*Section 1.4.1*) of the Phase 1 development, the archaeological impact of the scheme had been estimated prior to commencement of the works, the estimated total being 3.91% disturbance (Table 3). This was regarded as a 'worst-case scenario', and it was anticipated that it would be reduced as the scheme progressed. The disturbance from piling, deemed as 'non-visual' impact, was limited through the use of continuous flight auger (CFA) piles, which confined the impact to the exact size of drill used (Pl 2), allowing the impact to be precisely calculated. The actual impact of the scheme was recalculated upon the completion of the fieldwork in Zones 1 and 2, with the final impact percentage being 2.4%.

Impact Description	Estimated Impact on Zones 1 and 2 (6965m²)	Actual Impact on Zones 1 and 2 (6965m²)
Structural Features		
Piling (192 x 0.6m-diameter piles)	54.29m² (0.78%)	64.08m² (0.92%)
Other Structural elements	79.71m² (1.15%)	37.61m² (0.54%)
Sub-total structural impact	*134m² (1.93%)*	*101.69m² (1.46%)*
Drainage		
Surface-water drain, Hunter Street	53.16m2 (0.76%)	59.90m² (0.86%)
Highway gully connections (3) and gully pots (4), Hunter Street	12.37m² (0.18%)	0.70m² (0.01%)
Foul-water sewer, Princess Street	18.27m² (0.26%)	2.09m² (0.03%)
Sewer manholes (3)	4.95m² (0.07%)	0.00m² (0.00%)
Sub-total structural impact	*88.75m² (1.27%)*	*62.69m² (0.90%)*
Other Services		
Combined service run, Hunter Street	33.40m² (0.48%)	2.79m² (0.04%)
Telecom cable trench, Princess Street	7.15m² (0.10%)	0.00m² (0.00%)
Sub-total other services impact	*40.55m² (0.58%)*	2.79m² (0.04%)
Highways	*9.05m² (0.13%)*	*0.00m² (0.00%)*
Total Archaeological Impact	**272.35m² (3.91%)**	**167.17m² (2.40%)**

Table 3: Archaeological Impact Percentage

5.2 Quantification

5.2.1 The archive of primary stratigraphic data recovered during Phase 1 (Table 4) forms a comprehensive record of the stratigraphic information, with significant remains of archaeological interest having been recorded spatially, graphically, textually, and photographically. As such, it provides the foundation for the understanding of the site and forms a flexible framework, within which the analysis of the other datasets can take place. Very few significant stratigraphic data were recorded during the off-site drainage works and nothing of archaeological importance was found during the excavation of the off-site electricity cable trench.

Record Type	Count
Context sheets	806
Plans	49
Sections	89
Context indices	35
Trench record sheets	2
Trench index sheets	1
Watching-brief record sheets	179
Drawing indices	8
Photo register sheets	175
Environmental sample indices	4
Object indices	31
Digital photographs	9789

Table 4: The stratigraphic archive generated by the Phase 1 works

5.2.2 The structure of the stratigraphic assessment presented here reflects the nature and date of the archaeological findings, which in turn relate, to an extent, to the agreed fieldwork methodologies (*Section 4.1*). Significant archaeological remains were encountered in the majority of the areas that were excavated to a sufficient depth below the modern ground surface, though the great majority of recorded archaeological features and deposits were located in the surface-water drainage trench on the south side of Hunter Street (Fig 8). On the basis of stratigraphical relationships, supported, where the data are available, by datable artefacts (especially pottery), the archaeological remains have been assigned to a series of provisional phases, or periods (Table 5). It is anticipated that some of these periods, particularly those pertaining to occupation within the Roman legionary fortress, will be refined further during analysis.

Provisional Period	Description	Approximate Date (AD)
	Natural geology	-
1	Prehistory and pre-fortress Roman	to *c* AD 75
2	Early Roman fortress	late first- to second century
3	Later Roman fortress	third- to fourth century
4	Fortress abandonment/demolition	fourth- to early fifth century
5	Early medieval Later medieval Post-medieval	fifth- to mid-eleventh century mid-eleventh- to mid-sixteenth century mid-sixteenth- to eighteenth century
6	Industrial Modern	nineteenth century twentieth century

Table 5: Numerical scheme for provisional archaeological periods

5.3 Natural Deposits

5.3.1 Most of the below-ground construction features that were archaeologically excavated or monitored during Phase 1 did not penetrate to a sufficient depth to reveal the natural geology. However, the red sandstone bedrock was recorded in one place at the base of the service-diversion trench on the west side of Northgate Street (*Section*

4.1.2), where, due to extensive modern disturbance and truncation, it was only 0.65m below the modern surface. It was also observed in pile cap C9, on the grassy knoll, and in Core Base 1, on the northern edge of Princess Street (Fig 8).

5.3.2 Prior to the commencement of the Phase 1 mitigation works, the bedrock was recorded in 2015 at between 20.51m and 20.99m aOD in the footprint of the former St Martin's House (OA North 2015), and in 2016 at *c* 1.7m below the modern ground surface on the east side of the former bus exchange, towards Northgate Street (OA North 2016d). However, monitoring of further boreholes elsewhere in the bus exchange in 2017 (OA North 2018a), and of another at the junction of Hunter Street and Northgate Street, suggested that the sandstone lay considerably deeper than this over much of the area, at *c* 2.8-3.5m below the surface. During the same phase of work, bedrock was recorded at *c* 3.7-4m in a borehole at the western end of Princess Street (*ibid*).

5.3.3 Superficial geological deposits, mostly comprising pale reddish-orange or yellow-brown silty sands or sandy clays, lay directly above the sandstone bedrock in C9 and in Core Base 1 (Fig 8) but were not present in the Northgate Street service-diversion trench, where they may have been removed by modern truncation. Very similar natural sands were also recorded at several locations in the surface-water drainage trench that extended east to west along Hunter Street (*Section 4.1.2*), in the lower foundation pile mat for the new market and cinema, in the former bus exchange, and below the south carriageway of Princess Street during evaluation trenching in 2018 (OA North 2018c).

5.3.4 The solid geology of sandstone bedrock, at various depths, was identified in the majority of works monitored on the Off-Site Drainage Route, though it was not encountered in Shaft 1 and the open-cut section between Shafts 1 and 2 on St Martin's Way. Where the bedrock was encountered, it was overlain by the same superficial deposits as in the Phase 1 area, being pale reddish-orange or yellow-brown silty sands or sandy clays. Natural geology was not identified in any of the trenches excavated for the Off-Site Cable Route as the trenches were shallow, approximately 1-1.2m deep at most.

5.4 Period 1 (Prehistory and Pre-fortress Roman Activity)

5.4.1 Although there is limited evidence from the wider Northgate area, and from the city centre as a whole, for activity during prehistory (Beckley and Campbell 2013, 11-3; Ward 2009, 5 (*Section* 2.3)), no prehistoric features were recorded within the Phase 1 area and, with one possible exception (*Section 5.3.2*), no flints, pottery, or other artefacts of this period were recovered, not even as residual material in much later contexts. Neither was any evidence found for Roman activity pre-dating the establishment of the legionary fortress in *c* AD 75 (*Section 2.4.2*). However, in view of the very limited exposure of the earliest archaeological strata that was possible during the investigations, and the paucity, more generally, of direct evidence for a pre-fortress military installation at Chester (Mason 2012, 35-6), this is hardly surprising. That said, it is not beyond the bounds of possibility that some of the stratigraphically earliest features assigned to the primary phase of the fortress (Period 2) could be earlier, but more detailed analysis of the stratigraphy, in conjunction with the

associated pottery and other artefacts, is required before this can be confirmed or denied. For the present assessment, all that can be said with any confidence is that there is currently no compelling reason to associate any of the features and deposits recorded with a phase of Roman activity pre-dating the fortress.

5.4.2 With the exception of a probable tree-throw (*Section 5.4.4*), the only deposits found that might be earlier than the fortress were a few patchy layers of soil that, stratigraphically, lay directly above the natural geology and were cut by the earliest Roman features. A few of these, including ***294***, ***350***, and ***357***, in the surface-water drainage trench on Hunter Street (Fig 9) were very similar in character to the underlying drift geology, being pale reddish/orange-brown or yellow-brown silty sands, *c* 80-120mm thick, and may merely represent the disturbed upper part of the natural material itself. Deposits ***294*** and ***357*** each yielded a single sherd of samian ware, datable to *c* AD 50-70 and *c* AD 70-110 respectively, and a potsherd possibly dating to the early/mid-second century came from ***350*** (*Section 6.3.5*). Whilst the latter is, perhaps, intrusive, ***350*** also produced a copper-alloy Nauheim derivative-type brooch (OR 440; *Section 6.7.4*), datable to the period from *c* AD 25 to the end of the first century AD (Mackreth 2011). Given the total lack of evidence for Iron Age occupation within the areas investigated, an early Roman provenance for this object seems highly likely. However, in view of its context, a late pre-Roman Iron Age origin cannot be completely discounted. Similar pale buried soils to those recorded during the Phase 1 mitigation were also recorded in 2018 and 2019, during preliminary archaeological works adjacent to Princess Street (OA North 2018c; 2020a).

5.4.3 In most other places on the site, the Phase 1 soils comprised dark grey (in one case almost black) or grey-brown silts or sandy silts, mostly 70-100mm thick. These deposits, which were recorded at several locales in the surface-water drainage trench on Hunter Street (*eg* ***323***, ***414***), are tentatively interpreted as remnant buried soils, possibly including turf, representing the old ground surface at the beginning of the Roman period. For the most part, they survived only in very limited areas, and it is possible that, over much of the site, the turf and topsoil were largely removed during construction of the fortress, perhaps for use in the ramparts and other elements of the defences. Layer ***414*** yielded three small samian sherds from a single vessel, datable to the period *c* AD 50-110, and an early second-century greyware fragment (*Section 6.3.5*). These, together with a few fragments of animal bone from Period 1 deposits, may well have been 'trampled' into these soils at the beginning of the Roman period.

5.4.4 Also in this trench, a probable tree throw (***402***) was recorded in the surface of the natural geology. This was only partly exposed within the narrow confines of the trench, and its exact character could not, therefore, be determined. It had irregular, sloping sides and an uneven base, and was filled with a mottled, orange-brown clay-silt, 0.18m thick, overlain by 50mm of dark grey sandy silt.

5.5 Period 2 (The Early Roman Fortress)

5.5.1 The Phase 1 site overlay the central range of the Roman legionary fortress (*Section 2.4.7*), specifically the north-western part of the range (Fig 7; Mason 2012, 56, fig 20b). Given the investigation methodology (*Section 4.1*), however, which prioritised the *in*

situ preservation of archaeological remains, only a very small proportion of the three *insulae* within the site *IXVI, XXI, XXII*) was investigated, and this was especially so in the case of the early Roman levels, as many of the archaeological interventions did not penetrate to a sufficient depth to expose Period 2 deposits.

5.5.2 For the present assessment, Period 2 encompasses all evidence for late first- and second-century activity within the areas investigated (Table 6), with occupation of the third century and later being assigned to Period 3 (*Section 5.5*). Each of the buildings (or, in some cases, building complexes) within the *insulae* has been given an unique number (Fig 10), these having been taken from the run of context numbers issued during the project. The six barrack blocks in *Insula XXII* are, therefore, Buildings ***800***-***805*** (though no evidence of Building ***805*** was recovered**)**; the supposed 'stores compound' in *Insula XXI* is Building ***806*** (seemingly third-century in origin but with earlier (Period 2) deposits beneath); whilst the extremely large building (or complex) in *Insula XVI* is Building ***807***.

Insula number (after Mason 2012)	Late first century AD	Early second century AD	Mid-late second century AD
XXII	Primary timber barracks (Buildings **800**-**805**) rebuilt in the AD 80s	Barracks **800**-**805** rebuilt in stone, or in timber on stone footings	Abandonment or reduced activity in some or all of barracks **800**-**805**
XXI	Two narrow wooden 'stores buildings' (part of building complex **806**) on the south and east sides of the insula; the rest of the block seemingly left open	Reconstruction of the 'stores buildings' of **806** in stone; the rest of the area seemingly left open	No significant change evident
XVI	Construction of a large stone building/building complex (**807**) of uncertain function, occupying the whole insula. This was seemingly unfinished	Completion of first-century building/complex **807**	No significant change evident

Table 6: Early Roman occupation phases (corresponding to Period 2) in Insulae XVI, XXI, *and* XXII*, based on earlier archaeological investigations (Mason 2012)*

5.5.3 No 'formal' attempt has been made at this stage to identify sub-phases within the broad sequence of activity assigned to Period 2, as this would require a level of stratigraphic analysis (and detailed comparison of the Northgate data with datasets generated by earlier archaeological fieldwork in the fortress) that is beyond the scope of the assessment. However, it is evident, from a preliminary assessment of the stratigraphic records, that Period 2 does encompass more than a single phase of activity, and cognisance of this is made in the following narrative, where present evidence allows. What does seem clear is that more detailed analysis of the stratigraphic data, in conjunction with the associated dating evidence, has good potential to refine the sequence of early Roman occupation recorded by the fieldwork (*Section 8.2*).

5.5.4 ***Insula XXII***: what little evidence there is from earlier investigations of the barracks in *Insula XXII* (Mason 2012) suggests that the ground plans of the early structures were

broadly similar to those of the third-century (Period 3) buildings, *c* 80m long, east to west, and *c* 11m wide. However, it is thought that the configuration of rooms in the centurion's quarters may have been slightly different, with rooms arranged around an L-shaped corridor in Period 2 being replaced in Period 3 by ranges of rooms north and south of a central corridor (*Section 5.5.3*).

5.5.5 Of the six east/west barracks in this *insula*, the western part of the northernmost (Building ***800***) was traversed by the surface-water drainage trench on the south side of Hunter Street (*Section 4.1.2*). This was excavated to a depth sufficient to expose Period 2 deposits along part of its length, though little evidence for the layout of the building in its earliest phases was recovered. Nevertheless, it is considered probable that most of the early Roman remains recorded in the trench relate to the development of this building during the late first- to second century AD.

5.5.6 Very little evidence was found for the early phases of the other five barracks (***801***-***805***), largely because the archaeological interventions undertaken over most of the grassy knoll were of very limited size (mostly involving hand-excavation for pile caps and the like), and most were excavated to a relatively shallow depth (in all cases down to the formation level of the respective construction features), which meant that Period 2 deposits were not reached.

5.5.7 *Building **800***: although deposits stratigraphically pre-dating the third-century phase of this barrack were recorded in the surface-water drainage trench, the very restricted area available made interpretation extremely difficult at assessment stage, though it is anticipated that more detailed stratigraphic analysis will address this. It is presumed, however, that the centurion's accommodation was at the western end of the barrack, as was the practice in the Roman army (Johnson 1983, 166-7), though nothing was found that proves this conclusively. Spatial evidence suggests that, on the west, the trench cut across several rooms on the south side of these quarters (in both Periods 2 and 3), whilst further east, it traversed several *contubernia* in the main part of the block.

5.5.8 It may be presumed that the west wall of the Period 2 centurion's quarters was on or close to that of the Period 3 structure (*Section 5.5.4*). In the room at the south-west corner of the later building, the east wall cut a north/south-aligned, earth-filled linear feature (***408***), *c* 1.3m wide at the lip and 0.62m deep, that had been dug into the natural geology. In view of its position, it is possible that this was the foundation trench for the wall of an earlier, wholly timber, structure. Further east, a similar feature (***360***), also aligned north/south, 0.9m wide and 0.35m deep, was recorded that, spatially, might have been a partition wall between two c*ontubernia*; it also stratigraphically pre-dated a Period 3 stone wall (*Section 5.5.7*).

5.5.9 In addition to these potentially early timber wall trenches, which could have been the remains of the earliest (late first-century) phase of barrack ***800***, a north/south-aligned stone wall or footing (***363***), 0.3m wide and 0.3m deep, was recorded directly beneath another Period 3 wall (*Section 5.5.7*), which had been built directly on top of it. An earlier stone wall-footing (***374***) was also recorded beneath one of the Period 3 interior walls of the centurion's quarters (*Section 5.5.5*). Spatially, two other stone wall fragments (***633***, ***794***) seem to be a 'better fit' in the reconstructed plan of the early

Roman barrack than that of the later structure, the latter possibly being part of the north wall of the building, the former part of the footing for the verandah on the south side of the *contubernia*.

5.5.10 These stratigraphically early walls may relate to the early second-century reconstruction attested elsewhere in the fortress (Mason 2012; *Section 2.4.10*), when the late first-century wooden barracks were seemingly rebuilt either in stone or on stone footings. Significantly, sequences of deposits pre-dating the stratigraphically early stone walls/footing were recorded, suggesting that, in addition to putative early construction trenches ***360*** and ***408*** (*Section 5.4.8*), other remains of the late first-century phase of barrack ***800*** were also present in these areas.

5.5.11 *Building* ***801***: in the area of the lower foundation pile mat for the market and cinema, the corner of a stone or stone-footed building extended a short distance into the west side of the area investigated. On spatial evidence, it seems clear that this was the north-east corner of barrack ***801***, only *c* 4.8 x 2.9m being available for investigation. The corner was defined by an L-shaped sandstone wall footing (***522***; Pl 3) that extended to the south and west. This was 0.6m wide and survived to a height of 0.3m. It was built of roughly squared rubble with a core of smaller, undressed stones bonded with pale cream-brown mortar. Internally, the earliest deposits recorded comprised possible levelling/make-up layers of soil and some rubble, beneath a probable floor of mixed, compacted clay. No other internal features or deposits were recorded in the small area investigated.

Plate 3: Period 2: excavation of the lower foundation pile mat for the new market and cinema, looking north, showing the north-east corner of a potentially early second-century phase of barrack ***801*** *(left), as an L-shaped foundation (****522****)*

5.5.12 Although ***522*** itself could not be independently dated (it yielded no pottery or other datable artefacts), the strata associated with it, including those inside the building and external deposits immediately adjacent, yielded pottery exclusively of the late first- to second century AD (*Sections 6.2-3*). Indeed, apart from a handful of later Roman sherds, all the pottery from the Roman levels within this area is of this period, since it is clear that almost all later Roman (Period 3) remains had been removed during archaeological excavations in the late 1970s and early 1980s, prior to the construction of the former bus exchange (Strickland 1982). It seems likely, therefore, that the excavated remains are of this date and, like the stratigraphically early stone footings in Building ***800***, to the north (*Section 5.4.9*), they relate to the postulated early second-century reconstruction that is attested elsewhere in the fortress (Mason 2012; *Section 2.4.10*). However, unlike ***800***, no evidence for earlier, wholly timber, phases was found. No features or deposits attributable to Period 2 were found elsewhere in Building ***801***, though this was almost certainly a result of the few archaeological interventions undertaken within its footprint being not excavated to a depth sufficient to expose early Roman levels.

5.5.13 *Building* ***802***: only two small archaeological interventions lay within the footprint of Building ***802*** (Fig 10) and nothing certainly attributable to Period 2 was recorded. However, spatially, a small fragment of a north/south-aligned stone wall (***657***), recorded between piles 123 and 124 (Fig 8), seems to have a concordance with the estimated line of the west wall of the *contubernia* block in the Period 2 structure, rather than with any of the predicted wall lines of the Period 3 building.

5.5.14 *Building* ***803***: like Building ***802***, only a few small, relatively shallow interventions, mostly involving the hand-excavation of pile caps, were placed within the area of barrack ***803***, and little can be assigned to Period 2 with any confidence. However, spatial evidence provides a strong indication that a pair of parallel, east/west-aligned stone walls recorded in pile cap C9 (***727***, on the south; ***725***, to the north) were associated with the early Roman phase of this structure, since they correspond, respectively, to the estimated positions of the north wall of the Period 2 *contubernia* block and the footing for the verandah on the north side of the block, but do not align nearly so well with the predicted walls of the Period 3 barrack (*Section 5.6.11*). What was probably another section of the north wall of the *contubernia* block (***603***) was exposed in a pile cap immediately to the east, whilst a small fragment of the verandah wall (***756***) was found in another pile cap to the west. In the extreme south-east corner of the same pile cap, a small fragment of north/south walling (***757***) might have been part of a partition wall between two of the *contubernia*.

5.5.15 *Building* ***804***: a larger, deeper, intervention was required on the southern edge of the grassy knoll, adjacent to the north side of Princess Street, for Core Base 1 (*Section 4.1.2*). Most of the archaeological strata had, however, been destroyed by later development, so that only a small area of Roman deposits survived. Spatially, it seems likely that these lay within the western end of Building ***804*** (the central and eastern part of this barrack extended beneath modern Princess Street), but little more can be said about them. Of the four small, shallow features that can be assigned to Period 2 with some confidence (all cut the natural clay and were sealed by a 'levelling' deposit attributed (on ceramic evidence) to Period 3 (*Section 5.5.12*)), the only one of any note

was a pit (***686***), possibly oval in plan (though it extended south of the trench edge), *c* 1.2m long (east/west) and 0.92m deep, with a rounded, bowl-shaped profile and a fine, pale olive-green sandy silt fill.

5.5.16 ***Insula XXI***: all the evidence for Period 2 activity within *Insula XXI* came from the area of the lower foundation pile mat for the market and cinema (*Section 4.1.2*; Pl 3), as this was the only area investigated in this part of the fortress. There, it was found that archaeological excavations during the late 1970s and early 1980s, prior to the construction of the former bus exchange (Strickland 1982; *Section 5.4.12*), had removed almost all deposits relating to the later phases of the fortress (Periods 3 and 4 in the present assessment), except for two later stone walls (*Section 5.5.14*). Consequently, the great bulk of the Roman remains in this area relate to Period 2, as is demonstrated by the date of the pottery from these levels, which, with the exception of a few certainly intrusive sherds, is entirely of the late first- to second century AD (*Sections 6.3.6-9*). The principal remains include features and deposits pre-dating Building ***806***, in the eastern part of the trench, and the poorly preserved remains of the north/south street defining the western edge of *Insula XXI*, separating it from the barracks in *Insula XXII*.

*Plate 4: Period 2: kiln **549**, looking east*

5.5.17 *The area beneath Building **806***: stratigraphically, the earliest deposit encountered in the eastern part of the site was a spread of quite loose, red-brown sandy silt, at least 0.22m deep (its base lay below formation level). This produced 30 sherds of late first- to early second-century pottery (*Section 6.3.6*) but was not obviously associated with any other features or deposits. Perhaps the most significant feature was what seems to have been the base of a kiln (***549***), only the western half of which lay within the site

(Fig 11; Pl 4). This was 2m long, comprising a roughly circular chamber (unlined), *c* 1m in diameter and over 0.4m deep (its base lay below formation level and was retained *in situ*), with a flue on the south. The whole feature was filled with layers of ashy silt and charcoal-rich soil. On its west side was a poorly preserved surface of cobbles and flat sandstone fragments that was overlain by spreads of dark soil. A small pit (***555***), 0.5m in diameter and 0.15m deep, was found in the same area, also sealed by the dark soils. Immediately north of ***549*** was another circular pit (***580***), 0.9m in diameter and 0.25m deep, whilst further north still, on the extreme northern edge of the area investigated, was an accumulation of dark grey/black, charcoal-rich soils (***514***, ***519***, ***548***, ***560***). These yielded large quantities of pottery (the bulk of late first- to early second-century date, with a small early/mid-second-century component; *Sections 6.2-3*), animal bones (*Section 7.2*), and other finds suggestive of refuse disposal; this was also sampled for palaeoenvironmental evidence (Pl 5).

Plate 5: Period 2: palaeoenvironmental sampling of 'refuse' deposits in Insula XXI

5.5.18 *The north/south street*: on spatial evidence, the western part of this area extended across the line of a major north/south road, *c* 9m wide, separating *Insula XXI* from the barracks in *Insula XXII*. Most of this had seemingly been removed by excavation in the late 1970s/early 1980s (*Section 5.4.12*), but the patchy remans of a metalled surface, composed of cobbles, pebbles, and sandstone fragments were recorded (Pl 6), overlying possible levelling deposits. Traces of at least two subsequent resurfacings or (since the deposits were localised and fragmentary) minor repairs were also found.

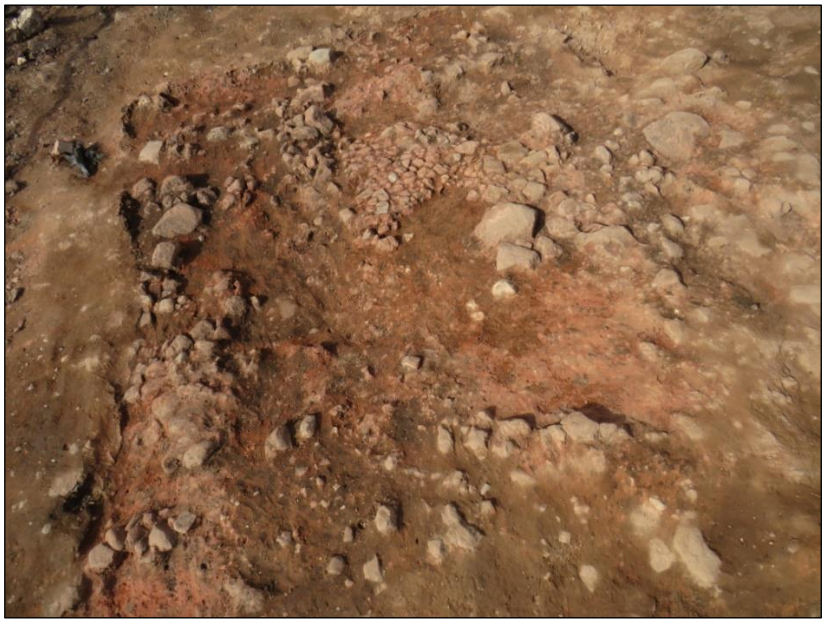

Plate 6: Period 2: the metalled surface of the north/south road between Insulae XXI *and* XXII*, looking north*

5.5.19 As was the case with almost all the other Roman remains in this area, virtually all the pottery from deposits associated with the street is of early Roman date, with the great bulk dating to the late first-early second century (*Sections 6.2-3*). A small amount of diagnostic early/mid-second-century material was also recovered from a few layers, but later pottery is limited to a handful of third-century fragments that can be regarded as intrusive.

5.5.20 ***Insula XVI***: most of the Roman remains recorded within the eastern *insula* within the scheme were found in the narrow service-diversion trench that extended north-west to south-east along the west side of Northgate Street, on the extreme eastern edge of the development site (*Section 4.1.2*), though a few were also recorded elsewhere. In terms of the layout of the fortress, the trench was approximately on the long axis of Building ***807***, the huge courtyard building (or, possibly, a structural complex arranged around a courtyard), measuring some 160m, north to south, by 65m wide, which occupied the whole of *Insula XVI* (Mason 2012, 80-1; *Section 2.4.12*). The function of this structure is unclear; although it has been suggested (Strickland 1982, 21) that it may have been the fortress's hospital (*valetudinarium*), this remains uncertain.

5.5.21 The circumstances of the archaeological investigations in this area, which comprised a watching brief maintained during mechanical excavation of the service-diversion trench, were such that it proved difficult to characterise, let alone date, the features and deposits exposed. This was compounded by extensive modern disturbance, resulting from the insertion of (pre-existing) service runs and other roadworks, and by the fact that, along much of the trench, the full sequence of archaeological strata was not exposed (the lower levels being below formation level), and very little pottery was recovered. Consequently, it was frequently impossible to determine exactly where in the stratigraphic sequence a particular feature or deposit should be placed, or even, in some cases, if it was of Roman or post-Roman date. In several places, the trench cut across (on a more-or-less perpendicular alignment) east/west-aligned stone walls that

appeared 'Roman' in character. However, whilst these were almost certainly related to Building ***807***, it was not possible to know which (if any) belonged to the earlier phases of that structure, and which were of later Roman date. The fact that ***807*** appears to have been stone-built from the beginning (*ie*, it does not seem to have had an early timber phase (Mason 2012, 80-1)) only exacerbates the problem.

5.5.22 Given these issues it has, for the purposes of the present assessment, been deemed prudent to assign all the Roman walls exposed, together with any other deposits that can be confidently associated with them, to Period 3 (*Sections 5.5.16-17*). It is, however, possible that more detailed analysis of the stratigraphy, and of the associated pottery (such as it is), will allow the sequence of Roman occupation in this area to be refined.

5.6 Period 3 (The Late Roman Fortress)

5.6.1 Period 3 encompasses the later history of the fortress, from the extensive refurbishment and reconstruction of the early third century AD (*Section 2.4.6*) to the fourth century. As with the late first- to second-century occupation (Period 2), earlier archaeological work in the Northgate area has revealed evidence for sequences of late Roman activity in each of the investigated *insulae* (*XVI*, *XXI*, *XXII*; Fig 12; Table 6). As with Period 2 (*Section 5.4.3*), no attempt has been made at this stage to identify sub-phases of activity within the strata assigned to Period 3, since this would require more detailed stratigraphic analysis. Building numbers follow those assigned to the Period 2 structures (*Section 5.4.2*).

Insula number (after Mason 2012)	Early third century AD	Mid-late third century AD	Fourth century AD
XXII	Second-century barracks (Buildings **800**-**805**) rebuilt in stone	Barracks **800**-**805** fall into disrepair	Barracks **800**-**805** seemingly derelict
XXI	Whole insula occupied (for the first time) by a stone building complex (**806**), interpreted as a possible stores compound	Complex **806** remains in use; no significant changes evident	Complex **806** seemingly remains in use; evidence for gold working towards the northern end
XVI	Extensive reconstruction of second-century building/complex **807**	Building/complex **807** remains in use; no significant changes evident	Building/complex **807** remains in use; no significant changes evident

Table 7: Later Roman occupation phases Insulae XVI, XXI, *and* XXII*, based on earlier archaeological investigations (Mason 2012)*

5.6.2 ***Insula XXII***: the best evidence for the development of the barrack blocks in *Insul*a *XXII* (Fig 12) came from the northernmost structure (Building ***800***), the western part of which was cut, longitudinally, by the surface-water drainage trench on the south side of Hunter Street (*Section 4.1.2*). Comparatively little or no evidence was found for the other five barracks (***801***-***805***), because the archaeological interventions undertaken in the relevant parts of the grassy knoll were mostly of very small size. However, as the Period 3 remains were generally at a higher level than those of Period 2 (*ie* they were at a shallower depth below the modern surface), they were more frequently encountered, especially where late post-medieval or modern groundworks had

removed most of the overlying post-Roman levels. Consequently, Period 3 remains were recorded in many more of the archaeological interventions on the grassy knoll than was the case for Period 2, though, given the small size of the areas investigated, the evidence mostly comprised short sections of sandstone walling associated, in some places, with a few other deposits.

5.6.3 *Building **800***: although the remains of Building ***800*** could be investigated only within the narrow confines of the Hunter Street surface-water drainage trench, the work was notable for the fact that the trench traversed the centurion's accommodation at the western end of the block, as well as several of the adjacent *contubernia* (each of which would have accommodated eight soldiers). From earlier work on the barracks in *Insula XXII* (Mason 2012), the centurion's quarters are thought to have been rectangular, *c* 25m long east to west, and occupying the full width of the block (*c* 11m), with two east/west ranges of rooms north and south of a central corridor (Fig 13). The limited evidence available suggests that all six houses conformed, more-or-less, to the same ground plan, though the extent to which individual officers may have been permitted to modify the 'standard' layout is not known.

5.6.4 In ***800***, the west wall of the centurion's quarters (and, indeed, of the whole barrack block) survived within the trench as a fragment of sandstone walling (***175***), 0.75m wide. A fragment of the east wall (***331***) was also exposed. Between these, the trench cut across five rooms in the south range (west to east: R1-R6), defined by north/south walls (west to east: ***251***, ***190***, ***186***, ***207***); part of the north wall of the range, separating it from the central corridor, was also exposed (***197***/***202***). All the recorded walls were of similar size (*c* 0.5-0.55m wide) and construction, being of coursed sandstone rubble, faced with roughly dressed blocks (squared rubble) and bonded (in the few instances where this had survived) with pale cream/brown mortar.

5.6.5 Whilst some of the recorded walls conform, approximately, to the postulated groundplan of the building, others, notably ***190*** and ***207***, do not, suggesting that the internal layout may have differed, in detail at least, from the 'predicted' model. The westernmost room (R1) had a crude flagged surface (Pl 7) and R2 and R3 were floored with mixed clay and mortar. R4 and R5 appear to have been the best-appointed rooms investigated, since they had *opus signinum* floors (Pl 8) and the walls were rendered with a smooth, off-white plaster, as was the south wall of the central corridor, adjacent to R5. In places, this survived *in situ* on the walls themselves (*Sections 6.15.2-5*; Pl 9) whilst other fragments were found where they had fallen. Traces of paint were found on west face of wall ***215*** (the east wall of R4), where blue paint had been applied at the base of the wall. A small collection of 'detached' fragments, painted with a variety of colours, was recovered from deposits within, and adjacent to, the centurion's accommodation (*Sections 6.15.6-8*).

*Plate 7: Period 3: the flagged floor of R1 in the centurion's quarters of barrack **800**, looking east*

*Plate 8: Period 3: the opus signinum floor of R4 in the centurion's quarters of barrack **800**, looking north-east*

Plate 9: In situ *plaster on the east face of wall **186**, in the centurion's quarters of barrack **800**, looking west*

5.6.6 That the accommodation underwent some structural modification during its lifetime was evidenced by a reconstruction of the east wall (***207***). In R4, an occupation horizon had accumulated over the *opus signinum* floor before the room was resurfaced with clay.

5.6.7 The centurion's quarters were separated from the *contubernia*, to the east, by a narrow north/south corridor. A fragment of the east wall of this was recorded (***257***) and was found to have been rendered with plaster. What may have been a fragment of the north wall of the *contubernia* block (***795***) and a partition between two of the compartments (***262***) were also found, together with what may have been a poorly preserved mortar floor, to the east of ***262***, but few other internal deposits were recorded in this area.

5.6.8 South of Building ***800***, deposits of rubble and dark soil, associated with the abandonment/dereliction of the barracks in *Insula XXII* at the end of the Roman period (Period 4; *Section 5.6*), were recorded in several of the smaller archaeological interventions on the grassy knoll. In most of these, the formation levels of the construction features lay above the base of the Period 4 deposits, so nothing is known of earlier structures. However, several fragments of Roman stone walling, all of similar size and construction to those in ***800***, were recorded in some of these interventions, the tops of the walls being visible through the Period 4 debris, and it is clear that these represented elements of some of the barracks (Buildings ***801***-***805***) south of ***800***. Furthermore, given what is known of the internal layout of *Insula XXII* from earlier investigations (Mason 2012), it has proved possible to assign, with a reasonable

degree of confidence, most fragments of walling to one of the five barracks in this area.

5.6.9 *Building **801***: only a few wall fragments were recorded that are considered likely to have formed part of this barrack. Spatially, it is possible that fragment ***768*** was part of the north wall of the centurion's quarters, and ***772*** could have been the north-east corner of this building, though both are slightly 'off line' from their predicted positions. The same can be said of walls ***771*** and ***786***, which may have been part of the verandah on the north side of the *contubernia* block; another fragment (***767***) does, however, align perfectly with the predicted line of the verandah.

5.6.10 *Building **802***: the only recorded feature that can be assigned to the Period 3 phase of this building is north/south wall ***634***, in pile cap B7, This corresponds precisely to the predicted position of a partition wall in the north range of the centurion's quarters.

5.6.11 *Building **803***: in this structure, a small fragment of a north/south wall in pile cap C8 (***759***) corresponds to the predicted location of a partition in the *contubernia* block. However, a short section of east/west walling in the same pile cap (***757***) does not conform to the predicted plan. Possibly, this represents a modification to the original design, or it may be that the predicted floor plan is inaccurate in detail.

5.6.12 *Building **804***: no walls or other structural features certainly attributable to this structure were recorded. However, the few Period 2 remains (*Section 5.4.15*) were sealed by a thick layer of redeposited natural sandy clay (***706***=***707***). This yielded third-century pottery and may, therefore, represent a levelling/make-up deposit associated with the (presumed) later Roman phase of the barrack.

5.6.13 ***Insula XXI***: for the most part, Roman remains within this *insula* were recorded only in the area of the lower foundation pile mat for the market and cinema where, as a result of the extensive excavations undertaken in the late 1970s and 1980s (Strickland 1982), almost all the later Roman strata had been removed, leaving only those of the earlier Roman period (Period 2) *in situ* (*Sections 5.4.17-20*). In fact, with the exception of a handful of late third/fourth-century potsherds, recovered from either post-Roman cut features that had penetrated the early Roman levels, or were intrusive in earlier deposits, the only Period 3 features recorded were two clearly related sandstone walls (***503***, ***504***; Fig 12; Pl 10) that had been left *in situ* by the earlier excavators. The most substantial of these (***504***), 0.77m wide, extended north to south across the full width of the area investigated, though its western end had been removed by a post-Roman pit. On the evidence from the earlier excavations in this area (Strickland 1982), it seems clear this was the west wall of Building ***806***, the putative 'stores depot' or compound that was erected during the early third century (*op cit*, 12), despite the fact that it is slightly off the predicted wall line. Towards the south-east corner of the area investigated, a wall of similar type, but only 0.35m wide (***503***), extended east from ***504*** to the edge of the site (though the physical relationship between the two walls had been destroyed by a post-medieval feature), presumably forming an internal partition in the building's west 'range'. No internal deposits contemporary with the walls were found, nor had any third- to fourth-century levels survived on the north/south street to the west, these having presumably been removed by excavation during the late 1970s.

*Plate 10: Period 3: Building **806**, looking west, showing the main west wall (**504**) and internal wall **503***

5.6.14 Immediately east of this area, a fragment of a north/south-aligned sandstone wall (***612***), 0.6m wide, was exposed during excavation of a new manhole on the south side of Hunter Street. Spatially, this must have formed part of Building ***806,*** presumably part of an internal partition wall, though little more can be said about it. The only other features that can be associated with ***806*** are an east/west wall (***742***), recorded in a service trench that traversed the southern part of the building, and a possible north/south masonry fragment, found in an evaluation trench in 2016 (OA North 2016b. 19-20) both of which were probably internal partitions in the east range.

5.6.15 ***Insula XVI***: Roman remains within *Insula XVI* were recorded mostly within a narrow service-diversion trench extending north-west to south-east on the west side of Northgate Street, which was subject to an archaeological watching brief. Several certain or probable Roman stone walls were recorded at intervals along the trench, which presumably formed part of Building ***807***, the large courtyard structure that occupied the entire *insula* throughout the Roman period, and which was seemingly stone-built from the outset (Mason 2012, 80-1). However, the circumstances of the watching brief, together with the paucity of associated pottery, meant that it was impossible to know to which of the building's several structural phases (as evidenced by earlier excavations (Strickland 1982)) each of these walls should be assigned. Consequently, it was thought prudent to assign all to Period 3 for the purposes of the present assessment, though more detailed stratigraphic analysis may permit the sequence of occupation to be refined.

5.6.16 Most of the walls in the Northgate service trench were seemingly aligned east to west. Where preservation permitted the character of the walls to be adequately determined, all were found to have a sandstone rubble core faced with squared blocks and were 0.55-0.8m wide, several recorded as having been bonded with mortar. Few other deposits could be associated with the walls with any degree of confidence,

though in one place, a compacted pebble surface seemingly abutted one of the walls and was sealed by a soil with extensive iron staining. Elsewhere, a section of what was clearly (on spatial evidence) the west wall of Building ***807*** (***434***) was recorded on the north side of Princess Street, where it was traced for over 5.5m, and a few other fragments of walling (***133***, ***10019***, ***11002***) probably represent internal partitions within the structure.

5.7 Period 4 (Abandonment/Dereliction of the Fortress)

5.7.1 In most of the areas investigated, except where nineteenth/twentieth-century groundworks had resulted in truncation, the latest Roman structural remains of Period 3 were overlain by deposits of earth and rubble representing the abandonment and dereliction of the fortress buildings. The exception was in *Insula XXI,* where the excavations in the late 1970s had removed all the later deposits. Most had clearly accumulated after the buildings had been demolished to (at most) a few courses above ground level, since they overlay the tops of the walls as they survived. In a few places, however, wall stones had been robbed sometime later, as evidenced by robber trenches dug through the earth and rubble spreads.

5.7.2 These deposits were themselves sealed, in many areas, by comparatively stone-free dark soils that appear to have accumulated over many centuries, potentially, in some places at least, from the end of the Roman period into the post-medieval period (Period 6-7; *Sections 5.8.5-7*). In some parts of the site, though, these had also been removed by modern groundworks, so that Period 4 levels were directly cut and/or sealed by features and deposits of nineteenth/twentieth-century date.

5.7.3 ***Insula XXII (Buildings 800-805)***: in many of the smaller archaeological interventions within *Insula XXII*, the formation levels of the construction features were such that only the upper parts of the Period 4 deposits were excavated. However, of the six barrack blocks within this *insula*, the western end of the northernmost (Building ***800***), including the centurion's quarters, was traversed by the surface-water drainage trench on the south side of Hunter Street (*Section 4.1.2*). This was deep enough to expose the full thickness of the Period 4 deposits.

5.7.4 Some of the stratigraphically earliest Period 4 deposits comprised spreads of coarse sandstone rubble, frequently including dressed facing blocks, and ceramic tiles, with little or no admixture of soil, which were recorded in several of the rooms in the south range of the centurion's quarters. These seemingly derived from demolished/collapsed walls, since they were almost invariably situated adjacent to a levelled wall, in some cases either wholly or partly overlying it, in others lying alongside, presumably having 'tumbled' from a higher level. In one place, adjacent to the north face of wall ***197***, a thin layer of dark soil containing mortar fragments and pieces of wall plaster had accumulated, the plaster seemingly having collapsed from the face of the wall.

5.7.5 These 'primary' rubble deposits were overlain by more extensive spreads of mixed dark earth and rubble that also accumulated over the latest Period 3 occupation levels where the rubble was not present. In the centurion's quarters, such soils were present in all the rooms investigated and were *c* 0.2-0.5m thick. A robber trench, dug to

remove stone from wall ***257***, the east wall of the corridor between the centurion's quarters and the *contubernia* block (*Section 5.5.7*), had been cut through the adjacent earth and debris, indicating, presumably, that this wall had stood proud of the demolition deposits to a sufficient height to be visible to stone robbers.

5.7.6 Further south, rubble and rubble/earth deposits attributable to Period 4 were recorded in several of the smaller archaeological interventions on the grassy knoll. In most cases the formation levels of the construction features lay above the base of the Period 4 deposits, so their full thickness could not be established. However, spatial evidence shows that, in addition to the Period 4 strata within Building ***800***, deposits of this type were present in barracks ***801***-***804***.

5.7.7 Very similar materials attributable to Period 4 were exposed (but not, for the most part, excavated) in several test-pits and evaluation trenches in 2015-19 (*Section 2.2.4*), including the south side of Hunter Street (OA North 2015) and in the carriageway itself (OA North 2019d). All were doubtless associated with Building ***800***. The rubble in the carriageway of Princess Street (OA North 2018c) possibly, but not certainly, related to barrack ***805***, the only Roman remains associated with this structure.

5.7.8 ***Insula XVI (Building 807)***: a small archaeological excavation adjacent to Northgate Street, on the site of a new manhole, revealed a spread of coarse sandstone rubble (including dressed blocks), at least 0.15m thick. This was adjacent to, and presumably derived from, a Period 3 wall (***612;*** *Section 5.5.15*; Fig 12), which is thought to have formed part of Building ***807***. Also in this area, and presumably within the footprint of the same structure, a few dark soil and rubble deposits were recorded (largely in section) in the service-diversion trench on the west side of Northgate Street. These included layers containing quantities of wall plaster and mortar fragments, and others that directly overlay probable structural elements of Building ***807***.

5.8 Period 5 (Post-Roman – Early Post-medieval)

5.8.1 No pottery or other artefacts of early medieval date were recovered from the site and the assessment found no unequivocal evidence for activity during this period. However, four pits (***209*** (towards the western end of the surface-water drainage trench on Hunter Street); ***769***, ***773***, ***775*** (in pile cap Row A, on the northern edge of the grassy knoll) and a posthole (***760***, in pile cap C8, further south on the knoll); Fig 14), recorded during the mitigation works, are conceivably of this date. All were filled with dark grey/black silty clay soils and ***209*** seemingly had a crude cobble lining. All had been dug through the soil and rubble deposits marking the abandonment and decay/demolition of buildings within the Roman fortress (Period 4; *Section 5.6*), and were directly sealed by late post-medieval or modern deposits. Even pit ***209***, as the most well-stratified element of the group, was sealed by an accumulation of dark soil that can only be broadly assigned to the later medieval/early post-medieval period. More widely in the Northgate development site, evidence for early medieval activity is often limited to cut features dug into late Roman demolition deposits, some of which have yielded diagnostic pre-Norman pottery (Ward 1994).

5.8.2 Few features can be interpreted as later medieval or earlier post-medieval activity, though layers of dark soil (*Section 2.5.4*) appear to have accumulated throughout

these periods. This is consistent with the wider archaeological evidence from the Hunter Street area, which suggests a rather dispersed pattern of medieval and post-medieval settlement (*Sections 2.6.6; 2.7.6-8*), and with cartographic depictions of the eighteenth and earlier nineteenth centuries, which show that, to the north of the Princess Street frontage, large areas remained undeveloped well into the nineteenth century (*Section 2.7.7*).

5.8.3 Features producing later medieval pottery, or were stratigraphically thought to be of this period, were recorded in three parts of the site: the two service-diversion trenches (surface-water and gas) on the south side of Hunter Street, and the lower foundation pile mat for the new market and cinema, in the former bus exchange. The majority were in the surface-water trench, where four linear features (***249***, ***289***, ***313***, ***324***), aligned approximately north to south, were exposed only in a very limited area, since they extended beyond the narrow confines of the trench in both directions. One (***324***) had a width greater than 0.7m (at 1.45m), the others ranging from 0.55m (***289***) to 0.68-0.7m (***313*** and ***249*** respectively). It seems likely that ***324*** was a ditch, 0.76m deep, with an open, V-shaped profile, filled with a single deposit of orange-brown silty clay, distinct from the fills of the other features, which were mostly mid-dark grey or grey-brown sandy soils. Feature ***249*** was also V-shaped (0.47m deep), though with steeper sides than ***324***, whilst ***289*** and ***313*** (0.5m and 0.65m deep respectively) were steep-sided with flat bases. In view of their narrow width and profiles, it is possible that these latter features were construction trenches for the walls of medieval timber structures. However, they were not obviously associated with any other structural remains, and there was no evidence for any wooden sill beams or uprights. Ditch ***324*** was substantial enough to have served as a boundary, whilst ***249*** is probably best described as a 'gully'. What may have been a small, later medieval, pit (***291***), filled with dark soil, was also recorded in this part of the site.

5.8.4 A small pit (***506***) in the area of the lower foundation pile mat may have been medieval in date. Four pits of this period were recorded (***10018***; ***10022***; ***10024***; ***10026***; Fig 14) in the gas-diversion trench on Hunter Street, though all extended beyond the limits of the trench and beneath formation level, so their precise character and size remain unknown. Feature ***10018*** was, however, substantial, being 2.92m long and at least 0.8m deep, whilst ***10024*** was over 1.22m in length, the other two features being rather smaller.

5.8.5 The few seemingly early post-medieval features were located in the area of the lower foundation pile mat, with the exception of a single linear feature (***302***) in the surface-water drainage trench on Hunter Street. This was aligned north to south, creating a near-vertical-sided, flat-bottomed trench, 0.65m wide and 0.68m deep. This could conceivably have been a robber trench for an otherwise vanished wall.

5.8.6 It is clear that the dark loam soil continued to accumulate into the post-medieval period (Pl 11). Where best preserved, this attained a thickness of up to 0.6-0.8m, and yielded both later medieval and post-medieval pottery, as well as residual Roman material. Elsewhere, notably on the west side of Northgate Street, it was much shallower, only 0.2-0.3m deep at most (and frequently less), or was absent altogether, having presumably been truncated by nineteenth/twentieth-century groundworks.

Plate 11: Post-Roman 'dark earth' above late Roman demolition deposits

5.8.7 In the area of the lower foundation pile mat within the former bus exchange, only cut features of post-Roman date remained, although the seven features found could not be closely dated. Two were small pits (***529***, ***559***), three were postholes (***531***, ***533***, ***535***), and two were intercutting gullies or shallow ditches (***530***, cutting ***542***).

5.9 Period 6 (Industrial and Modern)

5.9.1 Remains dating to the nineteenth century were restricted mainly to fragmentary and generally poorly preserved brick and sandstone walls, recorded at various locales within the site, notably on the frontages of Hunter Street, Princess Street and Northgate Street. It is evident that these features were the remains of Victorian buildings that once occupied these streets, which are depicted on the Ordnance Survey town plan of Chester, surveyed in 1872 (OS 1874a; Fig 7). However, preservation was so poor that the deposits have little archaeological significance, although some appear to have been associated with some of the more notable buildings depicted on the historical mapping, such as the Bishop Graham Memorial Ragged School on Princess Street, the Masonic Hall on Hunter Street (the cellar for which was encountered), and a coach works on Northgate Street. Several features and deposits were also recorded during the preliminary investigations (*Section 2.2.4*) which belong to this period (Table 8).

Date	Survey description	References
March/April 2016	A brick wall in the former bus exchange may have been part of the west boundary wall of the former Hunter Street School. Other wall fragments were probably associated with nearby Victorian housing.	OA North 2016d

Date	Survey description	References
March 2018	Several brick-wall fragments and part of a brick cellar, at least 2.6m deep, beneath the south carriageway of Princess Street, and immediately to the south. represent the remains of nineteenth-century buildings that had fronted the street prior to its modern widening, and are depicted on Ordnance Survey (OS) mapping of the period (OS 1874a).	OA North 2018c
August 2019	On the grassy knoll, a brick wall with concrete foundations probably formed part of the Ragged School on the north side of Princess Street (OS 1874a).	OA North 2019c
August 2019	Test-pitting in the carriageway of Hunter Street exposed an earlier road surface of stone setts.	OA North 2019d
September/October 2019	Test-pitting against the south wall of the Coach House Inn, on Northgate Street, revealed the wall's sandstone foundations.	OA North 2019e
December 2019	On the grassy knoll, a brick cellar, together with other wall fragments and demolition debris, represent the remains of nineteenth-century buildings fronting Princess Street. A brick wall in the former bus exchange may have been the north wall of the Consolidated School, depicted on late nineteenth-century mapping (OS 1874a).	OA North 2020a

Table 8: Nineteenth century remains recorded during preliminary archaeological works within the Phase 1 site, 2016-19

5.9.2 Various modern features and deposits, dating, approximately, from the beginning of the twentieth century to the present day were identified. These were largely modern service runs, road surfaces and pavements (including the hardcore or aggregate beneath these), foundations, topsoils, and so on.

5.10 The Off-site Drain and Electricity Cable

5.10.1 No significant archaeological remains were observed during the watching brief maintained during excavation of the off-site cable trench, and little of importance was recorded during monitoring of groundworks for the off-site surface-water drain. The only discovery of note occurred during monitoring of the construction of Shaft 5; Fig 3), where, a fragment of a potentially Roman sandstone wall, aligned approximately north/south, was observed in the eastern part of the shaft. Elsewhere, with the exception of modern deposits, the only features were a few fragments of post-medieval (probably nineteenth-century) walling, recorded in several of the shafts, and a broadly contemporary cellar, with stone walls and a flagstone floor, in Shaft 3. Together, these features represented the poorly preserved remains of buildings that had occupied street-frontage positions prior to the widening of many of the city-centre roads in the mid-twentieth century, and the construction of new roads such as St Martin's Way and Nicholas Street.

6 FACTUAL DATA: ARTEFACTS

6.1 Introduction

6.1.1 A moderate assemblage of artefacts was collected during fieldwork. These have been divided into material category and recorded (Table 9).

Material	Quantity	Weight (g)
Pottery		
Samian ware	166	2170
Mortaria	68	6607
Amphorae	187	23,482
Other Roman pottery	2326	36,221
Later medieval pottery	83	1452
Post-medieval pottery	283	3915
Metalwork		
Coins	10	-
Copper alloy	134	-
Iron	1598	-
Lead	37	-
Other finds		
Industrial residues (excluding hammerscale)	309	4032
Bone objects	4	-
Glass	208	-
Stone objects	57	-
Clay tobacco pipe	94	-
Ceramic building materials	1836	135,202
Leather	6	-

Table 9: The artefactual assemblage

6.2 Samian Ware

6.2.1 Some 166 sherds of samian ware, weighing 2170g, were recovered during the project. Each sherd was recorded individually and provisionally identified to form and fabric,

following which the assessment data were entered onto a spreadsheet and a spot-date was assigned to each context-group. Fabric codes (Table 10) are taken from the *National Roman fabric reference collection* (Tomber and Dore 1998), whilst form codes (Table 11) follow standard typologies (*cf* Webster 1996).

Fabric code	Description	No sherds	Weight (g)	No vessels
LEZ SA1	Central Gaulish (Lezoux), first century AD	1	1	1
LEZ SA 2	Central Gaulish (Lezoux)	78	1421	53
LGF SA	South Gaulish (La Graufesenque)	81	672	65
LMV SA	Central Gaulish (Les Martres-de-Veyre)	4	62	4
RHZ SA	East Gaulish (Rheinzabern)	1	13	1
SA	Unsourced	1	1	1
Total		***166***	***2170***	***125***

Table 10: Quantification of samian ware by fabric type

Form*	Fabric code						
	LGF SA	**LEZ SA 1**	**LMV SA**	**LEZ SA 2**	**RHZ SA**	**SA**	***Total***
Bowl	9		1	6			***16***
Bowl/cup	1						***1***
Bowl/dish	8			5	1		***14***
Cup	1						***1***
Curle23				1			***1***
Dish	4			3			***7***
Dr15/17	2						***2***
Dr18	5						***5***
Dr18/31			1	3			***4***
Dr18/31 or 31				3			***3***
Dr18 or 18/31	1		1				***2***
Dr18 or 18R	1						***1***
Dr18R	1						***1***
Dr27	10			1			***11***
Dr29	5						***5***
Dr31				7			***7***
Dr31R				1			***1***
Dr33				7			***7***
Dr36				1			***1***
Dr37	9		1	8			***18***
Dr38				1			***1***
Dr42	1						***1***
Indeterminate	6	1		4		1	***12***
	LGF SA	**LEZ SA 1**	**LMV SA**	**LEZ SA 2**	**RHZ SA**	**SA**	***Total***
Jar/beaker				2			***2***
O&PLV13	1						***1***
Total	***65***	***1***	***4***	***53***	***1***	***1***	***125***

*vessel types follow the form numbers developed by Dragendorff (Dr), Curle, and Oswald and Pryce (O&PLV), For an explanation of and references to these, see Webster 1996

Table 11: Quantification of samian ware by form and fabric type

6.2.2 ***Condition***: the condition of the assemblage is mixed. The mean sherd weight is 13.1g, which reflects an assemblage fragmented to a variable degree. The majority of the samian (65%, by sherd count) was recovered from contexts dating to the third century AD or later, and must, therefore, be residual. However, surfaces are generally well-preserved, with little sign of wear or abrasion. These factors suggest that much has been redeposited to a greater or lesser degree but has not, on the whole, been exposed to prolonged weathering. The condition of the surfaces, coupled with the fact that no evidence of repair was noted, points to a good supply of samian to the site, at least until the late second century. The decoration on a Dr37 rim, from hand-cleaning at the beginning of the investigations in the area of the lower foundation pile mat in the former bus exchange (and therefore effectively unstratified) and provisionally identified as a South Gaulish (SG) fabric from La Graufesenque (LGF SA; Table 10), is of notably poor quality. This vessel may, therefore, have been a 'second' or, alternatively, it may be an East Gaulish (EG) product.

6.2.3 ***Chronology and supply***: during the first century AD, South Gaulish samian from La Graufesenque arrived in Britain in some quantity. In the Northgate assemblage, a small pre-Flavian component is present, in the form of Dr29 decorated bowls and Dr15/17 and Dr18 dishes. However, as is to be expected from a site founded (following the conventional chronology for the Chester fortress) during the early Flavian period (*c* AD 75 (Mason 2012, 49-50)), most of this material dates to the Flavian (AD 69-96) and Nervan/Trajanic (AD 96-117) periods. This chronological emphasis is suggested, for example, by the better representation of Dr37 decorated bowls, introduced after *c* AD 70, compared with that of Dr29 bowls, and by the fact that most of the Dr29 vessels present appear to be typologically late. Although dominated by South Gaulish wares, the first-century material also includes a very small amount of Central Gaulish (CG) samian from Lezoux (LEZ SA 1).

6.2.4 The presence of Central Gaulish samian from Les Martres-de-Veyre (LMV SA) points to some supply during the first quarter of the second century. This source was replaced, during the second quarter of the century, by pottery from Lezoux (LEZ SA 2), most of which seems to have reached the site (on typological grounds) after *c* AD 140-50. Forms typical of this period include the Dr27 cup and Dr18/31 dishes, together with Dr37 bowls. A stamp of the potter Quintus iv, on a Dr31 dish, dates the vessel to *c* AD 140-70 (Hartley and Dickinson 2011), and supply after *c* AD 160-70 is suggested by the presence of later second-century forms, such as Dr31R. However, samian of the late second- and early third centuries appears to be poorly represented in the collection. Forms introduced after *c* AD 170, such as the Dr45 mortarium, are absent, and East Gaulish material is represented by a single bowl or dish (possibly a Dr38 flanged bowl) from Rheinzabern (RHZ SA), which dates to after *c* AD 140. It is possible that more East Gaulish pottery will come to light with more detailed recording *(Section 9.4.19*), but the relative paucity of this samian in western Britain is a well-known phenomenon (Ward 2006, 33), and the identification of any additional material is likely to be limited.

6.2.5 ***Status***: it is well established that military sites and the associated extramural settlements produce the highest proportions of decorated samian amongst the site types of Roman Britain, with an average of 30% (of the total number of samian vessels)

for military sites and 35% for extramural settlements (Willis 2005, table 42). At 32% by vessel count, the proportion of decorated material in the Northgate assemblage is, therefore, wholly consistent with the broader picture, as is to be expected, given the location of the site at the heart of the legionary fortress.

6.3 Other Roman Pottery

6.3.1 A total of 2581 sherds of Roman pottery (Fig 15), weighing 66.31kg (Fig 16) and with an estimated vessel equivalent (EVES) of 46.17 (Fig 17), was assessed, of which 1900 sherds (38.44kg; 31.25 EVES) came from deposits assigned to the Roman period (Periods 1-4). The material was assessed in accordance with current professional standards and guidance (Prehistoric Ceramics Research Group *et al* 2016), the sherds being assessed in context groups and recorded by ware group and vessel type. Quantification was undertaken by sherd weight, sherd count, and EVES. The ware group, vessel form, vessel type, condition, decoration, and any obvious joins were recorded, and spot dating was undertaken for each stratigraphic context.

6.3.2 The pottery, which is in very good condition, was catalogued following the ware groups outlined for Chester in Wilmott and Garner (2018, appendix 4) and Ward (2012, table 1.1), with the common names ascribed to the Chester fabrics being employed where possible. The fabric codes developed for the *National Roman fabric reference collection* (Tomber and Dore 1998) are also given, where possible (Table 12). The fabric codes, quantifications (by sherd count and weight) for each fabric group and period are also provided (*Appendix A*). In the assessment catalogue (in the project archive), these groups are subdivided into more detailed fabrics where this was considered appropriate and significant, but it was not possible to follow the Chester fabric series in these cases.

	Period 1		Period 2		Period 3		Period 4		Totals	
Ware	***Count/weight (g)***	***Rim %***	***Count/weight (g)***	***Rim %***	***Count/weight (g)***	***Rim %***	***Count/weight (g)***	***Rim %***	***Count/weight (g)***	***Rim %***
AM			41/3290.4		34/2162.2	5	34/4209.6		109/9662.2	5
BB1	1/20.5	16	39/343	43	97/1226.5	133	214/2332.7	350	351/3922.7	542
BB2					2/16.5		2/17.9		4/34.4	
BBT			12/156.5	22	19/330.5	141	36/762.8	190	67/1249.8	353
BOO			59/484	8	17/187.1	6	26/313.7	8	102/984.8	22
BW			2/13.4				2/37.4		4/50.8	
CC			1/0.1		1/8		9/91.1	19	11/99.2	19
CT					2/13.4	7	3/22.5	13	5/35.9	20
GRA			1/0.9						1/0.9	
GRB	1/27.4	4	290/3645.7	368	103/1582.1	257	74/1307.5	257	468/6562.7	886
GRB MICA							5/77.6	10	5/77.6	10
GRC							2/19.4	15	2/19.4	15
GTA			1/14				1/4.9		2/18.9	
GW			2/1.2		1/1.8				3/3	
HOLT EGGS			6/5						6/8	
MG			2/14.6	20	3/4.2	3	4/53.9		9/72.7	23

	Period 1		Period 2		Period 3		Period 4		Totals	
Ware	***Count/weight (g)***	***Rim %***	***Count/weight (g)***	***Rim %***	***Count/weight (g)***	***Rim %***	***Count/weight (g)***	***Rim %***	***Count/weight (g)***	***Rim %***
MOR			12/928.2	14	6/646.3	32	17/1722.4	85	35/3296.9	131
OX			281/4565.4	283	102/1637.9	213	145/3229.9	208	528/9433.2	704
RS					1/18.2		1/3.4		2/21.6	
SV			1/6.1		8/113.9	15	9/150.1	5	18/270.1	20
WS			99/1560.2	360	13/294.7		20/214.5	15	132/2069.4	375
WW			34/496.9		2/22.5		3/36.3		39/555.7	
Total	**2/47.9**	**20**	**883/15,525.6**	**1118**	**411/8265.8**	**812**	**607/14,607.6**	**1175**	**1903/38,446.9**	**3125**

Table 12: Quantification of other Roman pottery from Periods 1-4 by sherd count, weight and rim % (for fabric codes, see Appendix A)

6.3.3 ***Composition***: the assemblage is largely made up of locally produced pottery from Holt, Chester itself, and other, unknown sources in the Cheshire Plain. There are small amounts of oxidised wares, predominantly mortaria, that can be ascribed to the pottery kilns at Wilderspool, near Warrington (Hartley and Webster 1973). Traded wares from other parts of the Roman Empire include amphorae from Spain, Gaul, the Levant/Palestine, and possibly North Africa, fines wares from Trier (Germany), and mortaria from the Rhineland, whilst pottery obtained from elsewhere in Britain includes mortaria and flagons from the Verulamium (St Albans) region and Mancetter-Hartshill (Warwickshire), mortaria and fine wares from Oxfordshire, Nene Valley fine wares (Perrin 1999), and Black-burnished wares (BB) from Dorset and Essex/Kent. Another, very micaceous greyware, may belong to a ware group identified as coming from East Anglia (Bidwell 2015), but detailed fabric analysis is needed to confirm this. Shell-tempered wares from the South Midlands are present from the fourth century and a late gritty grey ware is similar to pottery common in north-east England in the later Roman period (Grey Gritty ware; Croom *et al* 2003).

6.3.4 ***Chronology***: the assemblage dates from the late first/early second century AD to the fourth century. Within the phasing framework established for the assessment, the largest group came from deposits of Period 2, relating to late first- to second-century occupation within the legionary fortress. The small collection from Period 1 soils was also probably deposited at the beginning of Period 2. Redeposition of earlier ceramic material in later deposits is a common feature of the assemblage, with much of the pottery from Period 4 (abandonment/dereliction of the fortress at the end of the Roman period) clearly being residual.

6.3.5 *Period 1*: two sherds were recovered from soils ***350*** and ***414***. Both are unabraded and of second-century type, and were doubtless derived from activity during Period 2, having presumably been 'trampled in' to the underlying soils. The fragment from ***350*** is from a Hadrianic/early Antonine BB1 jar with a fairly upright neck and burnished wavy-line decoration, a type that had declined in popularity by the mid-second century (Gillam 1976). The other sherd derives from a GRB hemispherical bowl with combed lattice decoration, comparable with the decorative treatment of London-ware bowls of the early second century (Marsh 1978, type 42).

6.3.6 *Period 2*: deposits assigned to this phase yielded a total of 880 sherds, the largest group from any of the Roman phases identified by the stratigraphic assessment.

Although, overall, the average sherd weight is lower than that for Periods 3 and 4, and the sherd count/EVES is higher, suggesting a greater level of fragmentation and abrasion, the sherds are, in fact, fresher looking than in the later phases. Out of 58 context groups, ten have assemblages exceeding 20 sherds, with the largest group (298 sherds) coming from ***519***, one of several artefact-rich soils in the eastern part of the lower foundation pile mat for the market and cinema, within *Insula XXI* (*Section 5.4.18*), which are thought to represent refuse disposal. This group includes sherds from a significant number of late first- to early second-century vessels of types found at Holt (including Oxidised, Grey, Mica-dusted and Eggshell wares). Also present are Verulamium mortaria and flagon sherds, as well as smaller amounts of early- to mid-second-century BB1. On the evidence of the latest material present, a deposition date in the period *c* AD 120-60 is indicated, with the Hadrianic period being most likely. However, the assemblage also contains significant amounts of Flavian-Trajanic material, so it is possible that layer ***519*** accumulated over a fairly prolonged period, unless the pre-Hadrianic pottery is residual. Another of the soils in this area (***548***; *Section 5.4.18*) yielded 92 sherds, including many large, unabraded fragments. In composition, the group is similar to that from ***519*** but lacks any BB1 vessels, and smaller groups of wholly or largely pre-Hadrianic (late first- to early second-century) material were also recovered from soils ***514***, ***547*** and ***560*** (26, 30, and 23 sherds, respectively), in the same part of the site.

6.3.7 A group of 42 sherds from a layer of dark silt (***311***), probably within the western end of barrack ***800***, also contains some relatively large, unabraded sherds. The dating of this group is somewhat problematic; the bulk of the material is consistent with a date in the Hadrianic/Antonine period, but African platter-type vessels are also present. These have concentric basal grooves and a distinct bevel at the rim and are in a fairly coarse fabric. At York, these types are conventionally dated to the third century but with a possible start date in the mid-late second century (Monaghan 1997, 1016-17). However, the Northgate examples are consistent with a group of African-type vessels, including platters, identified by Vivian Swan (1999) at Holt and Chester, including examples from excavations on Abbey Green, in deposits dated to the Antonine period, and at Northgate Brewery, the latter associated with barracks seemingly rebuilt in the AD 160s. Similar vessels are also attested on the Antonine Wall, which was abandoned by *c* AD 160 (Breeze 2006, 28-9), so the platters from deposit ***311*** are likely to belong to the Antonine period, rather than being contemporary with the third-century vessels at York.

6.3.8 Elsewhere on the site, groups of 31 and 20 pre-Hadrianic sherds were recovered from ***333*** and ***401***, respectively. The former, a stratigraphically early soil overlying the natural geology in the area of barrack ***800***, yielded a large number of sherds from a late first- to early second-century everted-rim jar, and was also notable for producing a sherd from a first-century 'carrot' amphora, which are thought to have contained dried fruit (perhaps dates) imported from the Near East (Peacock and Williams 1986). The group from ***401***, the upper fill of a possible construction trench for an early (timber) wall in barrack ***800*** (***408***; *Section 5.4.8*), has few closely datable sherds but is likely to be pre-Hadrianic, given the absence of BB1. Groups of Hadrianic or later date, indicated by the presence of small amounts of BB1, include 27 sherds from a layer

(***269***) that was probably associated with a second-century phase of Building ***800***, and 30 sherds from ***376***, another stratigraphically early soil directly overlying the natural subsoil in the same structure. However, it is worth bearing in mind that BB1 is occasionally found in pre-Hadrianic contexts at Chester (Wilmott and Garner 2018, 157-8; Timby 2018, 64) and at other military sites in the North, for example at Carlisle (Swan *et al* 2009, 601).

6.3.9 With the above exceptions, all the other pottery-bearing contexts assigned to Period 2 yielded very small groups, the character and chronology of which are entirely consistent with the larger assemblages. A find of intrinsic interest, from another soil in the area of barrack ***800***, is part of a 'wine-cooler', a vessel that, as the name suggests, was probably used in the preparation of alcoholic drinks.

6.3.10 *Period 3*: comprising 411 sherds, the ceramic assemblage associated with later Roman (third- to fourth-century) occupation in the fortress is less than half the size (by sherd count) of that from Period 2, with only five of the 42 individual pottery-bearing contexts yielding more than 20 sherds. Of these, two span a wide chronological range, from the late first/early second century to the fourth century, suggesting either that the deposits from which they came, both soils within barrack ***800***, accumulated over a very prolonged period (unlikely, given their location), or that they contained a large amount of redeposited material. By contrast, two of the other groups (from a soil possibly associated with barrack ***803*** (*Section 5.4.14*), and the fill of a small pit (***700***) in the area of barrack ***804*** (*Section 5.4.15*)) contain only early material (dating to the early/mid-second century and late first/ early second century, respectively), with the collection from ***701*** including many sherds from a single late first/early second-century jar. The fifth assemblage, from a deposit in barrack ***802*** (*Section 5.4.13*), includes a sherd from a BB1 jar with obtuse lattice burnish, which, if its context is secure, would indicate a date in the second quarter of the third century, after *c* AD 220-5 (Bidwell 1985, 174-6; Holbrook and Bidwell 1991, 96).

6.3.11 Whilst much of the pottery associated with Period 3 appears to be residual, which diminishes the usefulness of the assemblages in terms of what can be learned about the composition of contemporary ceramic groups, key changes in the supply of ceramics to the fortress during the third century can be clearly identified in the assemblage, with an (expected) reduction in late first/second-century locally made (Chester area and Holt) reduced, oxidised, and white-slipped wares, balanced by an increase in BB1 and Severn Valley ware. The appearance of a black/grey burnished ware copying third-century BB1 and BB2 types is of interest for, although an imitation BB2 has been noted at Chester (Heke and Ward 2012, fabric 764), this contrasts with the examples from Northgate, many of which are handmade and are in BB1, rather than BB2, forms. This ware group therefore represents a useful addition to what is known about pottery supply to the fortress during the third century.

6.3.12 *Period 4*: this stratigraphic group, from deposits associated with the abandonment/dereliction of the fortress at the end of the Roman period (*Section 5.6*), comprises 604 sherds from 36 individual contexts. Of these, 11 contexts yielded more than 20 sherds, with the largest group (151 sherds) coming from a mixed soil, up to 0.29m thick, overlying a floor in the centurion's quarters of barrack ***800***. This large group includes ceramic types spanning the period from the late first century to the

late third century but lacks the latest (fourth-century) forms found elsewhere in Chester. The other ten context groups with 20+ sherds are much smaller, none having more than 30 sherds. Several of these groups contained third-century BB1 forms, such as jars with obtuse lattice and later rim types, grooved, flat-rim bowls and developed flanged bowls (Holbrook and Bidwell 1991), the latter beginning in the period c AD 250-60 (Bidwell 2018, 200). Together, these forms span the period from the mid/late third century, and possibly into the early fourth century. Three deposits (***169***, ***191***, ***213***), all soils in the area of the centurion's quarters at the western end of barrack ***800***, had similar material, but were notable for yielding a few fragments of late Shelly ware jars from the South Midlands, which are generally dated to the mid-late fourth century at Chester (Ward 2012, 125). This represents the latest Roman pottery from the Northgate site, but the fact that it comprises only four sherds suggests that very little pottery was deposited within the areas investigated during the fourth century.

6.3.13 Overall, the ceramics from Period 4 are similar to those from Period 3, apart from the presence of a handful of mid-late fourth-century sherds. By weight, there is little change in the composition of the assemblages from Period 3 to Period 4 in terms of the principal wares, except for a fall in greywares and a corresponding rise in mortaria and amphorae, though when the assemblages are considered in terms of sherd count, BB1 and BBT also increase. Such changes suggest that, during Period 4, large, robust sherds of amphorae and mortaria were left strewn across the site rather than being tidied up and disposed of elsewhere, presumably because the area was no longer being intensively occupied.

6.3.14 *Post-Roman phases (Periods 5-6) and unstratified*: in total, 684 sherds of Roman pottery came from post-Roman levels on the site or were unstratified. These are not discussed in detail here, since nearly all the wares and vessel forms were also present as stratified material in Roman deposits of Periods 1-4, though there is also a reasonably good collection of mortaria.

6.3.15 ***Discussion***: the composition of the Northgate assemblage is consistent with the ceramic supply pattern already known from Roman Chester (Carrington 1994, 42-7; Webster 1991) and appears essentially domestic in character (*cf* Evans 1993). One of the main trends evident is the shift from an overwhelmingly local supply of pottery during the late first- to second century AD to a dominance of traded wares in the third century (Figs 15-16). The latter are predominantly from Dorset and the Severn Valley but also include Mancetter-Hartshill mortaria and very small amounts of fine wares from the Nene Valley and Oxfordshire. The possibility of continued local supply at this time is suggested by the presence of black/grey burnished-ware copies. However, the fine wares of this period are present in very small numbers, well below the quantities of late first- to second-century fine wares and table wares (including samian). Indeed, it is notable that the beaker/small jar component in Period 3 (Fig 17) is made up largely of redeposited second-century material, principally small jars and handled jars in greyware and BB1 fabrics, and oxidised roughcast beakers. Colour-coated wares account for less than 1% of the stratified Roman assemblage (Periods 1-4), which is consistent with the similarly sparse showing of Nene Valley colour-coated ware at Nicholas Street Mews (Ward 2012, table 3.26).

6.3.16 As well as a paucity of contemporary fine-ware beakers and table wares, the third-century assemblage is marked by a decline in the occurrence of coarse-ware bowls and dishes and the dominance of jars. Indeed, despite distortions in the relative quantities of different pottery types resulting from the considerable amount of residual or redeposited late first/second-century material in Period 3, it is clear that the character of third-century pottery deposition on the site was profoundly different from that of Period 2, and this aspect of the assemblage will repay further detailed study (*Section 9.4.22*).

6.4 Post-Roman Pottery

6.4.1 In total, 83 fragments of medieval pottery, weighing 1.45kg (average sherd weight *c* 17.5g), were recovered, together with 283 sherds of post-medieval and modern material, weighing 3.91kg (average sherd weight *c* 13.8g). Of the medieval material, only 17 fragments (364g) came from later medieval deposits, the remainder being either residual, unstratified, or intrusive in Roman levels. However, the relatively high average sherd weight (21.4g) of the stratified material suggests that it was relatively undisturbed, though few refitting sherds are present.

6.4.2 Some 74 fragments (1636g) of post-medieval pottery were unstratified, representing 26% of the assemblage by sherd count and 41.7% by weight, with small amounts being intrusive in Roman and later medieval deposits. Most of the post-medieval sherds are quite small, though only slightly abraded, and a small amount of spalling suggests that some fragments may have been exposed on the surface for some time.

6.4.3 Preliminary examination suggests that there is a very limited range of medieval fabrics present. There is nothing that pre-dates the twelfth/thirteenth century and even this is represented by only a few sherds. These include a single sherd (OR 2722) in a reduced fabric with a heavy shell temper, intrusive in a Period 4 deposit, which is provisionally identified as twelfth/thirteenth-century Medieval Shelly Ware (Blinkhorn 2021), and two fragments in a highly gritty, hard-fired fabric suggestive of a twelfth- or thirteenth-century date, one (OR 1104) intrusive in a Period 3 layer, the other (OR 1084) residual in a modern deposit. Possible late Stamford Ware, which was produced until the mid-twelfth century (*ibid*), was also present in an early post-medieval pit.

6.4.4 The rest of the medieval assemblage comprises fabrics that are mostly reminiscent of the fourteenth/fifteenth-century products of the Ewloe/Buckley production centre, south-west of Chester (Davey 1976). Other fabrics include bright copper-green speckled wares of late medieval date, characterised as Border-type wares (*ibid*), and Midlands Purple wares, which span the late medieval and early post-medieval periods (*Section 6.4.5*).

6.4.5 The post-medieval pottery was rapidly scanned and fabrics are referred to by common names, rather than by detailed fabric descriptions. Pottery directly associated with early post-medieval activity is limited to two sherds of early, hard-fired Blackware, dating to the mid-late seventeenth/early eighteenth century (Barker 1986), from pit ***533*** (*Section 5.8.4*). However, a few sherds of early post-medieval material also occurred residually in deposits assigned to the nineteenth century, including a seated

rim in a hard-fired Midlands Purple-type fabric (*cf* Hurst and Wright 2011), and several fragments of fine, hard-fired and dark-glazed Redware typical of local potteries, such as Ticknall, Buckley, and Rainford (Jones 2019; Philpott 2015; Spavold and Brown 2005), which are broadly datable to the fifteenth- to seventeenth centuries. Also present is part of the rim of a manganese-speckled tankard of late seventeenth/eighteenth-century date (Hume 2001) and a few sherds of eighteenth-century white, salt-glazed stoneware.

6.4.6 Although modern contexts produced a significant quantity of post-medieval and modern pottery (133 fragments), the bulk (119 fragments) came from 'cleaning' levels and is effectively unstratified. The only securely stratified group of any size (14 sherds, weighing 304g) came from a pit (***694***) and comprises early dark-glazed redwares, Metropolitan-type decorated wares, Staffordshire-type yellow wares and a possible tin-glazed candlestick, an assemblage suggestive of a later seventeenth-century (rather than a twentieth-century) date (Barker 2008). On this evidence, it is possible that pit ***694*** may have been incorrectly assigned but this requires verification during analysis. Also present in the wider modern assemblage are later fabrics, such as industrial slipwares, refined white earthenwares, transfer-printed wares, and late grey stonewares.

6.5 Clay Tobacco Pipe

6.5.1 In total, 94 fragments of tobacco pipe were recovered, weighing 419g. Of these, 16 are complete or near-complete bowls (one stamped), the remainder, with the exception of a small fragment from a heeled bowl, being relatively small stem fragments. A large proportion of the assemblage (52 fragments, weighing 276g), including 12 of the datable bowls, were unstratified, and another came from a deposit that could not be closely phased. In addition, four fragments (three stems and one bowl) came from contexts assigned to Roman Periods 2 and 4, where they were certainly intrusive. The remainder came from post-Roman deposits.

6.5.2 The datable bowls are predominantly of mid-late seventeenth-century type and, although few are securely stratified, the dating is consistent with the earlier post-medieval pottery from the site (*Section 6.4.5*). The only stamped example (OR 1808) came from a modern pit (***694***; though see the comment re the dating of this pit; *Section 6.4.6*).

6.6 Coins

6.6.1 In total, there were ten coins, comprising five certain Roman specimens, one possible Roman example (highly corroded), and four of eighteenth- to early twentieth-century date (Table 13). No coins certainly attributable to the first century AD are present; the corroded specimen was unstratified, but might be a *sestertius* of this date, though the flan appears rather thin. The earliest positively identified coin (though from a post-Roman soil) is a *sestertius* of Trajan (98-117), exhibiting a degree of wear suggestive of continued circulation into the mid-second century at least. The other four Roman coins, all from stratified Roman deposits, are of the late second/third century, ranging in date from a little-worn *dupondius* of Faustina II (161-75) to a crude copy of an a*ntoninianus* of the deified Claudius II, produced following his death in 270.

OR No	Context No	Context type	Period	Coin type	Date (AD)	Condition*
1794	***765***	Wall	3	*Denarius*; probably Julia Domna	193-211	LW
1802	***766***	Surface?	3	*Antoninianus*; Gordian III (*AETERNITATI)*	238-44	MW
2820	***791***	Possible structure	3	*Antoninianus* (copy); Claudius II (*CONSECRATIO* (eagle))	*c* 270-80	MW
1955	***208***	Soil	4	*Dupondius*; Faustina II	161-75	LW
176	***253***	Soil	6-7	*Sestertius*; Trajan	98-117	VW
1800	Unstratified	-		*Sestertius*? Illegible	Late first century?	Corroded
2819	Unstratified	-	-	Halfpenny; George II	1729-54	VW
2824a	Unstratified	-	-	Halfpenny; George III (4th issue)	1806	LW
2824b	Unstratified	-	-	Halfpenny: George III (4th issue)	1807	LW
2235	Unstratified	-	-	Florin; George V	1926	VW

*- LW = little worn; MW = moderately worn; VW = very worn

Table 13: Roman and post-Roman coins

6.6.2 The very small size of the Roman assemblage precludes meaningful interpretation, though the group is consistent with the ceramic evidence in indicating occupation during the second and third centuries. However, perhaps the most significant feature is the presence of only one late third-century radiate copy, and the complete absence of fourth-century specimens, particularly those of the period *c* AD 330-50, as these are usually common finds on 'Romanised' sites in Britain that were intensively occupied during these periods (Reece 1987). Whilst it would be unwise to read too much into this, given the size of the sample, the lack of late Roman coinage is consistent with the pottery from the site, which includes only a very small amount of fourth-century material (*Section 6.3.12*).

6.6.3 The four post-medieval coins, all unstratified, are common issues of their respective periods and call for little comment. The two halfpennies of George III, found together, are of the same type, belonging to the fourth issue of George's reign (1806-7), and were clearly lost at the same time.

6.7 Copper-alloy Objects

6.7.1 Excluding coins (*Section 6.6*), there are 134 copper-alloy items. Most are in poor to fair condition, with only one or two better-preserved exceptions and no complete items. Most have a coat of corrosion products and several have deteriorated badly. Ten items are represented only by unidentifiable 'crumbs', and a further 27 are small, highly corroded, undiagnostic scraps. Only 11 fragments, representing three objects (Table 13), are actually unstratified but six others are from 'cleaning' levels and are therefore effectively unstratified.

Period	Context no	Context type	Fragment count
1	***350***	Layer	1
Sub-total			1
2	***237***	Layer	2
	269	Layer	2
	311	Layer	1
	507	Layer	1
	516	Layer	1
	519	Layer	2
	560	Layer	1
	561	Fill of kiln ***549***	1
	641	Fill of gully ***642***	1
	732	Fill of pit ***729***	4
	743	Fill of ditch ***744***	2
Sub-total			18
3	***172***	Layer	1
	218	Layer	2
	220	Layer	3
	243	Layer	1
	272	Layer	5
	277	Layer	5
	278	Layer	1
	607	Layer	1
	667	Fill of gully ***680***	11
	706	Layer	8
	711	Fill of pit ***712***	3
	763	Wall	6
Sub-total			47
4	***171***	Robber trench (cut)	1
	206	Layer	1
	208	Layer	5
	229	Layer	7
	647	Layer	1
	790	Layer	1
	793	Layer	1
Sub-total			17

Period	Context no	Context type	Fragment count
5	***325***	Fill of ditch ***324***	9
	103	Layer	1
	153	Layer	1
	180	Layer	1
	542	Gully (cut)	1
	553	Fill of pit ***559***	19
Sub-total			32
6	***500***	'Cleaning' level	5
	602	'Cleaning' level	1
	645	'Cleaning' level	1
Sub-total			7
Not closely phased	***239***	Layer	1
Sub-total			1
Unstratified			11
Sub-total			11
Total			**134**

Table 14: Distribution of copper-alloy artefacts (excluding coins) by period

6.7.2 ***Chronological distribution***: the copper-alloy artefacts are concentrated within the periods of Roman activity (Periods 2-4), and this is reflected in the identification of the finds, with most being typically Roman artefacts, even when from stratigraphically later deposits. A single item, namely a key (*Section 6.7.8*), came from a seemingly naturally deposited sand, into which it had presumably been 'trampled' or reworked in the early Roman period, and part of a brooch came from a Period 1 buried soil. Period 2 deposits produced a restricted range of finds, often in very poor condition. They are mainly small studs and pins, some of which are likely to derive from armour. The somewhat larger assemblage from Period 3 is similar, comprising plain and decorative studs likely to originate from armour or horse tack. A small knee brooch (OR 397) is probably of second-century date, suggesting an element of residuality by this time, though neither Period 3 nor the later periods of activity produced any Roman items of appreciably later (*ie* third/fourth-century) date. It is perhaps of note that more individualised personal items, such as belt plates, tweezers, or military strap terminals, are not present until Period 4, which either reflects an increase in the deposition of such items at the end of the Roman period, or the reworking of objects from earlier deposits.

6.7.3 In the post-Roman period, the diagnostic copper-alloy finds appear to be residual Roman items. The same is true of the artefacts associated with modern features, when almost everything is plausibly of Roman date.

6.7.4 ***Functional assessment***: the range of artefact types is somewhat limited. There are four brooches, the earliest being a simple Nauheim derivative-type wire brooch (OR 440), from Period 1 soil ***350*** (*Section 5.3.2*), dating from *c* AD 25 to the end of the first century AD (Mackreth 2011). The small knee brooch (OR 397) from Period 3 (*Section 6.7.2*) requires cleaning before it can be dated with precision, but a mid-second- to mid-third-century date would seem appropriate (*ibid*). There are, in addition, two penannular brooches, one (OR 501) residual in a modern deposit, the other (OR 1843) unstratified. The former is poorly preserved but appears to be of Fowler's type D (Fowler 1960), the other item is far better preserved and can be identified with rather more confidence as being of this type (*ibid*; Booth 2014, type D2), dating from the mid-first century onwards, with a peak in popularity during the late second- to early third century (*ibid*). Although now somewhat fragmentary, short lengths of loop-in-loop chain (OR 1788; OR 1993), from a Period 3 gully, are probably all that remains of an ornamental chain connecting a pair of bow brooches.

6.7.5 Other items of personal adornment, excluding militaria, are few. The purpose of a long, hollow, faceted bead (OR 26) from Period 4 is unclear. Object OR 510, from a Period 2 layer, is an elongated wire link, perhaps from a simple necklet, or a plain wire bangle, in which case it might provide an indication of the presence of women within the early fortress. A ring with a D-shaped cross-section (OR 118), from a Period 3 deposit, could be a plain finger ring, but the diameter, at only *c* 18mm, might suggest otherwise. Although it lacks a head, the tapering shaft of a pin (OR 2123), also from Period 3, is possibly from a hairpin, and another possible example (OR 502) was recovered from a modern 'cleaning' level. Personal grooming is otherwise represented only by a pair of tweezers (OR 268) from Period 4, which are small enough to have come from a chatelaine set. A second possible example (OR 2352), but in very poor condition, came from a post-Roman pit.

6.7.6 As might be expected, there is a small group of obviously military items. The earliest is a tie-loop (OR 301), probably from Corbridge-type plate armour, dated to the first century AD (Bishop 2002), which came from a Period 2 deposit, and an articulated buckle (OR 181) is from a similar type of armour (*ibid*), though it came from a Period 4 deposit. There are, in addition, several studs with embossed or otherwise decorated heads, which are common on military sites, and at least some of them would have served a semi-decorative purpose on plate armour (*ibid*). Three (OR 302; OR 433; OR 630) came from deposits of Period 2, two (OR 307; OR 416) from Period 3 and two (OR 116; OR 1944) from Period 4. Also from Period 4, a strap terminal (OR 173) is from cavalry harness (Bishop 1988, fig 52.6a).

6.7.7 What appear to be short strips of conjoined ovals (OR 269; OR 1753), each enamelled, from Periods 3 and 6 respectively, are probably the central elements from a series of ornate military buckle plates and belt fittings of late second- to third-century date (Bishop and Coulston 2006). A much less ornate belt plate (OR 463) also derives from Period 4 and there is an embossed fragment (OR 119), probably from a similar item,

from Period 3. A plain rectangular belt mount (OR 1795), from a 'cleaning' level, could be of any date. A probable buckle pin (OR 1791) came from a Period 3 pit.

6.7.8 Possible 'household' items are represented mainly by a number of pins and studs that might have had a variety of functions. One (OR 2254) came from Period 2 'refuse' layer ***560***, in the area of the lower foundation pile mat for the market and cinema (*Section 5.4.18*), and others were recovered from Period 3 deposits (OR 420), and from post-Roman levels (OR 1317; OR 503). The well-preserved key (OR 478; Pl 12), from deposit ***357*** (*Section 5.3.2*), is unusual amongst the group in reflecting small-scale, perhaps personal, security. There are also three double-armed pins of the sort possibly used in tack (Bishop 1988), two (OR 232; OR 2406) from a Period 3 'occupation' layer in barrack ***800***, the third (OR 1888) from a deposit that is not closely phased. Two small, plain rings (OR 1315; OR 1750) came from Periods 3 and 4 respectively.

Plate 12: A copper-alloy key (OR 478) reworked into the natural sand

6.7.9 Inevitably, some of the items from Roman phases remain unidentified at this stage. These include several small discs, cut from copper-alloy sheet and, in some cases, possibly embossed (OR 92; OR 225; OR 2122); a poorly preserved fragment of embossed sheet (OR 2820) was also unstratified. Items OR 1793, OR 1157, and OR 2823, from Periods 3 and 4, survive as small hooks, but are probably fragments from larger objects, such as strap junctions. A fragment of a robust, possibly cast, tube (OR 1672) came from a deposit assigned to Period 3.

6.7.10 There are very few recognisably post-Roman items. A plain belt mount or strap-end (OR 365), from post-Roman ditch ***324*** (*Section 5.8.3*), could be medieval, but its plain form does not rule out an earlier date. A robust drop handle (OR 1073) is probably contemporary with its early post-medieval context but has no distinctive characteristics that might confirm this. A small nineteenth-century stamped sew-through button (OR 224) came from a Period 4 soil, where it was clearly intrusive.

6.7.11 The remainder of the copper-alloy assemblage comprises unidentifiable fragments of sheets/strips and tiny metal 'crumbs'. As with the other material, these were predominantly from Roman deposits of Periods 2, 3 and 4.

6.8 Iron Objects

6.8.1 In all, 1598 fragments of ironwork were examined, though 244 of these, representing 15.2% of the total assemblage, are too small or too corroded for identification. As with the copper-alloy artefacts (*Section 6.7*), the assemblage is concentrated largely in the Roman levels of Periods 2, 3 and 4. Most of the individual items are in poor condition, many being fragmentary and incomplete, and the original forms of most are obscured by corrosion products. Consequently, the entire assemblage was subject to X-radiography as part of the assessment. Some 106 fragments (*c* 6.6% of the total) were unstratified; if material from 'cleaning' layers is included, this rises to 9.3%.

6.8.2 ***Functional assessment***: apart from nails, very few recognisable objects were recovered and these form a very disparate group. For assessment purposes, they are discussed in broad functional groups but these are too small for any particular conclusions to be drawn. Very little can be regarded as representing items of personal adornment. Hobnails, derived from nailed footwear, are, perhaps surprisingly, infrequent, with fewer than 20 individual items recovered (in two groups - OR 2516; OR 2455) from two Period 2 contexts in *Insula XXI* ('refuse' deposit ***519*** and fill ***588*** of kiln ***549***, nearby (*Section 5.4.18*)). None have been recognised amongst the material from later Roman deposits of Periods 3 and 4, but there is a group of 50 (OR 2348), presumably representing one or more nailed shoes, from a seemingly early post-Roman pit ***209*** (*Section 5.7*), and they may therefore have come from a disturbed earlier deposit. A small, square buckle (OR 328), from Period 2, presumably derives from clothing, armour, or tack, and a larger D-shaped item (OR 107), from Period 3, is equally undiagnostic, though it should be noted that D-shaped buckles were used as girth buckles in Roman tack (Bishop 1988, fig 362).

6.8.3 An object (OR 384) from post-Roman ditch ***324*** (*Section 5.8.3*) appears from the x-ray to be a rectangular strip, cut to a shallow point at one end. It has been tentatively identified as a simple strap-end, perhaps from horse tack. Given the lack of diagnostic elements, there is no reason to suggest that it is not contemporary with the context in which it was found.

6.8.4 Other personal possessions are few and far between. There are three whittle-tang blades, one (OR 1818) from a Period 2 layer in *Insula XXI*, the other two (OR 2196; OR 1997) from deposits of Period 4. All are relatively long, slender, and triangular, similar to Manning type 11a (Manning 1985, fig 28), with no particularly chronologically diagnostic features. Although it is difficult to be certain without cleaning, OR 666, from Period 2, could be part of the heavy blade and tang of a typical Roman cleaver (*op cit*, fig 30, type 5).

6.8.5 Other potential 'household' items include a small drop handle (OR 278) from Period 4 and a less well-preserved example (OR12), which was unstratified. Fragmentary chain links of typically late Iron Age and Roman 'figure-of-eight' form (Manning 1985, 139) were recovered from three Period 2 contexts (OR 306; OR 311; OR 345), and another came from Period 4. A Period 2 deposit in barrack ***800*** produced a chisel (OR 349) similar to Manning (1985) type A19, attributed to the first/ second century AD, which may have been intended for use on hot metal (*op cit*, 9, pl 5). A second possible chisel (OR 1163), from Period 4, is more likely to have been used as a cold chisel. Also from

Period 2, OR 6455 is identified as a netting needle similar to Manning D38 (*op cit*, 37, pl 15). Object OR 184, from Period 4, is obviously a large and robust hook, but its purpose is unclear. Plain rings, in a range of sizes and no doubt serving a wide range of purposes, are common amongst assemblages of Roman ironwork (*op cit*) but only a single example (OR 1996), *c* 60mm in diameter, came from the Northgate site, from a Period 3deposit.

6.8.6 It is hardly surprising that there is a group of potential militaria, although this cannot be confirmed without some cleaning and conservation. The presence of a small copper-alloy hook attached to small fragments of iron sheet (OR 215), from Period 4, strongly suggests that this is a fragment of plate armour, and it is quite likely that at least some of the other ten small fragments of sheet are also from armour. This is particularly so in the case of some rectilinear fragments (OR 2001) from Period 3, which have a series of perforations along their edges (*cf* Bishop 2002). There is a leaf-shaped spearhead (OR 91), from a Period 3 layer in barrack ***800***, and a much narrower point (OR 404), from another deposit of this phase, has been tentatively identified as a javelin head. Two other items (OR 1798; OR 1995), from Periods 2 and 4, would seem, from the x-radiographs, to be socketed ballista bolts.

6.8.7 By far the largest group of ironwork (926 items) is composed of certain or probable nails, representing 58% of the total assemblage. The great majority (756; 82%) came from Roman deposits (including ten from Period 1), with Period 2 yielding 330 items (36% of the total assemblage), 143 (15%) coming from Period 3, and 273 (30%) from Period 4. Only 77 nails (*c* 8%) came from post-Roman deposits and a further 93 (10%) were either unstratified or from deposits that are not closely phased. Most appear to be medium-sized hand-forged nails suitable for use in carpentry rather than for joining major timbers (Manning 1985, fig 32, type 1b). It must be borne in mind that the nails themselves are of little use in refining dating, being a long-lived and simple form that changed little through time. There are also three square or lozenge-shaped roves, used in securing nails, two (OR 168; OR 367) from Period 4, the other (OR 49) unstratified.

6.9 Lead Objects

6.9.1 There are 37 fragments of lead, weighing 4682g. Approximately half (19 items, weighing 2475g) came from Period 2 deposits, with only one each from Periods 1 and 3, four from Period 4, seven from later medieval levels and four from modern material; a single item was unstratified.

6.9.2 The group largely comprises offcuts and blobs of solidified melted lead, which can be neither dated nor further identified as to use, meaning that little can be said about them. Three fairly large fragments of thick, cast-lead sheet (OR 519; OR 674; OR 853), from Period 2 'refuse' deposit ***519***, in *Insula XXI* (*Section 5.4.18*), and another (OR 405) from the same phase, indicate the use of such material in the early Roman period, possibly as flashing or in some other architectural context, or to line water tanks. A run-in plug or gallet (OR 627), also from deposit ***519***, bears the imprint of iron nail shanks, and is also likely to have had some structural purpose. A cast conical weight, or perhaps a neatly made plug (OR 1027), came from Period 3, but its purpose remains uncertain. A large drum-shaped weight of *c* 863g (*c* 30.5oz) was unstratified. Whilst

this item, like many lead weights, lacks chronologically diagnostic features, it may be significant that it weighs approximately 2.5 Roman pounds.

6.9.3 For the post-Roman period, the only material of note is a group of five cast musket balls (OR 504; OR 505; OR 506; OR 507; OR 546) from pit ***506*** (*Section 5.8.4*). The weight of the individual shot (35-37g) suggests they are for (approximately) a 12-bore weapon (Webley 2019), and would be consistent with a seventeenth-century date. However, spherical lead shot are known, in small quantities, from the mid-fifteenth-century onwards (*ibid*), so a late medieval date is not out of the question. Preliminary assessment suggests that these examples might have been fired, but this will require confirmation by more detailed analysis.

6.10 Industrial Residues

6.10.1 In total, 641 pieces of metalworking debris, weighing 4049g, were recovered. Of these, 56 fragments (weighing 3000g) were hand-retrieved during the excavations, the rest coming from processed soil-sample residues. The latter group comprises 253 pieces of debris, weighing 1032g, together with 332 tiny fragments of hammerscale, with a combined weight of only 22g. The hammerscale, which is composed of over 90% iron (Serneels and Crew 1997, fig 1), came from the samples when using a magnet, following standard procedures (Dungworth 2015, 11). The entire assemblage of metalworking residues was subject to visual inspection with a hand lens but was not examined in further detail.

6.10.2 The bulk of the material (254 fragments, weighing 2576g, with 200 pieces of hammerscale, weighing 16g), came from Period 2 deposits, associated with the early phases of the fortress, with much smaller quantities from the later Roman levels (Periods 3 and 4; Table 15). Very little material came from post-Roman deposits.

Period	Fragment count	% of total	Weight (g)	% of total	Hammerscale fragment count	Hammerscale weight (g)
1	-	-	-	-	-	-
2	254	82.21	2576	63.89	200	16
3	31	10.04	537	13.32	126	5
4	5	1.62	260	6.45	-	-
5	12	3.87	348	8.64	-6	-1
6	5	1.62	246	6.20	-	-
Not closely phased	2	0.64	60	1.49		
Total	**641**	**100**	**4049**	**100**	**332**	**22**

Table 15: Quantification of metalworking residues by period

6.10.3 Only three individual deposits, all of Period 2 ('refuse' deposits ***514*** and ***519***, in *Insula XXI* (*Section 5.4.18*), and the fill of a ditch (***744***)), contained any appreciable concentrations of material, though even these assemblages were of modest size, the largest, from ***519***, comprising only 49 fragments (563g). Most individual contexts contained well under 100g of debris, and no single soil sample yielded more than 5g of hammerscale.

6.10.4 The larger pieces exhibit a typical fayalitic appearance with some flowed morphology, which, together with their pale grey colour and low mass, suggests they are the

product of secondary ironworking (smithing). For the most part, no significant concentrations of material were noted and there is no evidence for deliberate disposal in discrete features such as pits; most of the individual fragments are also very small. Consequently, it seems likely that much of the assemblage represents material that has been reworked and redeposited. The only possible exception is the debris from the putative refuse deposits of Period 2 in *Insula XXI* (*Section 5.4.18*), which includes over 1kg of material from layers ***514*** and ***519***. Additionally, small quantities (less than 200g) came from the fills of kiln ***549***, located nearby. The precise function of this feature is uncertain, and it is not clear whether the debris was related to its use or occurred residually in the soil that was used as backfill, though, in view of the small amounts present, the latter seems more likely.

6.10.5 The hammerscale exhibits two distinct morphologies, which arise from different smithing operations (Dungworth 2015, fig 30; Dungworth and Wilkes 2009). Flake hammerscale, which is typically sub-angular, is generated when bar metal is struck, ejecting the surface slag formed during the interaction of the iron and the silica-rich flux in the smithing hearth (*ibid*). This is the more common form and is produced during all iron-smithing activities. Spheroidal hammerscale is the result of liquid slag ejection during forge-welding (*ibid*; Sim 1998).

6.10.6 The small quantities of metalworking debris from the Northgate site suggest that secondary ironworking is unlikely to have been taking place within the areas investigated. However, some metalworking was probably occurring in the vicinity.

6.11 Bone Objects

6.11.1 Of the four worked-bone objects found, three are from stratified deposits, the fourth being unstratified. The earliest (OR 631), from Period 2 'refuse' layer ***519***, in *Insula XXI* (*Section 5.4.18*), is part of a hairpin shaft with no chronologically diagnostic features. OR 1803, from Period 3 wall ***634*** (*Section 5.5.10*), is a typically Roman turned bone gaming-counter, either stained black or superficially burnt. An unusual, diamond-shaped token (OR 1; Pl 13), from a Period 4 soil, is more problematic. It is clearly intended to have a numerical significance, with three ring-and-dot motifs inscribed on two sides (the other two sides are plain) but no close comparators have yet been found. It does not particularly resemble any of the common forms of Roman gaming counters and it could be a token or a tally for some other purpose. Although recovered from a deposit assigned to the late Roman period, it is conceivably a later (post-Roman) piece that was intrusive in this deposit. The unstratified object (OR 2784) is incomplete and cannot be closely dated, but regularly-spaced saw marks suggest that it may be part of a comb.

Plate 13: A bone token (OR 1) from a Period 4 deposit

6.12 Glass

6.12.1 In all, 212 fragments of glass were recovered, of which 116 are sherds of vessel glass, 41 are pieces of window glass, and two are beads, the remainder (53 items) being tiny chips, from processed soil samples, that are impossible to characterise. The diagnostic vessel sherds range in date from the mid-first century AD to the twentieth century and the state of preservation, although generally good, also reflects the differing glass recipes favoured in the Roman and post-Roman periods, with the Roman material being generally better preserved than that from later periods. Fragment size is generally quite small, although some of the more robust Roman forms, especially pillar-moulded bowls and prismatic storage bottles, survive in larger pieces.

6.12.2 ***Vessel glass****:* the assemblage is dominated by sherds of vessel glass (116 fragments), which make up *c* 55% of the glass collection. It includes a significant group of first/second-century Roman vessels, including examples of two rare vessel types. Approximately half of the vessel glass (54 sherds, or 46.6%) came from Roman deposits of Periods 2, 3 and 4 (Table 16), with identical amounts (22 sherds; 19%) from Periods 2 and 4, and ten fragments (8.6%) from Period 3.

Period	Count	% of total
2	22	19.0
3	10	8.6
4	22	19.0
5	17	14.7
6	27	23.3
Not closely phased	14	12.0
Unstratified	4	3.4
Total	**116**	**100**

Table 16: Quantification of vessel glass of all dates, by period

6.12.3 Perhaps the most easily recognised early Roman vessel is the so-called ribbed or pillar-moulded bowl (Price and Cottam 1998, 44-6; Isings 1957, form 3), which is largely a

first-century form, although natural blue-green examples do persist into the early second century (*ibid*). Four fragments were recovered, three (OR 569; OR 601; OR 1895) from Period 2 deposits and one (OR 509) from a Period 4 soil, where it was undoubtedly residual. At least two vessels are represented, one in a natural blue-green glass (characterised by rim fragment OR 569), the other, evidenced by rim OR 509 (Pl 14), in dark blue glass with opaque white spirals. The latter is extremely rare in Britain, though a complete example is known from a Flavian burial at Radnage and others came from Neronian/Flavian levels at Wroxeter (Price and Cottam 1998, 46). It is perhaps of interest that *Legio XX*, which was based at Chester from the Flavian period onwards, had previously been stationed at Wroxeter (Mason 2001b).

Plate 14: Fragment of an early Roman pillar-moulded glass bowl (OR 509)

6.12.4 Strongly-coloured glass is a characteristic of the first and early second centuries AD, with the peak of popularity being in the early Flavian period (Price and Cottam 1998, 15). Whilst not common in the Northgate assemblage, there are fragments from two coloured jugs with long, cylindrical necks: a dark yellow-green example (OR 380); and a fragment in natural blue-green glass (OR 555), These (although the precise forms cannot be determined without analysis) are typical of the mid-first to early second centuries AD (*ibid*); both came from deposits assigned to Period 2. The same phase also yielded part of the lower seating for a ribbed handle (OR 350), also likely to be from a jug.

6.12.5 The somewhat battered stem and partial foot of a relatively robust footed cup in a dark blue-green metal (OR 2199) came from a Period 4 layer. This has tentatively been identified as deriving from a cantharus, a rare cup type, known only from a few earlier first-century sites in Britain (Price and Cottam 1998, 68), although, without the rim, this cannot be confirmed with confidence. Seemingly associated with the early days of the Roman military occupation, its distribution is largely southern and south-

eastern, but other fragments are known from Chester (Cool and Price 1995, 17), as well as from Lincoln, Wroxeter, and York (*ibid*).

6.12.6 At this stage, few other vessel forms have been recognised, though these include an indented vessel (OR 245) and a possible cylindrical cup (OR 2146), both from Period 4. There are, in addition, 13 diagnostic fragments, indicating the presence of square or rectangular storage bottles (Isings 1957, forms 50 and 90). Common in the first- to early third centuries (Price and Cottam 1998), these robust vessels were often reused. At Northgate, material in stratified Roman contexts comprises two fragments (OR 625; OR 668) in Period 2 'refuse' deposit ***519*** (*Section 5.4.18*) and in a gully (OR 1666) of the same phase, as well as in three Period 3 deposits (OR 634; OR 1476; OR 1784) and two of Period 4 (OR 101; OR 135). Additionally, a single fragment from a cylindrical storage vessel (OR 1489) was recovered from a modern 'cleaning' level in *Insula XXI*. This form is rather more restricted in date, being common in the late first century, but passing out of use in the early second century (*op cit*, 191).

6.12.7 A large proportion of the vessel-glass fragments are small, undiagnostic body sherds, and therefore remain unidentified at this stage, though analysis should result in many more fragments being allocated to specific forms. Much of the material is from stratified Roman levels and is clearly, therefore, of Roman date, as the blue-green colour of the bulk of the material would also suggest. There is little vessel glass that can be assigned to the early post-medieval period. Pale green 'Forest Glass' of the late sixteenth/seventeenth century (Hurst Vose 1980) is restricted to one blown bottle fragment, from a 'cleaning' level, and a few fragments of blown window glass (*Section 6.12.9*). Dark olive-green wine/beer bottles ('English' bottles), which appeared during the seventeenth century and continued in widespread use thereafter (Hume 2001), are surprisingly under-represented in the assemblage, with only eight fragments currently identified. The rest of the post-Roman vessel glass is of late nineteenth- to twentieth-century date.

6.12.8 ***Window glass***: there are 41 fragments of window glass of all periods. Of these, 22 are of the typically early Roman matt-glossy type, mainly in natural blue-green metals, with one (OR 624) in a potentially later pale greenish-colourless metal. Seven fragments came from Period 2 deposits, with nine being residual in post-Roman contexts and six unstratified. The presence of such glass is a clear indication of buildings with glazed windows within the legionary fortress. There is a pane-edge fragment (OR 1787) from Period 3 in what appears to be a yellowish-colourless metal, now weathered to opaque white. The edge seems to be fire-rounded, suggesting an origin as cylinder glass. Cylinder or 'muff-blown' glass appeared in the late Roman period but was also widely used at a much later date (Hurst Vose 1980). Greenish-colourless fragments (OR 679) from a post-Roman posthole (***535***; *Section 5.8.7*) and a 'cleaning' level (OR 1488; OR 1880) seem likely to be cylinder glass of sixteenth/seventeenth-century date, as does OR 2211, in a dark greenish metal, which was unstratified. It is of note that OR 679, like OR 1787, has a thick white layer of weathering, as does another unstratified piece (OR 1499).

6.12.9 ***Beads***: two glass beads (OR 409; OR 470) were recovered from Period 2 contexts. Both are turquoise-blue melon beads, a long-lived type that was particularly popular in the first- to third centuries AD and appears to have been frequently associated with

cavalry units (Bishop 1988). This has led to the suggestion that they could be associated with horse tack, rather than being used for personal adornment.

6.13 Stone Objects

6.13.1 Of the 57 worked-stone items recovered, the majority (41) are small fragments of roofing slate, and a further six are pieces of sandstone roof tiles. Most of these derive from post-Roman contexts but also occur in Period 4deposits, where they may have come from the demolition/dereliction of buildings within the Roman legionary fortress. The only other material from Roman levels, comprising six tiny slate fragments from Period 2 'refuse' deposit ***560***, in *Insula XXI* (*Section 5.4.18*), together weigh less than 5g, having been recovered from a sieved soil sample. In no cases are the fragments large enough to illustrate the original appearance of slates/tiles and much of the slate is so fragmentary that it is impossible to be confident that it was ever used for roofing. Only one fragment (OR 1337), from a post-Roman pit (***533***), has a peg hole, suggesting its use for roofing in the early post-medieval period. There are also peg holes in two sandstone tile fragments (OR 1460; OR 1626) recovered from medieval ditch ***249*** (*Section 5.8.3*).

6.13.2 The other stone items include three potential tools: two fragmentary whetstones (OR 1387; OR 2190); and a large red sandstone sub-sphere (OR 2155). Stratigraphically, the sphere is the earliest object, from a Period 2 posthole. It has extensive pecking on its surfaces and is best interpreted as a hammer-stone. Such simple tools are not intrinsically datable, having been used in all periods from prehistory to the modern era, but the context of this specimen suggests an early Roman date, though the possibility that it is a reused prehistoric object cannot be discounted. Whetstone OR 2190 came from a Period 4 soil, whilst OR 1387 was unstratified. Neither has any chronologically diagnostic features and the types of stone used in their manufacture has yet to be determined, though this is unlikely to aid the dating of these objects.

6.13.3 There are two large fragments of sandstone, one (OR 1667) from Period 3, the other (OR 1465) from Period 4. The former is clearly the upper part of a small altar, although the central part, where any inscription might have been found, is missing. The other fragment is slightly trapezoidal, with a relatively well-dressed (albeit weathered) front face and crudely finished sides; its purpose is unclear, though it is possible that it had been modified for reuse.

6.13.4 The assemblage is completed by several items of uncertain form and purpose, including a small fragment of what may be ochre (OR 337) and two joining fragments of a soft black material, tentatively identified as graphite (OR 1999), all from Period 2. A water-worn fragment (OR 1637), possibly basalt, was found in a Period 4 layer and a piece of polished marble (OR 1663), probably modern, came from a 'cleaning' level.

6.14 Ceramic Building Materials (CBM)

6.14.1 In total, 1836 fragments of ceramic building materials (CBM), weighing 135,202g), were recovered (Table 17). Much of the assemblage consists of small, featureless fragments, but there is also a substantial amount of Roman roofing material, including tegulae, recognised by their distinctive flange, and imbrices, defined by their marked

curvature. In total, 27 partial tile stamps are present, together with two antefixes, one almost complete. Some 21.6% of the assemblage (by weight) is unstratified, including several of the stamped fragments. Modern brick is absent (clearly because it was not collected), but there are a few fragments of modern extruded ceramic field drains and glazed wall tiles.

Period	Fragment count	Weight (g)	Contexts with stamped tiles
1	2	86	
2	354	3102	***511*** (4)
3	381	16,179	**220**
4	419	44,181	***208*** (8) ***217*** ***225***
5	325	10,336	
6	143	29,959	***616*** ***9011*** (two antefixes) ***10004***
Not closely phased	62	2059	
Unstratified	150	29,300	10
Total	**1836**	**135,202**	

Table 17: Quantification of ceramic building materials, by period

6.14.2 Although two small fragments came from deposits assigned to Period 1, it is probable that these had been reworked into these soils during the Roman period. Deposits of Period 2 yielded 354 fragments, but these are mostly very small, with an average fragment weight of only 8.8g. This suggests that ceramic material may not have been extensively employed in the structures of this phase, though it is noteworthy that Period 2 yielded no less than four tile stamps. However, at least one of these is certainly an early third-century type (*Section 6.14.4*) and must be regarded as intrusive. The bulk of the assemblage is clearly associated with the later Roman fortress, coming either from deposits of Period 3 itself (11.9% of the total, by weight) or the demolition/dereliction levels of Period 4 (32.6%), mostly from deposits associated with barrack ***800***. All the Roman tile in post-Roman phases is clearly residual, having presumably been redeposited by disturbance and reworking of Roman levels. Given that 21.7% of the assemblage (by weight) came from modern deposits, it seems clear that the most extensive disturbance occurred during the twentieth century.

6.14.3 There are sufficient diagnostic fragments of both tegulae and imbrices to indicate the presence of buildings with tiled roofs during Period 3, as might be expected, given the location of the site. The presence of numerous stamps of *Legio XX Valeria Victrix* suggests that much of the tile came from the legionary tilery at Holt (Grimes 1930),

although the legion was also producing tiles elsewhere in the area, for instance at Tarbock (Warry 2010). In total, 27 partial stamps were noted during the rapid scan of the assemblage, together with the two antefixes (both OR 1143; Pl 15) from a modern deposit, bearing the legionary emblem of the running boar (possibly Grimes (1930, fig 58), type 3).

Plate 15: A ceramic antefix of Legio XX Valeria Victrix

6.14.4 Amongst the stamps are three (OR 1336; OR 1512; OR 1603) that refer to the legion as *ANTO*, an abbreviation of *Antoniniana*, which were produced during the early third century (Mason 2001b, 165, fig 101). Two came from Period 4 deposits but OR 1603 was recovered from a layer assigned to Period 2, where it was presumably intrusive. Both the stamps and the antefixes can be added to the large corpus of such items that are already known from Chester (Jones (2003). Not including the present finds, 27 examples of the 'running boar' antefix are known from the city, and others are known from Holt (*ibid*). Several of the Northgate tiles also bear the familiar cursive manufacturers' signatures made by drawing fingers across the flat surfaces of tegulae before firing, and one (OR 1022), from a Period 4 layer, has a hand-written tally or inscription. As is common, several tiles also bear prints, including those of dogs and the impressions of nailed sandals. Although the Roman assemblage is overwhelmingly dominated by roofing material, small amounts of keyed or combed tiles, presumably from box tiles of the kind associated with heating systems (Brodribb 1987), were also recovered, principally from Period 4.

6.15 Roman Wall Plaster

6.15.1 In total, 12 pieces of wall plaster were found *in situ* (Table 18), still attached to the stone walls of some of the rooms in Period 3 barrack ***800***, in *Insula XXII* (*Sections 5.5.3-7*). There were also 995 fragments of detached plaster or mortar from the site, with a combined weight of 19,606g, giving an average fragment weight of just over 5g. All the material recovered was given object record (OR) numbers, individually for the *in situ* plaster and either individually or in groups (by context number) for the detached fragments. The material was air dried, and soil was removed with a soft brush to enable observation of pigmentation and mortar inclusions.

Wall no	OR no	Description	Dimensions (mm)
186 (east face)	2521	Single layer of a hard, pale grey-brown mortar with medium to large shell inclusions. Some red staining from wall. Off-white surface; no visible paint prior to lifting.	265 x 148 x 14
186 (east face)	2524	Single, very thin layer of hard, pale grey-brown plaster with medium to large shell inclusions. Off-white surface; no visible paint prior to lifting.	268 x 168 x 13
186 (west face)	2522	Single layer of hard, pale grey-brown mortar with medium to large shell inclusions. Thin and patchy and in poor condition. Off-white surface; no visible paint prior to lifting.	330 x 396 x 7mm
197	2518	Single layer of hard, pale grey-brown mortar with medium to large shell inclusions. Cracked and in quite poor condition. Off-white surface; no visible paint prior to lifting.	839 x 277 x22
197/ 215 (junction)	2519	Single layer of hard, pale grey-brown mortar with medium to large shell inclusions. Corner piece, with some cracking and a hole. Off-white surface; no visible paint prior to lifting.	880 x 382 x 18 and 186 x 382 x 18
215 (east face)	2527	Single layer of hard, pale grey-brown mortar with medium to large shell inclusions. Back stained from sandstone wall. Cracked and in poor condition. Off-white surface; no visible paint prior to lifting,	464 x 276 X16
215 (west face; left)	2528	Two layers of hard, pale grey-brown mortar with medium to large shell inclusions. Some red staining from the sandstone wall. Off-white surface; no visible paint prior to lifting, although blue paint was noted when first excavated.	312 x 204 x 32
215 (west face; right)	2525	Two layers of hard, pale grey-brown mortar with medium to large shell inclusions. Some red staining from wall. Off-white surface; no visible paint prior to lifting.	309 x 229 x 32
220	2523	Two layers of hard, pale grey-brown mortar with medium to large shell inclusions. Cracked to three edges. Off-white surface; no visible paint prior to lifting.	405 x 292 x 32
257 (east face)	2520	Single layer of hard, pale grey-brown mortar with medium to large shell inclusions. Fragmented and in poor condition. Off-white surface; no visible paint prior to lifting.	265 x 82 x 22
257 (west face)	2867	Single layer? Lifted with the stone block to which it was firmly attached. Off-white surface; no visible paint prior to lifting.	162 x 102 x 12

Wall no	OR no	Description	Dimensions (mm)
339 (north face)	2526	Two layers of hard, pale grey-brown mortar with medium to large shell inclusions. Some red staining from wall. Off-white surface; no visible paint prior to lifting.	329 x 352 x 25 (top layer 6mm thick)

Table 18: Summary of in situ *Roman wall plaster in barrack* ***800***

6.15.2 **In situ *plaster***: the *in situ* wall plaster was lifted by a qualified conservator over the course of several days in July 2020. Following solvent tests on detached fragments of plaster, a polyvinyl acetate reversible with water (Primal Rhoplex B60A) was used with muslin to face the surface of the plaster. Once the Primal was touch dry, the plaster was surrounded by a tray filled with expanding polyurethane foam. Once this had set, a large pallet knife was used to detach the plaster from the wall. In all but one case this was easily achieved, as soil and roots had penetrated between the plaster and the wall face. However, fragment OR 2867, on the west face of wall ***257*** (*Section 5.6.7),* was firmly attached to a single facing stone and was therefore lifted with the stone.

6.15.3 Roman wall plaster typically comprises between one and three base coats (*arriccio*), applied successively to the wall (Sudds 2012), overlaid with one or two thin finishing layers, most probably composed of calcium carbonate (*intonaco*). The plaster would be painted either when still damp, in true '*buon fresco*' style, or once dry (*ibid*). Decoration was commonly divided into three zones: the lower dado (usually 0.7-0.9m high (Liversidge 1969); and the middle and upper friezes (Davey and Ling 1981).

6.15.4 In the case of the *in situ* plaster in Building ***800***, the mortar base coat consisted of either one or two layers (Table 18), the base layer being *c* 7-22mm thick, with an additional *c* 3-10mm in cases where a second layer had been applied. The mortar used was fine grained with shell inclusions up to 6mm in size. In all cases, only the lower portion of the plaster had survived and no paint was evident.

6.15.5 On the west face of ***215***, the east wall of R4 in the centurion's quarters, blue paint had been applied to the off-white plaster at the base of the wall (Pl 16). This was the only area of *in situ* plaster that exhibited any coloured paint at the time of lifting. Although the plaster was covered for protection from the elements, the heavy rain between excavation and lifting appears to have washed the paint away, although it may be possible microscopically and by analysis to identify the blue pigment. Blue is a less common colour used or surviving on Roman plaster in England (red, white, green and yellow being most common) and was presumably made from lapis lazuli (a metamorphic rock, which would have been imported and hence exotic) or azurite, a basic copper carbonate more locally available (Davey and Ling 1981).

Plate 16: In situ *plaster on the west face of wall **215** in the centurion's quarters of Period 3 barrack **800**, looking east, showing traces of blue paint*

6.15.6 ***Detached plaster fragments***: in 597 of the 995 'detached' plaster fragments recovered, the finishing layer (*c* 2-5mm thick), representing the original surface of the plaster, had survived, but only 27 pieces (*c* 4.5%) had evidence of pigment. Of these, the great majority (21) had red paint, which is also the most common colour found on painted plaster in Britain (Davey and Ling 1981). Nine of these were unstratified but almost all the rest came from Period 4 deposits in the general vicinity of barrack ***800***. On a few of the detached fragments, the basal layer of mortar is noticeably different from the bulk of the material, being pink-brown in colour and having multi-coloured pea-gravel inclusions (1-6mm in size, as well as shell fragments. However, none of the *in situ* plaster was of this type and its significance is unclear.

6.15.7 One of the unstratified, red-painted fragments is of note, as it had clearly been remortared, skimmed, and repainted, again in red (Pl 17). This fragment comprised a base layer of at least 20mm and an *intonaco* of up to 2mm, overlaid with a second (*c* 9mm thick) layer of mortar and a *c* 1mm-thick *intonaco.* The mortar was identical in composition to that found in the *in situ* wall plaster. Raman Spectroscopy of red painted plaster from elsewhere in Britain shows that heamatite (iron(III) oxide, or red ochre) was the most common pigment used; this would have been readily available within the province but might also have been imported (Edwards and Widdowson 2012). The red pigment is lighter in colour than the norm on a fragment of plaster (OR 1023) from Period 4 and this could conceivably have been achieved by the addition of chalk (Edwards *et al* 2009).

*Plate 17: Fragments of wall plaster associated with Period 3 barrack **800**, one (OR 1112; left) with a yellow stripe on a white field, the other having been reskimmed and repainted*

6.15.8 A single fragment exhibiting a yellow stripe, 12-13mm wide, was unstratified (Pl 17). In the Roman period, yellow pigment was often produced from *goethite* (iron (III) oxide-hydroxide, or brown ochre (Edwards and Widdowson 2012)). Additionally, three plaster fragments with green paint came from a Period 3 soil in this area (Pl 18; OR 1292 (left)), and this deposit also yielded a fragment with a brownish stripe, 4mm wide (Pl 18; OR 1951 (right)); a fourth green example was recovered from another Period 3 soil in the general vicinity. Under x3 magnification, black specks were visible in the brown pigment and it seems likely that this was originally black paint that had faded. Such pigments were often created from calcined bones or from carbon of vegetable origin (Edwards and Widdowson 2012), whilst the green pigment could have been produced from *terre verte* (Verona Green or Green Earth), derived from the minerals celadonite and/or glauconite, which, in Britain, may have been sourced from Cornwall (Liversidge 1969).

*Plate 18: Fragments of wall plaster associated with Period 3 barrack **800**, showing the use of green (OR 1292; left) and brown/black (OR 1951; right) paint*

6.16 Leather

6.16.1 Six small, very poorly preserved fragments of leather were recovered from the site. However, as none of the deposits was waterlogged, it seems likely that all or most are of relatively modern date. This is almost certain in the case of five unstratified small fragments (OR 2212), and may be so for the sixth piece (OR 126), a thin strip with some indication of stitching (possibly part of a torn seam or a shoe rand). This was supposedly recovered from a Period 4 layer, though it is perhaps more likely to have been intrusive.

6.17 Conservation

6.17.1 The objects are rarely complete and, except for the metalwork, leather and plaster, have been washed and air-dried to allow for assessment. They are generally in stable condition. The glass is not laminating, the ceramics and stone are robust, and the few bone objects are intact.

6.17.2 Following air-drying and cleaning with a soft brush to remove the loose soil, no other work was undertaken on the lifted plaster or the leather fragments, which had already dried. The lifted *in situ* plaster (OR 2528) is the only example of blue pigment (*Section 6.15*) and will require conservation to allow analysis of the paint.

6.17.3 The metalwork was also air-dried and x-rayed to aid identification. Corrosion on the copper alloy is obscuring details, and this and the six Roman coins (*Section 6.6*) require cleaning to confirm their identification. A further 24 copper-alloy fragments require cleaning and conservation before analysis can be completed (*Section 6.7*). The iron has extensive corrosion products, making certain identification problematic without cleaning, and the 19 more significant objects should undergo conservation prior to analysis (*Section 6.8*).

7 FACTUAL DATA: ENVIRONMENTAL EVIDENCE

7.1 Introduction

7.1.1 The assemblage of palaeoenvironmental materials (Table 19) includes a relatively small group of animal bones, a collection of charred plant remains (CPR) and charcoal, from 38 bulk soil samples, and a group of marine mollusc shells.

Material	Quantity
Animal bone	1213
Fish remains (bones and scales)	191
Bulk soil samples (for CPR and charcoal)	38
Marine mollusc shell	307

Table 19: The palaeoenvironmental assemblages assessed

7.2 Animal Bones

7.2.1 Assessment of the animal bones was undertaken following current professional guidance (HE 2019; Baker and Worley 2014). All the material was visually inspected but unstratified bones and those from currently unphased contexts were not assessed further (though it was determined that no exotic taxa or other notable bones were present amongst this material). Anatomical elements recorded were based on elements and zones illustrated by Serjeantson (1996), and potential measurement counts followed von den Driesch (1976), Davis (1992; 1996), and Payne and Bull 1988). Ageable mandibular teeth (Grant 1982) and pig mandibular canines, which can indicate sex, were also counted. Bird remains were noted if elements zoned by Cohen and Serjeantson (1996) were present. No species differentiation was undertaken amongst the fragmentary and disarticulated *Equus* remains; consequently, for the purposes of the present assessment, the term 'horse' encompasses all equid species. The bone was scanned for evidence of butchery, and surface texture was assessed and classified in a manner similar to that of Harland *et al* (2003), where 1 = good; 2 = moderate; 3 = poor; 4 = burnt; and 5 = variable.

7.2.2 In total, 1184 identifiable fragments of stratified bone were recovered (Table 20) from 156 individual contexts. Bones came from most of the areas subject to hand excavation but, unsurprisingly, the bulk of the assemblage was recovered from those areas where most of the archaeological work was concentrated (*Section 4.1.2*), particularly the surface-water drainage trench extending east to west on the south side of Hunter Street, in *Insula XXII*, which yielded 816 fragments (*c* 69% of the stratified material), and from the lower foundation pile mat for the new market and cinema, in *Insula XXI* (290 fragments; *c* 24%). The great majority (91%) have a surface texture that can be classed as 'good' (*Section 7.2.1*), with good potential for the survival of evidence for butchery and other taphonomic processes. Bones that are 'burnt' comprise 4% of the collection, and a further 4% are in a 'variable' state of preservation, leaving only 1% in a 'moderate' or 'poor' state.

Period	Cattle	Pig	Sheep	Goat	Horse	Dog	Cat	Total
0	2	1	2					**5**
1	4	7	1					**12**
2	109	53	36			4	1	**203**
3	61	82	43	1			2	**189**
4	199	198	113		5	14	1	**530**
5	62	18	24	1	2	1	1	**109**
6	65	39	29		1	2		**136**
Total	**502**	**398**	**248**	**2**	**8**	**21**	**5**	**1184**

Table 20: Quantification of animal bones by period, based on the number of identified specimens (NISP)

7.2.3 The assemblage is dominated by the remains of cattle, sheep and pigs, with the bulk of the material coming from later Roman deposits assigned to Period 3 (third- to fourth-century occupation within the fortress) and Period 4 (abandonment/dereliction of the fortress). In addition to the taxa quantified, eight identifiable deer bones are present, including a distal radius of a red deer (*Cervus elaphus*), from a Period 2 'refuse' deposit in *Insula XXI* (***519***; *Section 5.4.18*), and a second phalanx of the same species came from a medieval / post-medieval dark soil adjacent to Hunter Street. A few wild bird bones were also present in deposits of Periods 2 (NISP 16), 3 (NISP 9) and 4 (NISP 7). The majority of the ageable mandibles and teeth (Grant 1982), including loose teeth, are from pigs and cattle (Table 21), with a relatively small quantity of sheep. Small numbers of horse, dog, and cat teeth were also recovered.

Period	Cattle	Pig	Sheep	Horse	Dog	Cat	Total
2	7	10	6		2		**25**
3	14	17	2				**33**
4	21	38	4			1	**64**
6	14	7	2	1			**24**
Total	**56**	**72**	**14**	**1**	**2**	**1**	**146**

Table 21: Quantification of ageable teeth by period

7.2.4 Whilst this is not a large assemblage, it is sizable enough for estimates of stock proportions to be made, and also a consideration of age-at-death. The early assemblage in particular is of value, as such material is rare in Chester. The bone preservation is also sufficient to allow cut marks and evidence of gnawing, to be discerned.

7.3 Fish Remains

7.3.1 In total, 191 fish bones (or bone fragments) and scales were recovered from the site. Apart from two unstratified bones, the entire assemblage came from the dried residues/flots of 18 of the 38 bulk soil samples that were taken during the investigations (*Section 7.5*), these having been sieved to 0.5mm (0.25mm, for the flots). Some fine (<2mm) residues were only partly sorted for assessment (*Section 9.4.11*).

7.3.2 The remains (Table 22) are mostly in fair condition, although some bones are heavily degraded and consequently unidentifiable. There are several examples of small bones that appear distorted and corroded, and may have been eaten, notably some of those in a probable occupation deposit (***218***; Table 21) in Period 3 barrack ***800*** (*Section 5.5*).

Sample no	Context no	Context Type	Period	Sample Vol (l)	Flot size (ml)	Fish remains (coarse residue)	Fish remains (fine residue)	Fish remains (flot)	Condition	Notes
10	***323***	Soil	1	2	50	Pleuronectidae: 1 small supracleithrum, *cf* plaice (*Pleuronectes platessa*) Unidentified: 1 dorsal spine; 6 indeterminate fragments			Fair	Bone of similar size to those from a 0.24m-long flounder (*Platichthys flesus*)
5	***237***	Soil	2	20	170	Clupeidae: 2 vertebrae Pleuronectidae: 3 small vertebrae ??Grayling (*Thymallus thymallus*): 1 tiny abdominal vertebra Perch (*Perca fluviatilis*): 1 scale			Variable	Possible grayling vertebra, requires confirmation. Perch scale of comparable size to those from a 0.25m-long fish
9	***310***	Soil	2	12	120	Trout (*Salmo trutta*): 1 tiny precaudal vertebra Pleuronectidae: 1 small caudal vertebra Indeterminate: 4 scale fragments		Unidentifiable: 3 bone fragments and 1 scale	Fair-good	Pleuronectidae vertebra is from a fish <0.20m long, possibly plaice
11	***326***	Fill of ditch ***319***	2	6	50	Clupeidae: 1 small precaudal vertebra			Fair	
12	***327***	Fill of ditch ***319***	2	8	30	Unidentified: 1 tiny rib/spine fragment				
15	***333***	Soil	2	30	100	Eel (*Anguilla anguilla):* 1 vertebra			Fair	
16	***366***	Fill of pit ***365***	2	9	100	Flatfish: 1 tiny vertebra Clupeidae: 1 vertebra			Fair	
19	***393***	Soil	2	14	150	Flatfish: 8 small vertebrae Clupeidae: 7 vertebrae			Good-poor	1 flatfish vertebra is charred; 1 clupeid vertebra is charred and another is possibly chewed/digested
501	***514***	Soil	2	27	800	Pleuronectidae: 1 small posterior caudal vertebra			Fair	
512	***519***	Soil	2	36	1400	Pleuronectidae: 1 small posterior caudal vertebra, 1 urohyal Indeterminate: 7 fragments			Fair	Urohyal should be identifiable to species in analysis
508	***548***	Soil	2	40	700	Pleuronectidae: 4 small vertebrae Spanish mackerel (*Scomber japonicus*): 2 small caudal vertebrae	*Anguilla anguilla*: 1 partial left dentary		Fair	Residue needs sorting
510	***560***	Soil	2	32	3000	Clupeidae: 1 small precaudal vertebra			Fair	

Sample no	Context no	Context Type	Period	Sample Vol (l)	Flot size (ml)	Fish remains (coarse residue)	Fish remains (fine residue)	Fish remains (flot)	Condition	Notes
						Pleuronectidae: 1 small caudal vertebra Indeterminate: 4 fragments				
513	***564***	Fill of pit ***563***	2	2	80	?Clupeidae: 1 basioccipital fragment Flatfish: 1 small posterior caudal vertebra, 1 tiny caudal vertebra Indeterminate: 9 fragments (1 possibly ceratohyal fragment)			fair	
600	***743***	Fill of ditch ***744***	2	14	2300	Indeterminate: 1 fragment				
2	***218***	Soil	3	26	100	*Anguilla anguilla*: 3 vertebrae Herring (*Clupea harengus*): 7 vertebrae Flatfish: 6 small caudal vertebrae Gadidae: 1 small precaudal vertebra, *cf* whiting (*Merlangius merlangus*) ?Sole (*Solea solea*): 1 tiny caudal vertebra	Pleuronectidae: 1 tiny lower pharyngeal	Gadidae: 1 small precaudal vertebra Unidentified: 1 vertebral fragment, possibly flatfish	Fair-poor	Several possible examples of digested bone. Residue and flot need sorting. Small flatfish bones need checking
3	***219***	Soil	3	44	140	*Clupea harengus*: 22 vertebrae *Anguilla anguilla*: 1 tiny left premaxilla, 1 caudal vertebra Pleuronectidae: 4 small caudal vertebrae, 1 small precaudal vertebra, 1 small atlas *Salmo trutta*: 2 small precaudal vertebrae Gadidae: 1 small abdominal vertebra, 1 small caudal vertebra Unidentified: 1 small vertebral fragment		Gadidae: 1 small precaudal vertebra Clupeidae: 1 vertebra, 1 otic bulla Unidentified: 1 vertebral fragment	Fair-good	
1	***211***	Fill of pit ***209***	5	7	40	Clupeidae: 1 vertebra, probably *Clupea harengus* Indeterminate: 8 tiny fragments		Flatfish: 13 small vertebrae Pleuronectidae: 1 left dentary Other flatfish vertebrae in unsorted flot	Fair-poor	Dentary can be further speciated, from fish *c* 0.20-0.25m long. Fish should be extracted from flot
509	***553***	Fill of pit ***559***	6-7	32	2000	Clupeidae: 6 vertebrae ?shad (*Alosa* sp): 1 subopercular fragment Pleuronectidae: 3 small vertebrae, 1 basioccipital, 1 ectopterygoid, 1 post-temporal Gadidae: 7 small/tiny vertebrae, 1 tiny quadrate; *Anguilla anguilla*: 4 vertebrae	Clupeidae: 1 tiny vertebra		Fair-good	Unsorted residue needs sorting
-	Unstratified					***?Pleuronectes platessa***: 1 cleithrum fragment Pleuronectidae: 1 anal pterygiophore			Fair	

Table 22: Assessment of fish remains

7.3.3 The bulk of the assemblage comes from Roman-period deposits of Periods 2 and 3, with only two post-Roman pits (***209***; *Section 5.8.1*; and ***559***; *Section 5.8.7*) yielding any material. The most common taxa in the Roman phases are right-eyed flatfish

(Pleuronectidae, including plaice (*Pleuronectes platessa*)), herring or sprat (Clupeidae), and eel (*Anguilla anguilla*), as well as small gadid (Gadidae), including whiting (*Merlangius merlangus*). Other fish, identified in only one or two samples, are perch (*Perca fluviatilis*), trout (*Salmo trutta*), cyprinid (Cyprinidae, *cf* carp) and Spanish mackerel (*Scomber japonicus*). There is also a possible shad (*Alosa* sp) subopercular, and a possible tiny grayling (*Thymallus thymallus*) vertebra, but grayling bones are rarely identified archaeologically (*pers obs*) and this identification is, therefore, provisional. While most of these fish could have been caught locally, the Spanish mackerel is very likely to have been imported as preserved, salted, fish (*salsamentum*). Flatfish and Clupeidae are the only taxa represented in the two post-Roman deposits that yielded fish remains.

7.4 Marine Mollusc Shells

7.4.1 In total, 307 fragments of marine mollusc shell were recovered. The majority, identified with reference, where necessary, to the work of Tebble (1966), came from 30 individual, stratified contexts (with a small proportion unstratified), though the great bulk derived from Roman deposits (Periods 2, 3, and 4), with over half the collection (162 fragments; *c* 53%) assigned to the later Roman period (Period 3; Table 23).

Site period	Count	Taxa	Comment
1	6	*cf Mytalis edulis*	Small fragments from a single context
2	50	Mostly *Mytalis edulis* and *cf Mytalis edulis*; small fragments of O*strea edulis*	Mostly small fragments, from seven individual contexts
3	162	My*talis edulis*; *cf Mytalis edulis*; O*strea edulis*	From ten individual contexts. Overwhelmingly My*talis edulis*; only ten O*strea edulis* and seven indeterminate
4	23	*Ostrea edulis* (19); *Mytalis edulis* (2); *cf Buccinum* sp (1); *cf* Pectinidae (1)	Probably *Buccinum undatum* (common whelk) and *cf* scallop (Pectinidae)
5	45	*Ostrea edulis* (43); *Mytalis edulis* (5); *Buccinum* sp (1); indeterminate (5; small fragments)	Probably *Buccinum undatum* (common whelk). Concentration of 35 *Ostrea edulis* fragments in fill ***553***, of pit ***559***
6	9	*Ostrea edulis*	Five individual contexts
Unstratified	12	O*strea edulis*	
Total	**307**		

Table 23: Quantification of marine mollusc shells by site period

7.4.2 Virtually the whole assemblage consists either of oyster (*Ostrea edulis*) or mussel (*Mytilus edulis*) shells, though Period 4 yielded single examples of *cf* common whelk (*Buccinum undatum*) and *cf* scallop (Pectinidae), and another *Buccinum* sp shell came from a medieval context.

7.5 Charred Plant Remains (CPR) and Charcoal

7.5.1 A targeted programme of sampling for charred plant remains (CPR) and charcoal was implemented, in accordance with Oxford Archaeology's (OA's) guidelines for environmental sampling (OA 2017). In total, 38 bulk soil samples were processed for assessment. These came from a variety of deposits, mostly from the surface-water drainage trench on the south side of Hunter Street (*Section 4.1.2*), within *Insula XXI*. Several samples were also taken from deposits in the lower foundation pile mat for the new market and cinema, in *Insula XXI*. One of the deposits is currently assigned to Period 1, 26 to Period 2 (the early Roman legionary fortress), eight to Period 3 (the later Roman fortress), whilst post-Roman deposits account for three samples. In addition, a small 'grab sample' was taken from a Period 2 deposit (***514***; *Section 5.4.18*) that appeared particularly charcoal-rich.

7.5.2 ***Methodology***: as no waterlogged deposits were encountered, all the samples were floated, the flots being captured in a 250µm mesh and air dried. The retents were washed through 2mm and 500µm meshes and were also air dried. These were scanned using a Leica stereo-microscope and any charred plant materials, including fruits, seeds, and charcoal, were quantified. Other remains, such as animal-bone fragments and small fragments of anthropogenic materials (*eg* pottery) were also quantified and these materials were passed on to the relevant specialists for assessment. Quantification was on a scale of #–####, where # is rare (one to five items), ## is frequent (six to 50 items), ### is common (51-100 items), and #### is abundant (more than 100 items). The assessment results were recorded on *pro forma* record sheets, which will form part of the project archive. Plant nomenclature follows Stace (2010).

7.5.3 Charcoal fragments over 2mm in size were quantified and scanned to assess preservation and wood diversity. Wood maturity was also noted to assess type (*ie* heart-, sap-, or roundwood) and to identify material suitable for radiocarbon dating. Alder (*Alnus glutinosa*) and hazel (*Corylus avellana*), which are anatomically similar in transverse section, were not differentiated during the assessment. Similarly, the anatomical structure of the hawthorn-type family (Maloideae), which includes hawthorn itself (*Crataegus monogyna*), apple (*Malus* sp), whitebeam (*Sorbus aria*), rowan (*Sorbus aucuparia*), and wild service tree (*Sorbus torminalis*), cannot be separated. Identification and classification of the charcoal was aided by reference to Hather (2000).

7.5.4 ***Results***: the results of the assessment are presented in tabular form in *Appendix B*. Roughly 75% of the samples yielded at least some charred remains but most contained only rare cereal grains and/or fragments of hazelnut shell. Of note are wheat (*Triticum* sp) caryopses with characteristics consistent with a free-threshing (hexaploid) variety (Jacomet 2006), such as bread wheat (*Triticum aestivum*), from Period 1 soil ***323*** (*Section 5.3.3*), and from several Roman (Periods 2 and 3) deposits. Large grass (Poaceae) seeds, resembling possible oat (*Avena* sp), were also recovered from Period 2 pits ***365*** (*Appendix B*) and ***555*** (*Section 5.4.14*). However, a lack of diagnostic chaff means that it is not possible to assign the wheat and *cf* oat remains from these deposits to specific species. The well-known issues surrounding the identification of

free-threshing wheat, based on the morphological characteristics of the caryopses themselves, must also be considered (Lodwick 2017).

7.5.5 The wider archaeobotanical evidence from Britain suggests that bread wheat became more prevalent during the Roman period in what is now northern England (Hall and Huntley 2007) and, indeed, elsewhere (Lodwick 2017). A lack of diagnostic floret bases of oats from many Roman sites in Britain means that whether oats were being cultivated must be based on the abundance and frequency of oat grains themselves (*ibid*). At Northgate, it is conceivable, in view of the levels of post-Roman disturbance and reworking, that the free-threshing wheat and *cf* oats were intrusive in deposits of Periods 1, 2, and 3, since both oat and bread wheat became dominant crops during the medieval period in Britain, rather than earlier (Greig 1991; Carruthers and Hunter Dowse 1991). Indeed, examples of both free-threshing wheat and oat grains were recovered from post-Roman deposits at Northgate.

7.5.6 The remains of cereal crops more typical of Roman-period sites were present in several deposits of Periods 2 and 3, including hulled barley (*Hordeum vulgare*) and a possible glumed wheat such as spelt (*Triticum spelta*). Barley, and a sub-component of glumed wheat, were particularly numerous in Period 2 pit ***365*** (*Appendix B*) but were also frequent in probable Period 2 refuse deposits ***548*** and ***560***, in *Insula XXI* (*Section 5.4.18*), and in two Period 3 deposits (***218***, ***219***) in the centurion's quarters of barrack ***800***.

7.5.7 Other cultivated crops include possible common pea (*Pisum sativum*) from a Period 2 soil (***393***) in barrack ***800***, and in a medieval or early post-medieval pit (***559***) in the lower foundation pile mat for the new market and cinema. A possible charred Celtic bean (*Vicia faba* var *minor*) was recovered from a Period 3 layer (***236***), also in Building ***800***. In addition to frequently recorded charred hazelnut-shell fragments, the remains of other food debris likely to have been collected locally include a blackberry (*Rubus* sect 2 *Glandulosus*) seed in a Period 2 'occupation' soil (***348***) in barrack ***800*** and blackthorn/sloe stones in Period 2 refuse layer ***548*** (*Section 5.4.18*) and in a post-Roman soil.

7.5.8 Other than occasional charred sedge (*Carex*) seeds, from several samples, seeds/fruits of herbaceous plants are limited to specific layers/features, the general lack of evidence for crop weeds being particularly noteworthy. A Period 2 soil (***348***) in barrack ***800*** contained a small suite of grassland flora, including small grass (Poaceae) seeds and culm stems, sheep's sorrel (*Rumex acetosella*), and possible lesser stitchwort (*Stellaria graminea*). A single ribwort plantain (*Plantago lanceolata*) seed, another grassland plant indicative of pasture (Behre 1981), was recovered from another Period 2 layer (***386***) in Building ***800***. The presence of sedges suggests some of the ground conditions in and around the fortress may have been damp, at least seasonally, unless these plants were gathered elsewhere and brought to the fortress for a specific purpose.

7.5.9 All the assessed samples contained charcoal, including rare to abundant identifiable fragments larger than 2mm in size. Rapid assessment of the wood types indicates that oak (*Quercus* sp) is dominant, either on its own or with varying quantities of other taxa, primarily hawthorn-type, alder/hazel, and ash (*Fraxinus excelsior*). Occasional

fragments of elm (*Ulmus* sp), or willow/poplar (*Salix/Populus*) were noted in six samples (*Appendix B*). Period 2 layer ***348*** (*Sections 7.5.7-8*) in barrack ***800*** contained rare fragments of coniferous wood charcoal as well as holly (*Ilex aquifolium*). Much of the oak charcoal appears to have come from mature trees, though some small branch wood is also present. Fragments of larger oak roundwood, perhaps from a small trunk or tree limb, were found in a Period 2 ditch (***744***; *Section 6.10.3*) and might possibly represent the remains of *in situ* structural wood. This feature was observed in a narrow trench towards the south-east corner of *Insula XXI* and was probably associated with activity pre-dating Period 3 Building ***806***, which occupied this *insula* in the later Roman period (*Section 5.5.14*). There are no significant differences in the composition of the assemblages from the various stratigraphic phases from which the samples derive.

7.6 Scientific Dating

7.6.1 No scientific dating was undertaken during the course of the fieldwork or the post-excavation assessment, since it was felt that the results would not be sufficiently precise to inform or enhance the establishment of the provisional phasing sequence. However, the 38 bulk soil samples assessed for palaeobotanical remains (*Section 7.5.1*) were also assessed for their potential for radiocarbon dating. This demonstrated that ten have good potential, 22 have moderate potential and six have low potential for dating (Table 24). Six of those with good potential came from deposits assigned to Period 2, two to Period 3 and two to post-Roman contexts, whilst those with moderate potential are assigned to Periods 1 (one), 2 (14), 3 (six), and 5 (one).

Period	Sample	Context	Context type	Radiocarbon dating potential	Summary of charred materials with good/moderate potential
1	10	***323***	Soil	Moderate	Cereal grains
2	5	***237***	Soil	Low	
2	9	***310***	Soil	Low	
2	1	***315***	Soil	Moderate	Weed seeds
2	13	***318***	Fill of ditch ***319***	Low	
2	14	***321***	Soil	Moderate	*Corylus avellana* nut shell
2	11	***326***	Upper fill of ditch ***319***	Low	
2	12	***327***	Lower fill of ditch ***319***	Moderate	Roundwood charcoal, including diffuse porous woods
2	15	***333***	Soil	Moderate	Cereal grains
2	17	***348***	Burnt soil	Good	Weed seeds; *Corylus avellana* nut shell
2	16	***366***	Fill of pit ***365***	Good	Cereal grains; weed seeds
2	20	***383***	Burnt soil	Moderate	Cereal grains
2	18	***386***	Charcoal-rich soil	Moderate	Weed seeds; *Corylus avellana* nut shell
2	19	***393***	Charcoal-rich soil	Good	Cereal grains; weed seeds; *cf Pisum sativum*
2	501	***514***	Charcoal-rich soil	Moderate	Cereal grains
2	512	***519***	Soil	Moderate	*Quercus* sp roundwood and diffuse porous wood charcoal
2	506	***546***	Fill of kiln ***549***	Moderate	*Corylus avellana* nut shell
2	508	***548***	Soil	Good	Cereal grains; *Corylus avellana* nut shell; *Prunus* sp stone

Period	Sample	Context	Context type	Radiocarbon dating potential	Summary of charred materials with good/moderate potential
2	507	***556***	Fill of pit ***555***	Good	Cereal grains; weed seeds; Corylus avellana nut shell
2	510	***560***	Soil	Good	Cereal grains; *Corylus avellana* nut shell
2	511	***561***	Fill of kiln ***549***	Moderate	*Quercus* sp roundwood and diffuse porous wood charcoal
2	513	***564***	Fill of pit ***563***	Moderate	*Quercus* sp roundwood charcoal
2	515	***585***	Fill of kiln ***549***	Moderate	*Quercus* sp roundwood and diffuse porous wood charcoal
2	516	***588***	Fill of kiln ***549***	Moderate	*Quercus* sp roundwood and *Ulmus* sp charcoal
2	522	***687***	Fill of pit ***686***	Low	
2	600	***743***	Fill of ditch ***744***	Moderate	Weed seeds
3	2	***218***	Occupation layer? Building ***800***	Good	Cereal grains; *Corylus avellana* nut shell
3	3	***219***	Occupation layer, Building ***800***	Good	Cereal grains; *Corylus avellana* nut shell
3	4	***236***	Floor? Building ***800***	Moderate	Weed seeds; cf *Vicia faba* var *minor*
3	6	***281***	Fill of drain ***263***	Moderate	Cereal grains
3	502	***513***	Fill of kiln **549**	Moderate	Cereal grains
3	519	***667***	Fill of gully ***680***	Moderate	Cereal grains; weed seeds
3	520	***710***	Upper fill of pit ***712***	Moderate	Cereal grains
3	521	***711***	Lower fill of pit ***712***	Moderate	Cereal grains
5	1	***211***	Fill of pit ***209***	Moderate	Cereal grains
5	505	***538***	Soil	Good	Cereal grains; weed seeds; *Prunus spinosa* stone
5	509	***553***	Fill of pit ***559***	Good	cf *Pisum sativum*; *Quercus* sp roundwood and diffuse porous wood charcoal
Currently unphased	1	***315***	Layer (alluvium: Castle Drive)	Low	

Table 24: Radiocarbon-dating potential of the charred material from processed bulk soil samples

7.6.2 Of the four samples with good or moderate potential from post-Roman levels, one came from a 'dark earth' of later medieval post-medieval date, and there is, consequently, a significant risk that the charred materials are residual within this deposit. Another sample came from a later medieval pit and this might aid the dating of this feature. One of the two remaining samples came from a buried soil (***323***; *Section 5.3.3*) assigned to Period 1, whilst the second was recovered from the fill of a small pit (***209***; *Section 5.7.1*) that is tentatively assigned to the early medieval period (Period 5). However, in the case of the few charred cereal grains from Period 1 soil ***323***, it is conceivable that these were 'trampled' or reworked into the soil in the Roman period, in which case they might yield an 'unreliable' later date. That the charred material and charcoal from pit ***209*** is residual (*ie*, it derives from the reworking of underlying deposits) cannot be completely ruled out either, but the fact that they come from a discrete feature makes this less likely.

8 STATEMENT OF POTENTIAL

8.1 Introduction

8.1.1 A range of complementary data, including stratigraphical, artefactual, and palaeoenvironmental information, was recovered during the fieldwork and has been subject to assessment (*Sections 6* and *7*). The following section seeks to synthesise the results of the assessment, and to consider the academic potential of the data for analysis and dissemination, following current professional guidance (HE 2015). The potential of each element of the dataset, including the stratigraphy, artefacts, and the paleoenvironmental remains, has been assessed with reference to a series of national, regional, and local research agendas. For the Northgate site, the key documents are the agenda and strategy for the historic environment of North West England, published in 2007 (Brennand 2007) and reviewed and updated in 2017-19 (Greater Manchester Archaeological Advisory Service (GMAAS; 2021), the Roman period agenda (James and Millett 2001), and the archaeological research framework for Chester itself (Beckley and Campbell 2013). English Heritage's (now Historic England's) research strategies for the Roman period (EH 2012) and the historic urban environment (EH 2010) have also been considered.

8.2 Methodological Approach

8.2.1 The methodological approach adopted for this project, to minimise the archaeological impact of the construction of a significant development within a Roman legionary fortress, is potentially of national importance (*Section 5.1.1*). Its success is a result of the impact of the project having been carefully assessed prior to the submission of the planning application, with solutions put in place to reduce the potential impact throughout the design phase, for instance, by raising the formation levels of certain structures, or utilising CFA piling instead of more destructive forms, such as driven or vibration piling. Thorough monitoring, including regular meetings with the client and archaeological curators, and identifying potential issues throughout the construction phase, also assisted in minimising the actual impact of the project, bringing it down to only 2.4% destruction of the most significant archaeology.

8.3 Stratigraphic Potential

8.3.1 ***Natural geology and pre-fortress deposits***: the natural geology was recorded in very limited exposures at a few locales within the Phase 1 site (*Section 5.2*), where it was found to comprise sandstone bedrock overlain (where they had survived) by sandy drift deposits. This is entirely consistent with what is already known of the geology and topography of Chester (BGS 2021; *Section 1.3.1*). The few deposits assigned to Period 1 (*Section 5.3*) will not sustain analysis, since they cannot shed light on prehistoric activity at Chester, nor contribute to the ongoing debate concerning Roman military activity there before the construction of the legionary fortress (Mason 2012; Beckley and Campbell 2013, 23, aim 14.1).

8.3.2 ***The Roman fortress (Periods 2, 3 and 4)***: deposits certainly or possibly associated with the earlier phases of activity within the fortress (Period 2), dating from the establishment of that installation in *c* AD 75 (*Section 2.4.2*) to the end of the second

century AD, were recorded in the deeper areas of archaeological excavation within the Phase 1 area, namely the surface-water drainage trench on the south side of Hunter Street, the lower foundation pile mat of the new market and cinema, towards the centre of the site, and the area of Core Base 1, adjacent to Princess Street (*Section 4.1.2*).

8.3.3 Remains relating to later Roman occupation (Period 3), and to the abandonment/dereliction of fortress buildings in the late Roman/early post-Roman period (Period 4) were also present in these areas. Additionally, because these strata were mostly at a shallower depth below the surface than those of Period 2, they were also recorded in many of the smaller and shallower archaeological interventions undertaken on the site, though, given the size of most of these, the evidence mostly comprised isolated wall fragments or rubble spreads, occasionally associated with a few other deposits.

8.3.4 Since the strata were, for the most part, available for investigation only within quite restricted areas (especially in the case of Period 2), it proved difficult to interpret many of the deposits at the assessment stage (though it is envisaged that more detailed stratigraphic analysis will address this). Nevertheless, the Northgate data represent an important addition to the corpus of evidence relating to the development of the fortress, particularly in view of the relative paucity of published information from modern controlled excavations within the relevant *insulae* (*XVI*, *XXI*, *XXII*) of the central range, and the large amount of data from elsewhere in the fortress that is currently unpublished (Philpott and Brennand 2007, 62, initiative 3.18).

8.3.5 Furthermore, it should be remembered that the Northgate site is in the heart of the largest Roman military base in Britain, which, in addition to its size, was one of only three of the nine legionary fortresses established in the province that remained in commission for most of the Roman period (Mason 2012). Consequently, whilst the Phase 1 fieldwork was relatively modest in scope, the data recovered are of more than usual significance.

8.3.6 In terms of national research priorities (EH 2012), it is possible that the stratigraphically earliest Period 2 evidence could provide a modest contribution to Research Priority 4.3 (*understanding key transitions*), with respect to the origins and early development of interaction between Britain and the Roman Empire (*op cit*, 14-15). Since the later occupation levels of Period 3, together with the remains of Period 4, were recorded over a somewhat larger area, the potential of the data to contribute to understanding another key transitional period, the interface between the late Roman and early post-Roman periods (*ibid*), is perhaps slightly greater, though the assessment found little evidence for significant occupation in the fourth century.

8.3.7 The stratigraphic evidence from all phases of the fortress, when considered in conjunction with the associated artefacts and ecofacts, has potential to contribute to the ongoing debate around the character of the Roman army, both in Britain and elsewhere (for example, viewing soldiers as individuals, and regiments as military 'communities', rather than cogs in a monolithic 'war machine' (James 2001)). Detailed analysis of the stratigraphic evidence from the individual rooms (*contubernia*) within the barracks in *Insula XXII*, allied with a detailed consideration of similarities or

differences in the artefactual assemblages from each room, could be of particular value in this regard.

8.3.8 The various archaeological interventions undertaken within the Phase 1 site, large parts of which are in the zones of greatest archaeological potential (Zones 1 and 2; *Sections 1.4.3-4*), provide a network of 'keyholes' into the buried archaeology of the area that can help to refine current understanding of the condition and preservation of the fortress remains (and, indeed, of archaeological deposits of all periods) in this part of the historic city. Consequently, in addition to advancing academic understanding of the Roman military presence at Chester, the data can also provide information on the vulnerability of the Northgate area to future development, thereby helping to inform future management of the archaeological resource (EH 2010, 11).

8.3.9 Regionally, the original research agenda for the Roman period in north-west England (Philpott and Brennand 2007) identified the importance that developer-led investigations of military sites in urban contexts have for providing opportunities to review chronologies and phasing of fort construction and use (*op cit*, 62, initiative 3.19). Given that, in some areas at least, the Phase 1 fieldwork recorded the full sequence of occupation within the fortress, the project has clear potential to contribute to this research topic, in spite of the relatively restricted area that could be investigated. Systematic analysis and publication of well-stratified artefact assemblages from the region are also identified as a research priority (*op cit*, 67, Initiative 3.31), as is the analysis of the remains of industrial activity (*op cit*, 70), such as that seemingly represented by the putative kiln (***549***; *Section 5.4.18*) in *Insula XXI*.

8.3.10 The updated research agenda for the Roman North West (GMAAS 2021) also includes a number of research objectives and research strategies that the Chester Northgate project has the potential to address. These include reviewing the chronology and phasing of the construction of military sites in urban contexts (R06; RS3.19), and the typologies and development of military sites in the region (R11; RS3.19).

8.3.11 At a local level, the archaeological research framework for Chester (Beckley and Campbell 2013) identifies numerous research topics that analysis and reporting of the Northgate stratigraphic data (together with the most academically significant artefacts and ecofacts) have good potential to address. Areas of research fundamental to understanding the Roman period at Chester include the chronology and intensity of military occupation, including testing the concept of an 'occupation hiatus' (in some parts of the fortress at least) during the second century AD (*op cit*, 22-3, aims 13.2, 14.2), the extent and character of military activity during the late third and fourth centuries (*op cit*, 23, aim 14.3; 30, aim 28.1), and evidence for activity during the late Roman-early post-Roman transitional period (*op cit*, 30, aim 28.2).

8.3.12 Refining current understanding of the construction, form and function of fortress buildings is identified as a key research topic (*op cit*, 23, theme 15), with areas of particular significance to the Northgate project including the organisation of (and possible changes to) the internal layout of barrack blocks (*op cit*, 23, aim 15.6), and the nature of the superstructure of the early second-century stone/stone-footed barracks (*op cit*, 24, aim 15.7). The character of industrial processes carried on in workshops elsewhere in the central range of the fortress is also highlighted for further

research (*op cit*, 24, aim 16.2), and the same might be said of the seemingly industrial nature of some of the remains associated with Building ***806*** in *Insula XXI*, the function of which is still a matter for debate (*Section 2.4.11*).

8.3.13 Other local research aims relevant to the Northgate project, focused on the study of artefactual and palaeoenvironmental assemblages, but requiring a detailed understanding of the stratigraphy from which these materials were recovered, include the study of faunal (animal bones and fish) assemblages (*Sections 7.2-3*) to elicit information on the local agricultural economy (Beckley and Campbell 2013, 9, aim 3.4) and, one might add, potentially to shed light on patterns of supply and meat consumption; and analysis of ceramics and other artefacts, to learn more about production, supply, and possible spatial variations in pottery/artefact use/deposition in different parts of the fortress (*op cit*, 21, aims 11.1-11.5, 29, aim 26.1).

8.3.14 ***Early medieval activity***: whilst the possibility that activity within the areas investigated continued into (or more likely resumed during) the early medieval period cannot be discounted, there is no real evidence for occupation within the areas investigated. A few small features have been tentatively assigned on stratigraphic grounds, but the evidence is highly equivocal. It is, however, considered important to test whether any early medieval activity was present, since investigations elsewhere in the fortress have demonstrated that occupation is often in the form of features cut into the underlying late Roman strata (Ward 1994; Beckley and Campbell 2013, 35-6).

8.3.15 ***Later medieval and post-medieval activity***: the stratigraphic evidence for later medieval and post-medieval features has little potential for analysis. For the most part, this comprised thick deposits of 'dark earth' (*Section 5.8.2*), some of which appear to have begun accumulating in the late Roman/early post-Roman period, and continued to build up, on ceramic evidence, into the later medieval/early post-medieval period. Whilst this suggests that this part of the fortress saw little intensive activity for many centuries, perhaps being occupied by fields (*Section 5.8.2*) or other large, open areas, a few scattered cut features, principally pits, attest to limited activity, perhaps to the rear of properties fronting onto Princess Street, to the south. There is some limited potential to contribute to two research aims for Chester (Beckley and Campbell 2013, 36), charting the distribution of 'dark earth' deposits within the city (aim 36.1), and the need to learn more about the extensive open spaces that appear (on cartographical, as well as archaeological, evidence) to have existed to the rear of the medieval and post-medieval street frontages (*op cit*, 46; aim 53.11). The need to advance understanding of the chronology and formation of post-Roman 'dark earths' is also noted in the updated research strategy for the early medieval period in the North West (GMAAS 2021; EM02).

8.3.16 ***Industrial and modern activity***: the stratigraphic remains dating to the nineteenth century are highly fragmentary and poorly preserved (*Section 5.9*). Consequently, although some features, such as fragments of brick walling and the remains of a cellar, can be linked, on cartographic evidence, to known buildings that once fronted the north side of Princess Street (such as the Bishop Graham Memorial Ragged School (*Section 5.9.1*)), the data have little potential for analysis.

8.4 Artefactual Potential

8.4.1 With the exception of the Roman pottery assemblages (*Sections 6.2* and *6.3*), the artefactual archive is of limited size and variety. However, some parts are of value for dating the sequence of occupation (and for establishing the date of individual features as an aid to phasing), whilst others have the potential to shed light on the character and extent of on-site activities and the nature of site-formation processes.

8.4.2 ***Roman pottery***: the samian ware (*Section 6.2*) has good potential for analysis. A more detailed record will allow provisional fabric and form identifications and chronological information to be verified and refined, as necessary, and will result in the creation of a fully quantified dataset. This can be integrated with the other ceramic data to allow inter-site comparison of pottery deposition.

8.4.3 The assemblage has the potential to address several site-related research questions relating to the chronology of occupation, pottery supply, vessel use, and patterns of deposition. Comparison with material from other military sites in the North will allow it to be placed in a wider regional context and potentially highlight aspects of supply and use that either conform to expectations, or are more unusual. Steve Willis's (2005) large-scale samian-ware study, which established key regional, chronological and typological patterns in Roman Britain, will be a key reference there.

8.4.4 Chronological information has the potential to contribute to ongoing research into the phasing and construction patterns of Roman military sites in the region, as highlighted in the updated research framework for the historic environment in the North West (GMAAS 2021, R06). The Northgate data also have the potential, through wider dissemination, to contribute to longer-term 'big data' research projects, as identified, for example, in the national research framework for samian ware (Monteil *et al* 2012), which highlights distribution and incidence, taphonomic studies, and the iconography of samian decoration as areas requiring further detailed investigation.

8.4.5 The collection of Roman 'coarse' pottery (*Section 6.3*) is the largest assemblage of cultural material from the site, and one of the few that can be dated with any precision. Analysis is, therefore, key to establishing a closely dated sequence of activity within the investigated areas of the fortress, in accordance with Initiative 3.19 of the research agenda for the Roman period (Philpott and Brennand 2007, 62), which highlights the potential of development-driven archaeology on military sites in urban contexts to refine chronologies and phasing. Close dating of the Roman phases at Northgate is also of importance to a range of research aims formulated by the archaeological research framework for Chester (Beckley and Campbell 2013), including seeking to understand the validity of the supposed second-century 'occupation hiatus; within the fortress (aim 14.2), and concerning the nature of fourth-century occupation (*op cit*, 23, aim 14.3).

8.4.6 The assemblage includes a relatively large number of Roman stratified groups spanning the period from the establishment of the fortress to its abandonment/dereliction. Further work on the nature of the pottery from individual features and deposits will aid an understanding of the character and function of these, whilst spatial analysis will potentially shed light on patterns of activity and the nature of occupation in the different areas investigated (Philpott and Brennand 2007, 66;

Beckley and Campbell 2013, 21, aims 11.1 and 11.2), particularly with reference to any differences between pottery use and deposition in *Insulae XVI*, *XXI*, and *XXII* (*Section 2.4.3*), which appear, on the evidence of both earlier investigations and the Northgate project, to have had very different structural histories. The Roman ceramics from post-Roman levels are only significant in as much as they include some forms that are not represented in the stratified Roman material.

8.4.7 The wide range of vessel forms and fabrics, including local products as well as traded wares from Britain and the Continent, and the clear evidence for marked changes in the composition of the stratified assemblage through time (*Section 6.3.15*), indicates that the collection has good potential to shed light on changing patterns of pottery supply and use. The assessment has already identified some trends, such as a shift from the dominance of locally produced wares in the late first/second century to a greater reliance on traded wares during the third century, and marked changes in the relative proportions of certain vessel types through time. It is anticipated that further study, particularly with reference to quantified groups of similar date, not only from Chester and its hinterland but also from other military sites in Britain (*cf* Timby 2018), will determine the significance of these changing patterns for understanding the development of military supply networks in the province (Beckley and Campbell 2013, 21, aim 11.3). Comparison with ceramic assemblages from other Roman-period site types in the region also has the potential to contribute to the evidence for variations in pottery supply and use at different settlement types in the vicinity (Philpott and Brennand 2007, 67, initiative 3.31).

8.4.8 At a site-specific level, and in view of the paucity of other closely datable Roman-period finds from the site, detailed analysis and reporting of the Roman ceramic assemblage will be of crucial importance for understanding the chronology of the site in Periods 2, 3, and 4, in particular the date at which intensive occupation within this part of the fortress ceased and, potentially, for identifying different activity areas. More widely, analysis of the assemblage has significant potential to contribute to comparative studies of ceramic assemblages from other investigations within the fortress, and at other military sites in the region.

8.4.9 ***Coins***: the five Roman coins (*Section 6.6*) were, with one exception, recovered from stratified Roman deposits, and therefore have potential to aid the establishment of a closely dated stratigraphic sequence. Although the fifth coin was residual in a post-Roman context, and a possible sixth Roman specimen was unstratified, these nevertheless contribute to an understanding of the chronology of Roman occupation on the site.

8.4.10 ***Copper-alloy objects***: analysis of the small groups of Roman brooches and militaria (*Sections 6.7.4; 6.7.6-7*) has the potential to refine dating of the Roman-period activity on the site and will shed additional light on the nature of occupation during the period. The fragmentary and undiagnostic items are of little significance and will not sustain analysis.

8.4.11 ***Iron objects***: the potential for analysis of the ironwork is limited, as there are few items that are of value for dating, and there are few significant groups of material. However, the small collections of tools and militaria from Roman levels (*Sections 6.8.5-6*) have

some potential to shed light on the nature of occupation during this period. The nails, and most of the fragmentary and undiagnostic items, will not sustain analysis.

8.4.12 ***Ceramic building materials***: this is unlikely to contribute significantly to the refinement of dating, though more detailed analysis of the stratified Roman material (*Section 6.14*), including a consideration of its chronological and spatial distribution, analysis of fabric types and of the dies used in the stamps and antefixes, has considerable potential to shed light on the construction and appearance of fortress buildings (and, potentially, its reuse for other purposes), and the manufacture and supply of tiles to the fortress. Analysis of the stamps and antefixes will provide a useful addition to the growing corpus of such objects from Chester, and also from the production centre at Holt.

8.4.13 ***Wall plaster***: most of the *in situ* wall plaster found on some of the walls in Period 3 barrack ***800*** (*Sections 6.15.2-5*) have lost their decoration, or were never painted, with the exception of OR 2528, which had blue pigment. Although this may have washed away during the storm between excavation and lifting, it is worth investigation, as the only example of blue pigment from the site. The fragments require no further cleaning or conservation. Raman spectroscopy of OR 2528 and a selection of the 'detached' painted fragments has the potential to shed light on the mortar matrix and pigments used to create the various colours (*Sections 6.15.6-8*), and to determine which of these materials could have been obtained locally and which may have been imported (Davey and Ling 1981).

8.4.14 ***Other Roman finds:*** the other assemblages of Roman finds are too small to have real potential for furthering an understanding of activity on the site. Metalworking residues indicate small-scale iron smithing in the general vicinity of *Insula XXI*, and a small group of high-status first-century glass vessels will assist in establishing a closely dated sequence of Roman activity, potentially shedding light on the nature of occupation within the areas investigated, together with patterns of trade and supply to the fortress.

8.4.15 ***Post-Roman finds***: analysis of the post-Roman pottery (*Section 6.4*) has limited potential to contribute to the refinement of a closely dated sequence of occupation on the site, and to shed light on the character of medieval and post-medieval occupation within the areas investigated. However, medieval pottery in particular cannot be dated with any great precision, whilst the small size of the medieval and post-medieval assemblages, and the fact that much of the material is not from securely stratified contexts, means that it has only limited academic potential. The small group of (potentially) early post-medieval musket shot (*Section 6.9.3*), however, is of limited interest to further an understanding of activity on the site. The other finds (clay tobacco pipes, coins, glass and leather) have no potential for analysis.

8.4.16 ***Conservation:*** cleaning the five Roman and one potentially Roman coins, prior to analysis, will improve their potential to provide important information, as will the more significant copper-alloy and iron objects (*Section 9.4.18*). Also, conservation of the lifted fragment of wall-plaster will facilitate analysis of the blue pigment.

8.5 Palaeoenvironmental Potential

8.5.1 ***Animal bones***: almost all of the 1184 identifiable bone fragments (*Section 7.2*) are in good condition, and therefore have excellent potential for analysis to refine current estimates of stock proportions, age/sex at death, and so on. Excellent surface preservation also means that there is good potential for the survival of evidence for butchery and other taphonomic processes, such as gnawing. Stratigraphically, the small group from a soil pre-dating the Roman fortress (Period 1) is of some interest, since such material is rare in Chester, though the small sample size severely limits the potential and it may be that the bones actually relate to activity within the early fortress (Period 2), having been 'trampled' into the underlying soil.

8.5.2 The groups with the best potential for analysis are clearly those from Roman levels (Periods 2, 3, and 4), which make up the great bulk of the assemblage (922 fragments, *c* 78% of the total). Detailed analysis of the proportions of the principal stock animals in these deposits has the potential to advance understanding of variations in patterns of meat consumption between different unit types of the Roman army (King 1991; 1984), as well as possible changes through time. Furthermore, in view of the fact that much of the material derives from the barrack blocks (and adjacent areas) in *Insula XXII*, including probable both centurion's quarters and the *contubernia* of the rank and file legionaries, it may also be possible to address questions relating to diet and status (Stokes 2000), and to compare the material with that from similar sites elsewhere within the Chester fortress. It may also be of interest to compare and contrast the assemblage from the barracks with that from *Insula XXI*, that seemingly contained a building, or a building complex, with a very different function from that of the barracks in the neighbouring block.

8.5.3 The presence of a number of wild bird bones and of red-deer antler fragments and post-cranial and venison-bearing bones is also of interest as possible evidence for the consumption of meat obtained by hunting. The spatial distribution of this material should also be considered with regard to the postulated function of the investigated fortress buildings and its relationship with the bones of the main domesticates.

8.5.4 The post-Roman material provides too small a sample to be statistically valid. However, given the often poor preservation of bone assemblages from both urban and rural sites in the North West, due to inimical soil conditions (Newman and Newman 2007, 100; Newman and McNeil 2007, 119), the generally good condition of the Northgate bones makes limited analysis of this worthwhile, given the importance of the pastoral economy to the region in all historical periods. Further work on understanding the rural economy of Chester, in all periods of the settlement's history, through a study of faunal assemblages, is also highlighted (aim 3.1) in the Chester archaeological research framework (Beckley and Campbell 2013, 9). The small collection from nineteenth-century levels (15 fragments) and the material from modern deposits have no potential for analysis.

8.5.5 ***Fish remains***: the assemblage of fish remains (*Section 7.3*), though small, is important given the Roman context and the significance of Chester as a legionary fortress. Most of the fish are likely to have been caught locally, though the Spanish mackerel, and possibly also the small clupeids, are likely to have been imported as salted fish

specifically to cater for Roman tastes. Fish consumption can be seen as a measure of Romanisation, and the use of salted fish and fish sauces such as *Garum* are a recognised feature of Roman cuisine (Grainer 2021).

8.5.6 In terms of species, the assemblage is very similar to that from the Roman amphitheatre at Chester (Harland 2018), although that assemblage was very much larger. However, the assemblage from Northgate adds to the growing corpus of evidence from Roman Chester for the considerable consumption of fish of many different kinds. In contrast, the small assemblage of marine mollusc shells has little potential, although their presence with concentrations of other food refuse should be noted.

8.5.7 ***Charred plant remains and charcoal***: the majority of the processed samples (*Section 7.5.1*) contained only rare remains, but the paucity of archaeobotanical material from the legionary fortress at Chester (Hall and Huntley 2007), and from Roman-period sites in the North West generally (*ibid*), means that some analyses, of 11 of the assemblages from Roman deposits, would be academically worthwhile (*Appendix B*). It has been suggested (*ibid*) that the lack of charred material from the fortress, particularly from floors and occupation deposits, may be a result of a thorough cleaning regime, and certainly the richest cereal assemblage from the Northgate site came from a pit (Period 2; ***365*** (*Sections 7.5.4-6*)), rather than from a surface.

8.5.8 Work on the cereal remains from pit ***365***, and the more limited material from other Roman-period deposits, has the potential to shed light on the types of cereal crops being brought to the fortress (and presumably consumed there). The excellent preservation of several bread wheat-type caryopses means that a tentative interpretation of the use of this cereal during the Roman period can be considered, though radiocarbon dating of some of the material would be required to confirm this. Analysis to identify other potentially cultivated taxa, such as peas and beans, together with a number of seeds and fruits that remain unidentified, also has the potential to add to the sparse evidence for other foodstuffs that were presumably being grown at no great distance from the fortress and transported there for consumption by the garrison. Further evidence for the local environment and vegetation may also be provided by analysis of the seeds of grasses and weeds.

8.5.9 The abundant and generally well-preserved charcoal in some of the samples has the potential to provide information on local woodland resources and fuel use. However, given the similarity of the taxa recorded from deposits from all the occupation phases assessed, it is considered that analysis is only warranted in 12 of the samples (*Appendix B*), to confirm provisional wood identifications. Assemblages deriving from deposits seemingly associated directly with fuel use, such as the fills of hearths or the kiln, or that may represent the remains of structural timbers, should be prioritised.

8.6 Scientific Dating Potential

8.6.1 In view of the fact that calibrated radiocarbon determinations frequently have a wide date range (at a 95% level of confidence), it is considered unlikely that dating samples from Periods 2 and 3 would significantly advance the understanding of the chronological development of the site that could be gained from detailed analysis of

the pottery and (to a lesser degree) the other datable artefacts. Whilst dating of material from Period 2 levels is not considered worthwhile for advancing an understanding of the site chronology, there is potential in dating the occurrence of charred bread-wheat grains in early Roman levels, since the date at which this type of cereal was introduced into the region is still unclear (*Section 7.5.5*). Consequently, the selection and dating of suitable bread wheat samples from well-stratified Period 2 deposits on the Northgate site has the potential to contribute to this area of research.

8.6.2 Of the other samples, dating from the Period 1 buried soil, and another from a potential early medieval pit (***209***) could have academic importance, given the limited evidence for the character and extent of activity in Chester during those periods, although it is perhaps likely that the material from the former had been trampled into the existing ground surface. Dating of the material from the latter would help to address aims 34.2 and 35.1 of the archaeological research framework for Chester (Beckley and Campbell 2013, 35-6), which seek to understand the distribution and chronology of early medieval settlement across the city, and also with initiative 4.3 of the research agenda for the early medieval period in the North West (Newman and Brennand 2007, 76; GMAAS 2021), which stresses the need to undertake routine radiocarbon dating on sites with potential early medieval activity, and for analysis and understanding of the late Roman/early medieval period in urban centres.

8.7 Overall Potential

8.7.1 The methodology implemented to minimise disturbance to the archaeological remains was successful, whilst allowing the understanding of this quadrant of the Roman legionary fortress to be enhanced (*Section 8.2*). Thus, the archaeological investigations undertaken during Phase 1 of the Chester Northgate project have identified a range of stratified archaeological remains, extending over a fairly wide area in the central range of the Roman legionary fortress, and in the heart of historic medieval and post-medieval Chester, many of which are clearly of considerable significance. Whilst some of the features and deposits cannot, at present, be independently dated, due to a lack of associated pottery or other datable artefacts, the great majority can be phased and are clearly associated with the Roman fortress, relating either to the early phases of military occupation (Period 2) or activity within the later Roman period (Period 3), following the extensive refurbishment of the installation that took place in the early third century (Mason 2012; *Section 2.4.6*). Consequently, and in view of the relative paucity of evidence for post-Roman activity on the site, it is clear that the greatest potential lies in advancing understanding of Roman activity within the areas investigated. Stratigraphic analysis, in conjunction with analysis and reporting of the most significant assemblages of associated artefacts and ecofacts, has considerable potential to advance an understanding of the nature and development of occupation in the central range during the Roman period. The numerous deposits seemingly associated with the demolition and decay of fortress buildings provide an opportunity to learn more about the date at which this part of the fortress was abandoned, or at least the end of 'formal' occupation, which may well prove to be in the later third century, and the processes by which the buildings were ultimately reduced to ground level.

8.7.2 Analysis of the wealth of artefactual and ecofactual materials, when integrated with the stratigraphic analysis, has excellent potential to address a wide range of research questions. These relate to the Roman period in particular, including the nature of local environmental conditions, the character and development of activity within the investigated *insulae* of the Roman fortress, production, and so on.

8.7.3 No conclusive evidence for activity during the early medieval period was found, though a few features could conceivably belong to this period. The area investigated appears to have been largely open during the later medieval and post-medieval periods, leading to the accumulation of thick deposits of dark soil in many areas. Limited evidence for occupation during these periods was largely confined to a few scattered pits. Cartographic evidence suggests that, away from the main street frontages, infilling of the Phase 1 area only began during the second half of the nineteenth century, a picture supported by the limited archaeological information for this period, which was mostly restricted to a few poorly preserved walls and other features associated with buildings that fronted Princess Street. The archives produced by the off-site drainage and electricity cable routes have no potential for analysis.

9 UPDATED PROJECT DESIGN

9.1 Revised Research Aims and Objectives

9.1.1 The following section presents a series of aims, expressed as updated research questions (URQs) and objectives (UROs) for the project. The aims are grouped under six broad research themes (Themes 1-6), which were formulated with reference to the archaeological research agendas for Chester and the wider North West region (Brennand 2007; GMAAS 2021), and other relevant research documents, including the draft EH research agenda for the Roman period (EH 2012). The present assessment has identified those parts of the project dataset with the highest potential to advance regional and national research agendas, and those areas where the data have little potential for further work. The updated aims and objectives necessarily emphasise the presence, absence, and sufficiency of data to support analysis of relevant components of the archaeological record.

9.1.2 **Theme 1: fortress chronology**

- ***URQ1***: can the project contribute to an understanding of the chronology of the earliest Roman military activity at Chester, and in north-west England more generally (Philpott and Brennand 2007, 62, initiative 3.19; GMAAS 2021, R06; R11; RS3.19; Beckley and Campbell 2013)?
- ***URQ2***: can the evidence shed light on the postulated 'occupation hiatus' within the fortress during the second century (Beckley and Campbell 2013, 22-3, aims 13.2, 14.2)?
- ***URQ3***: is it possible to refine the date at which the extensive early third-century reconstruction of the fortress occurred?
- ***URQ4***: what was the character and extent of occupation within the areas investigated during the late third- and fourth centuries (Beckley and Campbell 2013, 23, aim 14.3, 30, aim 28.1), and how does this correlate with the data from sites elsewhere in the fortress, and regionally?

9.1.3 **Theme 2: fortress morphology and development**

- ***URQ5***: what is the evidence for the construction, evolution and use of the barrack blocks through time (Beckley and Campbell 2013, 23-4, aims 15.6-7)?
- ***URQ6***: can the Northgate evidence shed light on the function and use of fortress buildings and activity areas where this is currently uncertain, and any changes that occurred over time (*op cit*, 21, aims 11.1-5)?

9.1.4 **Theme 3: the fortress garrison**

- ***URQ7***: can the evidence from the barrack blocks shed light on the character of the 'military community' at Chester (James 2001), and any changes that occurred during the Roman period?
- ***URQ8***: can comparative analysis of the evidence from the centurion's quarters and the *contubernia* elucidate aspects of status within the garrison?

9.1.5 **Theme 4: supply and trade**

- ***URQ9***: can detailed analysis of the stratified Roman pottery and other artefacts (Philpott and Brennand 2007, 67, initiative 3.31) contribute to understanding patterns of military supply and trade to the fortress, and more widely in the region, and changes to these through time?
- ***URQ10***: what light can the stratified assemblages of animal bones, charred plant remains/charcoal, and other ecofacts from Roman levels shed on the nature of the local agricultural economy (Beckley and Campbell 2013, 9, aim 3.4), and the supply of produce and raw materials (*eg* wood) to the fortress garrison?
- ***URQ11***: what is the evidence for production or repair of goods or equipment within the fortress, including possible industrial activity (Philpott and Brennand 2007, 70; Beckley and Campbell 2013, 24, aim 16.2)?

9.1.6 **Theme 5: the site in the post-Roman period**

- ***URQ12***: what evidence is there for the chronology of the late Roman/post-Roman 'dark earths' (GMAAS 2021, EM02; Beckley and Campbell 2013, 36)?
- ***URQ13***: how were these areas used during the medieval and post-medieval periods (*op cit*, 46), and how did occupation develop and change during these periods?
- ***URQ14***: what is the chronology and character of the earliest post-Roman occupation on the site, and how does this compare with the data from other parts of the city (Beckley and Campbell 2013, 35-6)?

9.1.7 **Theme 6: management of the archaeological resource**

- ***URQ15***: to what extent can the results of the project refine an understanding of the condition and preservation of the archaeological remains within Chester's AAI, thereby contributing to the future management of the city's buried archaeological heritage (EH 2010, 11)?
- ***URQ16***: to what extent can the methodology adopted for the Chester Northgate project be used as a template for future work in the city, and in historic urban areas more generally?

9.1.8 **Updated research objectives*:*** the following updated research objectives (UROs) for the post-excavation analysis programme have been formulated with reference to the updated research questions:

- **UROa**: to develop, through detailed analysis of the on-site stratigraphy, the best possible understanding of the physical form of, and relationships between, the different elements of the fortress, and of the post-Roman remains, together with the provision of a refined sequence of occupation, and the formulation of an holistic narrative of the site;
- **UROb***:* to contextualise and interpret the site through detailed, but targeted, documentary research;

- **UROc**: to develop, through analysis of the palaeoenvironmental remains with analytical potential (including animal bones), a better understanding of local environmental conditions, site-formation processes, on-site activity, and, for the Roman fortress, the supply and consumption of agricultural produce;
- **UROd**: to undertake analysis of the stratified pottery and other appropriate finds assemblages, in order to elucidate questions pertaining to the chronology, function and status of the areas investigated in all occupation periods;
- **UROe**: to explore, through spatial analysis of the stratified artefacts and ecofacts, the relationships between different features, and also between artefacts and palaeoenvironmental material belonging to contemporary phases, to attempt to elucidate patterns of activity and disposal;
- **UROf**: to compare the Northgate data with the results of archaeological investigations elsewhere within the fortress and the post-Roman city, and at other comparable sites in the wider region;
- **UROg**: to collate and publish the results of the project in an appropriate form, and to prepare and deposit the final archive with the Grosvenor Museum.

9.2 Scope

9.2.1 The proposed programme of analysis will seek to address the updated research aims (*Section 9.1*) and will be undertaken in accordance with standard guidance (ALGAO 2015; HE 2014). The programme will have two over-arching objectives: the production and publication of suitably illustrated reports detailing the results of the project; and the preparation and submission of the project archive. The latter will include the original records, analytical data, specialist reports, technical information, artefacts, and any retained ecofacts. It will also disseminate the methodological approach utilised throughout the scheme from design to construction via a suitable medium, such as a paper for submission to the CIfA and a construction journal.

9.3 Interfaces

9.3.1 As part of the current project, it will be important to develop and maintain consultation interfaces with a range of specialists, as well as the Development Management Archaeologist at CAPAS, ad other officers at CWaC. Where appropriate, provisional results can be disseminated to the public through lectures, the production of a popular publication, *etc*.

9.4 Method Statement

9.4.1 This section sets out the post-excavation analysis tasks that are required to realise the full academic potential of the Chester Northgate data. The estimated duration, order, and interdependencies of each task are illustrated in the accompanying Gantt chart (*Appendix C*). For clarity, the tasks have been grouped in thematic order, although practicalities will dictate that a more integrated approach will be adopted.

9.4.2 ***Management, liaison and review (Tasks 1-2)*****:** this element ensures the efficient execution of this stage of the project to time and budget. OA North operates a project

management system, whereby the team is headed by a Project Manager, who assumes ultimate responsibility for the implementation and execution of the Updated Project Design and for the achievement of performance targets, be they academic, budgetary, or timetable-related. The Project Manager may delegate specific aspects of the project to other key staff, who both supervise others and have a direct input into the compilation of the report. The Project Manager will define and control the scope and form of the post-excavation programme, with the Project Executive providing academic leadership and any necessary high-level liaison.

9.4.3 General management time will be required for the Project Manager to deal with the organisation of non-specific tasks, administration, and correspondence (*Task 1*). Basic project review, including the tracking of task completion and logging of resource expenditure, will be undertaken internally on a weekly basis. It will be necessary to brief each member of the project team concerning the aims and objectives of the project, expected outcomes, and their specific roles, responsibilities, products, and timetable. Where possible, the briefing will be undertaken collectively. Following the completion of each task sub-division, the responsible staff member will inform the Project Manager, preferably through a brief email, with details of the work that was undertaken, the time taken, and any positive or negative issues arising that may affect further works. Should any issues arise during the undertaking of a task, the responsible staff member will inform the Project Manager by whatever convenient method guarantees that the information is transmitted and received.

9.4.4 Communication between all concerned in the post-excavation programme is of paramount importance, and it is essential that all team members working on different aspects of the project liaise closely in order that comparable data are obtained. To this end, regular reviews are envisaged between all project staff and between particular groups of specialists. Some time will also be required by the Project Executive to provide academic advice and assure quality at all stages of the project (*Task 2*).

9.4.5 ***Scientific dating (Tasks 3-4)***: assessment of the palaeoenvironmental and scientific dating potential of the charred materials, in conjunction with where the samples came from stratigraphically (*Section 8.5*), suggests that only three: two charred bread-wheat grains from Period 2 deposits ('refuse' layer ***548***, in *Insula XXI*, and pit ***555***, in the same area (*Section 5.4.18*)), and roundwood charcoal from a potentially early medieval pit (***209***; *Section 5.7.1*) are worthy of selection for radiocarbon dating. This material will be documented, appropriately packaged (*Task 3*), and despatched to SUERC for dating (*Task 4*).

9.4.6 ***Palaeoenvironmental analysis and reporting (Tasks 5-10)***: the assessment has demonstrated that there is potential for analysis of certain aspects of the animal bones, fish remains, charred remains, and charcoal; an archive catalogue of the marine molluscs should also be produced. In all cases, these analyses are limited to a relatively small number of contexts that have been carefully targeted to maximise the research potential of the datasets.

9.4.7 *Animal bone*: the bones with the best academic potential (*Sections 8.4.1-4*) will be recorded, analysed and reported, as appropriate (*Task 5*), following current professional guidance (HE 2019; Baker and Worley 2014). This will include recording

and measuring the diagnostic anatomical zones present (Serjeantson 1996; Cohen and Serjeantson 1996), a consideration of possible osteological and dental evidence relating to sex and age (Grigson 1982; von den Driesch 1976), and evidence for pathology (Baker and Brothwell 1980; Bartosiewicz and Gal 2013) and butchery (Lauwerier 1988); Binford 1981; Rixson 1989).

9.4.8 The spatial distribution and body-part ratios of the various taxa represented in the assemblage will also be examined. The recorded zones will be used to produce minimum numbers of left and right elements and thereby estimate minimum numbers of individuals.

9.4.9 Identification of mammals will be aided by reference to Schmid (1972), Halstead and Collins (1995), Sisson and Grossman (1938), and Lister (1996). Modern comparators, securely identified to species and of documented provenance, will also be used as an aid, where necessary, to the identification of all taxa, including birds. The ratios of the three main domesticates will be compared to those from other assemblages using Graham and Midgley (2000). Ageing and sexing of the main domesticates will be undertaken using standard reference works, including Grant (1982), Halstead (1985), Bull and Payne (1982), and Reitz and Wing (1999). Differentiation of sheep/goat will follow the criteria outlined in Halstead *et al* (2002), Payne (1985), Boessneck (1969), Kratotchvil (1969), and Prummel and Frisch (1986).

9.4.10 *Fish remains*: a proportion of the currently unsorted fine residues from five of the bulk soil samples that yielded fish remains (samples 2; 3; 508; 509 (Table 22)) will be sorted to extract any potentially identifiable material, as will any flots identified as containing suitable remains (*Task 6*). The material from Roman-period deposits will be fully recorded with reference to standard identification guides (*eg* Watt *et al* 1997) and a modern reference collection, and a short report will be produced (*Task 7*). The work will be undertaken in accordance with current professional standards (HE 2019; Baker and Worley 2014).

9.4.11 *Marine mollusc shells (Task 8)*: a catalogue of the stratified marine mollusc shells (*Section 7.4*) will be compiled for deposition with the project archive. Any concentrations of material will also be noted in the publication report.

9.4.12 *Charred plant remains and charcoal*: the 11 samples of charred remains and 12 of charcoal with potential for analysis (*Appendix B*), will be analysed and reported (*Task 9*), all the bulk samples having been processed prior to the assessment (*Section 7.5.2*). The charred materials selected will be examined in greater detail than for assessment, using a Leica MZ6 binocular microscope, to confirm or revise provisional identifications and to seek to identify material that could not be identified during the assessment. Identification will be aided by comparison with the modern reference collection held at OA North and with reference to Jacomet (2006) and the *Digital Seed Atlas of the Netherlands* (Cappers *et al* 2006). Nomenclature will follow Stace (2010).

9.4.13 Analysis of the charcoal samples will follow standard procedures (Campbell *et al* 2011), where *c* 100-150 fragments (or the entire sample if less than this) greater than 2mm in size will be analysed. The charcoal will be sorted into groups based on features visible in transverse section, using a Leica MZ6 binocular microscope at up to x40 magnification. Representative fragments of each group will then be fractured to

reveal both radial and tangential sections, which will permit examination under a Meiji incident-light microscope at up to x400 magnification. Identifications will be made with reference to Hather (2000) and modern reference material. For both these materials, reports suitable for inclusion in the publication report will be produced.

9.4.14 *Collation of palaeoenvironmental records*: following completion of the palaeoenvironmental analyses and reporting, all the records and data generated by the work will be collated for deposition in the project archive (*Task 10*).

9.4.15 ***Artefact analyses (Tasks 11-23)***: those assemblages identified as having academic potential will be analysed and reported by suitably qualified and experienced specialists using any necessary reference material, in accordance with current professional guidance (CIfA 2020b). Some of the metalwork and one of the lifted wall paintings will require specialist cleaning and conservation prior to this (*Section 9.4.17*).

9.4.16 For each assemblage, appropriate and statistically valid analyses will be undertaken in terms of dating, source, form, function, status, and spatial and temporal distribution, as well as in terms of comparison with data from other appropriate sites. The results will be recorded in a database linked to the context database. The specialists undertaking the analyses will select material for illustration, most of which will be drawn to publication standard, though some items may be photographed, rather than drawn. The drawings will be reviewed by the relevant specialists, and amendments will be made, as necessary. Basic catalogues of those artefacts considered to have no further analytical potential will be produced, suitable for deposition with the project archive.

9.4.17 *Specialist cleaning and conservation (Task 11)*: the five certain and one potential Roman coins, together with 12 other copper-alloy objects and 19 pieces of ironwork, will undergo professional cleaning and conservation prior to analysis. One of the lifted plaster fragments will be conserved in preparation for pigment analysis. This is necessary to reveal details and to stablilise the materials for long-term storage.

9.4.18 *Samian* (*Task 12*): the samian assemblage will be recorded in detail, according to the methodology set out by the various pottery study groups (including the study group for Roman pottery; PCRG *et al* 2016). Following analysis, a catalogue of the decorated samian and the name-stamps will be compiled, and a report suitable for publication will be produced.

9.4.19 *Other Roman pottery* (*Task 13*): analysis and reporting will encompass all the pottery from stratified Roman contexts, together with a limited selection of sherds from post-Roman levels, targeting pottery types that are not represented amongst the material from Roman levels. For all the analysed material, full fabric descriptions will be produced, correlated, where possible, with the existing Chester ware and fabric series. The pottery catalogue produced for assessment will be expanded to include further detail, sub-dividing ware groups into fabrics, where possible. Chronological and other information derived from the analysis of the samian ware and the Roman coins will be integrated into the catalogue, and cognisance will be made of any changes to the site phasing resulting from detailed stratigraphic analysis.

9.4.20 Amphora sherds from vessels other than those from the ubiquitous Dressel 20 South Spanish types will be referred to an appropriate specialist, who will undertake a review and (where necessary) revision/augmentation of the assessment catalogue. Specialist consultation will also be required regarding the mortaria, to refine and revise the assessment catalogue.

9.4.21 The analysis will consider stratified Roman feature/phase groups in terms of chronology, taphonomy of deposition, and potential functional differences, and evidence for ceramic exchange and trade will be sought. The Northgate assemblage will be compared with quantified collections of similar date from other excavations in Chester and its hinterland, and from other military sites in the region, in terms of regional trade and supply networks and functional characteristics.

9.4.22 The analytical data will form the basis of a report suitable for publication. This will provide a summary, by phase and structural/feature groups, of the character, composition, and date of the ceramic assemblage, including a consideration and discussion of changes in ceramic use and supply through time, and any spatial differences in the deposition of pottery in different parts of the site. The Northgate assemblage will also be placed in its local and regional context through comparison with similar collections from elsewhere in the city and the wider area.

9.4.23 A catalogue of those potsherds requiring illustration will be compiled and an archive suitable for integration into the wider project archive will be prepared. This will include a detailed catalogue of the pottery from stratified Roman levels and a more basic catalogue of the Roman ceramics from post-Roman levels, or material that was not closely phased or unstratified.

9.4.24 *Coins* (*Task 14*): the five certain Roman coins, and the one possible (heavily corroded) example, will be re-examined following cleaning and conservation, to confirm or revise the provisional identifications made during the assessment (*Section 6.6*), and a report suitable for publication will be produced. The four post-medieval coins will be listed in the archive report.

9.4.25 *Other metalwork (Task 15)*: the Roman, medieval, and earlier post-medieval metalwork identified as having potential for analysis (*Sections 8.3.12-14*) will be analysed and reported on, following conservation. A report suitable for publication will be produced, together with an archive catalogue.

9.4.26 *Industrial residues (Task 16)*: a brief catalogue of the industrial residues will be prepared for deposition with the project archive, and any concentrations of material should be noted in the publication report.

9.4.27 *Roman ceramic building materials (Task 17)*: the stratified Roman ceramic building materials (*Section 6.14*) will be analysed, with the exception of the small, undiagnostic fragments. This will include spatial and chronological analysis of the assemblage, of fabric types, and of the dies used in the legionary tile stamps and antefixes, which will be compared with comparative material from other sites in Chester and from the production centre at Holt. An illustrated catalogue of the stamps and antefixes will be produced and a report suitable for publication will be prepared.

9.4.28 *Roman wall plaster (Tasks 18-19)*: one lifted section of wall plaster will be conserved and this, with a selection of fragments covering the full range of identified paints (*Sections 6.15.6-8*), will be subject to Raman spectroscopy at the University of Bradford to determine the types of pigments used. The results will be included in a short report suitable for publication, and an archive catalogue of the painted fragments will be produced.

9.4.29 *Other Roman artefacts (Tasks 20-21)*: all the other Roman artefacts with potential for analysis (the bone and stone objects, and the glass (*Sections 8.3.16-18*)) will be catalogued within their respective material groups, and a report (or reports) suitable for publication prepared (*Task 20*). Additionally, the bone items will be analysed to determine the species and specific bones used in their manufacture (*Task 21*).

9.4.30 *Post-Roman Ceramics (Tasks 22 and 23):* a short, illustrated report of the post-Roman pottery will be prepared (*Task 22*). The single stamped clay tobacco-pipe bowl will be illustrated (*Section 8.3.10*) and catalogue of the bowls will be produced for deposition with the project archive (*Task 23*).

9.4.31 ***Finds illustration (Tasks 24-28)****:* selection will be made of those artefacts that are of sufficient significance to warrant illustration. For the samian ware, rubbings of selected decorated sherds will be made (*Task 24*), some of which may be used to illustrate the publication report. Selection for illustration will be made for the other Roman pottery (*Task 25*), the metalwork (*Task 26*), the Roman tile stamps and antefixes (*Task 27*), and other Roman artefacts (*Task 28*). For the most part, illustration will take the form of line drawings, but some materials, notably the legionary tile stamps and the Roman glass, may be photographed for clarity.

9.4.32 ***Stratigraphical analysis (Tasks 29-34)***: the data generated by analysis of the artefactual and palaeoenvironmental assemblages will be assimilated with the site stratigraphy (*Task 29*). Limited detailed analysis of this stratigraphy will then be undertaken (*Task 30*), leading to some features being rephased. Closer analysis of the spatial distribution of features, and detailed consideration of their characteristics, may also lead to the identification of new feature or structure groups. These new data will require integration into the site database (*Task 31*), and the project matrices will require updating (*Task 32*).

9.4.33 A detailed stratigraphic narrative will then be compiled (*Task 33*). This will be structured chronologically, though the bulk of the narrative will be concerned with the Roman fortress (Periods 2, 3, and 4). A series of stratigraphic phase plans will be prepared (*Task 34*) to accompany the narrative, which will be reproduced in the archive report.

9.4.34 ***Synthesis (Tasks 35-48)***: a targeted programme of documentary research (*Task 35*), including consultation of relevant primary and secondary sources, and historical mapping, will be undertaken. This will help to contextualise and further the understanding of the archaeological remains and will be essential to complete the archive and publication reports.

9.4.35 The Chester UAD, together with any other appropriate and accessible sources, including local and university libraries, will be consulted for pertinent documentation.

This will comprise the examination of published, and unpublished, archaeological and palaeoenvironmental reports, relating to comparable and contemporary sites in Chester, and regional syntheses for the relevant periods will be consulted. Where appropriate, historical maps will also be consulted. The results of this, together with those from the stratigraphic, artefactual, and environmental analyses, will be integrated (*Task 36*). Particular emphasis will be given to comparative analysis of data from other sites within the legionary fortress (*Task 37*).

9.4.36 A synthetic report will be produced for each of the Phase 1 area, the off-site drainage, and the electricity cable route (*Task 38*), which, appropriately illustrated with line drawings (*Task 39*) and plates (*Task 40*), will form the archive report for each of these elements, providing a basis for the publication report. Each will comprise:

- Preliminaries, including a contents page, summary and acknowledgements;
- Introduction, including project background, site location, geology and topography, historical and research context, updated aims and objectives, and relevant methodologies;
- Stratigraphic narrative, arranged by phase and site component;
- Artefact and environmental analytical reports;
- Brief discussion, placing the site in its local, regional, and national context, and discussing the academic significance of the results;
- Bibliography;
- Where appropriate, appendices of raw data.

9.4.37 Each archive report will be edited by the project manager (*Task 41*) and QA'd by the project executive (*Task 42*), to ensure that it is complete, appropriate for the purpose intended, and academically legitimate. Any corrections arising from the QA will be addressed and the report will be copy edited (*Task 43*) before the document is signed-off by the project executive. Following sign-off, the project manager will submit each report to the Development Management Archaeologist at CAPAS for review (*Task 44*). All appropriate comments will then be incorporated (*Task 45*). Each report will then be lodged with Cheshire HER and the Archaeology Data Service (ADS).

9.4.38 The various specialist reports will be synthesised for publication, as appropriate, and edited for consistency with the stratigraphic sequence, and in terms of style and content (*Task 46*). Liaison will be maintained with the specialists, who will receive the draft publication for comment. The complete, illustrated publication text will then be edited by the project manager and QA'd by the project executive, prior to submission to the Development Management Archaeologist at CAPAS for review. Once signed off, the draft will be submitted to the editor of the journal in which the article should be published (*Task 47*). Following any reasonable revisions requested by the editor, the text and illustrations will be formally submitted to the journal in the format requested. The printer's proofs will also be checked (*Task 48*; *Section 9.5.1*) prior to publication.

9.4.39 It is also proposed that a paper should be produced detailing the methodology utilised for successfully ensuring that the archaeological impact was minimised and monitored

throughout the duration of the project (*Task 50*). This paper will be edited and QA'd prior to submission of a draft text to the Development Management Archaeologist at CAPAS. Once the document has been signed off, it will be submitted to the editor of the journal or organisation where the paper will be published, with any reasonable revisions being undertaken.

9.4.40 ***Archive preparation and deposition (Tasks 51-53)***: the deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects in the *Code of Conduct* issued by the CIfA (2021). The collated results of each stage of the project will form the basis of a full archive to professional standards in accordance with current professional guidance (Brown 2011; HE 2014; CIfA 2020c). The archive will be provided in the former EH Centre for Archaeology format and will include printed (paper) documents, permatrace drawings, and digital media. An OASIS form (reference: oxfordar2-398982; *Appendix D*) has been compiled. The ultimate place of deposition for the material and paper/record archives will be the Grosvenor Museum in Chester.

9.4.41 In total, it is estimated that the archive will comprise approximately 70-75 'standard' cardboard storage boxes. This includes all materials recovered or generated during the fieldwork and post-excavation stages, including records, plans, photographs, artefacts, retained ecofacts, digital data, and copies of the archive and publication reports. These materials will be prepared for deposition (*Tasks 51-52*) following professional guidance (UKIC 1990; Walker 1990; Brown 2011). All digital photographs will be stored on disk. Paper records, including context sheets, field notes, and the various indices, will be ordered and filed, as will original drawings and sections; the documentary archive has been security copied. These records will be stored in standard acid-free cardboard archive boxes. Once this work is completed, the entire archive will be deposited with the Grosvenor Museum in Chester (*Task 53*).

9.4.42 The finds are stored in such a manner that they are in a stable condition and require no specialist conservation work beyond that for analysis (*Section 6.17*). The artefact assemblage is well-packed according to the specifications of the Grosvenor Museum (acid-free cardboard boxes or airtight plastic boxes, as appropriate). Box lists have been prepared and will be updated from the database once the full cataloguing of the archive is complete. The charred material and charcoal from the bulk soil samples will be retained as part of the site archive. The archive presently contains a range of materials that are of academic value, and which could potentially be used for more detailed, or newly devised, analyses in the future. Provisionally, and notwithstanding the results of analysis and the requirements at the receiving museum on completion of the project, it is considered that the following materials should be retained for submission with the project archive:

- Roman and medieval pottery;
- Stratified Roman, medieval and post-medieval metalwork (including coins);
- Worked stone artefacts;
- Roman glass;
- Stratified clay-tobacco pipe bowls;

- Roman ceramic building materials;
- Roman wall plaster;
- Stratified industrial residues from Roman and medieval deposits;
- Stratified animal bones and fish remains (except from modern contexts);
- Stratified marine mollusc shells (except from modern contexts);
- Palaeoenvironmental flots with potential for analysis or radiocarbon dating.

9.4.43 There are also various materials that have no real potential for future research. Subject to discussions with the Grosvenor Museum, and the museum's policy for finds retention, it is likely that the following will not be retained for submission with the project archive, and will be discarded following cataloguing and completion of the archive:

- post-medieval/modern materials that are either unstratified or from modern deposits, including clay tobacco pipe stems, glass, ceramic building material, and undiagnostic metalwork;
- palaeoenvironmental materials with no potential for future analysis or radiocarbon dating, including animal bones and marine mollusc shells that are either unstratified or from modern contexts.

9.5 Publication Synopsis

9.5.1 It is proposed that the results of the project should be primarily disseminated through the production of an academic paper for inclusion in the *Journal of the Chester Archaeological Society* (JCAS), although other formats, potentially including a high-quality and extensively illustrated booklet, aimed at the general public and schools, and a methodological paper aimed at the professional archaeological community, and construction and planning, are also possibilities. It is estimated that the academic paper is likely to comprise *c* 17,000 words of text, excluding preliminary sections and a bibliography, supported by an appropriate number of line illustrations (including illustrations of artefacts and interpretative phase drawings), and plates (*c* 35 pages in total). A provisional format is presented in Table 25.

Section	Title	Words	Figures	Plates
	Preliminaries			
1	Introduction (circumstances; background; geology and topography)	1000	2	1
2	Methodology	1000	1	
3	The early Roman fortress (Periods 1 and 2)	3000	2	2
4	The later Roman fortress (Periods 3 and 4)	3000	2	3
5	Post-Roman activity	500	1	1
6	Roman pottery	2500	2	-

Section	Title	Words	Figures	Plates
7	Other finds	2000	1	3
8	Palaeoenvironmental evidence	1000	-	-
9	Synthesis (Discussion)	3000	2	2
	Bibliography			
Totals		**17,500**	**13**	**12**

Table 25: Draft publication synopsis

9.5.2 It is also proposed that a paper be produced detailing the methodology implemented to reduce the archaeological impact, from the design phase through to construction, to be disseminated as an article via the CIfA or potentially *Current Archaeology*. It is estimated that the document would be a short paper focused on the successful implementation of the methodology for the project, illustrated appropriately by site plans and selected plates.

9.6 Health and Safety

9.6.1 All OA post-excavation work will be carried out under relevant Health and Safety legislation, including the Health and Safety at Work Act (1974). A copy of the Health and Safety Policy can be supplied. The nature of the work means that the requirements of the following legislation are particularly relevant:

- Workplace (Health, Safety and Welfare) Regulations 1992: offices and finds processing areas;
- Manual Handling Operations Regulations (1992): transport: bulk finds and samples;
- Health and Safety (Display Screen Equipment) Regulations (1992): use of computers for word-processing and database work;
- COSSH (1988): finds conservation and environmental processing/analysis.

10 RESOURCES AND PROGRAMMING

10.1 Proposed Project Team Structure

10.1.1 The proposed project team (Table 26) comprises OA North staff with appropriate expertise in their respective fields, most of whom were involved, in one way or another, with Phase 1 of the Chester Northgate project, either with the fieldwork phase or the present post-excavation assessment. Suitably qualified and experienced external specialists will be employed to undertake analysis and reporting of those artefactual and palaeoenvironmental assemblages where OA North does not have in-house expertise.

Team member	Role	Principal role(s)
OA personnel		
Rachel Newman (RMN), BA, FSA	Project Executive	OA North Senior Executive Officer: Research and Publication. Responsible for quality assurance (QA) and academic leadership
Paul Dunn (PD), BA	Project Manager	Project organisation and budget management; liaison; preparation of management documents, editing of reports, compilation, editing and co-writing of publication text
John Zant (JZ), BA, MCIfA	Stratigraphic specialist	Stratigraphic analysis and interpretation; preparation of stratigraphic narrative; drafting of phased plans and other illustrations; co-writing of publication and archive report texts; background research, examination of cartographic and aerial photographic data; analysis and reporting of coins
Edward Biddulph (EB), BA, MA, FSA, MCIfA	Samian-ware specialist	Analysis and reporting of Roman samian ware
Denise Druce (DD), BA, PhD	Palaeobotanical specialist	Analysis and reporting of charred plant remains and charcoal
Ian Smith (IS), BA, MSc, PCIfA	Archaeozoologist	Analysis and reporting of animal bones; production of archive catalogue of marine mollusc shells
Rebecca Nicholson (RN), BA, MA, DPhil	Fish-bone specialist	Analysis and reporting of fish bones
Karen Barker (KB), BSc	Archives officer; conservation specialist	Overview of archive preparation and deposition; conservation of selected artefacts and materials
Neil Hall (NH), MSc, PhD	Metalworking residues	Preparation of archive catalogue
Assistant (ASS)	Archive preparation	Archive preparation and submission, including contacting landowners and discard policy
Lucian Pricop (LP), BSc	IT	Maintenance of GIS and database

Team member	Role	Principal role(s)
Marie Rowland (MR), BA, MA / Adam Parsons (AP) BA	Illustrator	Preparation of figures for archive and publication reports, including artefact illustrations; desk-top publishing (DTP)
Michelle Watson (MW)	Office administrator	Project Administration
External Specialists		
Ruth Leary (RL)	Roman ceramics specialist	Analysis and reporting of other Roman pottery
Eniko Hudak (EH)	Roman ceramics specialist	Analysis and reporting of Roman amphorae
Christine Howard-Davis (CH-D)	Finds specialist	Analysis and reporting of all other Roman and post-Roman finds
Scottish Universities Environmental Research Centre (SUERC)	Radiocarbon dating laboratory	Radiocarbon dating
University of Bradford Analytical Centre		Raman Spectroscopy of pigments on Roman painted wall plaster

Table 26: Proposed project team

10.2 Stages, Products, and Tasks

10.2.1 The post-excavation tasks required to complete the proposed programme of analysis, publication, and archiving, presented in the Method Statement (*Section 9.4*), are summarised in the task list (Table 27). Also presented in the task list is an indication of the main project stages and the principal product of each stage.

Task	Description	Staff	Days	Products
	Management, liaison and review			Project running to time and budget
1	General project management, liaison and review	PD	3	
		JZ	2	
2	Internal monitoring and overall QA	RMN	0.25	
	STAGE 1			Scientific dating certificates; analytical reports (and supporting data) for the artefacts, ecofacts, and stratigraphy
	Scientific dating			
3	Select material for dating from three soil samples, package, document, and dispatch to SUERC	DD	0.25	
4	Undertake radiocarbon dating, document, and communicate results	SUERC	n/a	
	Palaeoenvironmental analysis and reporting			
5	Analyse and record animal bones and prepare report	IS	16	

Task	Description	Staff	Days	Products
6	Extract fish remains from flots and selected fine residues	Technician	1	
7	Analyse and record fish bones and prepare report	RN	1.5	
8	Prepare archive catalogue of marine mollusc shells	IS	0.5	
19	Analyse and record CPR and charcoal and prepare report	DD	16	
10	Collate palaeoenvironmental records for archive	DD	0.5	
	Artefact analysis and reporting			
11	Specialist cleaning and conservation of selected metal artefacts and one lifted piece of wall plaster	KB	12	
12	Record, catalogue, and analyse samian ware and prepare report	EB	4	
13	Record, catalogue, and analyse other Roman period pottery, including amphorae and mortaria, and prepare report(s)	RL EH	26.5 1.5	
14	Analyse and report Roman coins	JZ	1	
15	Record, catalogue, and analyse other metalwork (copper alloy; iron; lead) and prepare report	CH-D	10	
16	Prepare archive catalogue of industrial residues	NH	1	
17	Record, catalogue and analyse Roman ceramic building materials and prepare report	CH-D	5	
18	Undertake Raman spectroscopy of Roman painted wall plaster pigments (part of ongoing research project)	University of Bradford	1	
19	Catalogue the Roman painted wall plaster and prepare report	KB	3	
20	Record, catalogue, and analyse all other significant finds (glass, stone and bone objects), and prepare report(s)	CH-D	5	
21	Identify types of animal bones used in the manufacture of the worked bone objects	IS	0.5	
22	Produce archive catalogue and report of post-Roman pottery	CH-D	3	
23	Produce archive catalogue and report of clay tobacco pipe bowls	CH-D	0.5	
	Finds illustration			
24	Make rubbings of selected decorated samian sherds and all samian stamps	MR / AP	2	
25	Produce Illustrations of selected other Roman potsherds	MR / AP	8	
26	Produce Illustrations of selected metalwork	MR / AP	5	
27	Produce illustrations of Roman tile stamps and antefixes	MR / AP	7	
28	Produce illustrations of other selected artefacts	MR / AP	1	
	Stratigraphical analysis			
29	Assimilate data derived from artefactual and palaeoenvironmental analyses with site stratigraphy	JZ	2	
30	Conduct detailed analysis of stratigraphy, potentially including rephasing of some contexts and definition of new feature/structure groups	JZ	10	

Task	Description	Staff	Days	Products
31	Integrate analytical data to the site database	PD	1	
32	Compile updated stratigraphic matrices	JZ	2	
33	Prepare stratigraphic narrative	JZ	10	
34	Prepare updated phase plans to accompany stratigraphic narrative	MR / AP	5	
	STAGE 2			Illustrated synthetic report (archive report) and draft publication report
	Synthesis and report production			
35	*Background research*: identify and consult general and specific literature; identify comparative sites and collate data; review and collate data from historical maps	JZ	2	
36	*Integrated analysis*: integrate results of artefact and ecofact analyses and background research to examine aspects of site location, morphology, and function	JZ	2	
37	*Comparative analysis*: consider the position of the site within the legionary fortress and the nature of the buildings and activity areas investigated. Compare and contrast the dataset with those from other excavations in the fortress.	JZ	3	
38	Prepare synthetic report texts (archive and publication reports)	JZ	15	
		PD	5	
39	Prepare line illustrations	MR / AP	5	
40	Select plates	JZ	0.5	
41	Assemble and check specialist reports	PD	2	
42	Edit texts, plates and illustrations	PD	2	
43	QA archive and publication reports, including illustrations	RMN	5	
44	Copy editing	KB	3	
45	Review and submission of archive report	PD	0.25	
46	Submit publication text, plates and illustrations to CAPAS for review	PD	0.25	
47	Incorporate review comments	PD	1	
48	Send completed publication to JCAS editor	MR / AP	0.25	
49	Check printer's proofs	RMN	0.5	
		MR / AP	1	
50	Produce text, plates and illustrations for methodological paper for submission to CIfA, including editing	PD/RMN	5	
	STAGE 3			Complete archive deposited with receiving museum
	Archive preparation and deposition			
51	Prepare archive of primary fieldwork records and all material generated by analysis	ASS KB	3 2	
52	Prepare artefactual and ecofactual archives, including marking all finds for deposition, appropriate conservation, storage, and packaging for long-term storage with the Grosvenor Museum, Chester, and discard of items not requiring retention	ASS	15	
		KB	1	

Task	Description	Staff	Days	Products
53	Submit completed archive to the Grosvenor Museum	KB	0.25	

Table 27: Task list

10.3 Programming

10.3.1 It is anticipated that the proposed work programme will extend over a period of 12 months (*Appendix C*), commencing in April 2022 and ending with the production of the draft publication text in March 2023.

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APPENDIX A ROMAN POTTERY FRAGMENTS RECORDED

Ware group	Chester fabric code	NRFRC code*	Chester common name	Comments	Source	Count	Weight (g)	Rim (%)
Amphora	AM			Other amphora sherds. Most of these are likely to be GAL, AM, or BAT AM (*below*) but several require identification by an amphora specialist. Preliminary identifications include a Beltran 2a amphora (a Spanish amphora containing fish sauce) and a possible Dressel 2-4 wine amphora	Spain; Gaul	56	4358.1	
	BAT AM	BAT AM	South Spanish amphora	Baetican amphora (oil)	Southern Spain	88	17,656.1	7
	Carrot	P&W AM 12^	Carrot amphora	Carrot amphora (dried fruit: dates?)	Possibly the Levant or Palestine	1	4.9	
	GAL AM	GAL AM	South Gaulish amphora	Gallic amphora (wine)	Southern Gaul	41	1426.1	50
	NAF?	NAF AM	North African amphora?	North African amphora?	North Africa	1	37.1	
BB1	BB1	DOR BB1	BB1	Dorset Black-burnished ware, fabric 1	Dorset	463	5613.9	795
BB2	BB2	BB2	BB2	Black-burnished ware, fabric 2	Essex/Kent	3	29.5	
	SERW?			South-east grey ware	Essex	1	4.9	
BBT	BBT			BB1 copies in grey and black-burnished ware, handmade and wheel-thrown	Local?	107	1656.4	435
BOO				Orange ware with blackened/fumed outer surfaces	Local	119	1233.5	22
BW			Black-surfaced ware		Local?	4	50.8	
CC	NV CC	LNV CC	Nene Valley ware	Lower Nene Valley colour-coated ware	Nene Valley	8	85.3	11
	ROX	OXF RS		Oxford red-slipped ware	Oxfordshire	3	21.9	8
	TRIER	MOS BS		Trier black-slipped ware	Trier	1	7.4	
CT		ROB SH	Shell-tempered ware	The diagnostic sherds are late Roman shell-tempered-ware jars	Northants; Bedfordshire	8	150.7	20
GRA			Greyware	Fine greyware	Local	2	7.3	4
GRB				Sandy greyware	Local	582	8544.1	1118
GRB MICA				Very micaceous greyware	East Anglia?	7	126.5	42
GRC			Greyware	Coarse, greyware	North-east England?	3	27.1	15
GTA				Unknown indeterminate fabric with grog inclusions	Unknown	2	18.9	
HOLT EGGS			Eggshell ware	Holt eggshell ware	Holt	6	5	
MG	MG1		Orange mica-dusted ware	Fine mica-dusted oxidised ware	Local	6	73.1	14
	MG2			Sandy mica-dusted oxidised ware	Local	8	76.8	29

Ware group	Chester fabric code	NRFRC code*	Chester common name	Comments	Source	Count	Weight (g)	Rim (%)
	MG3			Coarse mica-dusted oxidised ware	Local	1	3.1	
MOR	MCHESTER			Chester oxidised ware (Carrington 1981)	Chester	3	489.5	
	MCHESTER RHAETIAN			Chester Rhaetian red-slipped ware	Chester	1	93.7	10
	MCP OX			Cheshire Plain oxidised ware	Cheshire Plain	3	439.7	
	MCP RHAETIAN			Cheshire Plain Rhaetian red slipped ware	Cheshire Plain	1	168.8	12
	MCP WS			Cheshire Plain oxidised ware	Cheshire Plain	1	86.8	5
	MH	MAH WH		Mancetter-Hartshill white ware	Warwickshire	16	638.4	33
	MHOLT OX	HOLT OX		Holt oxidised ware	Holt	13	1250	71
	MHOLT RHAETIAN			Holt Rhaetian red-slipped oxidised ware	Holt	4	1407.7	49
	MHOLT WS			Holt white-slipped oxidised ware	Holt	1	221.2	
	MOR GREY			Grey mortarium, perhaps misfired local ware	Local	1	11.1	4
	MROX	OXF RS		Oxford red-slipped ware	Oxfordshire	1	7.9	4
	MSOLLER	SOL WH		Soller white ware	Rhineland	1	361	8
	MVRW	VER WH		Verulamium white ware	St Albans	6	297.7	3
	MWH OX	WIL OX		Wilderspool oxidised ware	Wilderspool	6	264.5	10
	MWIL RHAETIAN			Wilderspool Rhaetian red-slipped oxidised ware	Wilderspool	6	440.2	35
	MWIL WS	WIL WS		Wilderspool white-slipped oxidised ware	Wilderspool	4	428.8	25
OX			Orange ware	Oxidised wares subdivided by colour and coarseness in the archive. These are predominantly Holt or local Chester products with some sandy fabrics perhaps from Wilderspool noted in the archive	Local; predominantly Holt and Chester	731	14,386.3	1167
RS	RS1		Holt red slip?	Fine, red-slipped oxidised ware, perhaps Holt	Holt?	3	36	4
	RS2		Chester or Wilderspool red slip?	Sandy red-slipped oxidised ware, perhaps Wilderspool or a local Chester ware	Holt or Wilderspool	6	59	
SV	SV	SVW OX2	Orange ware, Severn Valley ware	Severn Valley ware	Severn Valley	26	529.9	100
WS	FLB		White-slipped orange ware	White-slipped oxidised ware	Local	3	7.5	
	FLB1			Fine, white-slipped oxidised ware	Local	24	369	11
	FLB2			Medium, sandy, white-slipped oxidised ware	Local	148	2219.4	461
	FLB3			Coarse, white-slipped oxidised ware	Local	3	189.5	
WW	FLA		White ware	Indeterminate white ware	Unknown	1	12.1	
	FLA1			Fine white ware	Unknown	1	4.3	

Ware group	Chester fabric code	NRFRC code*	Chester common name	Comments	Source	Count	Weight (g)	Rim (%)
	FLA2			Sandy white ware	Mancetter-Hartshill?	19	296.3	
	VRW WH	VER WH		Radlett/Brockley Hill white ware	St Albans	26	348.9	
Total						2581	66309.9	4617

*Tomber and Dore 1998
^Peacock and Williams 1986, no 12

APPENDIX B ASSESSMENT OF CHARRED PLANT REMAINS AND CHARCOAL

Period	Sample	Context	Context type	Sample size (l)	Flot size (ml)	Cereal grains	Other seeds/fruits	>2mm charcoal	>4mm charcoal	Charcoal types	CPR analysis potential	Charcoal analysis potential
1	10	***323***	Soil	2	50	# cf *Triticum aestivum*-type		####	##	Mostly *Quercus* sp; some Maloideae and *Alnus glutinosa/Corylus avellana*	None	Full analysis
2	5	***237***	Soil	20	170			####	###	Mostly *Quercus* sp; rare Maloideae	None	None
2	9	***310***	Soil	12	120			####	###	*Quercus* sp; Maloideae	None	None
2	1	***315***	Soil	3	5		# Indeterminate seeds	##		*Quercus* sp	None	None
2	13	***318***	Fill of ditch ***319***	8	100			####	###	Mostly *Quercus* sp; some Maloideae	None	None
2	14	***321***	Soil	5	25		# *Corylus avellana* nut shell	##	#	*Alnus glutinosa/Corylus avellana*; *Fraxinus excelsior*; *Quercus* sp	None	None
2	11	***326***	Upper fill of ditch ***319***	6	50	# Indeterminate		###	###	Mostly *Quercus* sp (very slow-growing)	None	None
2	12	***327***	Lower fill of ditch ***319***	8	30			###	##	Mostly *Quercus* sp (including roundwood); rare *Fraxinus excelsior* and cf *Alnus glutinosa/Corylus avellana*	None	None
2	15	***333***	Soil	30	100	# *Triticum aestivum*-type		###	###	Mostly *Quercus* sp; some *Alnus glutinosa/Corylus avellana*	None	None
2	17	***348***	Burnt soil	37	80		## Small Poaceae and culm fragment; *Rumex acetosella*; *Stellaria graminea*; *Carex* sp; *Rubus* sp fragment; *Corylus avellana* nut shell	###	##	Mostly *Quercus* sp; some Maloideae, *Ilex aquifolium*, *Alnus glutinosa/Corylus avellana*, and coniferous wood	Full analysis	Full analysis
2	16	***366***	Fill of pit ***365***	9	100	### Mixed preservation; mostly hulled *Hordeum vulgare*; rare *Triticum* sp (including *cf* glumed)	## Small Fabaceae; small Poaceae and culm fragments; large Poaceae/*Avena* sp; *Carex* sp	###	##	Poorly preserved. *Quercus* sp; *Fraxinus excelsior*; rare semi-charred bark fragments	Full analysis	None
2	20	***383***	Burnt soil	9	100	# *Hordeum vulgare*		####	###	Mostly *Quercus* sp; rare *Alnus glutinosa/Corylus avellana*	None	None
2	18	***386***	Charcoal-rich soil	10	50		# *Carex* sp; Poaceae;	###	##	cf *Salix* sp/*Populus* sp;	Full analysis	None

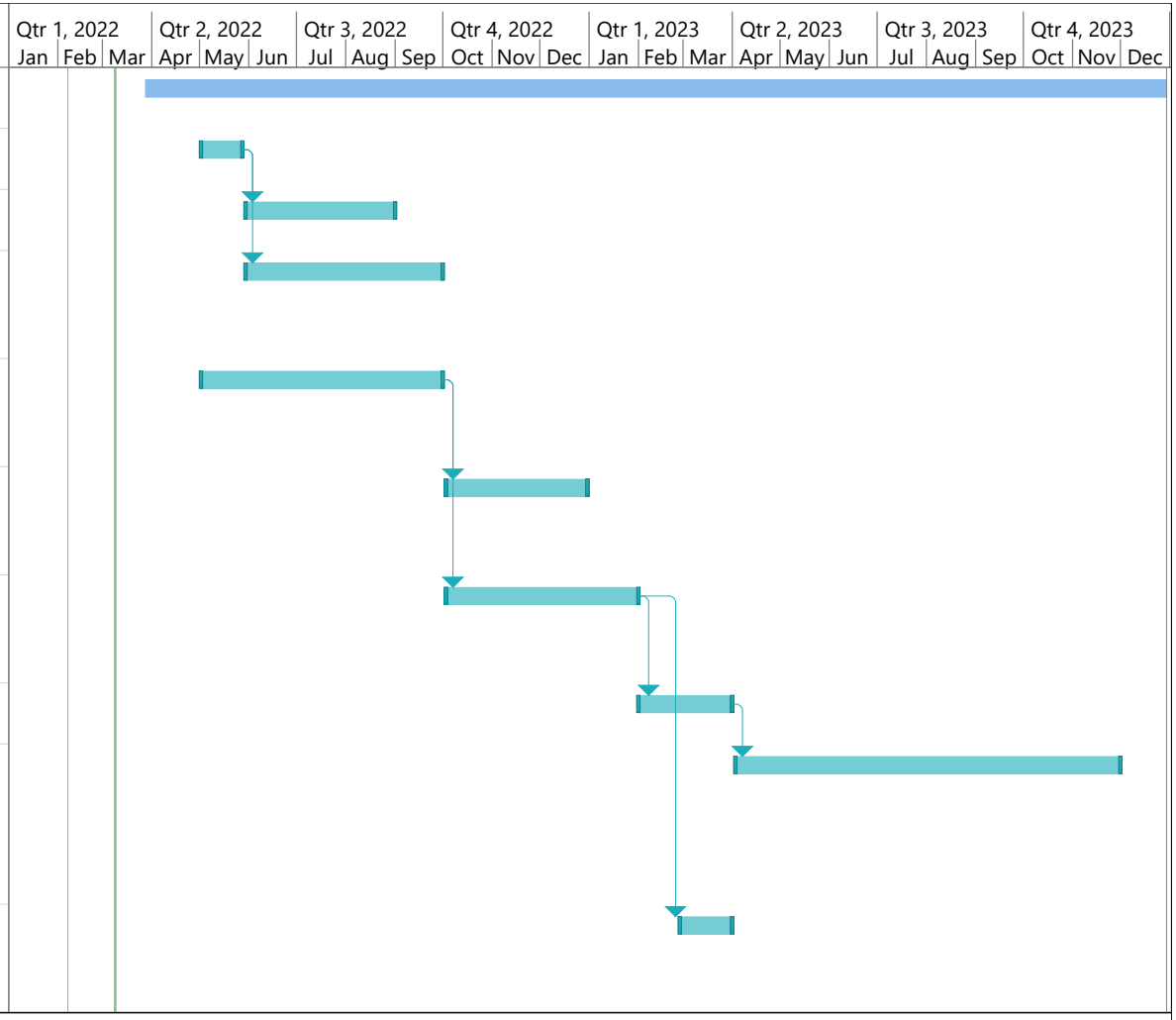
Period	Sample	Context	Context type	Sample size (l)	Flot size (ml)	Cereal grains	Other seeds/fruits	>2mm charcoal	>4mm charcoal	Charcoal types	CPR analysis potential	Charcoal analysis potential
							Plantago lanceolata; *Corylus avellana* nut shell; unidentified fruit			*Alnus glutinosa/Corylus avellana*; *Quercus* sp; Maloideae		
2	19	***393***	Charcoal-rich soil	14	150	# *Hordeum vulgare*; indeterminate	## cf *Pisum sativum*; small Fabaceae; *Bromus* sp; *Corylus avellana* nut shell	####	##	*Alnus glutinosa/Corylus avellana*; *Quercus* sp; *Fraxinus excelsior*	Full analysis	None
2	501	***514***	Charcoal-rich soil	27	800	# *Triticum* sp (possibly glumed); Indeterminate		####	####	Mostly *Quercus* sp; *Ulmus* sp; *Alnus glutinosa/Corylus avellana*; and *Fraxinus excelsior*	Full analysis	Full analysis
2	Grab sample	***514***	Charcoal-rich soil	0.3	100			####	####	Mostly *Quercus* sp	None	None
2	512	***519***	Soil	36	1400			####	####	Mostly *Quercus* sp (including roundwood); rare diffuse porous wood	None	None
2	506	***546***	Fill of kiln ***549***	10	600		# *Corylus avellana* nut shell	####	####	Mostly *Quercus* sp; *Fraxinus excelsior*	None	Full analysis
2	508	***548***	Soil	40	700	## *Hordeum vulgare*; *Triticum* sp (including possible glumed and free-threshing type)	# *Corylus avellana* nut shell; *Prunus* sp stone	####	####	Mostly *Quercus* sp; Maloideae; *Alnus glutinosa/Corylus avellana*	Full analysis	None
2	507	***556***	Fill of pit ***555***	8	400	# cf *Triticum aestivum*-type; indeterminate	# Large Poaceae/*Avena* sp; *Corylus avellana* nut shell; unidentified seed	####	####	Mostly *Quercus* sp (including sapwood); rare *Alnus glutinosa/Corylus avellana*	Full analysis	Full analysis
2	510	***560***	Soil	32	3000	## cf *Hordeum vulgare*; *Triticum-aestivum* type	# *Corylus avellana* nut shell	####	####	Mostly *Quercus* sp; rare *Ulmus* sp; Maloideae; *Alnus glutinosa/Corylus avellana*; *Fraxinus excelsior*	None	None
2	511	***561***	Fill of kiln ***549***	20	2000			####	####	Mostly *Quercus* sp (including roundwood); rare Maloideae; *Alnus glutinosa/Corylus avellana*; cf *Salix* sp/*Populus* sp	None	Full analysis
2	513	***564***	Fill of pit ***563***	2	80			####	###	Mostly *Quercus* sp (including roundwood)	None	None
2	515	***585***	Fill of kiln ***549***	8	600			####	####	Mostly *Quercus* sp (including roundwood); rare *Alnus glutinosa/Corylus avellana*	None	None

Period	Sample	Context	Context type	Sample size (l)	Flot size (ml)	Cereal grains	Other seeds/fruits	>2mm charcoal	>4mm charcoal	Charcoal types	CPR analysis potential	Charcoal analysis potential
2	516	***588***	Fill of kiln ***549***	3	150			####	####	*Quercus* sp (including roundwood); *Ulmus* sp	None	None
2	522	***687***	Fill of pit ***686***	2	5			##	#	Poorly preserved *Quercus* sp	None	None
2	600	***743***	Fill of ditch ***744***	14	2300		# *Carex* sp	####	####	*Quercus* sp (including possible branch wood)	None	Full analysis
3	2	***218***	Occupation layer? Building ***800***	26	100	## *Triticum aestivum*-type; *Hordeum vulgare*; indeterminate	# *Corylus avellana* nut shell	###	###	Mainly *Quercus* sp; *Alnus glutinosa/Corylus avellana*	Full analysis	None
3	3	***219***	Occupation layer, Building ***800***	44	140	## *Triticum aestivum*-type; *Hordeum vulgare*; indeterminate	# *Corylus avellana* nut shell	####	###	*Quercus* sp; rare Maloideae	Full analysis	None
3	4	***236***	Floor? Building ***800***	13	40		# cf *Vicia faba* var *minor*; Apiaceae; *Isolepis*	###	##	*Quercus* sp; rare *Alnus glutinosa/Corylus avellana*	Full analysis	None
3	6	***281***	Fill of drain ***263***	3	15	# *Triticum aestivum*-type; *Hordeum vulgare*		##	##	*Quercus* sp; *Fraxinus excelsior*; *Alnus glutinosa/Corylus avellana*	None	None
3	502	***513***	Fill of kiln ***549***	10	250	# *Triticum* sp (including glumed); cf *Hordeum vulgare*; indeterminate		####	####	Mostly *Quercus* sp (including large roundwood); *Alnus glutinosa/Corylus avellana*; *Ulmus*; Maloideae	Full analysis	Full analysis
3	519	***667***	Fill of gully ***680***	8	80	# cf *Triticum* sp	# Small Fabaceae	###	##	Mostly *Quercus* sp; *Alnus glutinosa/Corylus avellana*	None	None
3	520	***710***	Upper fill of pit ***712***	2	150	# *Hordeum vulgare*		####	####	Mostly *Quercus* sp (including roundwood)	None	None
3	521	***711***	Lower fill of pit ***712***	5	150	# *Triticum* sp; *Hordeum vulgare*		####	###	Mostly *Quercus* sp; rare *Alnus glutinosa/Corylus avellana* and Maloideae	None	Full analysis
5	1	***211***	Fill of pit ***209***	7	40	# *Triticum aestivum*-type; *Avena* sp; indeterminate		###	###	*Quercus* sp; *Prunus* sp; Maloideae; cf *Salix* sp/*Populus* sp; frequent roundwood	None	Full analysis
5	509	***553***	Fill of pit ***559***	32	2000		## cf *Pisum sativum*	####	###	*Quercus* sp (including roundwood); *Alnus glutinosa/Corylus avellana*; other diffuse porous wood	None	Full analysis

Period	Sample	Context	Context type	Sample size (l)	Flot size (ml)	Cereal grains	Other seeds/fruits	>2mm charcoal	>4mm charcoal	Charcoal types	CPR analysis potential	Charcoal analysis potential
5	505	***538***	Soil	13	250	# *Hordeum vulgare*; cf *Triticum aestivum*-type; indeterminate	# *Carex* sp; *Prunus spinosa* stone	####	####	Mostly *Quercus* sp; also *Ulmus* sp; cf *Fraxinus excelsior*	None	Full analysis

APPENDIX C GANTT CHART

ID	Task Name	Duration	Start	Finish
1	Management	460 days?	Mon 28/03/22	Fri 29/12/23
2	Stratigraphic analysis	20 days	Mon 02/05/22	Fri 27/05/22
3	Scientific dating	68 days	Mon 30/05/22	Wed 31/08/22
4	Palaeoenvironmental analysis and reporting	90 days	Mon 30/05/22	Fri 30/09/22
5	Artefact analysis and reporting	110 days	Mon 02/05/22	Fri 30/09/22
6	Illustration (Finds and line drawings)	65 days	Mon 03/10/22	Fri 30/12/22
7	Report and publication production	87 days	Mon 03/10/22	Tue 31/01/23
8	QA	43 days	Wed 01/02/23	Fri 31/03/23
9	Submit to JCAS: peer review; address review comments; proofing	174 days	Mon 03/04/23	Thu 30/11/23
10	Prepare and submit archive	25 days	Mon 27/02/23	Fri 31/03/23



Project: Chester Northgate Tim
Date: Wed 09/03/22

Task	Inactive Summary	External Tasks
Split	Manual Task	External Milestone
Milestone	Duration-only	Deadline
Summary	Manual Summary Rollup	Progress
Project Summary	Manual Summary	Manual Progress
Inactive Task	Start-only	
Inactive Milestone	Finish-only	

APPENDIX D OASIS REPORT FORM

An OASIS form has been compiled and can be viewed at oxfordar2-398982.

List of Figures

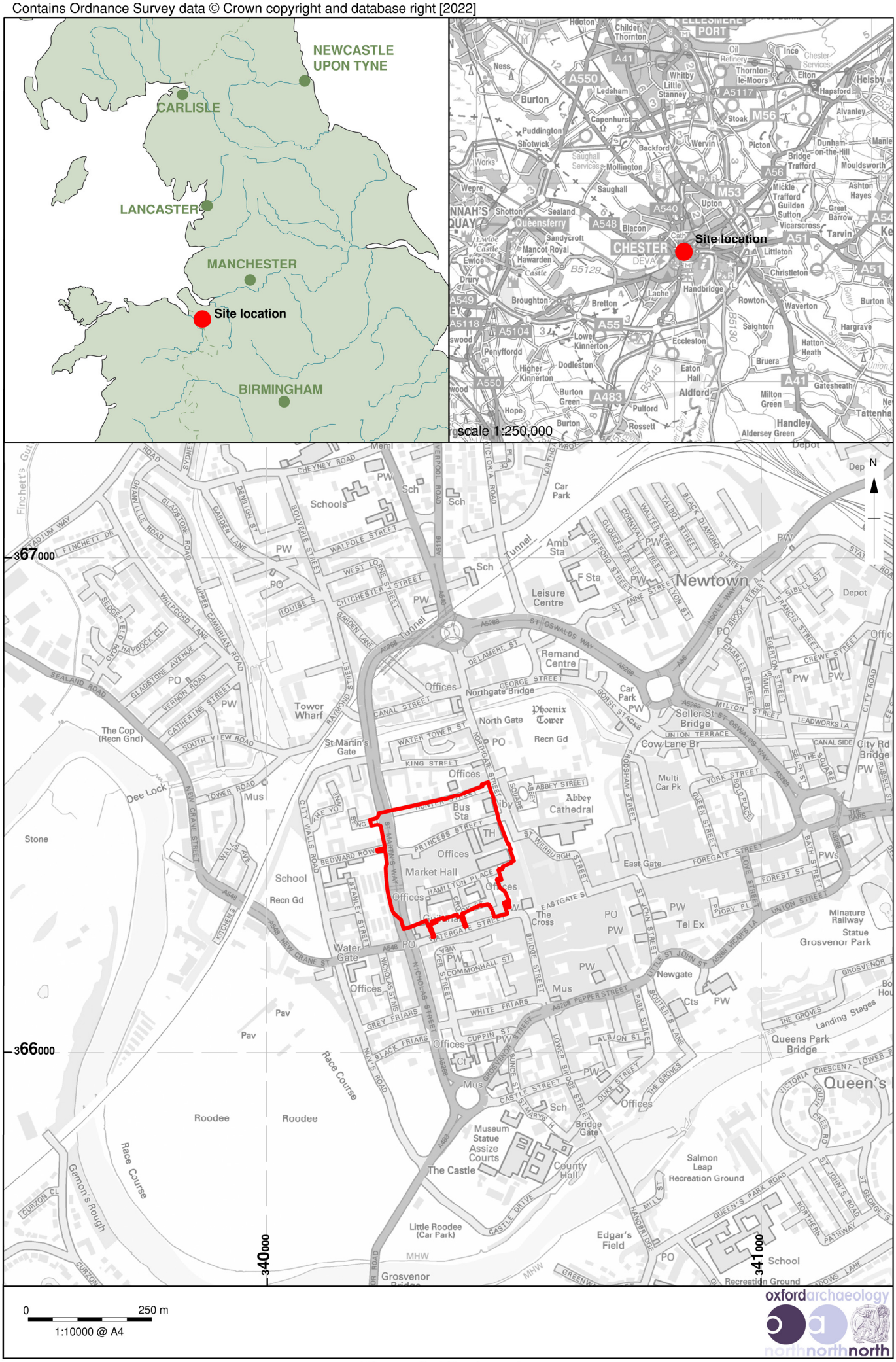


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Figure 1: Site location

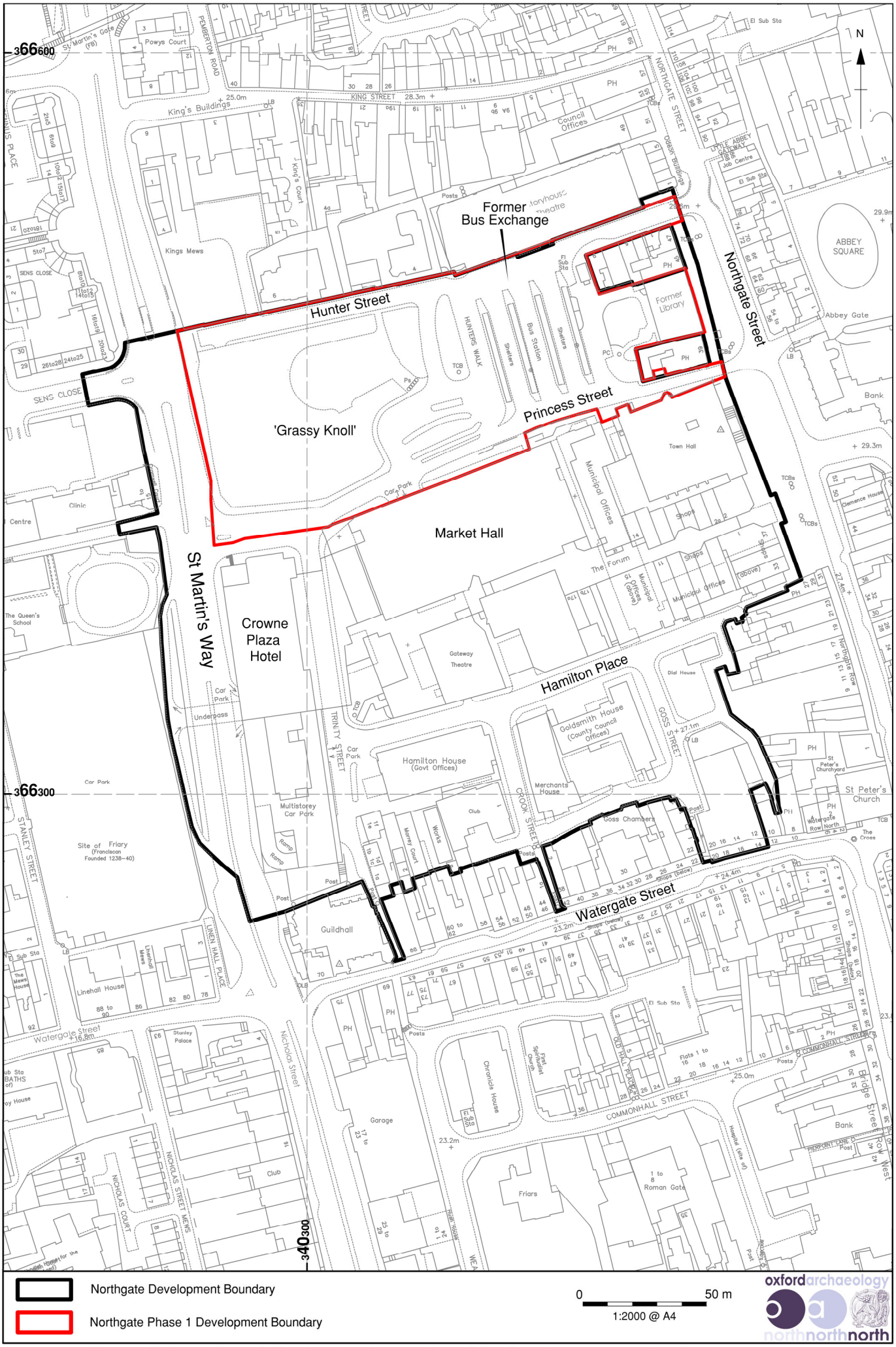

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Figure 2: Location of Northgate phases 1 and 2, showing pre-construction topography

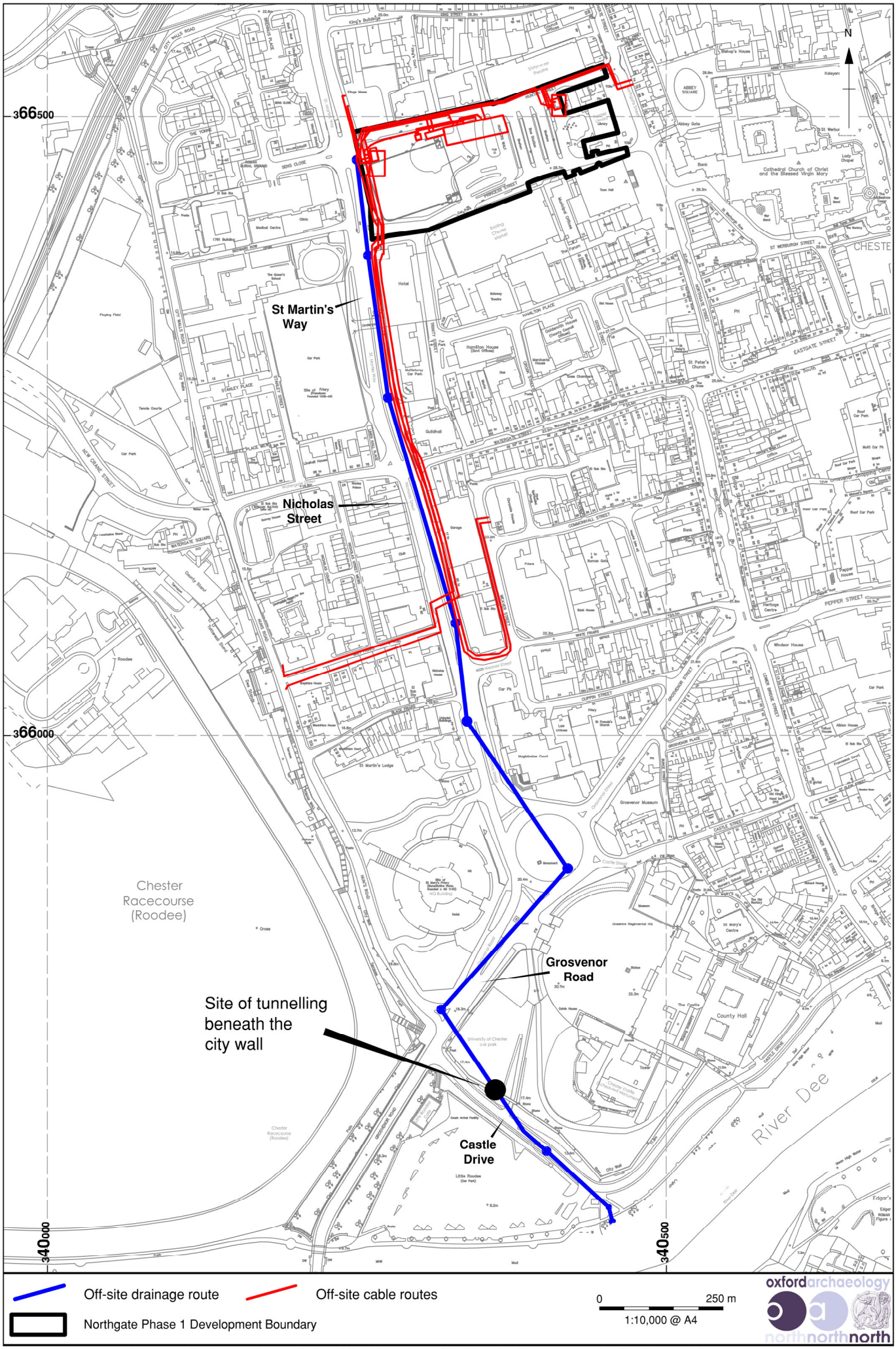

Figure 3: Location of the Northgate off-site drainage and off-site cable routes

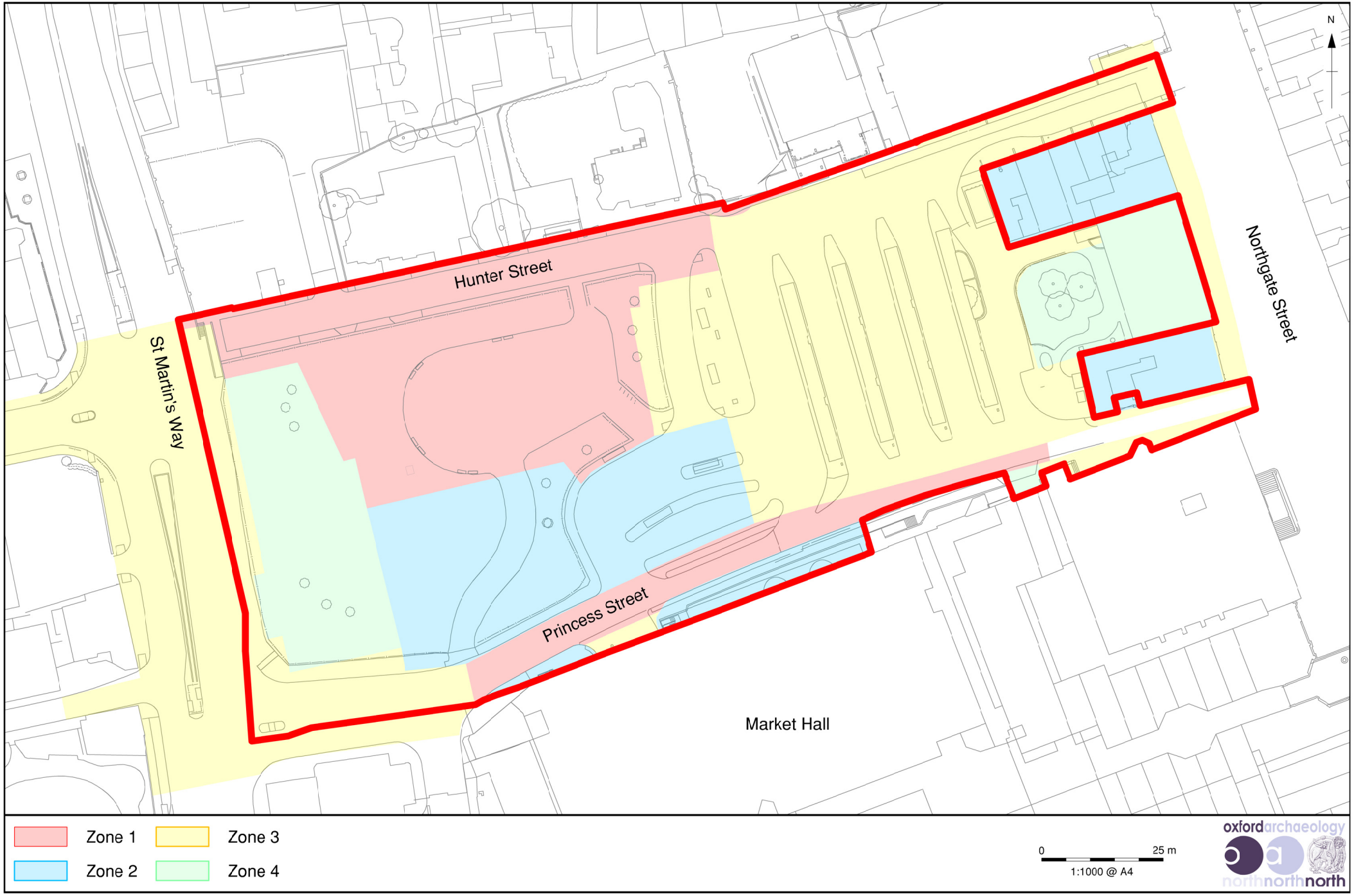

Figure 4: Archaeological zoning plan (Zones 1-4)

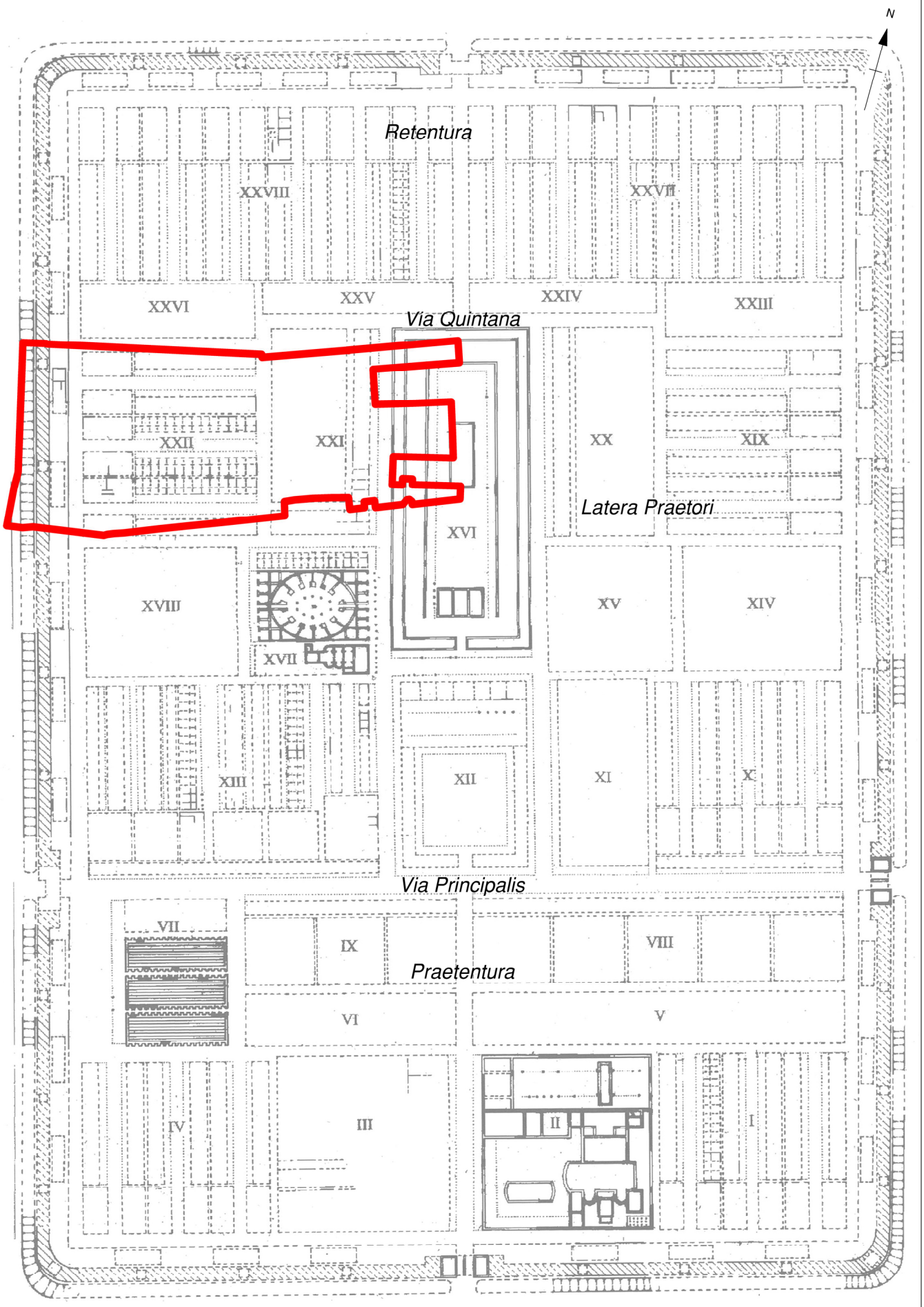

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Figure 5: The site within the layout of the Roman legionary fortress (Monument ***8552***)

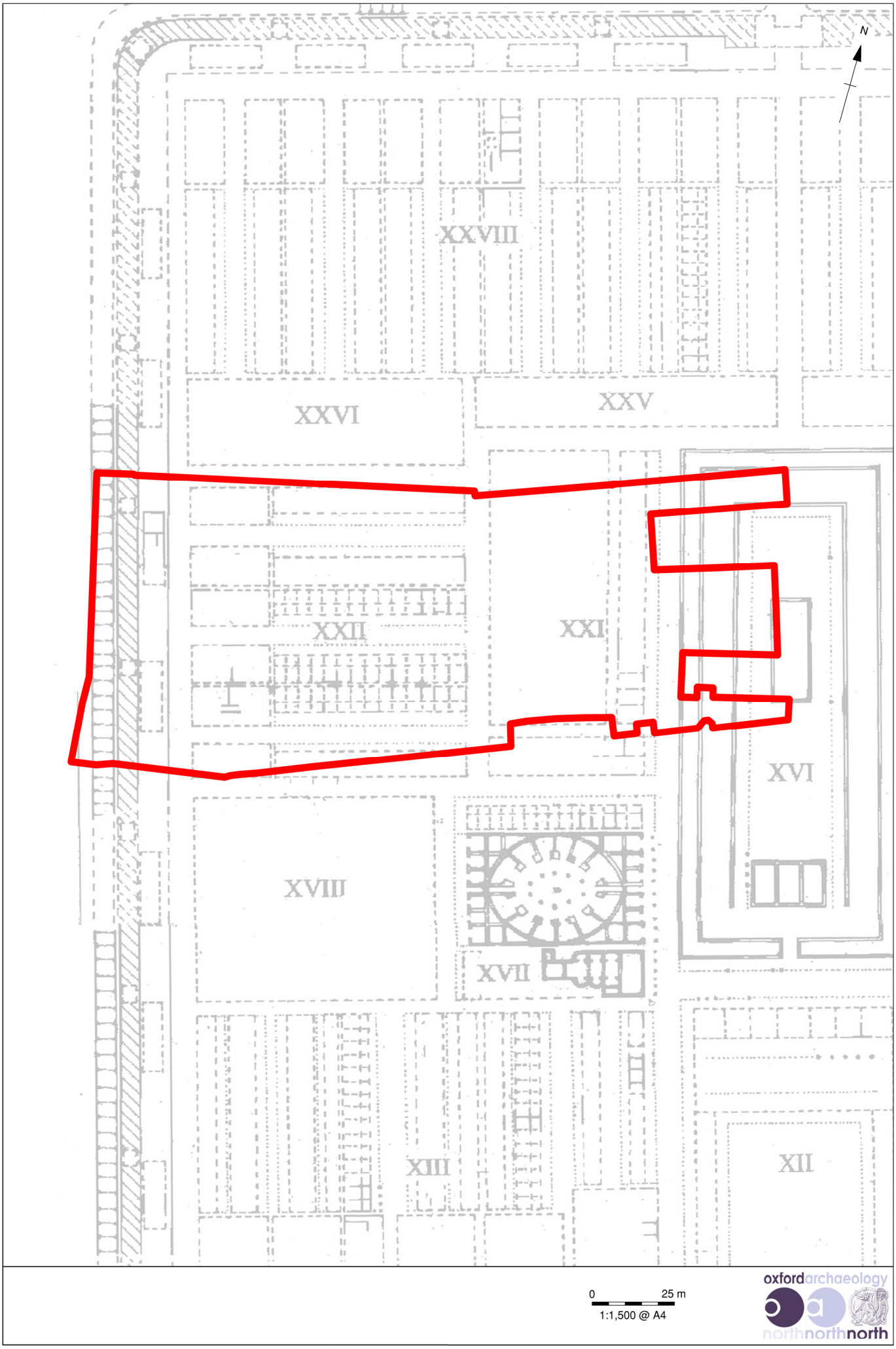

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Figure 6: The site within the central range of Roman legionary fortress

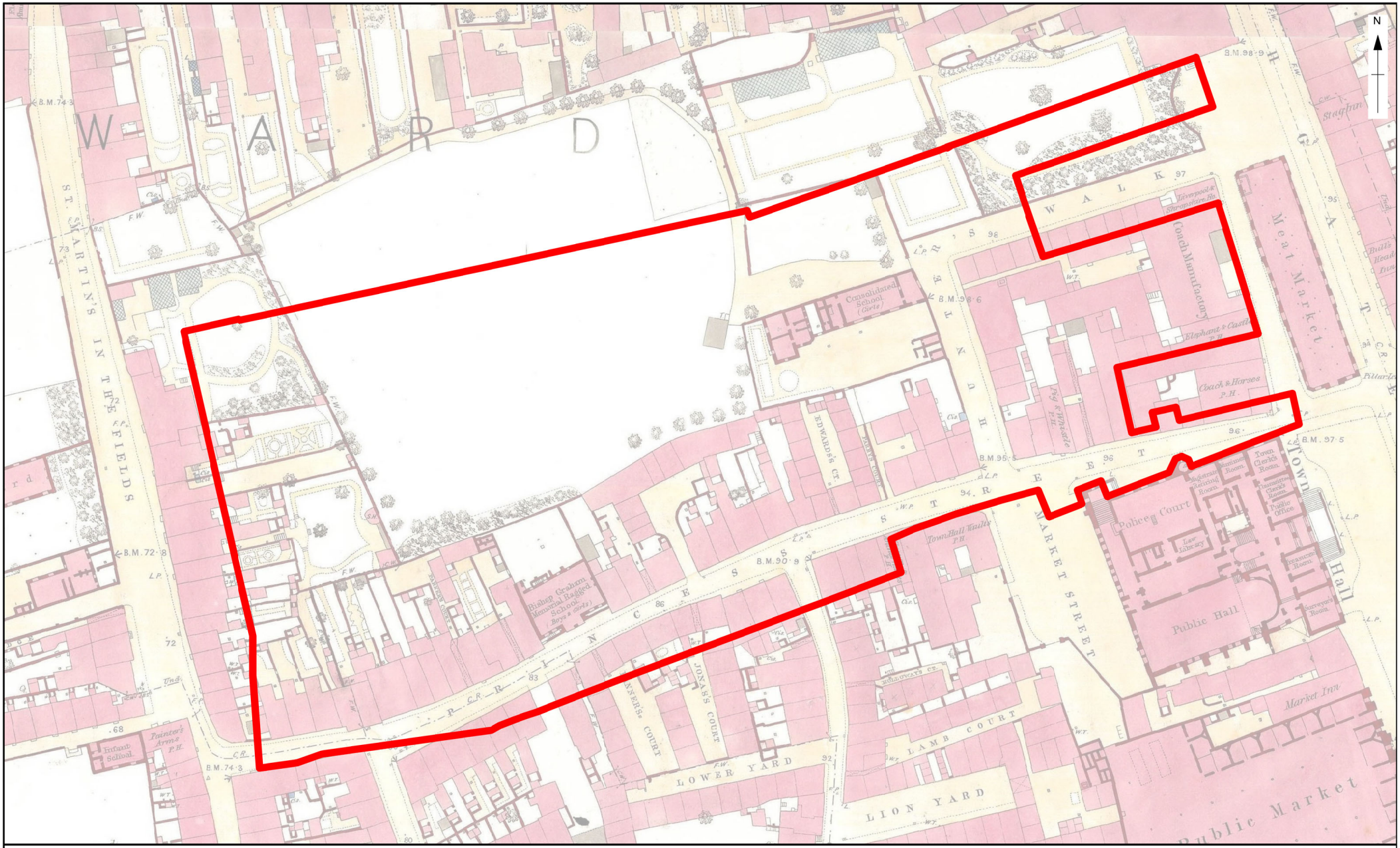

Figure 7: The site overlaid on the Ordnance Survey First Edition town plan of Chester, 1874

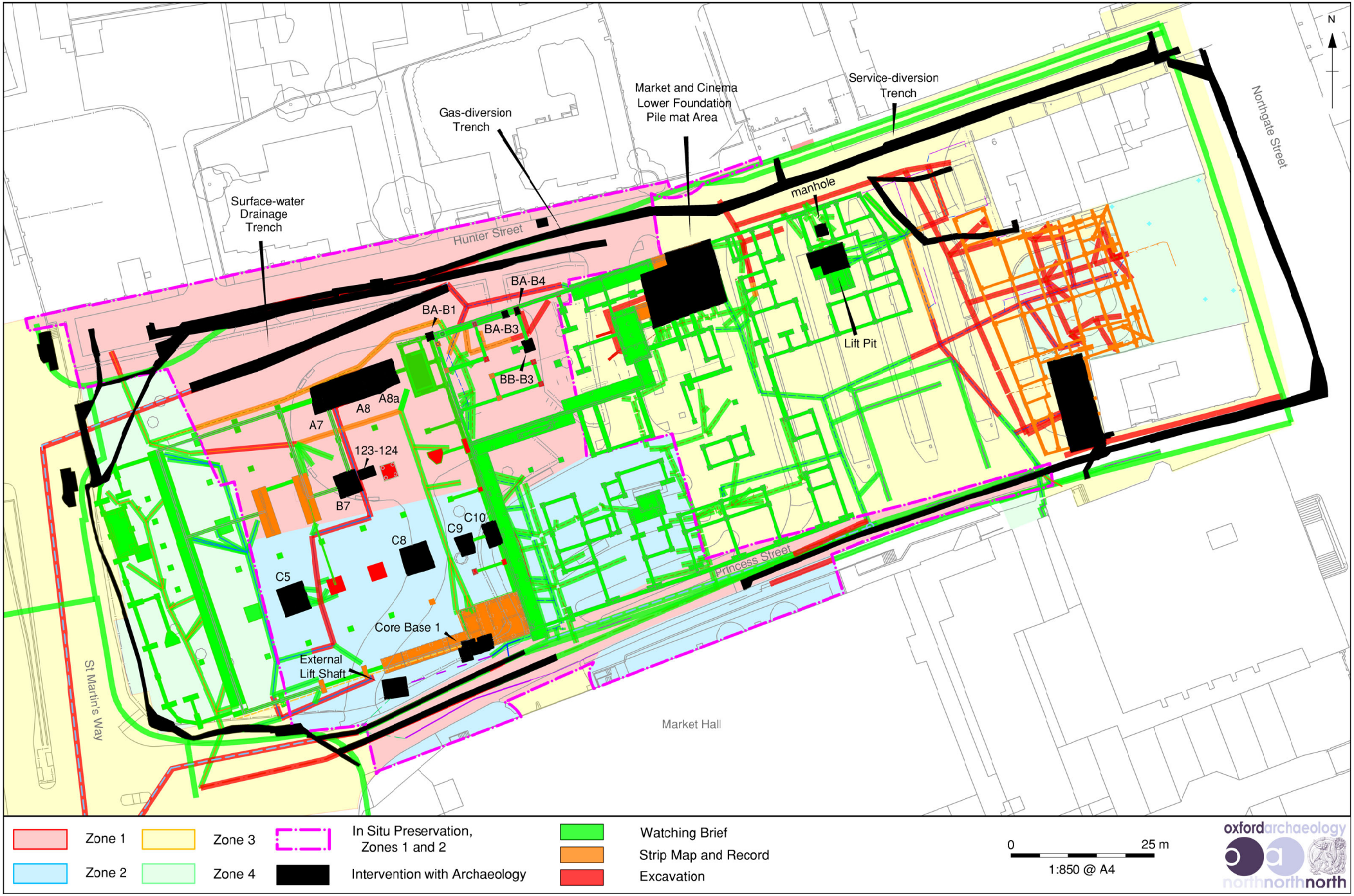

Figure 8: Archaeological interventions within the Phase 1 area

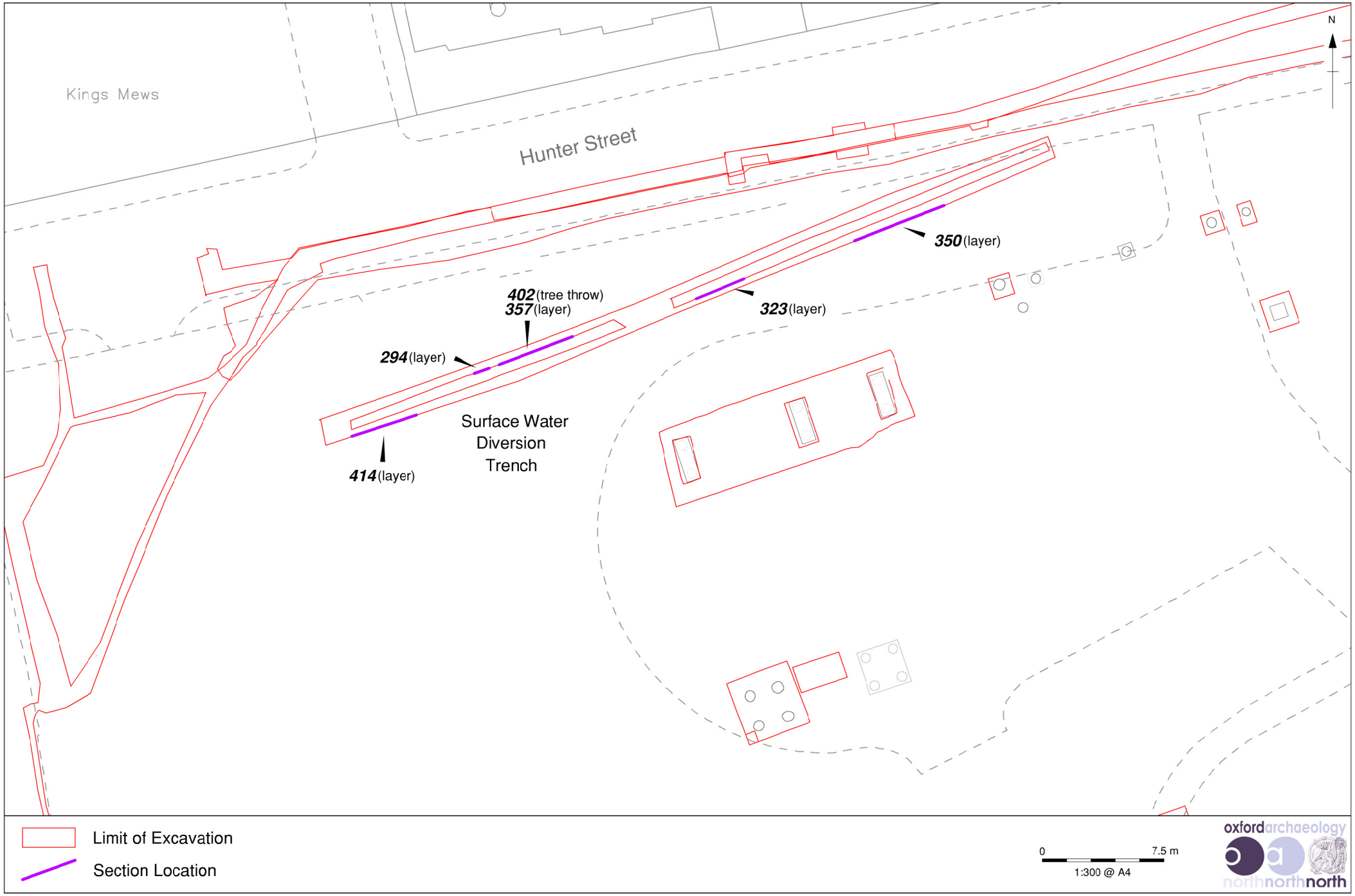

Figure 9 : Period 1: Location of selected features and deposits

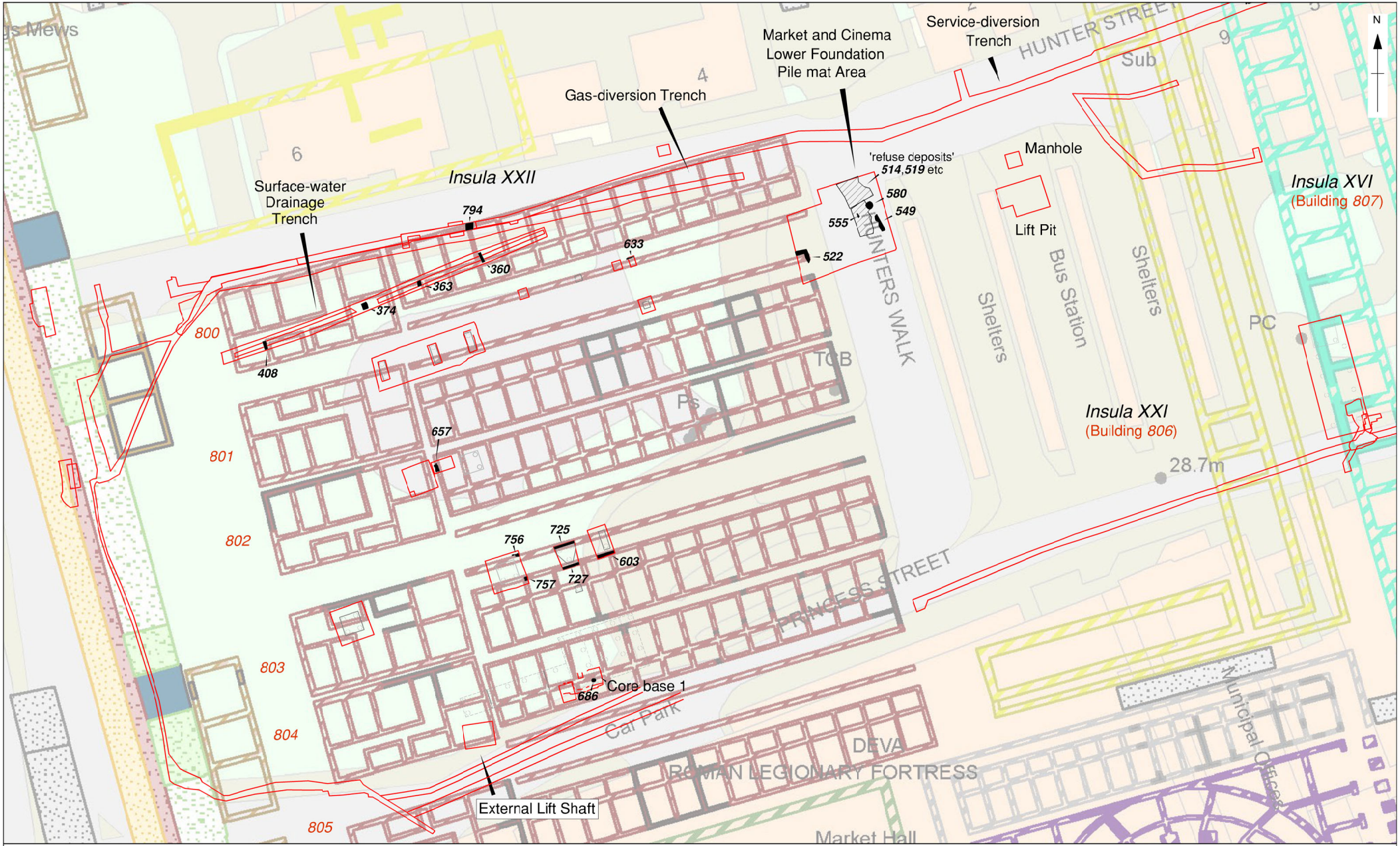

Figure 10 : Period 2: principal excavated features, overlaid on a predicted plan of *Insulae XVI, XXI* and *XXII* in the late first/early second century AD

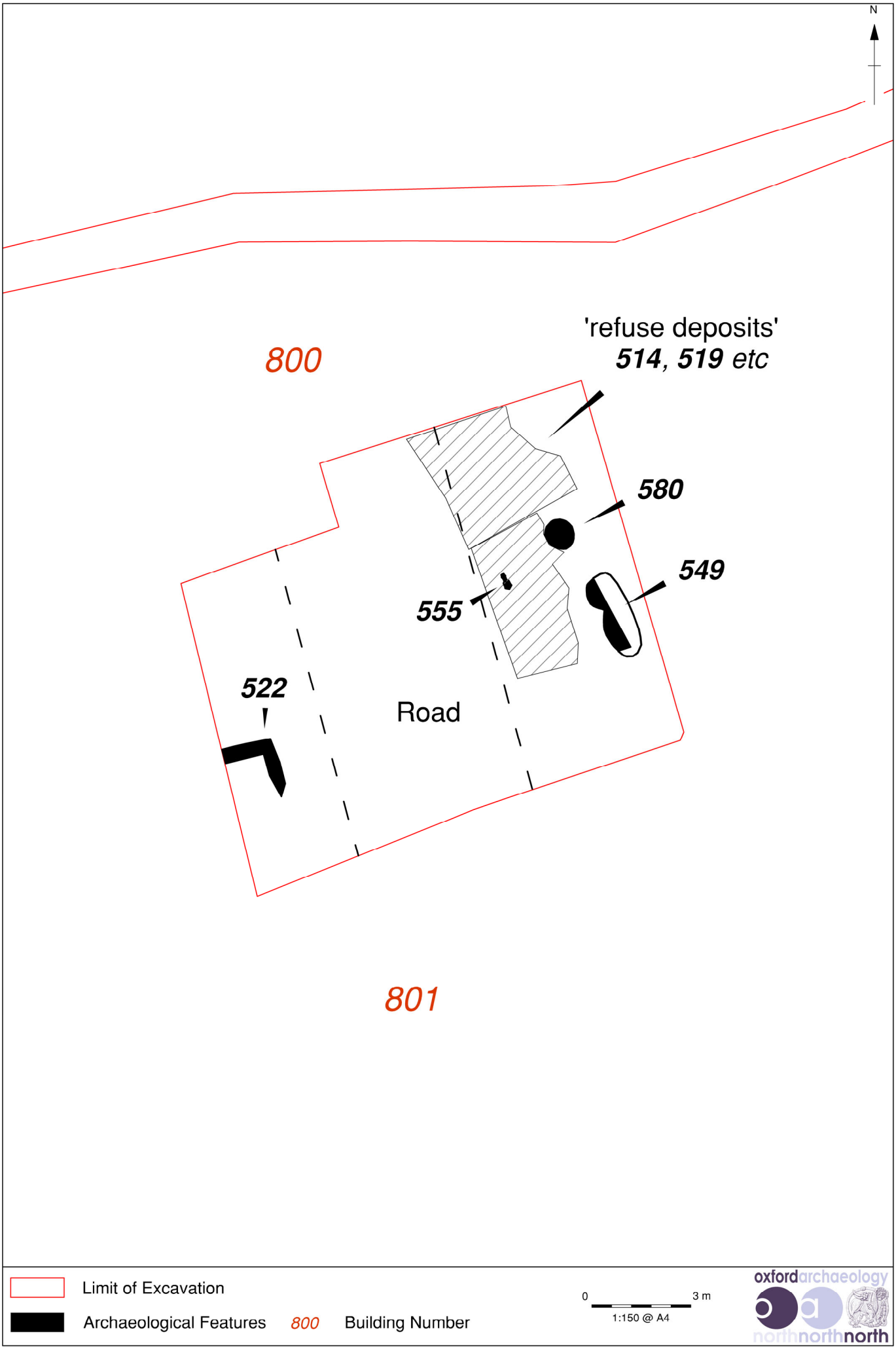

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Figure 11 : Period 2: early Roman features and deposits in the lower foundation pile mat for the market and cinema, within *Insula XXI*

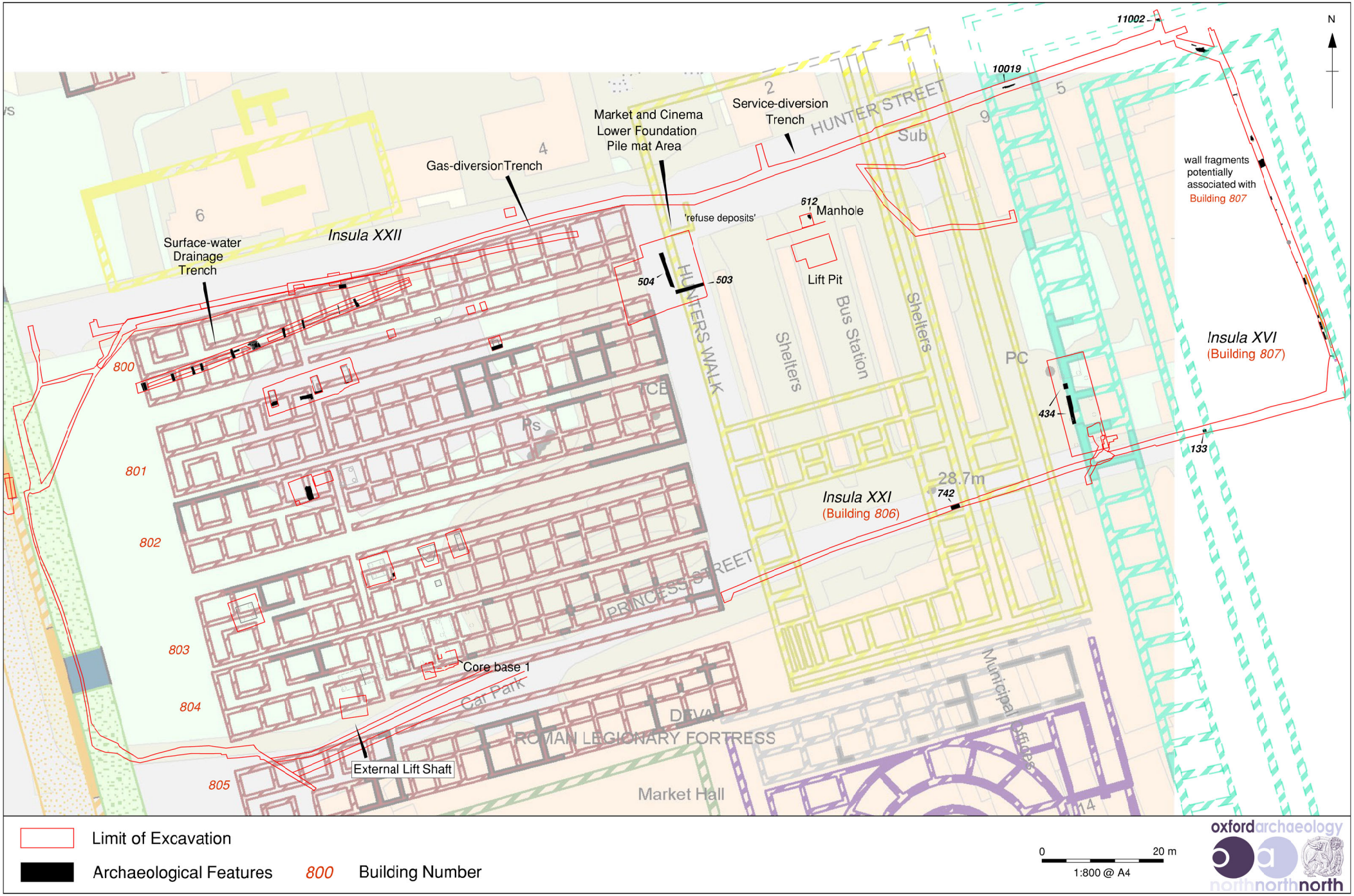

Figure 12 : Period 3: principal excavated features, overlaid on a predicted plan of *Insulae XVI, XXI* and *XXII* in the early third century AD

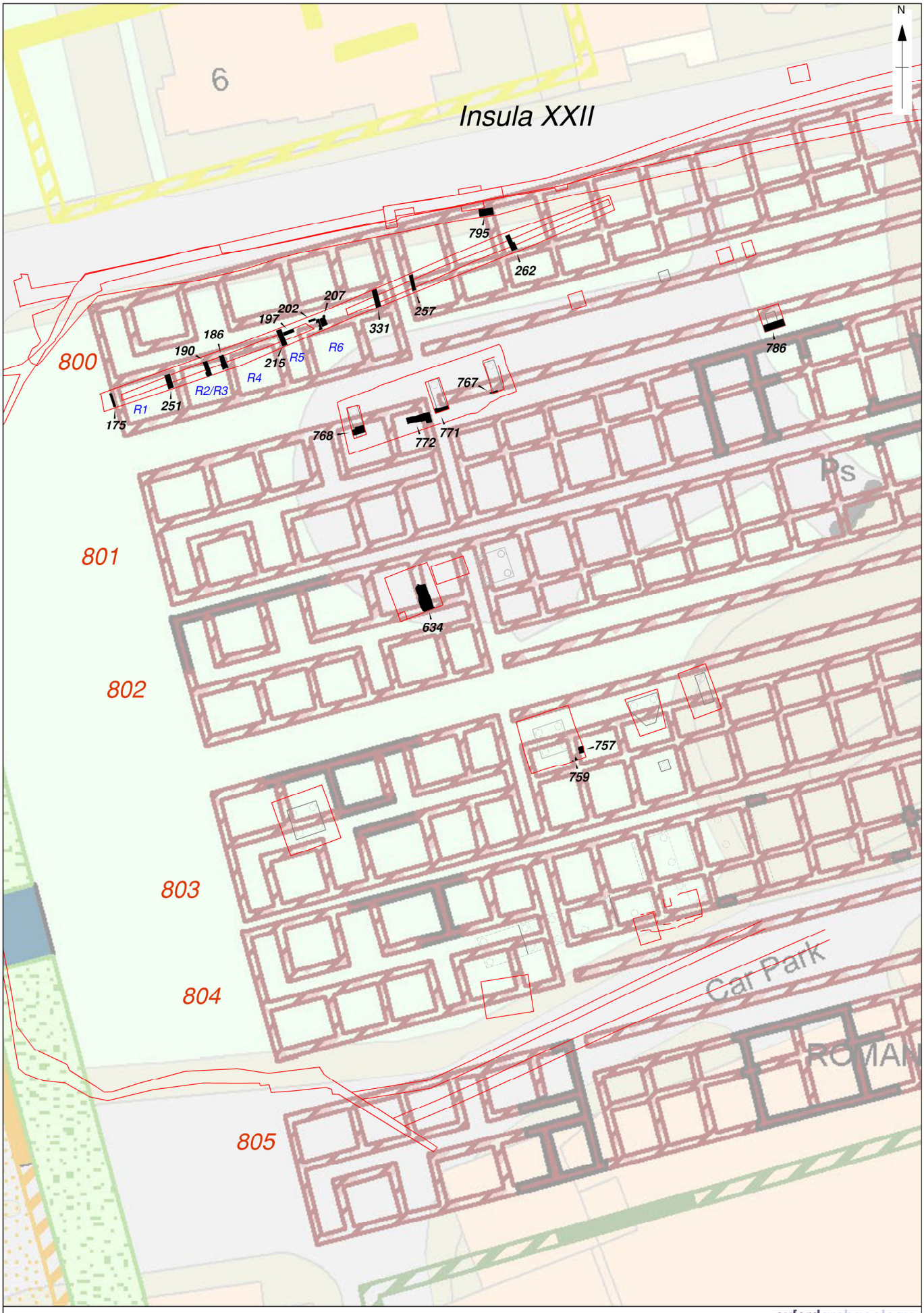

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Figure 13 : Period 3: predicted plan of the third-century barracks in *Insula XXII*, with the principal excavated features

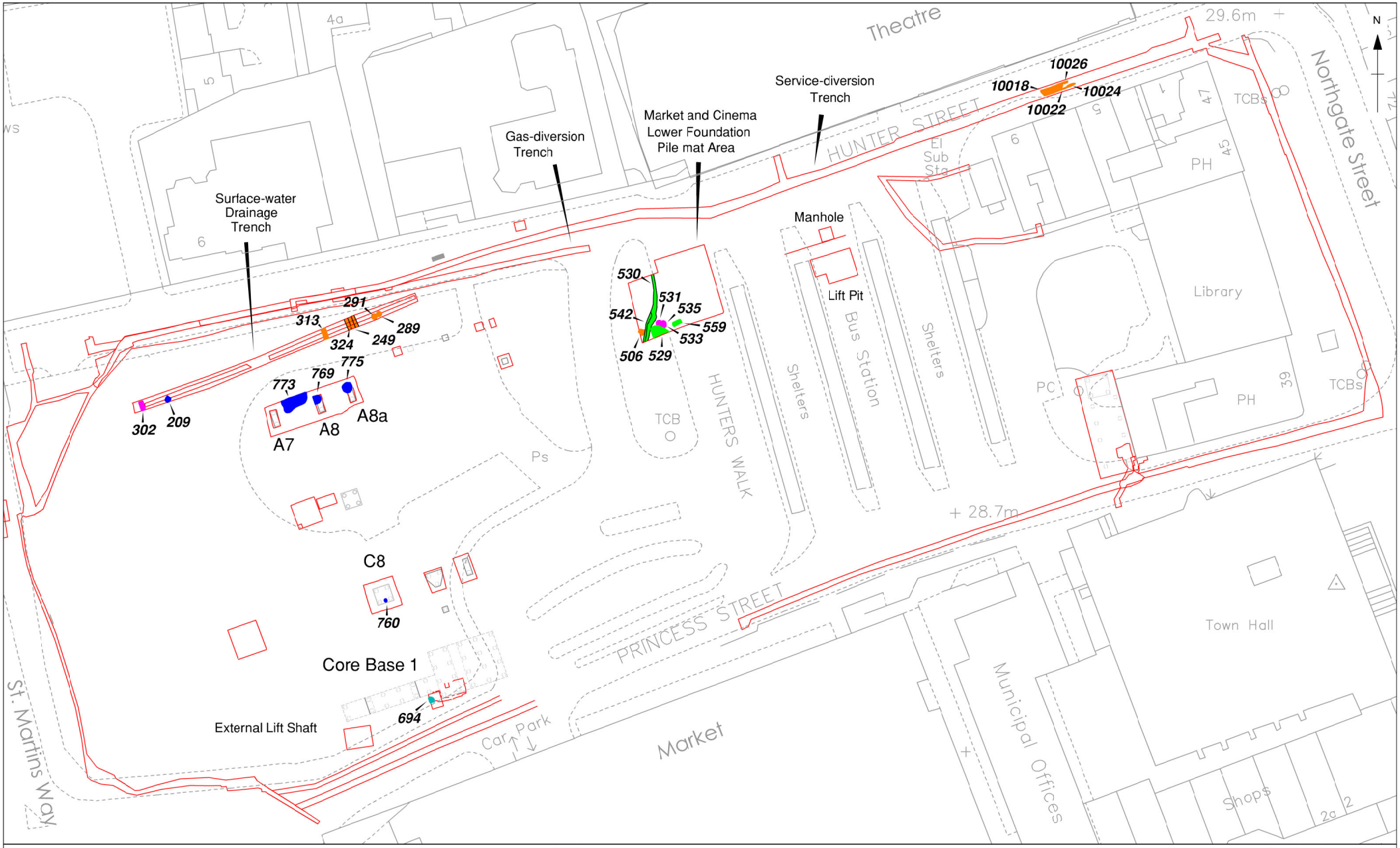

Figure 14 : Post-Roman features

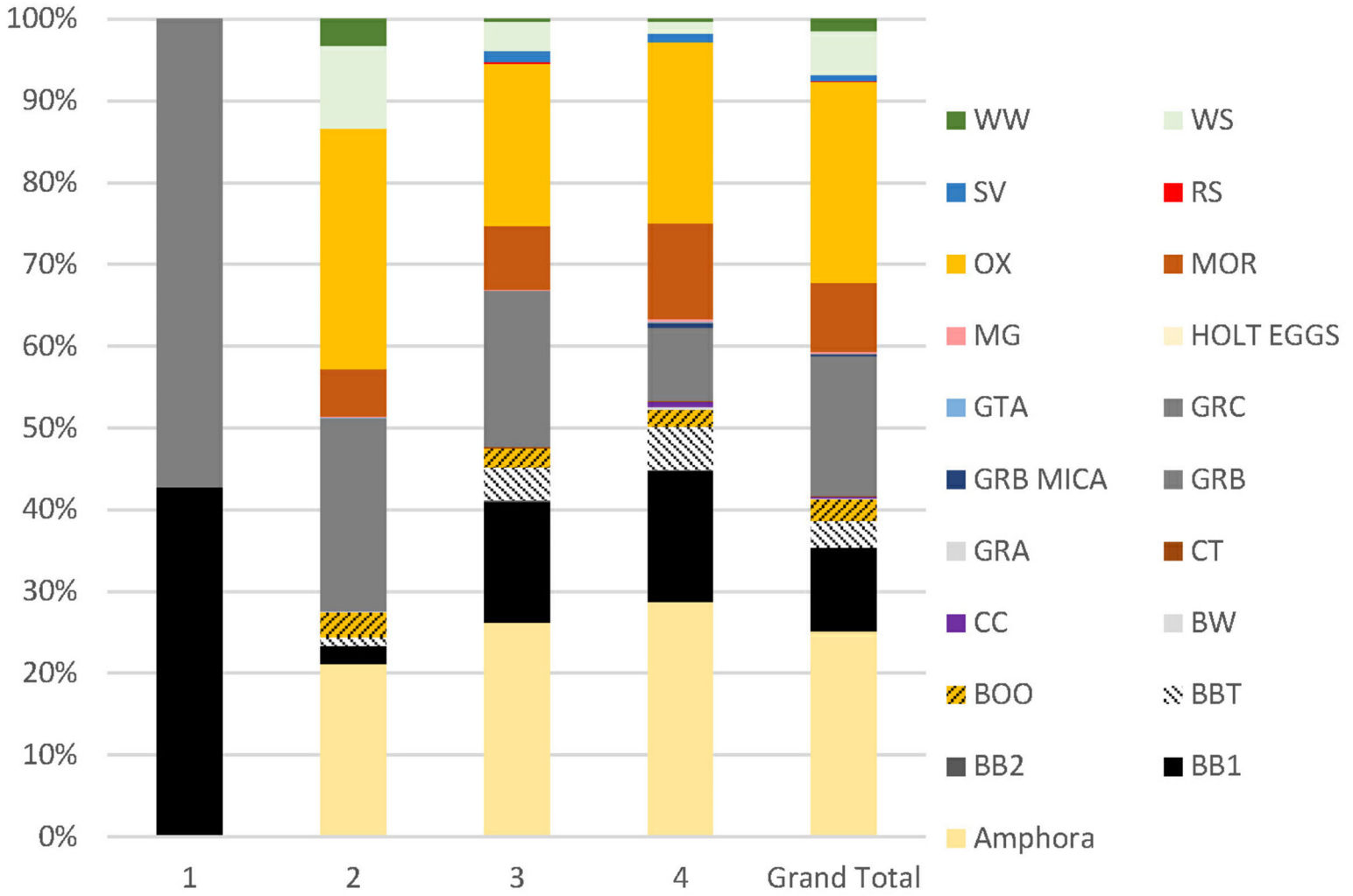

Figure 15 : Relative quantities of Roman pottery fabrics in Periods 1-4, by sherd count (for fabric codes, see *Appendix A*)

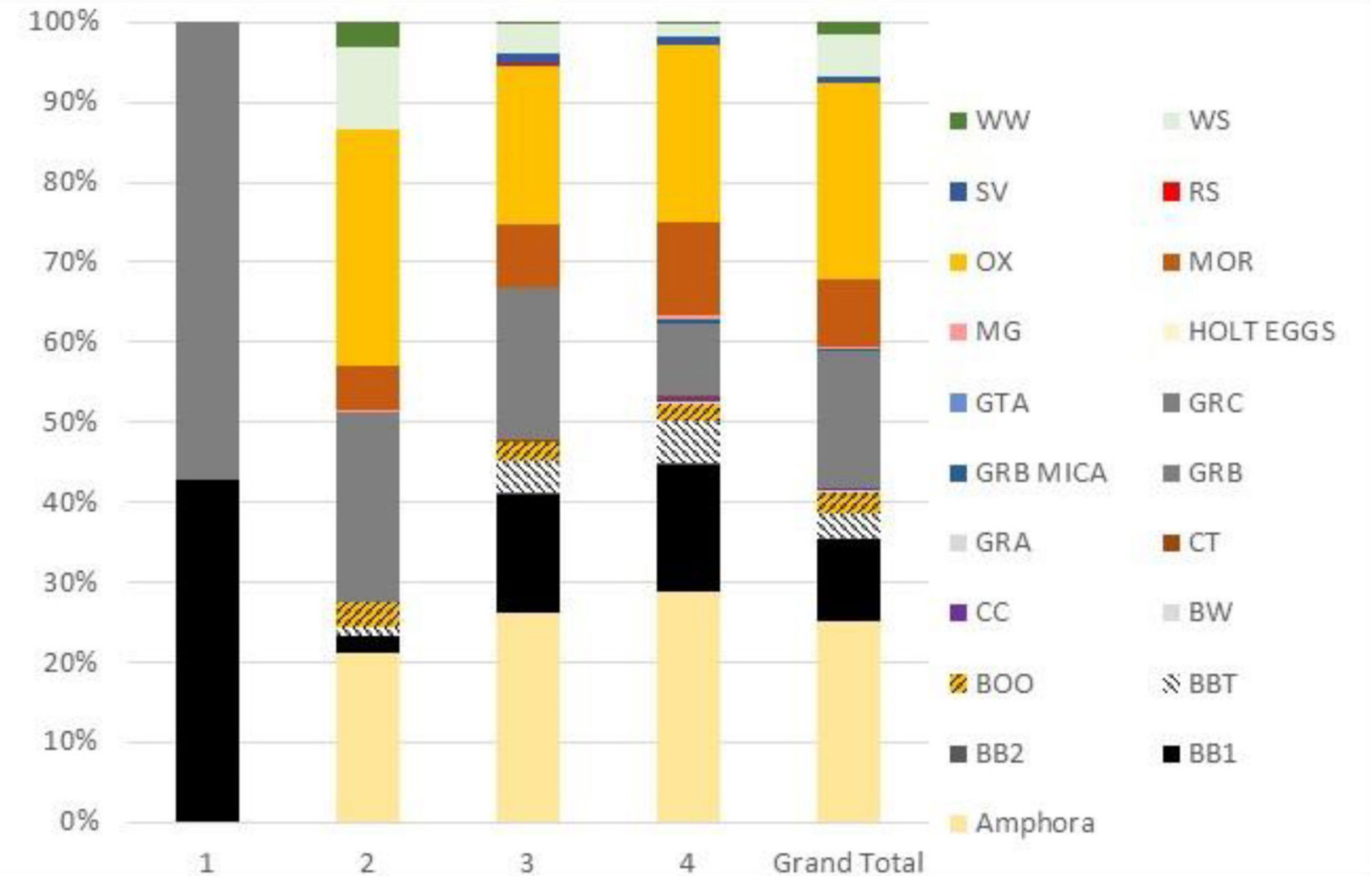

Figure16 : Relative quantities of Roman pottery fabrics in Periods 1-4, by weight (for fabric codes, see *Appendix A*)

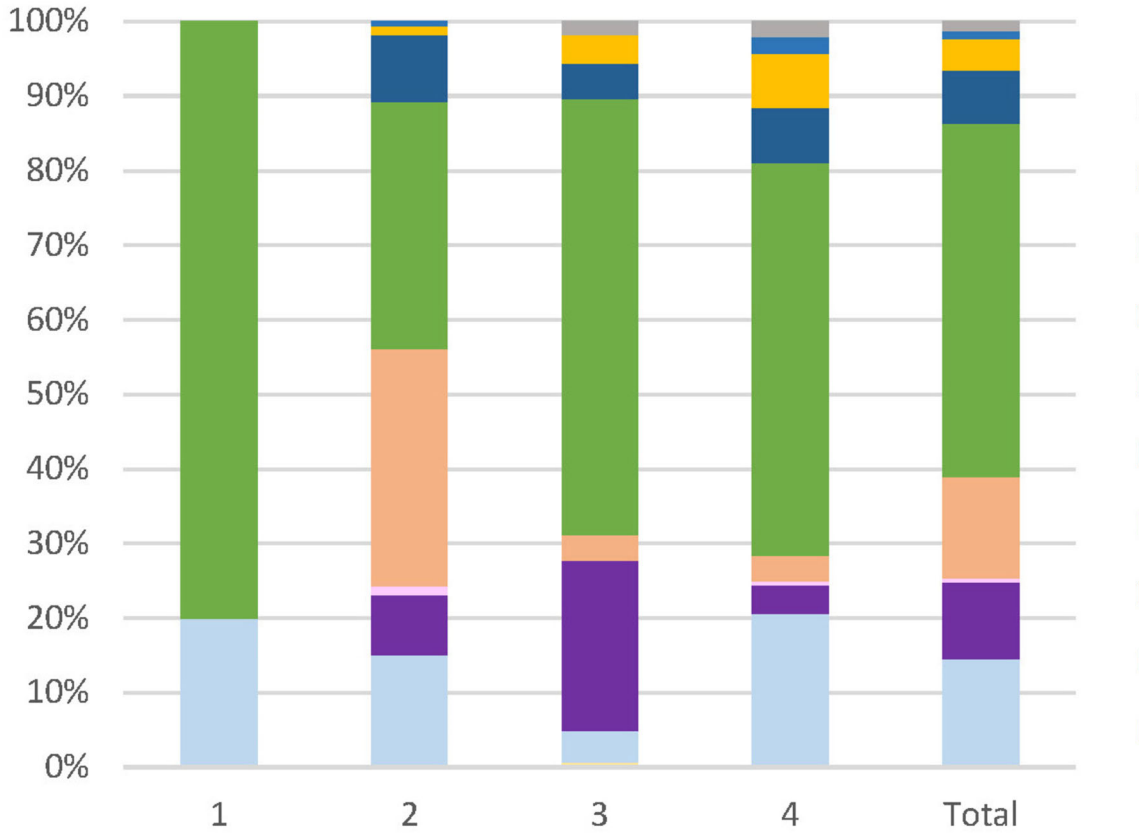

Figure 17 : Relative quantities of Roman pottery in Periods 1-4, by EVES

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