Northgate Redevelopment Phase 1, Grassy Knoll, Chester

Archaeological Strip, Map and Record Report

October 2019

Client: Cheshire West and Chester Council

Issue No: 2019-20/2029
OA Reference No: L11257
NGR: SJ 40312 66457

oxfordarchaeology

Client Name:	Cheshire West and Chester Council
Document Title:	Northgate Redevelopment Phase 1, Grassy Knoll, Chester
Document Type:	Archaeological Strip, Map and Record Report
Report No.:	2019-20/2029
Grid Reference:	SJ 40312 66457
Site Code:	CNGPD19
Invoice Code:	L11257
Receiving Body:	Grosvenor Museum, Chester

OA Document File Location: X:\Paul\Projects\L11257_Chester_Northgate_Phase_1\Report\Grassy_Knoll

OA Graphics File Location: X:\Paul\Projects\L11257_Chester_Northgate_Phase_1\OAN_CAD

Issue No:	V. 1
Date:	October 2019
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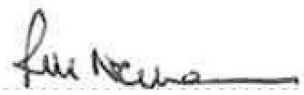
Signature:	

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Northgate Redevelopment Phase 1, Grassy Knoll, Chester

Archaeological Strip, Map and Record Report

Written by Paul Dunn

With contributions from Chris Howard-Davis and Ian Smith, with illustrations by Mark Tidmarsh

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Summary

Oxford Archaeology (OA) North was commissioned by Cheshire West and Chester Council (CWaC) to undertake an archaeological Strip, Map and Record (SMR) in the Grassy Knoll (also known as the 'pocket park') on the south side of Hunter Street, Chester (NGR: SJ 40312 66457), in respect of Phase 1 of the proposed Chester Northgate redevelopment. A Written Scheme of Investigation (WSI) was produced by OA North, which detailed the requirements for the necessary work. In total, three trenches (Trenches A-C) were to be excavated, to determine the depth, below the modern surface, of the uppermost significant archaeological deposits, and to identify any areas where significant archaeology may have been damaged or destroyed. The purpose of this was to determine the potential impact, on significant archaeological remains, of proposed structural features in this area, such as pile caps and lift pits, the trenches being positioned to encompass the proposed locations of as many of these features as was practicable. The fieldwork was undertaken between 19th and 28th August 2019.

The top of significant archaeology within the area of the Grassy Knoll was identified in all three trenches. For the most part, this comprised a seemingly extensive horizon of sandstone rubble, which almost certainly derives from buildings in the Roman legionary fortress, in this case probably barrack blocks within the central range. A fragment of sandstone walling, potentially forming part of one of these barracks, was also recorded in Trench A. These remains were buried beneath a considerable depth of later material, so that they mostly were approximately 1.7-2.5m below the modern surface across the area investigated.

The significant archaeological remains were sealed by a thick build-up of dark soils that, from the associated finds, appear to have accumulated over a prolonged period, potentially (on stratigraphic grounds), from the early post-Roman period to the post-medieval period. This was cut by concrete foundations potentially relating to the nineteenth-century Ragged School that once stood on Princess Street, and is depicted on historical mapping. Subsequently, a considerable depth of material was deposited over the area in modern times, seemingly in relation to landscaping during the establishment of the Grassy Knoll.

Acknowledgements

Oxford Archaeology (OA) North would like to thank Richard Andrews and Magnus Theobald of Cheshire West and Chester (CWaC) Council for commissioning this project, and Kirsty Lloyd, of the Cheshire Archaeological Planning Advisory Service (CAPAS), for her help and guidance. Thanks are also extended to Andrew Shelmerdine and Ian Morrison of Vinci Construction UK Ltd, for their assistance on site.

The project was managed for Oxford Archaeology by Paul Dunn, with the fieldwork being directed by Ian Smith. Survey was undertaken by Paul Dunn, with illustrations being produced by Mark Tidmarsh. The report was written by Paul Dunn, with contributions from Chris Howard-Davis and Ian Smith. The report was edited by Rachel Newman.

1 INTRODUCTION

1.1 Scope of work

1.1.1 Oxford Archaeology (OA) North was commissioned by Cheshire West and Chester Council (CWaC) to undertake an archaeological Strip, Map and Record (SMR) in the Grassy Knoll on the south side of Hunter Street, Chester (NGR: SJ 40312 66457 (Fig 1)), in respect of Phase 1 of the proposed Chester Northgate redevelopment.

1.1.2 A Written Scheme of Investigation (WSI) was produced by OA North (*Appendix A*), which detailed the requirements for the necessary work. In total, three trenches (Trenches A-C; Fig 2) were to be excavated, to determine the depth, below the modern surface, of the uppermost significant archaeological deposits, and to identify any areas where significant archaeology may have been damaged or destroyed. The purpose of this was to determine the potential impact, on significant archaeological remains, of proposed structural features in this area, such as pile caps and lift pits, the trenches being positioned to encompass the proposed locations of as many of these features as was practicable (Fig 2). The fieldwork was undertaken between 19th and 28th August 2019.

1.2 Location, topography and geology

1.2.1 The proposed development area (PDA) forms part of the north-west corner of the historic core of the city of Chester, roughly centred at SJ 4039 6638 (Fig 1). It takes in an area bracketed by Hunter Street to the north, St Martin's Way to the west, Northgate Street to the east, and Watergate Street to the south. For programming purposes, the proposed development scheme was divided into two phases, with Phase 1 being the northern part of the development, between Princess Street and Hunter Street, and Phase 2 covering the area south of Princess Street to Watergate Street. This archaeological evaluation was undertaken with the open area between Hunter Street and Princess Street, within the Phase 1 area.

1.2.2 The Northgate site lies wholly within Chester's Area of Archaeological Importance (AAI), as designated under the terms of the Ancient Monuments and Archaeological Areas Act (1979), and is also within the city's zone of Primary Archaeological Character (considered to have the highest potential for significant heritage assets and the highest sensitivity to change), as defined in the Chester Archaeological Plan (Beckley and Campbell 2014). The latter 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*).

1.2.3 The solid geology of the immediate area is characterised as Triassic sandstone and conglomerate sedimentary bedrock. The overlying drift geology is alluvium, comprising a mix of clay, silt and sand (BGS 2019), which form soils that are classified as slightly acidic loamy clayey soils (Cranfield University 2019).

1.3 Archaeological and historical background

1.3.1 The archaeological and historical background of the site is discussed in detail in the desk-based assessment for the whole development (OA North 2016). The area lies

within the north-western quadrant of the Roman legionary fortress, the largest in Britain, and has also provided evidence of early medieval activity, around Princess Street. Whilst the northern part of the site was largely open until the nineteenth century, forming gardens, the southern area was quite densely occupied, and medieval burgage plots extended back from both Northgate Street and Watergate Street (*ibid*).

2 AIMS AND METHODOLOGY

2.1 Aims

2.1.1 The project aims and objectives were as follows:

i. to adhere to and fulfil the agreed programme of works associated with the archaeological potential of the site;
ii. to determine or confirm the general nature of any remains present;
iii. to determine or confirm the approximate date or date range of any remains, by means of artefactual or other evidence;
iv. to quantify the amount of disturbance which has been caused by modern services;
v. to identify the level at which the Roman archaeological plane survives across the Grassy Knoll;
vi. to provide sufficient information that a fully and accurately costed subsequent mitigation scheme can be developed, should such remains be identified;
vii. to compile a professional archival record of any archaeological remains within the site.

2.2 Methodology

2.2.1 The project methodology, set out in the WSI (*Appendix A*), was adhered to in full, and was fully compliant with current guidelines and industry best practice (CIfA 2014a: 2014b: 2014c: Historic England 2015). The positions of the trenches were surveyed by Vinci, the principal contractor, and all service checks were also undertaken by Vinci prior to the commencement of the excavations. Overburden was removed mechanically, under constant archaeological supervision, down to the top of significant archaeological levels, which were then hand-cleaned, the sides of the trenches being stepped where required.

2.2.2 All information identified during the site works was recorded stratigraphically, using a system adapted from that used by the former English Heritage Centre for Archaeology, with an accompanying pictorial record (plans, sections, and digital photographs). Primary records were available for inspection at all times.

2.2.3 Results of all field investigations were recorded on *pro forma* context sheets. The site archive includes a photographic record, and accurate large-scale plans and sections at appropriate scales (1:50, 1:20, 1:10).

2.2.4 A full professional archive was compiled in accordance with the WSI, and with current professional guidelines (CIfA 2014c; Historic England 2015). The archive will be deposited with the Grosvenor Museum, Chester.

3 RESULTS

3.1 Introduction and presentation of results

3.1.1 The results of the evaluation are presented below and include a stratigraphic description of the trenches. The full details of each trench with dimensions and depths of all deposits can be found in *Appendix B*. Finds data and spot dates are tabulated in *Appendices C* and *D*.

3.2 Trench A

3.2.1 Trench A was excavated towards the centre of the Grassy Knoll, and was aligned approximately north to south (Pl 1). It was up to 32.67m long and 5m wide (Fig 3), and was excavated to a maximum depth of 2.15m below the modern surface. The sequence of deposits recorded was fairly consistent throughout the length of the trench.

*Plate 1: Southern end of Trench A, looking south, showing Roman demolition layer **507** at the base of the trench (scale 1m)*

3.2.2 The top of significant archaeology was represented by an extensive deposit of sandstone rubble, probably demolition debris from buildings within the Roman legionary fortress, which was recorded across most of the trench. To the south, the top of this deposit (***507***; Pl 1) was 1.7m below the surface (24.94m above Ordnance Datum (aOD)), whilst to the north (***520***; Fig 4; Pl 2) it was at a depth of 2.15m (25.19m aOD). The remains of a sandstone wall (***505***; Pl 3), also very probably of Roman date, where it would have formed part of a barrack block, was identified in the southern part of the trench, approximately 6.5m north of its southern end. The top of this feature was 1.19m below the surface (25.83m aOD).

*Plate 2: West-facing section of the northern end of Trench A, showing Roman demolition layer **520** at the base of the trench (scale 1m)*

*Plate 3: Short westwards extension towards the south end of Trench A, looking west, showing Roman wall **505** in the east-facing section (scales 0.5m and 1m)*

3.2.3 These significant remains were sealed by a thick build-up of dark brown loamy soils, which contained finds of medieval and post-medieval date. In the southern part of the trench, this soil was cut by a wall (***500***), probably part of the Ragged School on Princess Street, which is depicted on nineteenth-century and later mapping. The concrete foundation for this wall extended to 1.8m below the surface (25.60m aOD), truncating probable Roman demolition deposit ***507*** (*Section 3.2.2*). These remains were sealed by modern layers of make-up and topsoil. At the northern end of the trench, the medieval/post-medieval dark soils were sealed by modern make-up deposits overlain by concrete and gravel.

3.3 Trench B

3.3.1 Trench B, adjacent to the north-west corner of Trench A (Fig 3), was roughly square, 4.37 x 3.23m, and was excavated to a maximum depth of 2.18m (25.05m aOD). As in Trench A, significant archaeology was represented by a deposit of sandstone rubble (***534***), almost certainly Roman-period demolition debris, which covered the base of the trench at 25.05m aOD. This was overlain by a thick accumulation of dark brown loamy soils (Pl 4) that, as in Trench A, yielded finds of medieval and post-medieval date. These were directly overlain by modern make-up and levelling layers, including concrete and gravel surfaces.

Plate 4: West-facing section of Trench B (scale 1m)

3.4 Trench C

3.4.1 Trench C was aligned east/west and was *c* 5m wide, extending west from the centre of Trench A for *c* 13m (Fig 3), though a wide, central baulk was retained. The trench was excavated to a maximum depth of 2.5m (24.80m aOD), in the position of the proposed pile caps, the eastern pile cap being Trench C1 and the western Trench C2 (Fig 3), the deposits recorded proving similar to those identified in Trenches A and B.

3.4.2 As elsewhere, significant archaeology, in the form of a layer of sandstone rubble (***550***; Fig 5) was recorded in the base of the trench, towards its eastern end (top at 24.80m aOD). This was sealed by a thick build-up of dark brown soils (Pl 5) containing medieval and post-medieval artefacts, which were in turn overlain by modern make-up/levelling deposits for surfaces of concrete and gravel (Pl 6).

Plate 5: North-facing section of Trench C1 (scale 1m)

Plate 6: North-facing section of Trench C2, showing extensive modern material (scale 1m)

3.5 Finds summary

3.5.1 No environmental samples were taken during the fieldwork as there were no suitable deposits. However, several finds were recovered from the trenches, which are discussed in detail in *Appendices C* and *D*.

4 DISCUSSION

4.1 Reliability of field investigation

4.1.1 In general, the reliability of the archaeological evaluation was good, with the differing deposits being clearly visible. The weather was good throughout, although the strong sunlight was not ideal.

4.2 Interpretation

4.2.1 The project was successful in determining the level, below the modern surface, of the top of significant archaeology within the area of the Grassy Knoll, which was identified in all three trenches. For the most part, this comprised a seemingly extensive horizon of sandstone rubble, which almost certainly derives from buildings in the Roman legionary fortress, in this case probably barrack blocks within the central range. A fragment of sandstone walling (***505***; *Section 3.2.2*), potentially forming part of one of these barracks, was also recorded in Trench A. These remains were buried beneath a considerable depth of later material, so that they mostly lay *c* 1.7-2.5m below the modern surface across the area investigated, though, in terms of absolute heights aOD, the surface of the rubble was reasonably level, being recorded at 24.80m aOD in Trench C, 24.94m aOD at the northern end of Trench A, 25.05m aOD in Trench B, and 25.19m aOD, at the south end of Trench A. Wall ***505*** appears to have stood proud of this debris, however, since its top was recorded at 25.83m aOD, 1.19m below the surface (*Section 2.2.2*).

4.2.2 Across the whole of the area investigated, the significant archaeological remains were sealed by a thick build-up of dark soils that, from the associated finds, appear to have accumulated over a prolonged period, potentially (on stratigraphic grounds), from the early post-Roman period to the post-medieval period. This was cut by concrete foundations potentially relating to the nineteenth-century Ragged School that once stood on Princess Street, which is depicted on historical mapping. Subsequently, a considerable depth of material was deposited over the area in modern times, seemingly in relation to landscaping during the establishment of the Grassy Knoll.

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APPENDIX A WRITTEN SCHEME OF INVESTIGATION

Northgate Redevelopment Phase 1, Chester

Written Scheme of Investigation
Archaeological Strip, Map and Record

August 2019

Client: Cheshire West and Chester Council

Issue No: V. 1
NGR: SJ 40312 66457

oxfordarchaeology

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Site Code:	CNGPD19
Invoice Code:	L11257
OA Document File Location:	X:\Paul\Tenders\23752_Chester_Northgate_Phase_1\WSI
OA Graphics File Location:	X:\Paul\Tenders\23752_Chester_Northgate_Phase_1\OAN_CAD
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Northgate Redevelopment Phase 1, Chester

Written Scheme of Investigation for an Archaeological

Centred on SJ 40312 66457

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1 INTRODUCTION

1.1 Project details

1.1.1 Oxford Archaeology (OA) North has been commissioned by Cheshire West and Chester (CWaC) Council to undertake an archaeological strip, map and record of the site of a proposed multi-use development, Chester Northgate Redevelopment Phase 1 (NGR: SJ 40312 66457).

1.1.2 The city of Chester is renowned as a place of immense historical significance, in recognition of which the buried archaeological remains across much of the historic city centre are afforded statutory protection as an Area of Archaeological Importance (AAI) under the terms of the Ancient Monuments and Archaeological Areas Act (1979). Within the AAI, where all archaeological remains are considered in the same way as scheduled monuments, a planning application has been submitted for the redevelopment of the Northgate area, which lies in the heart of the historic city centre, west of Northgate Street and north of Watergate Street (SJ 4039 6638; Fig 1). The Chester Northgate Project comprises a mix of retail, residential and leisure development extending over an area in excess of 5ha. It is proposed that construction will be undertaken in three phases (Phases 0, 1, 2), with work commencing on the northern part of the site (Phases 0 and 1), between Hunter Street and Princess Street. A detailed planning application in respect of Phases 0 and 1 was submitted to CWaC in June 2016.

1.1.3 In addition to being located within Chester's AAI (*Section 1.1.1*), the Northgate site encompasses all or part of seven of the city's primary Archaeological Character Areas, as defined in the Chester Archaeological Plan (Beckley and Campbell 2014). The Plan, funded by English Heritage (now Historic England) as part of the Chester Urban Archaeological Database (UAD) Project, was endorsed by the Cheshire West and Chester Local Development Framework Panel as a key Evidence Base Document supporting the preparation of the Chester District Local Plan (M Leah *pers comm*).

1.1.4 Within the Northgate site, the character, significance and preservation of buried archaeological remains is generally well understood, since the area has, over the past 25 years, been subject to a range of archaeological investigations, including evaluation trenching, borehole observations and archaeological audits, in respect of earlier proposals (not subsequently progressed) for the redevelopment of the area. At the request of the Development Management Archaeologist for the Cheshire Archaeological Planning Advisory Service (CAPAS), two phases of evaluation trenching were also carried out by Oxford Archaeology North (OA North) in respect of the present scheme (OA North 2015; 2016a), and OA North has also prepared three desk-based assessments (DBAs) for differing aspects of the project. The first of these (OA North 2016b), which collated the results of earlier archaeological interventions in the area, assessed the potential of the surviving archaeology within the site, and presented estimates for the predicted impact of the Northgate scheme on significant archaeological remains, was presented as a technical appendix to the planning application for Phases 0 and 1 (*Section 1.1.1*). The other two DBAs were prepared to inform proposals for the construction of a new surface-water drain linking the

development site with the River Dee (OA North 2016c) and for the construction of an electricity substation to serve the new development (OA North 2016d).

1.1.5 In 1997, a Brief and Specification for archaeological mitigation works within the Northgate site was prepared by the former Chester City Archaeologist in respect of an earlier development proposal (Morris 1997). A substantially revised version of this document, presented as an annex to the development brief for the present Northgate project, 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. Within the zones of greatest archaeological significance (Zones 1 and 2), the brief stipulates that there should be a presumption in favour of *in situ* preservation of archaeological deposits, with an intrusive impact of no more than 3% where damage or destruction of archaeological remains is unavoidable. No such constraints apply to Zone 3 (archaeological potential uncertain) or Zone 4 (archaeological remains believed to be wholly or largely destroyed), but an appropriate level of archaeological mitigation is required where archaeological deposits requiring 'preservation by record', but not of sufficient significance to be preserved *in situ*, are found to exist.

1.1.6 Consequently, the Development Management Archaeologist at CAPAS requested that Written Schemes of Investigation (WSIs) should be prepared, detailing the proposed methodologies for each of the archaeological mitigation strategies (namely *in situ* preservation, excavation, strip-and-record and watching brief) that are to be adopted in respect of Phases 0 and 1 of the Chester Northgate scheme. The present document represents the WSI for archaeological strip, map and record.

1.1.7 All work will be undertaken in accordance with local and national planning policies referenced within this document.

1.2 Oxford Archaeology

1.2.1 OA North, based in Lancaster, is the northern office of Oxford Archaeology (Chartered Institute for Archaeologist's (CIfA) registered organisation no 17), the leading archaeological and heritage practice in the country, employing in excess of 250 professionals across three regional offices. OA North is itself the largest archaeological contractor in north-west England. As a registered educational charity, OA is dedicated to maintaining and promoting the highest professional, academic, commercial and ethical standards and to the provision of access to archaeology for all. It has both an established reputation and a philosophical imperative in the pursuit of efficient and cost-effective fieldwork, post-excavation excellence, and high-quality publication and outreach. We pride ourselves on our delivery of accessible outreach, including open days, lectures, information panels, leaflets, *etc*.

1.2.2 With over 40 years of experience in commercial archaeology, OA has undertaken tens of thousands of archaeological investigations of all types, scales and periods, from desk-based assessments to major open-area excavations. OA has particular experience of working closely with principal contractors, consultants, and curators to undertake high-quality archaeological works within the tight timetables and high-pressure environments of major projects.

2 AIMS AND OBJECTIVES

2.1 Academic Aims

2.1.1 The main aim of this archaeological strip, map and record (SMR) of Phase 1 of the Northgate scheme, is to, initially, excavate a single trench (Trench A), aligned north-west/south-east on the Grassy Knoll (Fig 2). For the most part, this area corresponds with Zones 1 and 2 (*Section 1.1.4*). The main objective of the SMR should be to identify, expose, excavate and record any archaeological remains that may survive within the targeted area, in order to aid the design of the redevelopment. If required, a further five trenches (Trenches B, C, D, E and F), all aligned approximately north-east/south-west, branching off Trench A, may be excavated.

2.1.2 All archaeological work will be carried out in accordance with best practice guidelines, including the following:

- Historic England's Management of research projects in the historic environment, or MoRPHE (2015), with specific reference to the tenets of MoRPHE's Project Planning Note 3: archaeological excavation;
- the second edition of English Heritage's (now Historic England's) Management of archaeological projects, or MAP 2 (English Heritage 1991);
- the European Association of Archaeologist's (EAA's) Principles of conduct for archaeologists involved in contract archaeological works (EAA 1998);
- the CIfA's Code of conduct (2014a); Code of approved practice for the regulation of contractual arrangements in field archaeology (2014b); and Standard and guidance for an archaeological watching brief (2014c);
- the National Planning Policy Framework (NPPF; DCLG 2012).

2.2 Specific aims and objectives

2.2.1 The specific aims and objectives of the evaluation are:

i. to adhere to and fulfil the agreed programme of works associated with the archaeological potential of the site;
ii. to determine or confirm the general nature of any remains present;
iii. to determine or confirm the approximate date or date range of any remains, by means of artefactual or other evidence;
iv. to quantify the amount of disturbance which has been caused by modern services;
v. to identify the level at which the Roman archaeological plane survives across the Grassy Knoll;
vi. provide sufficient information that a fully and accurately costed subsequent mitigation scheme can be developed, should such remains be identified;
vii. to compile a professional archival record of any archaeological remains within the site.

3 PROJECT SPECIFIC EXCAVATION AND RECORDING METHODOLOGY

3.1 Scope of works

3.1.1 The works will involve the excavation of, initially, a single trench (Trench A) aligned north-west/south-east on the Grassy Knoll (Fig 2), using a suitably sized mechanical excavator fitted with a toothless ditching bucket and supervised by a suitably experienced archaeologist. The trench will be excavated to approximately 1m, the top of the archaeological horizon, or the Roman archaeological plane, whichever is encountered first. If the Roman archaeological plane is not identified at a depth of 1m below ground level, sondages will be excavated in the location of the pile caps, to the Roman archaeological plane. The main aim of the evaluation being to quantify the amount of disturbance which has ben caused to the archaeological remains in the area and to identify the level at which the Roman archaeological plane survives. Once the trench has been excavated, it will be hand cleaned and recorded by the archaeologist. If required, a further five trenches (Trenches B, C, D, E and F), all aligned approximately nort-east/south-west, branching off Trench A, may be excavated. Once fully recorded, they will be backfilled by the Principal Contractor.

3.2 Programme

3.2.1 It is anticipated that the fieldwork will take five days to complete Trench A, commencing on 12th August 2019, and then an additional five days if Trenches B, C, D, E and F are required. The works will be supervised by a project officer, Ian Smith, directing up to two site assistants, under the management of Paul Dunn, Project Manager.

3.2.2 All fieldwork undertaken by OA North is overseen by the Operations Manager, Alan Lupton MCIfA.

3.3 Site specific methodology

3.3.1 ***Fieldwork***: the trenches will be excavated by a mechanical excavator, fitted with a toothless ditching bucket, provided by Principal Contractor, under constant supervision of the OA North archaeologist. The mechanical excavation will proceed in even spits, of no more than 0.1m, to 1m below ground level, the first significant archaeological horizon, or the Roman archaeological plane, whichever is encountered first. If the Roman archaeological plane is not identified in the first 1m below ground level, hand dug sondages will be excavated in the locations of the pile caps, to the Roman archaeological plane.

3.3.2 Once the trenches have been fully excavated, they will be cleaned by hand sufficiently to enhance any features or stratigraphy. All information identified in the course of the site works will be recorded stratigraphically, using a system adapted from that used by the Centre for Archaeology Service of English Heritage. Results of the evaluation will be recorded on *pro-forma* context sheets and will be accompanied with sufficient pictorial records (plans, sections and digital photographs) to identify and illustrate individual features. The site archive will include plans and sections at appropriate scales (plans 1:20 and sections 1:10).

3.3.3 A full and detailed photographic record of individual contexts will be maintained and similarly general views from standard viewpoints of the overall site at all stages of the evaluation will be generated. Photography will be undertaken using 16 or 18 mega-pixel digital SLR or hybrid compact digital cameras, and all frames will include a graduated metric scale (Historic England 2015b). The images will be taken in JPEG and RAW formats. Photograph records will be maintained on special photographic *pro-forma* sheets.

3.3.4 ***Human remains***: are not expected to be present, but if they are found relevant Home Office permission will be sought, and the removal of such remains will be carried out with due care and sensitivity as required by the Burials Act 1857 and industry best practice.

3.3.5 ***Treasure***: any gold and silver artefacts recovered during the course of the works will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act 1996.

3.3.6 ***Finds Policy***: finds recovery and sampling programmes will be in accordance with best practice (following current Chartered Institute for Archaeologists guidelines) and subject to expert advice in order to minimise deterioration. Finds will be recorded and reported on by appropriately qualified staff.

3.3.7 ***Environmental Policy***: the strategy for palaeo-environmental and other specialist sampling will be developed on site, in consultation with appropriate specialists, as necessary. The environmental sampling strategy will therefore evolve from discussion between those specialists and the field team and will be in accordance with current best practice. In broad terms, however, the sampling strategy will be aimed at recovering palaeobotanical, palaeo-zoological and pedological evidence, from appropriately stratified contexts, should any such features be identified during the course of the excavation.

3.3.8 ***Backfilling***: the test pits will be backfilled once they have been fully recorded by the OA North archaeologist.

4 PROJECT SPECIFIC REPORTING AND ARCHIVE METHODOLOGY

4.1 Programme

4.1.1 A copy of the report in Adobe Acrobat (.pdf) format will be provided to the client and the CAPAS archaeologist for review and approval. A digital copy of the report will also be made available through OASIS.

4.2 Report Content

4.2.1 An interim report will be produced within a week of completing the fieldwork on Trench A, if Trenches B – F are required, their results will be incorporated if possible. A draft copy of a written synthetic post-excavation assessment report will be submitted to the client for comment within six weeks of completion of the fieldwork, although the time frame for production of the report can be tailored to the client's requirements upon prior agreement. The report will include a copy of this WSI, and indications of any agreed departure from that design. It will present, summarise, and interpret the results of the programme detailed above and present an assessment of the history of the site. The report will include the following:

- A title page detailing site address, NGR, author/originating body, client's name and address;
- Full content's listing;
- A non-technical summary of the findings of the fieldwork;
- A description of the archaeological background;
- A detailed account of the historical development of the site, as appropriate;
- A description of the topography and geology of the site;
- A description of the methodologies used during the fieldwork;
- A description of the findings of the fieldwork;
- Detailed plans of the watching brief and evaluation trenches, showing the archaeological features exposed. The site location will be plotted with at least 4 12-figure national grid references on the site plan at a scale of 1:2500;
- Interpretation of the archaeological features exposed and their context within the surrounding landscape;
- Specialist analysis reports on the artefactual/ecofactual/industrial remains from the site;
- Appropriate photographs of specific archaeological features. Appropriate photographs of specific finds of interest will also be included, if needed;
- A consideration of the importance of the archaeological remains present on the site in local, regional and national terms;
- A complete bibliography of sources consulted;

- Illustrative material will include a location map, site map, site plans and pertinent photographs.

4.3 Specialist input

4.3.1 OA has a large pool of internal specialists, as well as a network of external specialists with whom OA have well established working relationships. A general list of these specialists is presented in *Section 8*; in the event that additional input should be required, an updated list of specialists can be supplied.

4.4 Archive

4.4.1 The results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current Historic England guidelines (2015a), and in accordance with the Guidelines for the Preparation of Excavation Archives for Long-Term Storage (UKIC 1990). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. This archive will be provided in the English Heritage Centre for Archaeology format

4.4.2 The site archive will be deposited with the Grosvenor Museum, Chester following the completion of the project. This will follow appropriate industry guidelines (CIfA 2014c). The Arts and Humanities Data Service (AHDS) online database project Online Access to index of Archaeological Investigations (OASIS) will be completed as part of the archiving phase of the project.

5 HEALTH AND SAFETY

5.1 General

5.1.1 The Project Manager, Paul Dunn, has responsibility for ensuring that safe systems of work are adhered to on site. Elements of this responsibility will be delegated to the Project Officer, Ian Smith, who implements these on a day to day basis. Paul Dunn and Ian Smith are supported by OA North's Health and Safety Advisor, Fraser Brown.

5.1.2 The Director with responsibility for Health and Safety at OA is Dan Poore Tech IOSH (Chief Business Officer).

5.2 Method statement and risk assessment

5.2.1 All work will be undertaken in accordance with the current OA Health and Safety Policy, the OA Site Safety Procedures Manual, a site-specific Risk Assessment and, if required, Safety Plan or Method Statement. Copies of the site-specific documents will be submitted to the client or their representative for approvals prior to mobilisation, and all relevant H and S documentation will be available on site at all times. The Health and Safety documentation will be read in conjunction with the project WSI.

5.2.2 Where a project falls under the Construction (Design and Management) Regulations (2015), all work will be carried out in accordance with the Principal Contractor's Construction Phase Plan (CPP).

5.2.3 The archaeological contractor should be fully familiar and will comply with all current and relevant legislation, including, but not limited to:

- The Health and Safety at Work Act (1974);
- Management of Health and Safety at Work Regulations (1999);
- Manual Handling Operations Regulations 1992 (as amended in 2002);
- The Construction (Design and Management) Regulations (2015);
- The Control of Asbestos Regulations (Revised 2012);
- Confined Spaces Regulations (1997);
- The Workplace (Health, Safety and Welfare) Regulations (1992);
- Construction (Health, Safety and Welfare) Regulations (1996);
- The Work at Height Regulations (2005);
- The Control of Substances Hazardous to Health Regulations (2002);
- The Health and Safety (First Aid) Regulations (1981);
- The Regulatory Reform (Fire Safety) Order (2005);
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (1995);
- The Provision and Use of Work Equipment Regulations (1998);
- Lifting Operations and Lifting Equipment Regulations (1998).

5.3 Services and Other Constraints

5.3.1 Service plans will be provided by the client or Principal Contractor and will be available on site. However, the identification and marking of any services will be the responsibility of the principal contractor. The OA North archaeologist will be made aware of any services encountered.

5.4 Contamination

5.4.1 Any known contamination issues or specific health and safety requirements on site will be made known by the Principal Contractor to ensure all procedures can be met, and that the risk is dealt with appropriately. Should any presently unknown contamination be discovered during the works, it may be necessary to halt the works and reassess the risk assessment.

5.5 Ground Conditions

5.5.1 Areas of unstable and infilled ground may be encountered during the evaluation, for example within, or in the vicinity of, infilled cellars/basements or large, deep service runs. This may limit access to some areas, and/or require the use of shoring or similar, particularly if limited archaeological remains are exposed at the base of deep cellars or basements (*eg* the truncated remains of deep pits, wells or ditches). The stability of the ground should be constantly monitored during the works and should it be deemed that work be halted for health and safety reasons, the Client, CAPAS and Historic England should be informed immediately.

5.5.2 Archaeological personnel should not enter individual features that are more than 1.2m deep (or shallower features that are narrow and/or potentially unstable), but if access to such a feature proves necessary, the sides should first be appropriately shored, and a safe means of access and egress (*eg* a properly secured ladder) should be provided.

5.6 Staff Issues

5.6.1 All staff will be provided with appropriate Personal Protective Equipment (PPE), including steel toe and mid-soled boots, high-visibility vest, and a hard hat. All staff will be CSCS qualified, proof of which will be provided in the form of their CSCS card.

5.6.2 Welfare facilities, including a toilet and hand-washing facilities, will be provided by the Principal Contractor.

5.6.3 The Northgate area is located in the centre of Chester, and it is assumed that the site will be appropriately secured by the Principal Contractor.

5.7 Monitoring of works

5.7.1 At least 10 days' notice of the commencement of the archaeological evaluation will be given to Mark Leah, Planning Archaeologist for Cheshire Archaeology Planning Advisory Service (CAPAS).

5.7.2 CAPAS will have free access to the site (subject to Health and Safety considerations) and all records to ensure the works are being carried out in accordance with this WSI and all other relevant standards.

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7 FIGURES

8 LIST OF SPECIALISTS REGULARLY USED BY OA

8.1.1 Below are two tables, one containing 'in-house' OA specialists, and the other containing a list of external specialists who are regularly used by OA.

Internal archaeological specialists used by OA

Specialist	Specialism	Qualifications
Lisa Brown	Early Prehistoric pottery	BA, PGDip, MLitt, MCIfA
Paul Booth	Iron Age and Roman pottery	BA, FSA, MCIfA
John Cotter	Medieval and Post Medieval pottery, Clay Pipe and CBM	BA (Hons), MCIfA
Cynthia Poole	CBM and Fired Clay	BA (Hons), MSc
Edward Biddulph	Roman Pottery	BA (Hons), MA, MCIfA
Ian Scott	Metalwork and Glass	BA (Hons)
Leigh Allen	Metalwork and worked bone	BA (Hons), PGDip
Dr Ruth Shaffrey	Worked stone artefacts	BA, PhD, MCIfA
Julian Munby	Architectural Stone	BA, FSA
Dr Rebecca Nicholson	Fish and Bird Bone	BA (Hons), MA, D.Phil, MCIfA, FSA Scot
Dr Mairead Rutherford	Pollen	BSc, MSc
Lee Broderick	Animal bone	BA (hons), MA, MSc, FZG, SAC Dip (ecology)
Julia Meen	Charred and waterlogged plant remains and charcoal	BSc (Hons), MA
Dr Denise Druce	Charred plant remains, charcoal and pollen	BA (Hons), PhD, MCIfA
Elizabeth Stafford	Geoarchaeology and land snails	BA (Hons), MSc
Carl Champness	Geoarchaeology	BA (Hons), MSc, ACIfA
Ian Smith	Animal Bone	BA (Hons), MSc
Nicola Scott	Archaeological archive deposition	BA (Hons Dunelm)
Mike Donnelly	Flint	BSc, MCIfA
Dr Louise Loe	Human Bone	D.Phil, BA, MCIfA
Helen Webb	Human Bone	MSc, BSc
Mark Gibson	Human Bone	MSc, BA
Dr Lauren McIntyre	Human Bone	D.Phil, MSc, BSc

External archaeological specialists regularly used by OA

Specialist	Specialism	Qualifications
Lynne Keys	Slag	BA (Hons)

Specialist	Specialism	Qualifications
Quita Mould	Leather	BA, MA
Penelope Walton Rogers, The Anglo Saxon Laboratory	Identification of Medieval Textiles	FSA, Dip.Acc
Dana Goodburn-Brown	Conservation	BSc (Hons), BA, MSc
Steve Allen, York Archaeological Trust	Conservation	BA, MA, MAAIS
Dr Richard Macphail	Soils, especially Micromorphology	BA (Hons), MSc, PhD
Dana Challinor	Charcoal	MA, MSc
Dr Nigel Cameron	Diatoms	BSc, MSc, PhD
Dr David Smith	Insects	BA (Hons), MA, PhD
Professor Adrian Parker	Phytoliths and pollen	BSc (Hons), D.Phil
Dr David Starley	Metalworking Slag	BSc (Hons), PhD
Wendy Carruthers	Charred and waterlogged plant remains	BA (Hons)
Dr Sylvia Peglar	Pollen	PhD
Dr John Whittaker	Ostracods and Foraminifera	BA (Hons), PhD
Dr John Crowther	Soil Chemistry	MA, PhD
Dr Martin Bates	Geoarchaeology	BSc, PhD
Dr Dan Miles	Dendrochronology	D.Phil, FSA
Dr Jean-Luc Schwenninger	Optically Stimulated Luminescence Dating	PhD
Dr David Higgins	Clay Pipe	BA, PhD, MCIfA
Dr Hugo Anderson-Wymark	Flint	BSc, PhD, FSA Scot, MCIfA
Dr Damian Goodburn-Brown	Ancient Woodwork	BA, PhD

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APPENDIX B TRENCH DESCRIPTIONS AND CONTEXT INVENTORY

Trench A						
General description					**Orientation**	N-S
Significant archaeological remains were identified as a Roman wall at a depth of 1.19m, 25.83m aOD, and elsewhere throughout the trench the significant archaeological remains were identified as sandstone demolition rubble related to the Roman period, at a depth of 1.7m, 24.94m aOD, at the southern end of the trench and 2.15m, 25.19m aOD, at the northern end of the trench. The deposits above these comprised relict soil horizons dating to the medieval and post-medieval periods, made ground relating to the modern levelling of the area, and foundations relating to a post-medieval school fronting onto Princess Street.					**Length (m)**	32.67
					Width (m)	5
					Avg depth (m)	2.15
Context No	**Type**	**Width (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
500	Structure	9.0	0.5	Ragged School extension wall	-	Modern
501	Structure	6.7	0.5m plus	Concrete, part of Ragged School wall	-	Modern
502	Structure	0.5	0.5	Ragged School wall	-	Modern
503	Structure	1.7	0.5	Concrete foundation of wall ***502***	-	Modern
504	Layer	0.6	0.14	Relict soil horizon	-	Post-medieval
505	Layer	0.54	0.54	Sandstone wall	-	Roman
506	Layer	5.3	0.7	Relict soil horizon	Post-medieval pottery; clay tobacco pipe; animal bones	Post-medieval
507	Layer	1.0	0.27	Demolition deposit	Roman mortarium sherd; ceramic building material (CBM); animal bones	Roman
508	Layer	10.0	0.52	Make-up deposit	-	Modern
509	Layer	10.0	0.04	Topsoil	-	Modern
510	Layer	0.7	0.12	Concrete layer	-	Modern
511	Layer	1.55	1.04	Relict soil horizon	-	Post-medieval
512	Layer	0.7	0.22	Relict soil horizon	-	Medieval/ post-medieval
513	Layer	3.1	0.39	Relict soil horizon	-	Medieval/ post-medieval

Context No	Type	Width (m)	Depth (m)	Description	Finds	Date
514	Layer	3.1	0.6	Relict soil horizon	Pottery; clay tobacco pipe; CBM; animal bones	Post-medieval
515	Layer	1.0	0.1	Mortar-rich deposit	-	Modern
516	Layer	9.0	0.2	Clinker and hardcore	-	Modern
517	Layer	9.0	0.6	Made ground	Modern brick	Modern
518	Layer	9.0	0.4	Concrete	-	Modern
519	Layer	9.0	0.25	Make-up/levelling deposit	-	Modern
520	Layer	2.5	unknown	Demolition rubble	CBM	Roman
521	Layer	2.1	0.3	Relict soil horizon	-	Medieval/ post-medieval
522	Layer	2.7	0.42	Relict soil horizon	-	Medieval/ post-medieval
523	Layer	2.1	0.24	Relict soil horizon	-	Post-medieval
524	Layer	2.1	0.28	Clinker and hardcore	-	Modern
525	Layer	2.1	0.58	Crushed brick hardcore	-	Modern
526	Layer	1.8	0.2	Concrete	-	Modern
527	Layer	1.8	0.08	Gravel surface	-	Modern
528	Cut	2.1	0.92	Cut of pit	-	-
529	Fill	2.1	0.9	Fill of pit ***528***	-	-
530	Cut	0.5	0.86	Modern truncation	-	Modern
531	Fill	0.5	0.86	Fill of modern truncation ***530***	-	Modern
532	Layer	1.92	0.74	Deposit against south side of Roman wall ***505***	-	Roman
533	Cut	0.68	0.98	Modern truncation	-	Modern
Note: Context numbers ***534*** – ***541*** are in Trench B						
542	Layer	0.52	0.1	Relict soil horizon	-	Medieval/ post-medieval

Trench B						
General description					**Orientation**	E-W
Significant archaeology was identified as sandstone demolition rubble, relating to the Roman period, at a depth of 2.18m, 25.05m Aod, overlain by relict soil horizons dating to the medieval and post-medieval period and made-ground deposits relating to the modern levelling of the area.					**Length (m)**	4.37
					Width (m)	3.23
					Avg depth (m)	2.18
Context No	**Type**	**Width (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
534	Layer	2.5	unknown	Demolition rubble	CBM	Roman

Context No	Type	Width (m)	Depth (m)	Description	Finds	Date
535	Layer	3.0	0.25	Relict soil horizon	-	Medieval/ post-medieval
536	Layer	3.0	0.43	Relict soil horizon	-	Medieval/ post-medieval
537	Layer	3.0	0.7	Levelling layer	Clay tobacco pipe; CBM	Post-medieval
538	Layer	3.0	0.25	Clinker and hardcore	-	Modern
539	Layer	3.0	0.35	Crushed brick hardcore	-	Modern
540	Layer	3.0	0.2	Concrete	-	Modern
541	Layer	3.0	0.08	Gravel surface	-	Modern
Note: Context number ***542*** in Trench A						

Trench C						
General description					**Orientation**	E-W
Significant archaeology, Roman rubble ***550***, was exposed at the base of Trench C2, the westernmost of two pile caps in Tr C. A north/south strip was exposed at the eastern side of the trench. First noted at 24.90m aOD, level taken after cleaning and machine damage at 24.80m aOD, likely demolition rubble.					**Length (m)**	13
					Width (m)	5
					Avg depth (m)	2.5
Context No	**Type**	**Width (m)**	**Depth (m)**	**Description**	**Finds**	**Date**
543	Layer	4.7	0.08	Gravel surface	-	Modern
544	Layer	4.7	0.22	Concrete	-	Modern
545	Layer	4.7	0.7	Rubble	-	Modern
546	Layer	4.7	0.3	Clinker and hardcore	-	Modern
547	Layer	4.7	0.6	Sand and silt layer	-	Modern
548	Layer	4.7	0.3	Relict soil horizon	-	Post-medieval/ medieval
549	Layer	1.8	0.2	Demolition rubble	-	Roman
550	Layer	1.8	0.1 plus	Demolition rubble	-	Roman
551	Layer	1.8	0.4	Relict soil horizon	-	Medieval/ post-medieval
552	Layer	1.8	0.3	Relict soil horizon	-	Medieval/ post-medieval
553	Layer	2.2	0.2 to 0.5	Levelling layer	-	Post-medieval
554	Layer	2.9	0.35 to 0.7	Mortar-rich rubble layer	-	Post-medieval
555	Layer	3.0	0.05	Clinker and hardcore	-	Modern
556	Layer	5.0	0.8	Crushed brick hardcore	-	Modern

Context No	Type	Width (m)	Depth (m)	Description	Finds	Date
557	Layer	13.0	0.2	Concrete	-	Modern
558	Layer	13.0	0.08	Gravel surface	-	Modern

APPENDIX C FINDS REPORTS

C.1 Ceramic

By Chris Howard-Davis

C.1.1 All of the pottery has been examined and recorded following the basic guidelines laid down in *A Standard for Pottery Studies in Archaeology* (MPRG *et al* 2016), the data being recorded in an Excel Spreadsheet. Diagnostic sherds (rims and bases) were too infrequent to justify the calculation of EVEs.

C.1.2 ***Romano-British pottery***: there are, in total, eight fragments of Romano-British pottery, together weighing 229.8g. The overall average sherd weight is 28.7g, but, if amphora is excluded, this falls to an average sherd weight of 21.9g for coarseware and samian together, giving some idea of its fragmentary condition. Despite this, the sherds are not heavily abraded. The proportion of ware-types represented was established (Table 1), and its spread between trenches recorded (Table 2).

	No frags	**Weight (g)**	**Av weight (g)**	**Percentage total by count**	**Percentage total by weight**
Orange oxidised wares	3	31.2	10.4	37.5	13.6
Black-burnished ware 1	1	18.6	18.6	12.5	8.1
Vesicular wares	1	48	48	12.5	20.9
Mortarium	1	34	34	12.5	14.8
Amphora	2	98	49	25	42.6
Complete Assemblage	**8**	**229.8**	**28.7**		

Table 1: Romano-British ware-types represented

	Orange oxidised wares	**Black-burnished ware 1**	**Vesicular wares**	**Mortarium**	**Amphora**	***Totals***
Trench A	2		1	1	1	*5*
Trench B	1	1			1	*3*
Trench C						*0*
Totals	*3*	*1*	*1*	*1*	*2*	*8*

Table 2: Distribution of Romano-British ware-types between trenches

C.1.3 Oxidised fabrics form the largest group, but none of the fragments are particularly diagnostic, only suggesting a broad second- to early third-century date. The single sherd of Black-burnished ware 1 is an undiagnostic base sherd from Trench B demolition rubble ***534***, which serves to place the deposit after its introduction in the AD 120s (Tyers 1996).

C.1.4 There is a single rim in a highly vesicular fabric, perhaps shelly ware, from Trench A demolition rubble ***507***. The rim is Gillam (1970) type 159, dated to AD 290-350. The only fragment of mortarium is from the same context. Probably a Mancetter-Hartshill

product, it can be dated from the late second to the fourth century, and is a common and widely distributed product (Tyers 1996).

C.1.5 Two fragments of amphora were recovered, with one from Trench A (relict soil ***514***) and another from Trench B (demolition rubble ***534***). The fabric of both fragments suggest them to be from Dr 20-type olive-oil containers, which are a common type, dominant in the first to third centuries AD (Williams 2014).

C.1.6 Considered together, the Romano-British pottery might suggest a very general mid-late first- to fourth-century date. The material from Trench A perhaps forms the latest group, although this is subjective in such a small assemblage.

C.1.7 ***Medieval pottery***: a single sherd from Trench B (demolition rubble ***534***) is clearly medieval, a sandy, oxidised orange fabric with a patchy green glaze, most likely to be of mid-twelfth- to mid-fourteenth-century date (McCarthy and Brooks 1988). The fully reduced green-glazed fabrics generally dominant in the mid-fourteenth to sixteenth centuries are absent from the group.

C.1.8 ***Post-medieval and more recent pottery***: there are, in total, 49 fragments of post-medieval pottery, together weighing 1110.2g, giving an overall average sherd weight of 22.65g, although this varies appreciably between ware groups, with the black-glazed redwares, characteristically kitchen wares and storage vessels, having, predictably, a heavier average sherd weight, at 32.1g (Table 3). The distribution of wares between trenches is shown in Table 4.

	No Frags	**Weight (g)**	**Av weight (g)**	**Percentage total by count**	**Percentage total by weight**
Black-glazed redware	27	866.7	32.1	55.1	78.1
Brown stoneware	1	18	18	2	1.6
Creamware	2	41.2	20.6	4.1	3.7
Manganese speckled ware	2	30	15	4.1	2.7
Metropolitan-type ware	2	20	10	4.1	1.8
Orange with self-glaze	1	9.5	9.5	2	0.9
Refined white earthenware	8	84.8	10.6	16.4	7.6
Staffordshire slipware	3	24	8	6.1	2.2
Tin-glazed ware	1	10	10	2	0.9
White salt-glazed stoneware	2	6	3	4.1	0.5
Complete assemblage	**49**	**1110.2**	**22.65**		

Table 3: Post-medieval and more recent ware-types represented. Wares listed in alphabetical order

	Black-glazed redware	Brown stoneware	Creamware	Manganese speckled ware	Metropolitan-type ware	Orange with self-glaze	Refined white earthenware	Staffordshire slipware	Tin-glazed ware	White salt-glazed stoneware	*Totals*
Trench A	21	1	2	2	1	1	7	1		2	*38*
Trench B	1						1	2			*4*
Trench C	5				1				1		*7*
Totals	*27*	*1*	*2*	*2*	*2*	*1*	*8*	*3*	*1*	*2*	***49***

Table 4: Distribution of post-medieval and later ware-types between trenches. Wares listed in alphabetical order

C.1.9 There is nothing exceptional in the assemblage of post-medieval and more recent pottery. Little in the group need date before the middle of the eighteenth century, although it is possible that some of the harder-fired black-glazed redwares are earlier, as there is a continuum from late medieval Cistercian wares, through to the blackwares of the eighteenth and even nineteenth centuries (Brears 1971). Metropolitan slipwares, Staffordshire slipwares (Barker 1993), tin-glazed wares (Ray 2000) and manganese speckled wares typically originate in the later seventeenth century (Kelly and Greaves 1974), but all appear only in small amounts. Similarly, mid-late eighteenth-century material is only sparsely represented, by white salt-glazed ware, and by Creamware, typical of the late eighteenth/early nineteenth century (Noel Hume 1969; Cotter 2000). The remainder of the group comprises refined white earthenwares (Cotter 2000), some transfer-printed, which are of nineteenth-century date or more recent.

C.2 Ceramic Building Material

By Chris Howard-Davis

C.2.1 In total, 14 fragments of ceramic building material were recovered, weighing 2.183kg (Table 5). For the most part, the material is very fragmentary and on occasion quite worn. A large proportion of the tile was relatively thin (*c* 20mm), suggesting it to be roof tile, and most fragments were sand-cast. It retains few diagnostic features that might enable it to be dated, but there is some evidence to suggest the presence of Roman roof tiles, both imbrices and tegulae, and the presence of one flat roof tile with a well-defined nib indicates the presence of later tiles, probably of early post-medieval date.

	Undiagnostic	Tegula	Imbrex
Trench A	*	*	*
Trench B	*		
Trench C1		*	

Table 5: Distribution of ceramic building material between trenches

C.3 Metal

By Chris Howard-Davis

C.3.1 Metalwork was sparse in all trenches. There were six items of copper alloy, all unstratified. All are probably quite recent, and include a single one penny coin of Elizabeth II, issued in 1986. A single fragment of folded lead sheet was also unstratified, as was a modern, screw-threaded hook in a light base metal.

C.4 Glass

By Chris Howard-Davis

C.4.1 The small group of glass (seven fragments) was remarkably homogeneous, deriving mainly from dark olive-green wine/beer bottles of late seventeenth- to eighteenth-century date. Most are undiagnostic body sherds, coming from Trench A (relict soils ***504***, ***506***, and pit fill ***529***), and Trench C1 (layer ***547***). Later glass was not common, but machine-blown vessels came from Trench A (relict soil ***523***).

C.5 Clay Tobacco Pipe

By Chris Howard-Davis

C.5.1 There were 16 fragments of clay tobacco pipe, which included six bowls (one represented by five joining fragments). All are in relatively good condition, with surfaces well-enough preserved to distinguish careful burnishing. Trench A produced the most bowls, with the earliest, from relict soil ***506***, dating to 1640-80 (Rutter and Davey (1980) type 58), although a second spurred bowl from the same context is later (Rutter and Davey (1980) type 75) dated to 1710-20. In the same trench, a single heeled bowl from relict soil ***514*** (Rutter and Davey (1980) type 72) is dated to 1690-1715. The single heeled bowl from Trench B (levelling layer ***537***) is of similar type. Small, undiagnostic stem fragments came from Trench A (relict soil ***506***) and Trench B (levelling layer ***537***).

APPENDIX D ENVIRONMENTAL REPORTS

D.1 Animal Bone

By Ian Smith

D.1.1 A small quantity of mammal bones and teeth (19 fragments, *c* 701g) were recovered from Trenches A and B. Identification to species, anatomical element and side were attempted for each specimen. Diagnostic zones of mammal bones were recorded following Serjeantson (1996), while surface preservation was assessed following Harland *et al* (2003). Anatomical terminology followed Sisson and Grossman (1938).

D.1.2 ***Provenance and dating:*** two contexts from which bone was recovered are (for the purposes of this report) considered 'significant archaeology' or the 'archaeological plane', since they are from sub-Roman or Roman rubble or surface contexts. The latter are from the Trench A lift shaft area, Roman demolition rubble ***520***, where part of a dog (*Canis familiaris*) mandible was recovered (Table 6) and Trench B, Roman demolition rubble ***534***, which produced a small (*c* 19mm) fragment of burnt mammal bone. All other fragments are of post-medieval date. There were no faunal remains recovered from Trench C.

Context	OR	Common name	*Taxa*	Element	Side	NISP	Serjeantson zones (or note)
506	1025	cattle	*Bos taurus*	maxillary tooth *in situ*	left	1	part maxiilla
506	1025	large mammal	Mammalia	rib	indeterminate	1	7
506	1025	pig	*Sus* sp	ulna	right	1	5, 6, 7
506	1026	cattle	*Bos taurus*	metatarsal	right	1	1, 2, 3, 4, 5, 6
506	1026	cattle	*Bos taurus*	metacarpal	left	1	3, 4, 5, 6, 7, 8
506	1026	cattle	*Bos taurus*	molar mandibular	right	1	loose tooth
506	1026	horse	*Equus* sp	2nd phalanx	indeterminate	1	1, 2, 3, 4, 5, 6, 7, 8
506	1026	sheep/goat	*Ovis/Capra*	tibia	left	1	5, 6
506	1026	sheep/goat	*Ovis/Capra*	radius	right	1	5, 6
506	1026	sheep/goat	*Ovis/Capra*	scapula	right	1	1, 2, 3, 4, 5, 6
506	1026	sheep/goat	*Ovis/Capra*	scapula	right	1	1, 2, 3, 4, 5, 6
506	1026	large mammal	Mammalia	vertebra	indeterminate	1	transverse process
514	1023	cattle	*Bos taurus*	metacarpal	left	1	3, 4, 5, 6
520	1020	dog	*Canis familiaris*	mandible	left	1	mandibular condyle, masseteric fossa (*sensu* Sisson and Grossman 1938) and angular process
529	1017	large mammal	Mammalia	indeterminate	indeterminate	3	plausibly associated fragments of cattle scapula

Context	OR	Common name	*Taxa*	Element	Side	NISP	Serjeantson zones (or note)
529	1017	sheep/goat	*Ovis/Capra*	maxilla	left	1	maxilla with all adult dentition in wear, and with malar bone with facial tuberosity and infraorbital foramen
534	1019	large mammal	Mammalia	indeterminate	indeterminate	1	burnt, white calcined fragment with both deep and fine shallow surface fissures

Table 6: Faunal remains from Trench A and Trench B

D.1.3 ***Preservation:*** throughout the majority of the assemblage (including amongst post-Roman or plausibly late Roman contexts), bone surface texture is good enough that fine cut marks might be recognised. Near-complete and complete cattle and sheep/goat bones were recovered from post-medieval relict soil horizon ***506***. Four fragments (three probably associated from post-medieval pit fill ***529***) have been affected by recent (excavation) fractures. Bone surfaces within ***529*** range from 'good' to 'fair' with regard to surface texture under the York System (Harland *et al* 2003). The dog bone from demolition rubble ***520*** is 'good' (Harland *et al* 2003), although with some very fine surface splitting. The burnt bone from demolition rubble ***534*** is white, calcined and with deep and fine fissures.

D.1.4 ***Species and anatomical elements recovered:*** the species recovered from post-medieval deposits include cattle (*Bos taurus*), sheep/goat (*Ovis/Capra*), horse (*Equus* sp) and pig (*Sus* sp). The cattle metacarpal from post-medieval relict soil horizon ***514*** is damaged at both proximal and distal ends, but is notably robust and plausibly from a bull. The sheep/goat scapula specimens from relict soil ***506*** appear most plausibly to be from sheep (*Ovis aries*), according to the presence in one of a distinct 'pecten' (Prummel and Frisch 1986), and in both according to the angle of the spinous scapula and the form of the (fused) *tuber scapulae* (Boessneck 1969, 338). One dog (*Canis familiaris*) mandibular part was recovered from Roman demolition rubble ***520***.

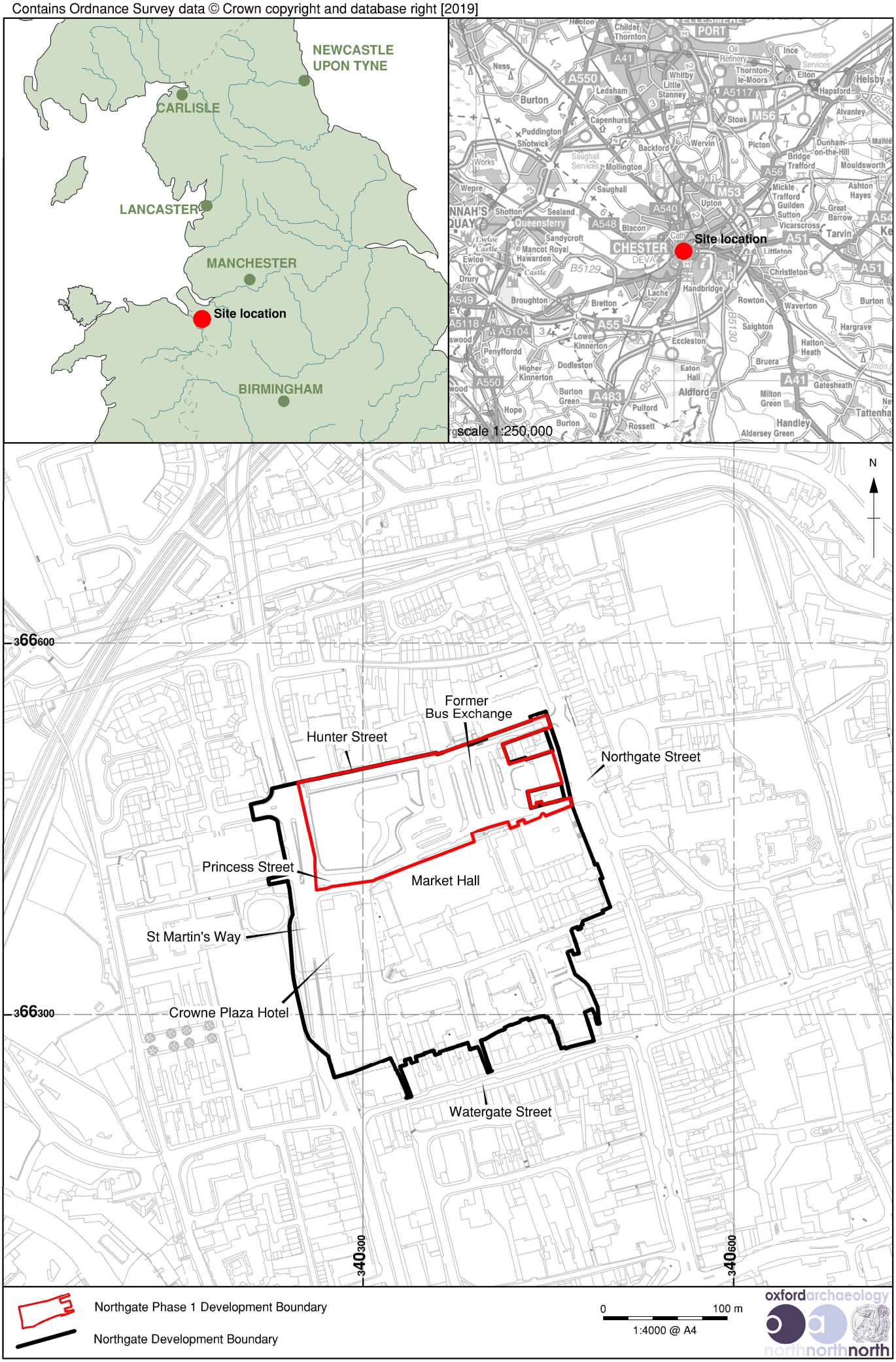
D.1.5 Few conclusions can be drawn from this small-hand collected assemblage, but all of the remains are either of domesticates or probable domesticated mammals. The post-medieval remains plausibly relate to shoulders of mutton and possibly to relatively cheap cuts of beef. The presence of well-preserved bone in deposits of Roman or sub-Roman date is notable.

D.1.6 There is little further potential for this material in isolation. since the numbers of specimens are not sufficient for significant conclusions to be drawn. However, since many such small interventions have taken place across the Northgate redevelopment area (and more are planned in the near future), syntheses of such small groups may be possible in the future. The bones should thus be retained as work continues on further trenches across this area.

APPENDIX E SITE SUMMARY DETAILS

Site name:	Northgate Redevelopment Phase 1, Grassy Knoll, Chester
Site code:	CNGPD19
Grid Reference	SJ 40312 66457
Type:	Archaeological Strip, Map and Record
Date and duration:	19th – 28th August 2019; 8 days
Location of archive:	The archive is currently held at OA North, Mill 3, Moor Lane Mills, Moor Lane, Lancaster, LA1 1QD, and will be deposited with The Grosvenor Museum, Chester in due course.
Summary of Results:	Four trenches (A, B, C1 and C2) were excavated through the Grassy Knoll, an area between Hunter Street to the north, St Martin's Way to the west, Princess Street to the south and the former bus station to the east. The principal aim was to identify the level of archaeologically significant deposits in the proposed positions of pile caps and a lift pit. The top of significant archaeology within the area of the Grassy Knoll was identified in all trenches. For the most part, this comprised a seemingly extensive horizon of sandstone rubble, which almost certainly derives from buildings in the Roman legionary fortress, in this case probably barrack blocks within the central range. A fragment of sandstone walling, potentially forming part of one of these barracks, was also recorded in Trench A. These remains were buried beneath a considerable depth of later material, so that they were mostly approximately 1.7-2.5m below the modern surface across the area investigated. The significant archaeological remains were sealed by a thick build-up of dark soils that, from the associated finds, appear to have accumulated over a prolonged period, potentially (on stratigraphic grounds), from the early post-Roman period to the post-medieval period. This was cut by concrete foundations potentially relating to the nineteenth-century Ragged School that once stood on Princess Street, which is depicted on historical mapping. Subsequently, a considerable depth of material was deposited over the area in modern times, seemingly in relation to landscaping during the establishment of the grassy knoll.

List of Figures



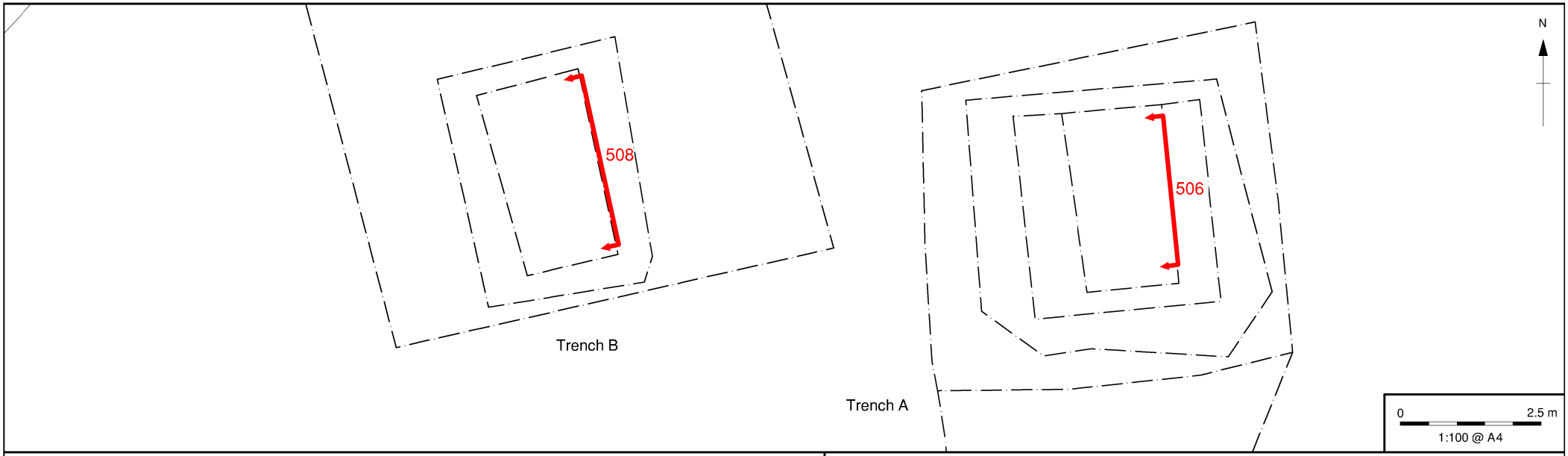
RN*L11257*MAT*August 2019

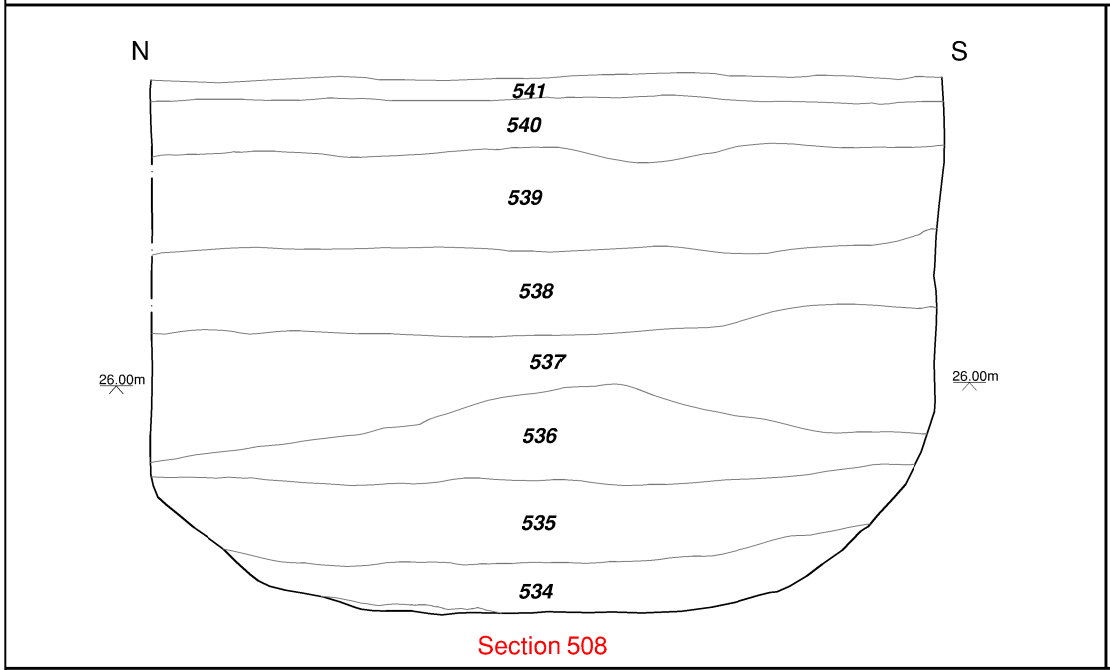
Figure 1: Chester Northgate development location

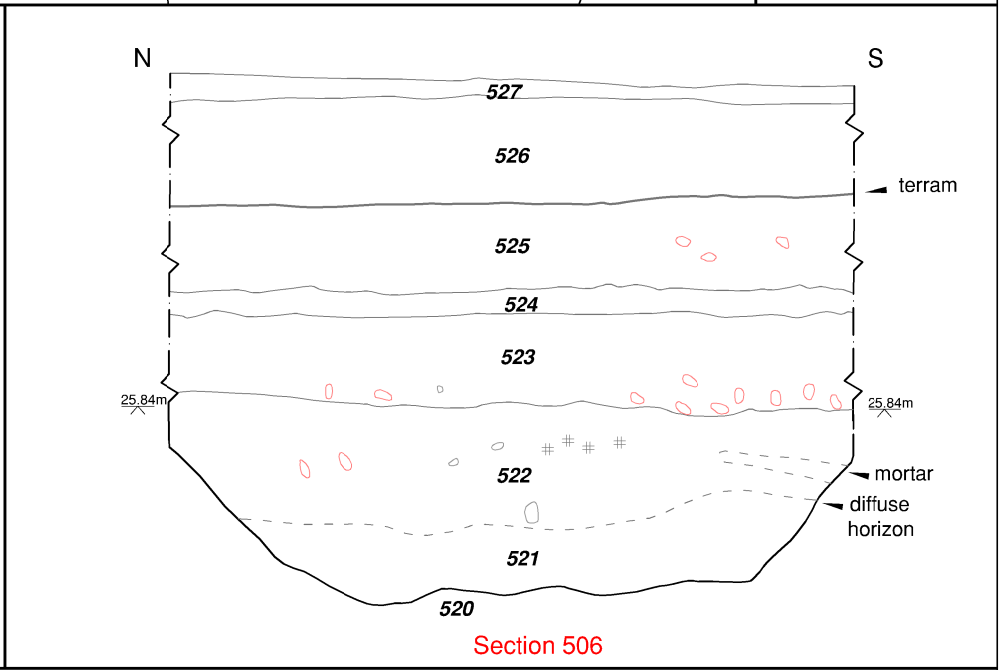
Figure 2: Location of trenches

Level Number	Height in M(OD)
1	27.14
2	27.19
3	27.27
4	27.37
5	27.48
6	27.59
7	27.40
8	27.02
9	27.14
10	26.64
11	25.58
12	25.61
13	25.62
14	25.91
15	26.19
16	26.38
17	25.75
18	25.65
19	25.61
20	25.41
21	25.30
22	25.18
23	24.94
24	25.83
25	25.88
26	25.31
27	25.24
28	25.23
29	25.31
30	26.38
31	26.39
32	26.51
33	25.88
34	25.91
35	25.05
36	25.15
37	26.90
38	26.88
39	26.35
40	26.29
41	25.92
42	26.00
43	25.22
44	25.16
45	24.78
46	27.50
47	27.48
48	27.12
49	27.00

Figure 3: Plan of trenches, and south-facing section 501







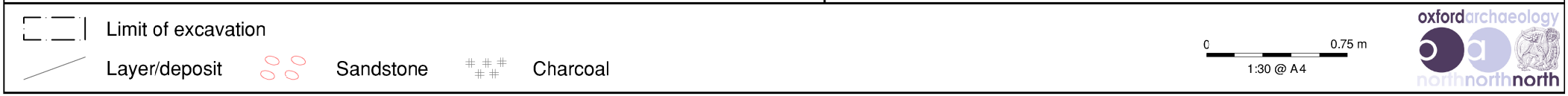
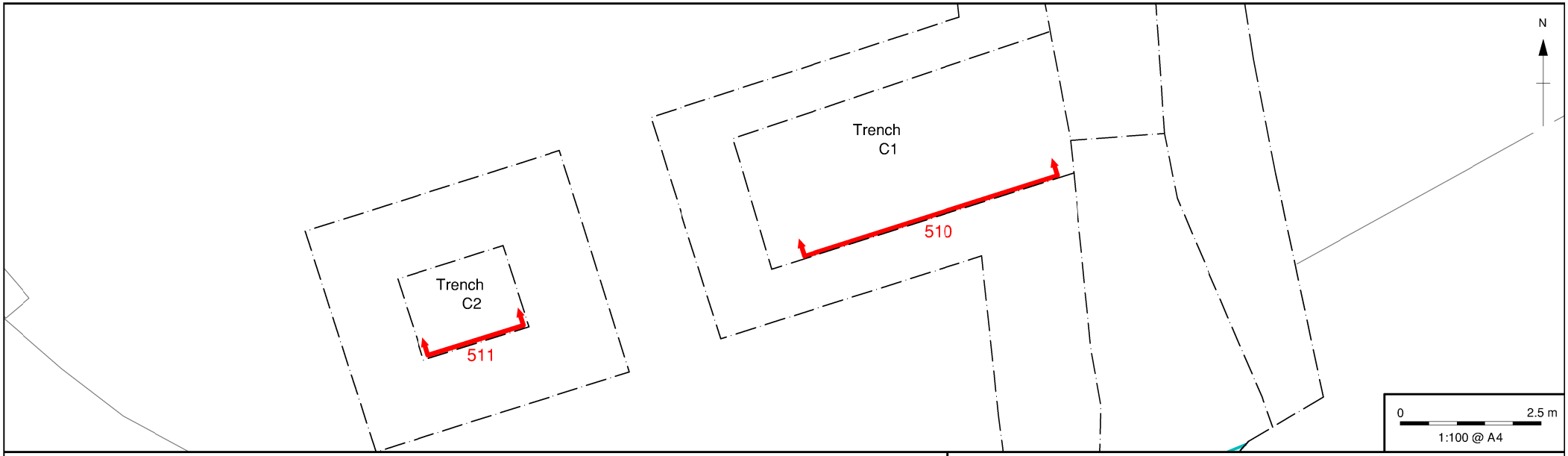
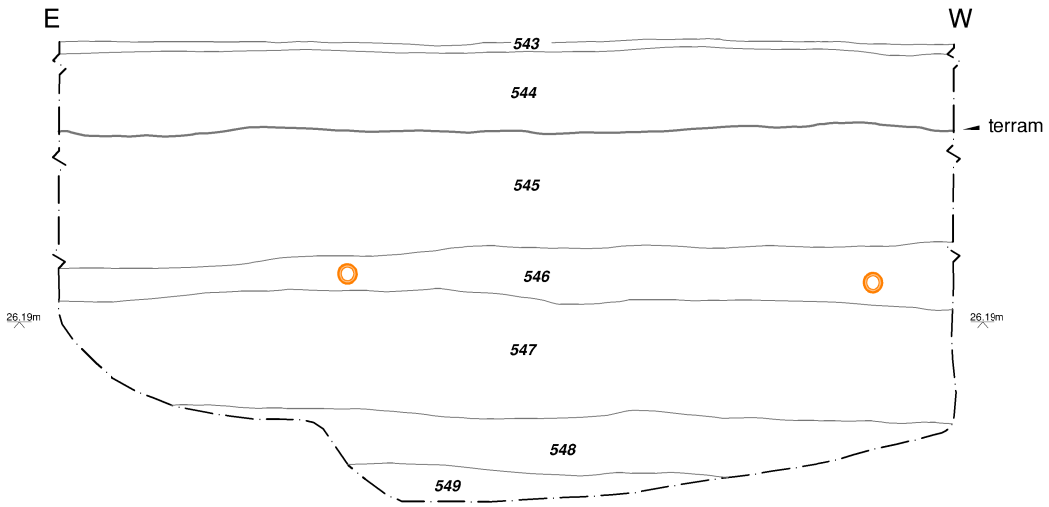
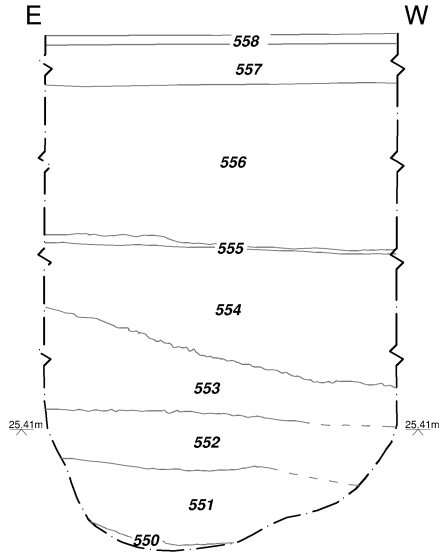


Figure 4: West-facing sections through Trenches A and B





Section 510



Section 511

Limit of excavation

Layer/deposit

Ceramic Drain

0 1 m

1:40 @ A4

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Figure 5: North-facing sections through Trenches C1 and C2

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