



Little Chester Roman Fort, Derby, Derbyshire

Archaeological Evaluation Report



Oxford Archaeology North

December 2014

Environment Agency

OA North Job No: L10592
Report No: 2014-15/1600
NGR: 435255 337350 - 435460 337890

Document Title: LITTLE CHESTER ROMAN FORT, DERBY, DERBYSHIRE

Document Type: Archaeological Evaluation Report

Client Name: Derby City Council and Environment Agency

Issue Number: 2014-15/1600
OA North Job Number: L10592

National Grid Reference: 435460 337890

Prepared by: Adam Tinsley
Position: Project Officer
Date: December 2014

Checked by: Alan Lupton
Position: Operations Manager
Date: December 2014

Approved by: Alan Lupton
Position: Operations Manager
Date: December 2014

Signed.....

Oxford Archaeology North

Mill 3
Moor Lane Mill
Moor Lane
Lancaster
LA1 1QD
t: (0044) 01524 541000
f: (0044) 01524 848606

w: www.oxfordarch.co.uk
e: info@oxfordarch.co.uk

© Oxford Archaeology Ltd (2014)

Janus House
Osney Mead
Oxford
OX2 0EA
t: (0044) 01865 263800
f: (0044) 01865 793496

Oxford Archaeology Limited is a Registered Charity No: 285627

Disclaimer:

This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of Oxford Archaeology Ltd being obtained. Oxford Archaeology Ltd accepts no responsibility or liability for the consequences of this document being used for a purpose other than the purposes for which it was commissioned. Any person/party using or relying on the document for such other purposes agrees, and will by such use or reliance be taken to confirm their agreement to indemnify Oxford Archaeology Ltd for all loss or damage resulting therefrom. Oxford Archaeology accepts no responsibility or liability for this document to any party other than the person/party by whom it was commissioned.

CONTENTS

SUMMARY	3
ACKNOWLEDGEMENTS.....	4
1. INTRODUCTION	5
1.1 Circumstances of the Project.....	5
1.2 Site Location	5
2. METHODOLOGY	7
2.1 Trial Trench Evaluation	7
2.2 Archive.....	7
3. HISTORICAL BACKGROUND	9
3.1 Background	9
4. EVALUATION RESULTS.....	13
4.1 Introduction	13
4.2 Trench 20	13
4.3 Trench 21	23
4.4 Trench 22	28
4.5 Trench 23	34
5. THE FINDS.....	41
5.1 Introduction	41
5.2 The Pottery	41
5.3 Ceramic Building Material.....	44
5.4 Other Finds.....	45
5.5 Animal Bone	45
5.6 Human Bone.....	50
5.7 Charred and Waterlogged Plant Remains	52
6. DISCUSSION.....	55
6.1 Introduction	55
6.2 The Defensive Circuit	55
6.3 The Civilian Settlement to the north-east of the Fort:.....	59
6.4 Impact.....	60
7. CURATION AND CONSERVATION.....	61

7.1 Recipient Museum 61

7.2 Conservation 61

7.3 Storage..... 61

7.4 Packaging 62

8. BIBLIOGRAPHY 63

Secondary Sources 63

9. LIST OF FIGURES AND PLATES 68

9.1. List of Figures 68

9.2. List of Plates..... 68

APPENDIX 1: SUMMARY FINDS CATALOGUE..... 71

APPENDIX 2: CONTEXT INDEX 73

APPENDIX 3: WRITTEN SCHEME OF INVESTIGATION 76

SUMMARY

The Environment Agency, in partnership with Derby City Council, is planning to develop new flood defences, involving the construction of new embankments along the River Derwent as it flows through an area of Derby known as Little Chester, Derbyshire. Situated a short distance to the north of Derby city centre, Little Chester is well-known as the site of a Roman fort (*Derventio*), while significant Romano-British, Anglo-Saxon and medieval deposits have also been discovered in the area. The new flood defences will inevitably cross the area of Darley Playing Fields, which overlies a significant element of the Roman civilian settlement or ‘*vicus*’ associated with the fort and arranged along the line of former Roman road known as Ryknield Street. The defences will then extend through a section of the Roman fort (centred on NGR 435325 337540), which is afforded statutory designation as a Scheduled Monument (SM No 1007043), and subsequently cross the area of Parker’s Piece.

In order to understand and manage the archaeological risks associated with the proposed scheme, the Environment Agency (EA), acting on the advice of English Heritage, commissioned Oxford Archaeology (OA) North to undertake an archaeological evaluation of the defences encompassing the fort, as well as to investigate the line of a postulated road to the north of the fort and to sample the extent of civilian remains in this area. The evaluation was intended to establish the precise location and composition of the defensive circuit to the north of the fort. This was achieved via the excavation of four trenches, three of which were targeted on the projected course of the defensive rampart, wall and ditches to the north of the fort. A fourth trench sampled an area to the north-east of the fort, within the *vicus* settlement and across the postulated line of a former Roman road.

The archaeological evaluation has provided an important opportunity to investigate the defensive circuit associated with the Roman fort of *Derventio*, and added fresh information as to its location, composition and chronological development. Whilst the footprint of the Roman fort has been subject to numerous archaeological investigations previously, the precise route of the fort wall, rampart and defensive ditches remained uncertain along the fort’s northern edge. In addition, the position of a reported road, first identified directly north of the fort by William Stukeley during the eighteenth century, remained uncertain. The current project has enabled a better understanding of the route of the defensive features within this part of the Scheduled Monument and beyond, and has demonstrated that they survive largely intact, representing an important archaeological resource. The evaluation has also demonstrated that Roman remains immediately to the north and east of the Roman fort are also well represented and remain relatively intact within a metre of the current ground surface. The line of the reported ‘road’ was also established comprising a series of gravel deposits that could be related to the in-filling of a further ditch. In addition, two cremation deposits were also identified, one within and one beyond the confines of the fort.

ACKNOWLEDGEMENTS

Oxford Archaeology (OA) North would like to thank Ed Wilson, Senior Archaeologist for the National Environmental Assessment Service within the Environment Agency, and Kevin Thomas, Project Manager for the Environment Agency, for commissioning and supporting the project. Thanks are also expressed to Nick Le Mare of the Environment Agency, Steve Baker, the Development Control Archaeologist for Derbyshire County Council Archaeological Services, and to Tim Allen of English Heritage, for their advice and support. Thanks are also due to Joan D'Arcy, and her colleagues of the Derbyshire Archaeological Society, for providing invaluable background information.

The evaluation was directed by Dr Adam Tinsley, who was assisted by Paul Dunn, Jon Onraet and Lewis Stitt. The report was compiled by Adam Tinsley, and the illustrations were produced by Anne Stewardson. The finds were examined by Chris Howard-Davis, while the animal and human bone was assessed by Vickie Jamieson. The project was managed by Dr Alan Lupton, who also edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 The Environment Agency, in partnership with Derby City Council, is planning to develop new flood defences in Derby, which will involve the construction of new embankments along the River Derwent as it flows through the area of Little Chester. Situated a short distance to the north of Derby city centre, Little Chester is the site of an important Roman fort (the site of which is afforded statutory designation as a Scheduled Monument, SM No 1007043), whilst Romano-British, Anglo-Saxon and medieval deposits have also been discovered in the area. The new flood defences will be located within an area known as Darley Playing Fields and Parker's Piece. In both areas significant remains relating to the civilian settlement and civic buildings have been uncovered by previous work at the site (Brassington 1982b: OA North 2014a: 2014b). The flood defences will also need to traverse part of the Roman fort itself.
- 1.1.2 In order to understand and manage the archaeological risks associated with the proposed scheme, the Environment Agency, acting on the advice of English Heritage, and following on from the evaluation of Parker's Piece and Darley Playing Fields (OA North 2014b) as well as the Nursery Garden (OA North 2014a), undertaken in 2013, commissioned OA North to undertake a third phase of archaeological evaluation. This latest phase of evaluation was intended to establish the precise location, composition and state of preservation of the northern fort wall, rampart and defensive ditches. It was also intended to examine the postulated line of a Roman road, previously identified to the north of the fort, and to sample the areas to the north and north-east, in order to assess the relative dispersion and density of activity associated with the civilian settlement in this area.

1.2 SITE LOCATION

- 1.2.1 The Roman fort at Little Chester, known as *Derventio*, lies in the north-eastern suburbs of Derby, some 1km from the modern city centre, on the flood plain east of the River Derwent (centred on NGR 435325 337540). The floor of the river valley at Little Chester is approximately 1.5km wide, with the ground to the east rising gradually to Breadsall (Fig 1; Plate 1).
- 1.2.2 The geology of the Derwent flood plain comprises gravel and sand, which are sealed by varying depths of loam and silt (Cranfield University 2014). The higher ground to the east and west comprises interleaved bands of Triassic Mudstone of the Tarporley Siltstone Formation, whilst the hill on the west bank of the river, which is occupied by Strutt's Park, comprises sedimentary mudstone bedrock of the Mercia Mudstone Group (BGS 2014).



Plate 1: Aerial view of Little Chester, marking the projected footprint of the Roman fort

2. METHODOLOGY

2.1 TRIAL TRENCH EVALUATION

- 2.1.1 In total, three trial trenches were excavated across the projected course of the Roman defences associated with Little Chester Roman fort, and a fourth trench was excavated to the north-east of the fort, in the area of the civilian settlement and in the vicinity of the proposed line of Stukeley's road (Fig 2). The trenches were up to 2m wide but of variable lengths, Trench 20 measuring 93m, Trench 21 approximately 38.50m, Trench 22 approximately 40m (inclusive of a later extension) and Trench 23 measuring 75m.
- 2.1.2 Following the removal of the turf, the upper deposits in each trench were excavated using a 16-ton, tracked, 360°, hydraulically-powered, mechanical excavator, fitted with a toothless ditching bucket. The machine operated under close archaeological supervision, excavating all deposits in spits of no more than 0.20m thick, down to the first archaeological horizon, whereupon excavations were halted. Additional excavation of sondages was carried out using either the machine, equipped with a narrower toothless bucket, or by hand as required.
- 2.1.3 Recording comprised a full description and preliminary classification of the deposits and materials revealed. This was carried out on OA North *pro-forma* sheets based upon a system adapted from that used by the former Centre for Archaeology of English Heritage, and according to industry guidelines and best practice (IfA 2008a; 2008b; 2010). The trenches were located using a Leica differential Global Positioning System (dGPS) and subsequently tied into the Ordnance Survey grid. Altitude information was established with respect to Ordnance Survey Datum. Hand-drawn plans were produced showing the contents of the trenches, with representative sections being drawn at a scale of 1:10 or 1:20 as appropriate. An indexed photographic record using monochrome and digital formats was maintained.

2.2 ARCHIVE

- 2.2.1 The results of the archaeological evaluation will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (English Heritage 1991; 2006). The project archive represents the indexing of all the data and material gathered during the course of the project.
- 2.2.2 OA North conforms to best practice in the preparation of project archives for long-term storage. The archive and the excavated material will be deposited with the Derby Museum and Art Gallery on The Strand, Derby. In addition, a copy of the archive can be made available for deposition in the National Archaeological Record. In addition, 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.

- 2.2.3 The material and paper archive generated from the evaluation will be transferred in accordance with the guidelines provided by *Procedures for the Transfer of Archaeological Archives* (Museums of Derbyshire 2003). The Derby Museum and Art Gallery accession number is DBYMU 2012-329.

3. HISTORICAL BACKGROUND

3.1 BACKGROUND

- 3.1.1 The first Roman fort at Little Chester was established soon after AD 50 at Strutts Park, on the west bank of the River Derwent (Forrest 1967). This was one of a small number of Neronian forts in Derbyshire, which included Chesterfield (Ellis 1989), and possibly the Castle Hill Camp fortlet between Pentrich and South Wingfield (Kay 1961). However, the fort in Strutts Park had been replaced by AD 80 with a fort on the present site, which formed the focus for an associated settlement known as *Derventio*. In addition to its strategic location at an important crossing point of the River Derwent, the fort lay at the junction of several Roman roads, including Ryknield Street (Plate 2). This military highway ran from Gloucestershire to Templeborough in South Yorkshire, and provided *Derventio* with a direct link to the fort at Wall in Staffordshire and thus Watling Street, the principal route to North Wales. Another road headed south-east from *Derventio* to Sawley, on the River Trent, providing the fort with a link to the river for water traffic. A further road headed west, leading to Rocester, near Uttoxeter.
- 3.1.2 The Roman fort at Little Chester was surveyed in 1724 by the pioneering antiquarian, William Stukeley, who noted a stone wall and surrounding ditch (Stukeley 1724, 50), although no trace of this survives in the modern landscape. A series of excavations carried out during the twentieth century concluded that the line of the defences surveyed by Stukeley overlay Flavian and early Antonine occupation on a different alignment. The excavated remains dating to this initial phase of extensive Roman occupation included timber buildings of probable military and civilian type, which seemingly spanned the late first- to mid-second century (Beswick and Fowkes 2002). An excavation in 1968 also revealed the foundations of a stone gate, suggesting the presence of an early defensive circuit (Annable and Wheeler 1985). The eastern defences of the fort were found to comprise an Antonine clay rampart that had been cut back to allow the stone wall to be inserted in the late third century, with some remodelling of the defensive ditches (Brassington 1996). It was also noted that the eastern stone defences appeared to be of slightly different date from those on the west and south; the western and southern stone defences appeared to date from the mid-second century, although the excavation report for these areas does not refer to clay ramparts in these locations (Webster 1961; Annable and Wheeler 1985). The defensive circuit was found to comprise two outer ditches that seemingly enclosed an area of some seven acres. There is also evidence to suggest that a broad ditch, some 6m wide, was dug c 20m from the wall on the south-eastern side of the fort in the fourth century (Sparey-Green 2002).

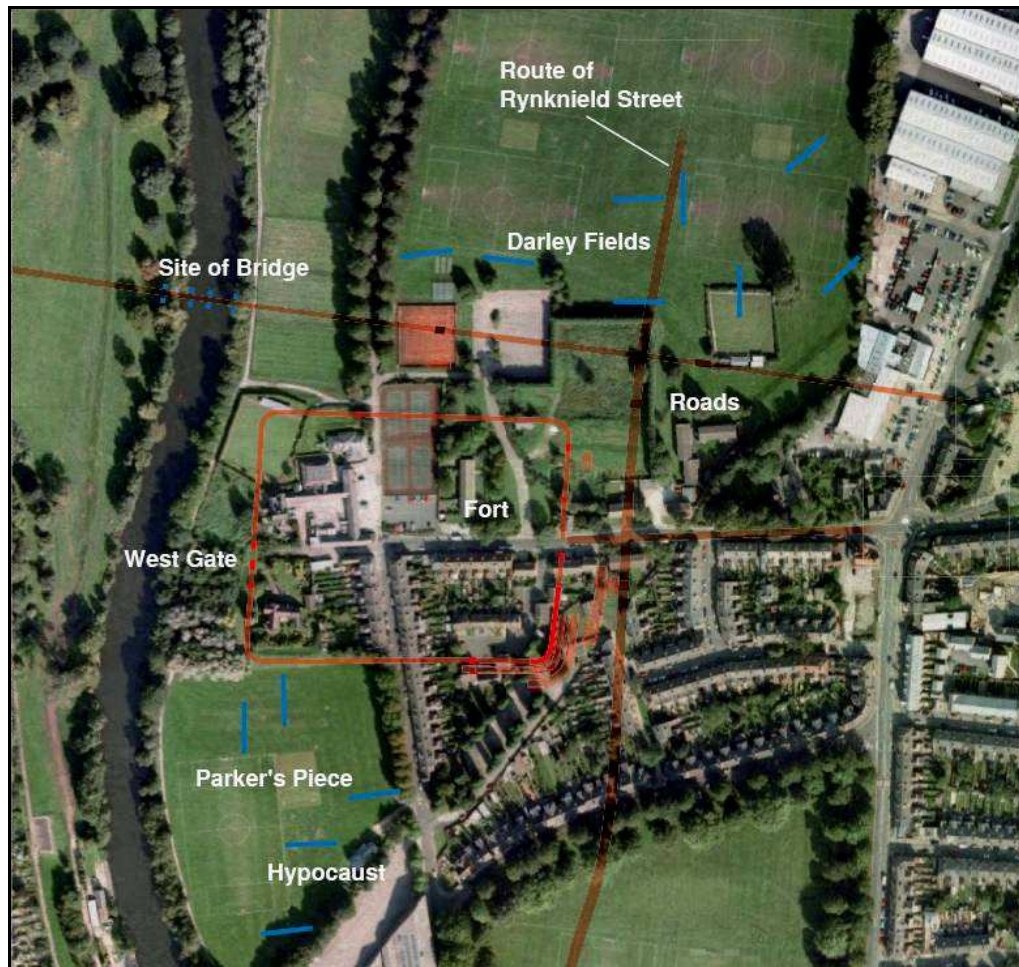


Plate 2: The projected footprint of the Roman fort and the courses of the Roman roads, with the location of the previous evaluation trenches excavated in 2013

- 3.1.3 It seems that this defended area was given over to civilian settlement in the late second century, and some substantial buildings were erected within the defences, and also at the junction of the roads to the east (Brassington 1981; 1982a). These buildings included what may have been a *mansio* or a bathhouse, the remains of which were discovered in 1924 during the construction of a school pavilion in Parker's Piece south of the fort (Brassington 1982b; Plate 3). Previous excavations conducted by OA North, to the north-east of the fort, across Darley Fields, also revealed extensive remains relating to the civilian settlement organised along the line of Ryknield Street and beyond (OA North 2014a). These remains consisted of extensive gravel laid surfaces, together with the remains of stone-built and wooden structures, some indicative of industrial processes.
- 3.1.4 Roman burials have also been discovered at Little Chester, particularly along the edges of the main roads. For example, further to the east, in the vicinity of Derby Racecourse, excavations revealed a series of five Roman mausolea arranged along the line of a road, as well as a walled cemetery located adjacent to a settlement area characterised by numerous Roman industrial features (Brassington 1971; Dool 1985; Wheeler 1985a; 1985b). A partially preserved burial was also identified during recent evaluation work by OA North (2014a)

in the area of Parker's Piece, to the south-west of the Roman fort, within the confines of Trench 2. While the burial was poorly preserved and no associated dating evidence recovered, a Roman or post-Roman date was surmised. Part of a Roman cemetery was also uncovered at Darley Grove, where graves containing skeletons, coins and other artefacts were discovered in 1820 (Page 1905, 218).



Plate 3. Picture of the hypocaust system associated with the mansio/bath house excavated on Parker's Piece c 1924

- 3.1.5 By the early third century, much of the area was under cultivation and no longer in military occupation. *Derventio* was abandoned by the end of the fourth century, although evidence for post-Roman settlement in the area is provided by a cemetery close to the east gate of the fort, which is known to have been in use during the late fifth and early sixth centuries (Sparey-Green 2002). Fragments of brooches, shields, a spearhead and a bowl, all dated to the sixth century, have been recovered from excavations in this cemetery. The focus of settlement shifted south to the modern city centre thereafter.
- 3.1.6 Excavations conducted during 1926, in the vicinity of the current Community Centre, identified the remains of up to six individuals buried in the north-western corner of the fort (Brassington 1993, 31). While the conditions of the excavation were described as less than satisfactory, and no dating evidence was recovered in association with the burials, the lack of grave goods as well as the orientation of the bodies was taken to suggest a Christian post-Roman origin, sometime between the fifth and thirteenth century.

3.1.7 In the later Anglo-Saxon period, a rubble platform outside the rounded south-eastern corner of the Roman wall may have supported a strengthening of the wall or the addition of a bastion (Sparey-Green 2002). Thereafter, the ground was given over to agriculture until the eighteenth century, when the fort defences were destroyed and farm buildings erected on the site. In the nineteenth century a railway embankment, now replaced by housing, was built over the south-east corner of the fort.

4. EVALUATION RESULTS

4.1 INTRODUCTION

4.1.1 In total, three trenches were excavated across the projected line of the defensive circuit associated with the Roman fort at Little Chester (Fig 2). A further trench was excavated in an area to the north-east of the fort, to investigate the projected line of Stukeleys road and further remains of the *vicus* settlement. The following section provides a summary of the results obtained from the work.

4.2 TRENCH 20

4.2.1 Trench 20 was positioned towards the north-western corner of the fort and was orientated approximately north north-east to south south-west. It extended from a point due west of the main raised and tree-lined footpath extending through Darley Fields, south south-west through a disused tennis court, then cutting a cycle path and separate footpath servicing a bowling green, located to the south-west, and on into the garden of the community centre, terminating just before the current flood defence wall. The alignment of the trench was adjusted slightly, relative to that originally proposed, in order to avoid removing large sections of the western hedgerow to the Community Centre garden, with the southern end moved several metres to the east (Fig 2).

4.2.2 The trench measured 93m x 2m, and was excavated for the most part to a maximum depth of 1.20m below the modern ground surface, with additional machine and hand dug slots excavated to a further maximum depth of 1.20m, along the centre of the trench, where appropriate and necessary to clarify and examine features.

4.2.3 Overburden deposits within the trench were removed by machine down to the first archaeological horizon. These deposits varied in character and depth between those generally north of the cycle path, in the area of the redundant tennis court and general park area, those under the cycle path, and those contained in the Community Centre garden.

4.2.4 Those north of the cycle path, generally consisted of a topsoil layer (**2001**), incorporating the turf line, up to 0.43m thick, over an intermittent made ground deposit (**2006**), representing an extensive levelling deposit up to 0.40m thick and in-filling various modern pit features (Fig 3). This made ground deposit contained whole red brick and additional fragments, as well as small quantities of late post-medieval pottery, glass and plastics and was probably laid down during landscaping of the park and its various sporting facilities. Below this was a thick sub-soil or alluvial flood accumulation deposit (**2008**) that was up to 0.90m thick and sealed several ditch features. The archaeological horizon in this area therefore occurred in this area approximately 1.14m below the current ground level (bgl).

4.2.5 Overburden deposits in the vicinity of the cycle path witnessed a substantial rise in ground level, with the formation of a banked area immediately south of the tennis court, incorporating the cycle path at the top of the slope (Fig 3; Plate 4). This banked area comprised numerous additional made ground deposits (2004, 2005, 2007) extending to a depth of 1.40m bgl, with additional hardcore and tarmac layers forming the cycle path and a separate footpath servicing the bowling green located to the south-west of the trench. In addition, a disturbed and highly compacted soil deposit (2046) and a subsoil deposit (2033), similar to 2008, extended south of the cycle path, as far as the northern boundary to the Community Centre garden. In this area, the archaeological horizon therefore occurred at depths of up to 1.40m bgl.



Plate 4: The west-facing section of Trench 20, showing the made ground deposits comprising the bank and cycle path. Viewed facing east.

4.2.6 Within the Community Centre garden, the overburden deposits consisted primarily of a dark soil deposit (2041) (Plate 5). This extended to a depth of 1-1.20m at the southern end of the trench but rose steadily towards the north. In the vicinity of the garden's northern boundary, the base of the deposit interfaced directly with the archaeological horizon at a depth of no more than 0.30m, and merged into the compacted deposit 2046. An additional buried soil deposit (2040), up to 0.60m thick, was also evident, rising in level from south to north and eventually petering out before reaching the garden boundary. This deposit produced a small quantity of Roman pottery and tile fragments (see sections 5.2 and 5.3). These thick soil deposits probably relate to the former use of the area in the vicinity of the Community Centre as a tree nursery

during the late nineteenth and early twentieth century (as depicted in Dool and Wheeler 1985, Fig 2, 10: Brassington 1993). The archaeological horizon in this area of the trench therefore occurred between 1.20m at the southern extent of the trench and 0.30m in the vicinity of the northern boundary to the garden.



Plate 5: The east-facing section of Trench 20 showing the thick soil deposits (2041) at the southern end of the trench, above the gravel surface (2042). Viewed facing west.

- 4.2.7 The archaeological features identified within the trench, included five ditches, one of which may represent the proposed line of Stukeley's road, remains of the robbed out fort wall and clay rampart, a cremation burial and post hole cut into the rampart, and a gravel floor surface within the fort.
- 4.2.8 Moving from south to north, below the rich soil overburden deposits (2041 and 2040) a gravel deposit, probably representing an original ground surface within the fort (2042) was observed (Fig 3; Plate 5). This surface occurred at the limit of the trench depth at 1.2m and was restricted to the south-western corner of the trench. It extended north for approximately 2m but dipped in level to run under remnants of the overlying buried soil deposit (2040). The deposit is in such a position relative to the fort defences that it may well relate to the *via sagularis*.
- 4.2.9 In plan, approximately 10m from the southern end of the trench, remnants of deposit 2040 gave way to a distinct orange clay deposit (2039). This deposit steadily rose in level as it progressed north, reaching an apex approximately 0.30m bgl in the vicinity of the northern boundary to the garden (Fig 3; Plate

6). This deposit undoubtedly represents an earthen rampart forming part of the northern defensive circuit to the fort, and potentially part of the second phase of remodelling undertaken at the site during the Antonine period. It produced a small assemblage of Roman Greyware and Derbyshire Ware spot-dated to the second or third century AD (see *section 5.2*). At its apex, the deposit had clearly been disturbed by the development of the hedgerow marking the northern boundary of the Community Centre garden, as well as by other forms of activity, probably relating to animal burrowing or rooting.



Plate 6. The northern rampart (2039) rising towards its current apex near the northern boundary of the Community Centre garden. Viewed facing north-east.

4.2.10 A circular post hole (2021) had been cut into the rampart deposit, near the base of the south-facing slope (Fig 3; Plate 7). The fill of the post hole (2020) contained a layer of stone fragments, presumably representing a consolidation layer for the post across the base of the hole, as well as abundant charcoal flecks, although there was no sign of heat having affected the deposit or its surrounds. A sample obtained from this feature produced a small assemblage of charred cereal remains and hazel nut shell that has good environmental and dating potential (see *section 5.7* and Table 8 below).



Plate 7: Posthole (2021), with the stone base deposit (2020) and a charcoal spread deriving from the same fill. Viewed facing south-west.

4.2.11 Several metres further up the south-facing slope of the rampart, a single cremation deposit (2043), had been cut into the rampart, although no sign of the cut was visible in plan (Fig 3; Plate 8). The cremation had been deposited within a vessel identified as a typical form of local Derbyshire Ware, dated to the second or more likely third century AD (see sections 5.2 and 5.6). The location of the cremation, within the rampart of the fort, during a period of its probable active use, is certainly unexpected. Similar deposits, however, were noted to have been cut into the rampart of the fort reportedly at Strutts Park (Page 1905, 218), although this is probably incorrect as no such defensive works have as yet been identified at this site and the reference may actually be to the site of Little Chester itself. In any case, the remains reportedly from Strutts Park were interpreted as probably post-Roman in date, although the use of cremation is somewhat out of character for this period. The position of the cremation does, however, correspond with an area immediately to the east of Trench 20, where the burial of up to six individuals had been recorded during excavations conducted in the 1920s (Brassington 1993) and several burials of babies had been located during excavations in 1979-80 (Wheeler 1985c). While the inhumation burials have been tentatively identified as post-Roman (fifth to thirteenth century AD), it is possible that the cremation therefore relates to a late phase of Roman occupation at the fort and the early establishment of the north-west corner as a burial site.



Plate 8: Cremation deposit (2043), partially excavated. Viewed facing north.

4.2.12 At its northern extent, the rampart had been visibly cut away (Fig 3; Plate 9) to form a construction cut (2038) for the creation of the stone wall (2036). A compact backfill deposit (2037) for this construction cut, was clearly visible in section. Construction of the wall probably occurred during remodelling of the fort defences some time in the third or fourth century AD



Plate 9: The west-facing section of Trench 20 showing the construction cut (2038) and backfill deposit (2037) for the robbed-out fort wall (2036) exposed in the machine slot, as well as the robber cut (2035) and backfill deposit (2034). Viewed facing East.

- 4.2.13 Remains of wall **2036** were exposed within the machine-excavated slot extending north from the rampart for approximately 2m and consisted largely of small fragments of sandstone and loose crush material. No intact courses of stonework were visible and the structure had clearly been robbed out, with a robber cut (**2035**) and backfill deposit (**2034**) visible in section overlain by deposit **2033** of the overburden.
- 4.2.14 Almost immediately north of the fort wall, and only exposed in plan and section within the machine sondage, was a steep-sided ditch (**2027**) (Fig 3; Plate 10). The ditch was not bottomed, measured up to 4.36m wide at the top, and extended roughly east to west across the trench. It produced a small amount of burnt and un-burnt animal bone, as well as charred cereal remains from the environmental sample (see *section 5.7* and Table 8 below). It had been cut into several clean natural sand deposits (**2031** and **2032**). Its position immediately in front of the fort wall, combined with its steep-sided profile, would suggest this is a defensive ditch associated with the fort and aligns well with the projected line of ditches recorded during previous phases of evaluation (Fig 7; OA North 2014b). Alternatively, it may correlate with ditch **2226** (*section 4.4.8*), although the character of the respective fills are very different and the ditch in Trench 22 lies north of the projected line for the immediate defensive ditches.



Plate 10: Ditch (**2027**) as exposed in the machine sondage north of wall (**2036**). Viewed facing east.

- 4.2.15 Immediately north again of ditch **2027**, and also exposed only within the machine sondage, a second ditch (**2025**) was also evident, the fill of which (**2024**) spread over the southern edge and merged imperceptibly with that of the first ditch (**2026**) (Fig 3; Plate 11). This ditch had been re-cut along its northern edge by a subsequent ditch feature (**2023**) that had removed most of the original feature. The re-cut ditch was up to 2.20m wide and 0.63m deep

with a U-shaped profile and rounded base. Its fill (2022) was clearly distinct from that of the earlier feature consisting of soft grey silty clay that may have derived from flood deposition. It produced a small amount of burnt and unburnt animal bone and waterlogged plant remains, as well as remains of metal working waste (see *section 5.7* and Table 8 below). Elements of the overlying made ground deposits (2004-2007) clearly ran into the feature, suggesting it had remained as a slight depression in the landscape until landscaping of the park had been undertaken and the bank and cycle path created. Its alignment from east to west, together with a focus upon a previous defensive ditch, would suggest that the feature was also associated with the defensive circuit of the fort, although the phasing of the sequence is unclear, given no dating evidence was recovered from any of the features.



Plate 11: Ditch (2025) and re-cut ditch (2023) (left) as exposed in the machine sondage. Viewed facing east.

4.2.16 Approximately 3m north of the re-cut ditch and machine sondage a third ditch was identified (2029) (Fig 3; Plate 12). The ditch measured approximately 2.50m wide and also extended on an east to west axis. The feature was not excavated and therefore its phasing and function cannot be confirmed, but probably forms an additional aspect of the defensive circuit for one or more phases of the fort.



Plate 12: Un-excavated ditch (2029) as exposed in plan. Viewed facing west.

- 4.2.17 A further 5m or more north of this un-excavated ditch, a second hand and machine-dug slot was excavated along the centre of the trench and extended north for a approximately 12m or more. This was first excavated in order to investigate a gravel feature, located towards the centre of the disused tennis court, the location of which corresponded roughly with the line held to represent the gravel-surfaced road first identified by Stukeley.
- 4.2.18 Excavations revealed the gravel deposit, located in the northern half of the slot, to actually relate to a gravel-filled ditch (2013), up to 5m wide, and containing a sequence of three or more deposit (2010, 2011 and 2012). In profile (Fig 3; Plate 13) the ditch proved to be 0.95m deep with a rounded base, a steep southern edge but a shallow, gradually rising northern edge. A small quantity of Roman pottery, spot-dated to the third or fourth century AD was recovered from the fills (see *section 5.2*), as well as animal bone (see *section 5.5*), fragments of Roman ceramic tile (*section 5.3*), and fragments of possible slag (*section 5.4*). While spot dates obtained from the pottery do not correspond between the two features, the position of the ditch and similar content of the fills, may indicate it represents the same feature as that identified in Trench 21 (2112) (*section 4.3.6*). It can also be noted that both features occur in proximity to the proposed location of Stukeley's road, although there is some variance with the alignment of the reported feature if this is the case (see Fig 6). It is unclear from the position of the ditch, at some remove from the fort rampart and wall, as well as its relatively shallow profile, if this feature relates to the defensive circuit of the fort, a previous phase of defences, or else a separate land boundary and more mundane function.



Plate 13: The southern machine sondage in Trench 20, viewed obliquely, featuring ditch (2013), centre foreground, and ditch (2018) with re-cut (2015), background. Viewed facing South.

- 4.2.19 To the south of this feature, a further, much larger ditch (2018), was also recognised, with a possible re-cut (2015) along its northern edge (Fig 3; Plate 14). This feature was not originally recognised in plan and only came to light within the section of the machine slot. Collectively, the two phases of ditch measured approximately 10m wide. The earlier ditch in the sequence produced evidence for having possibly been in-filled by flood deposits (2017). Both ditches were not bottomed due to substantial water ingress but produced sherds of generic Roman Greyware and animal bone. The fill of the re-cut (2014) produced a quantity of Greyware, Derbyshire Ware and other Roman pottery, spot-dated to the third or fourth century AD (see *section 5.2*), as well as a small assemblage of Roman ceramic tile (*section 5.3*), slag (*section 5.4*) and animal bone (*section 5.5*). Again it is unclear if this ditch relates to the defensive circuit of the fort, although the size of the feature may well indicate so.
- 4.2.20 Environmental samples recovered from deposits 2012 and 2014, produced a good assemblage of charcoal, animal bone and charred cereal remains that have good potential for any future analysis and dating (see *section 5.7* and Table 8 below)
- 4.2.21 North, beyond gravel-filled ditch 2013, no further archaeological features were observed and a homogenous clay alluvial flood deposit clearly extended to the end of the trench



Plate 14: The southern machine sondage in Trench 20, featuring ditch (2018) and re-cut (2015) foreground and ditch (2013) beyond. Viewed facing north-east.

4.3 TRENCH 21

- 4.3.1 Trench 21 was aligned north/south and located on a grassed area, between a car park to the east and a hard surface tennis court to the west (Fig 2). The northern end of the trench was curtailed, relative to the proposed location of the trench, in order to avoid the canopy of a tree. Similarly, the southern end was also curtailed in order to avoid a public footpath to the south. It measured approximately 38.5m x 2m and was excavated to a maximum depth of 1.2m, with additional hand excavations to various depths as required.
- 4.3.2 It contained overburden deposits that consisted of a topsoil and turf line (2101), overlying a late post-medieval/modern made ground levelling deposit and in-filling of pit features up to 0.5m thick (2102) (Fig 4: Plate 15). Below this were a further buried soil horizon (2103) and a probable alluvial flood deposit (2104) up to 0.4m thick, which sealed several underlying features. Deposit 2104 produced a single sherd of Roman Dalesware pottery, spot dated to the mid third to fourth century AD (see section 5.2). The archaeological horizon therefore occurred at a depth of approximately 0.90-1m bgl.
- 4.3.3 In summary, the trench contained three ditches, one of which may relate to the line of Stukeley's road and therefore possibly with a similar ditch in Trench 20 (2013), although the spot dates of both features do not correlate, a shallow gully arranged on a different alignment to the ditches, a cremation burial and a linear feature containing a slab-built structure either representing a cist, or, more likely, an industrial feature.

4.3.4 Moving from south to north, a large ditch (**2107**) was partially exposed in the southern end of the trench. Only the northern edge of the ditch was recorded, which was relatively steep sided and up to 1.1m deep (Fig 4; Plate 15), although it was uncertain if the full depth of the feature had been attained within the limits of the slot. The fill (**2106**) produced a sizeable quantity of varied Roman pottery (see *section 5.2*), with a spot date in the mid second to mid third century AD, ceramic building material fragments (*section 5.3*) and animal bone (*section 5.5*). The ditch almost certainly corresponds with that identified in the northern end of the extension to Trench 22 (**2228**) (*section 4.49*) for which a similar spot date was derived from the more limited ceramic assemblage. Its projected line also corresponds with a ditch feature recorded immediately to the west during 1983 (Fig 7; Dool and Wheeler 1985, 12). This line then extends to Trench 20 in the vicinity of ditch **2018**, and re-cut **2015**, although the spot date from **2015** does not correlate with that from **2107**. The size and profile of ditch **2107** indicates it formed part of the defensive circuit for the fort.



Plate 15: The east-facing section of Trench 21 and ditch (**2107**). Viewed facing west.

4.3.5 Immediately north of the first ditch, a second parallel ditch (**2109**) also extended east to west. Excavation revealed a relatively shallow U-shaped profile up to 0.5m deep and 2.5m wide (Fig 4; Plate 16). The fill (**2108**) produced a small assemblage of Roman Samian and oxidised ware pottery, with a spot date somewhere in the second century AD (see *section 5.2*), and animal bone. The shallow profile of the feature is not typical of a defensive ditch although it probably also forms part of the defensive circuit.

4.3.6 Immediately north of this ditch was a raised bank, comprising natural gravel deposits with alluvial flood deposits sealing the bank and extending for a short distance further north, after which a further series of gravel deposits were also visible. These gravel deposits were originally taken to represent the remains of Stukeley's road and were observed to rise in section, slightly above the

original limit of excavation by machine. However, excavation of a hand-dug sondage along the trench edge to investigate these deposits, demonstrated that they constituted part of a more extensive sequence of gravel-rich dumping layers (2120, 2122, 2125, 2126 and 2127). These gravel deposits were interleaved with several layers of probable alluvial flood deposits or natural silting (2121, 2123 and 2124), in-filling a ditch (2112) approximately 7m wide (Fig 4; Plate 17). A quantity of Roman pottery, including Samian Ware, Derbyshire Ware and a fragment of Mancetter-Hartshill mortarium, was recovered from the fills, producing a spot date in the second century AD (see section 5.2), as well as animal bone. The feature was not fully bottomed and the profile is uncertain.



Plate 16: The east-facing section of Trench 21 and ditch (2109). Viewed facing west.



Plate 17: The west-facing section of Trench 21 and ditch (2112). Viewed facing north-east.

- 4.3.7 On the basis of its gravel fill, it may well relate to the gravel filled ditch identified in Trench 20 (2013), and possibly that partially exposed in the machine slot in Trench 23 (2317), however, the spot dates do not support this.
- 4.3.8 The ditch had been cut into a relatively homogenous clay alluvial flood deposit (2128, 2129 and 2105). This deposit extended to the northern end of the trench and produced a small assemblage of Roman pottery including Oxfordshire Ware with a spot date in the fourth century and Oxidised Ware with a spot date in the second century (see section 5.2).
- 4.3.9 Cut into the top of this gravel-filled ditch was a shallow gully (2111) extending on a different, north-east to south-west, axis to that of the main ditches. In profile, it measured 0.52m wide and up to 0.18m deep, with steep sides and a flat base (Fig 4; Plate 18). The function of this gully is unclear.



Plate 18: Gully (2111) in plan before excavation of the slot across ditch (2112). Viewed facing north-east.

- 4.3.10 In addition, a cremation deposit (see section 5.6) was recovered from the northern edge of the ditch and gully, small find 211 (Fig 4; Plate 19). The cut for this cremation could not be identified in plan and the stratigraphic sequence is unclear. It was contained within a fairly typical example of a Roman Greyware vessel that produced a spot date in the early second century AD (see section 5.2).



Plate 19: The cremation deposit north of gully (2111) and ditch (2112). Viewed facing south.

- 4.3.11 At the very northern end of the trench an apparent gravel-filled linear feature (2118) extended on a north-west to south-east axis across the north-eastern corner of the trench. Excavation of a slot through this feature, located against the eastern section of the trench, revealed the south-west corner of a sandstone slab-built structure (2116) (Fig 4; Plate 20). Limitations of the slot rendered interpretation of the feature difficult. The slab structure may indicate a cist burial although the presence of a heat-affected clay deposit (2117) immediately to the south, but also within the overall cut of the gravel-filled linear, would perhaps suggest a more industrial function. With this said, there was no other evidence for the effect of heat upon the stone slab structure or any of the surrounding deposits, although charcoal flecks were noted in the fill of the slab structure (2115). If industrial, it can be noted that evidence for similar processes and structures were recorded during excavation of Trench 8, further to the north-east in Darley Playing Fields (OA North 2014a).



Plate 20: The sandstone slab structure (2116) and heat-affected clay deposit (2117) within the gravel-filled linear (2118). Viewed facing east.

4.4 TRENCH 22

4.4.1 Trench 22 was orientated north north-east to south south-west, and located within a grassed area to the west of an access road to the car park, located to the north-east (Fig 2). The southern end of the trench had been curtailed, relative to its original planned position, in order to avoid several trees and a hedgerow. The overall angle of the trench was also adjusted towards the east at the southern end, in order to negotiate a path between several other tree canopies. In addition, after consultation with relevant bodies, the trench was extended for a further 10m on a north to south axis at its northern end. The trench was excavated to a maximum depth of 1.2m, with an additional machine-cut sondage excavated to a further depth of 1.2m, down the centre of the trench extension.

4.4.2 Overburden within the trench primarily consisted of a topsoil deposit and turf line (2202), with several post-medieval/modern made ground deposits (2204 and 2205), in-filling cut features and extending as a general layer to variable depths. In addition, hardcore deposits (2203) and a tarmac surface (2201), associated with the road and public footpath, were recorded in the northern extension to the trench. A late post-medieval/modern deposit (2212), consisting of carefully-laid ceramic tiles set in a square formation, was also recorded below deposit 2205, approximately half way along the main section of trench (Plate 21). No function for this deposit was evident. These deposits extended to various depths during the course of the trench with the underlying archaeological horizon occurring between 0.80-1.20m bgl.



Plate 21: The tile deposit (2212) at the base of made ground layer (2205) prior to removal. Viewed facing north-west.

- 4.4.3 In summary, the trench contained a construction cut and backfill deposits associated with a late post-medieval/modern red brick structure, as well as a tile deposit, post hole and linear features of a similar date, probably associated with the garden of a former rectory established during this period. In addition, two partially exposed Roman ditches, an extensive rubble deposit, probably relating to the demolition of the Roman fort wall, a partially robbed out sandstone wall foundation for a probable Roman building within the fort, a buried soil, and a gravel surface were also recorded.
- 4.4.4 Moving from south to north, at the limit of excavation at 1.2m in the southern end of the trench, a gravel surface (2232) extended roughly east to west across the trench (Fig 4; Plate 22). This surface lies within the fort and it may well represent remains of the *via sagularis*. It ran under a buried soil deposit (2229) that extended north for approximately 10m. The buried soil produced an assemblage of Roman pottery including Derbyshire Ware and Nene Valley colour-coated ware, producing a spot date in the third century AD (see section 5.2), and a large quantity of animal bone (section 5.5). Towards the southern interface of the buried soil and gravel surface, a posthole (2231) and an additional ill-defined linear or series of linear features had been cut into the top of the buried soil (Plate 22). These features were obviously of late post-medieval/modern origin, with a red brick evident in the fill (2230) of the posthole.



Plate 22: General view of Trench 22 featuring the gravel surface (2232), foreground, post hole (2231) cut into the buried soil (2229), centre, clay deposit (2207) within cut (2208), centre distance, and the red brick floor (2211) and rubble deposit (2217) beyond. Viewed facing north-east.

- 4.4.5 At its northern extent, the buried soil had obviously been truncated by a large vertical-sided cut (2208) possibly associated with an additional cut (2213) further to the north (Fig 4). The area defined by these cuts contained a distinct layer of re-deposited clay (2207), as well as several levelling deposits (2206, 2209 and 2210) (Fig 4; Plate 22). The cut and deposits almost certainly relate to the construction of a late post-medieval/modern red brick wall and floor surface (2211) (Fig 4; Plate 23).



Plate 23: The red brick wall and floor (2211) above the partially robbed out sandstone wall (2219).
Viewed facing south-west.

- 4.4.6 This late post-medieval/modern activity truncated a buried soil deposit (2214) that extended north and overlay significant archaeological deposits of Roman date. The buried soil produced a small quantity of Roman Derbyshire Ware pottery, producing a spot date in the third century AD (see *section 5.2*). Immediately north of cut 2213 the buried soil extended over a backfill deposit (2218) of a probable robber cut (2220) that related to a partially robbed-out sandstone wall (2219) of probable Roman date, extending east/west below the northern edge of red brick structure 2211 (Fig 4; Plate 23). This wall comprised several roughly-faced sandstone blocks with no clear bonding agent. Given the limited exposure of the structure within the trench, it is unclear what wall 2219 represents. It is possible that the structure relates to a building constructed within the fort. Alternatively, it may represent the outer facing of the main fortification. This later suggestion is strengthened by the fact that the wall occupies a position upon the projected line of the fort wall as extrapolated from Trench 20, as well as previous excavations conducted along the northern boundary of the fort (Brassington 1993).
- 4.4.7 While the construction cut for this wall was not visible, it possibly truncated an earlier deposit (2221) that extended north and ran under a substantial rubble layer (2217) (Fig 4; Plate 24). This rubble layer continued north for approximately 12m terminating at the start of the north to south aligned extension to the trench. A small assemblage of Roman pottery was recovered from the surface of the rubble deposit, producing a spot date in the late third or fourth century (see *section 5.2*), as well as a quantity of animal bone (*section 5.5*). The rubble deposit contained elements of mortar, possibly from demolition of the fort wall. Limited excavations to examine deposits underlying the rubble layer were conducted in relation to a robbed-out circular

feature within the layer, thought to be a possible pit or well. This demonstrated the rubble to be less than 0.40m thick and to overlie a dark soil similar to **2221**. Given the projected line of ditches recorded in Trench 17 and 18 in the nursery garden (OA North 2014b), it is possible that the stone rubble overlies up to two further defensive ditches (see Fig 6).



Plate 24: The rubble deposit (2217), probably representing the demolished remains of the fort wall with the start of the machine sondage visible in the foreground. Viewed facing south-west.

4.4.8 At its northern extent the rubble deposit **2217** overlay the upper fill (**2224**) to a ditch (**2226**) (Fig 4; Plate 25). Only the northern edge of this ditch was exposed and examined in a machine sondage, excavated down the centre of the trench. It was found to be steep sided and more than 4m wide (the southern edge residing somewhere under the rubble deposit). A single fragment of Roman roof tile was recovered from the upper fill and a small scrap of pottery from the primary deposit (**2225**).

The ditch had been cut into a natural gravel deposit **2233** that extended north for a short distance before being cut by a second ditch (**2228**) (Fig 4; Plate 26). Only the southern edge of this second ditch was exposed within the trench and the excavation of a limited section indicated a steep-sided profile. It also produced a sherd of Samian pottery with a spot date in the second or third century (see *section 5.2*). Based upon the location of the ditch, it almost

certainly represents the same feature as that partially exposed in the southern end of Trench 21 (2107) (section 4.3.4), an inference supported by the similar spot date derived from the pottery.



Plate 25: The north-west-facing section of the machine sondage in Trench 22 featuring ditch (2226), with the rubble deposit (2217) in the foreground. Viewed facing north-east.



Plate 26: The north-west-facing section of the hand excavated sondage into ditch (2228). Viewed facing north-east.

4.5 TRENCH 23

- 4.5.1 The trench was orientated north to south, and located immediately east of the nursery gardens, in an area of grassed playing field (Fig 2). It measured 75m x 2m and extended to a maximum depth of 1.2m within a machine-excavated slot, but on average was approximately 0.6-0.7m deep.
- 4.5.2 Overburden primarily consisted of a topsoil and turf line (**2300**), with a made ground deposit (**2301**) of variable depth below. This made ground deposit consistently produced late post-medieval/modern material and probably relates to a levelling of the area to create the playing fields, some time in the 1930s (Joan D'Arcy pers com). These deposits collectively extended to a depth of between 0.30-0.70m, and sealed the top of the archaeological horizon.
- 4.5.3 In summary, the trench contained an extensive gravel surface extending across much of the trench, into which a number of beam slots, probable stone walls and other features had been cut, indicating the presence of several structures associated with the civilian *vicus* settlement. In addition, a number of compact stone surfaces were also identified within or just below the gravel surface. A possible gravel-filled ditch was also partially identified and may correspond with the same feature potentially relating to Stukeley's 'road' in Trench 20 (**2013**) and Trench 21 (**2112**).



Plate 27: The compact sandstone deposit (**2307**) at the southern end of Trench 23. Viewed facing south.

- 4.5.4 Moving from south to north, a very compact stone deposit (**2307**) was revealed at the southern end of the trench, at a depth of little more than 0.6m below the current ground surface (Fig 5; Plate 27). This deposit consisted of roughly-faced sandstone blocks with no clear mortar but a highly compact concretion approaching iron pan in consistency and colour. The deposit ran under a gravel

deposit (**2302**) that extended for some distance further north and produced a small assemblage of pottery and animal bone from across its surface. This gravel deposit continued throughout the rest of the trench in one form or another (as **2313**, **2315**, **2320**, **2322** and **2324**) and may represent an attempt to consolidate the ground surface during the Roman period. These deposits gradually rose to within 0.30m of the current ground level, approximately 15m from the southern end of the trench, before dipping away again as it extended north.

- 4.5.5 Towards the southern end of the trench two linear features (**2304** and **2306**), filled with a distinct sandy clay soil deposit, extended east to west across the trench (Fig 5; Plates 28). Cut **2304** proved to be 0.43m wide and 0.13m deep with a U-shaped profile, while cut **2306** was up to 1.70m wide and 0.14m deep, possibly incorporating one or more re-cuts. A single sherd of Samian pottery was recovered **2305** of cut **2306**, producing a spot date in the second or third century AD (see *section 5.2*). The features possibly represent beam slots for a wooden structure, cut into the gravel surface, and defining an area approximately 2.50m wide.



Plate 28: The east-facing section of beam slot (2306). Viewed facing west.

- 4.5.6 Further north, beyond the highest point of the gravel surface and an area cut by modern ceramic land drains, a compact stone deposit (**2308**) extended up through the gravel surface. This may represent either a road surface, extending east to west across the trench, or else a possible floor surface within a building (Fig 5; Plate 29). Immediately to the north of this surface a further stone deposit (**2309**) extended north to south along the eastern edge of the trench. The more compact nature of the deposit may indicate it represent the remains of a wall, rather than a surface, and, as such, may also relate to a short, linear cut feature (**2311**), also extending north to south immediately to the west

(Plate 30). This cut feature contained a heat-affected red clay deposit (**2310**) possibly indicative of an industrial process, although there were no additional signs of heat having affected surrounding deposits.



Plate 29: Sandstone cobble surface (2308). Viewed facing north.



*Plate 30. Sandstone structure (2309) with the linear cut feature (2311) and clay fill (2310) beyond.
Viewed facing west.*

4.5.7 To the north of this area, two lines of large, un-mortared stones (**2312** and **2314**) extended parallel to one another on an east/west alignment, and represent the remains of two walls or kerbs (Fig 5; Plate 31). The area between the two walls was relatively narrow, again approximately 2.50m, and was characterised by a further gravel and stone floor surface deposit (**2313**).



Plate 31: Sandstone block structures (2312), foreground, and (2314), centre background, with floor surface (2313) between. Viewed facing north.



Plate 32: Sandstone block structure (2319). Viewed facing east.

4.5.8 North of the structures was a large area of gravel surface (**2315**), with a pronounced dip in level towards the south. A machine slot was excavated along the eastern edge of the trench, extending to a maximum depth of 1.2m, in order to test if the dip related to an underlying in-filled negative feature. This ascertained that the gravel surface was approximately 0.50m thick and revealed evidence for the northern edge of a possible ditch cut (**2317**), towards the southern end of the slot (Fig 5). This feature was not bottomed and the southern edge was not identified but it appeared to be relatively steep sided in profile and more than 2.50m wide. It contained a gravel deposit (**2316**), and, as such, was reminiscent of the gravel-filled ditch features in Trench 20 (**2013**) and Trench 21 (**2112**), that occupy the proposed line of the road identified by Stukeley.



Plate 33: Sandstone structure (**2321**). Viewed facing west.

4.5.9 To the north of the machine slot, two further, though less intact, parallel lines of large, un-mortared stones were recorded (**2319** and **2321**). They extended approximately east to west and defined a similar gravel surface (**2320**) to that of the previous stone structure (Fig 5; Plates 32 and 33). Remains of a third wall (**2326**) may also be identified several metres north of these on a slightly different alignment (Plate 34).

4.5.10 Towards the northern end of the trench, the gravel surface rose in height by approximately 0.20m to form a pronounced bank and separate gravel surface (**2324**). This was marked at its southern extent by several very large stone

boulders (2323) (Plate 35) and at the northern extent of the trench by a further line of the same (2325) (Plate 36), both extending on an east/west axis. This area may relate to a raised road surface with curbstones or, alternatively, a stone-built structure.



Plate 34: Sandstone block structure (2326). Viewed facing south.



Plate 35: Sandstone block structure (2323) along the southern edge of the banked area. Viewed facing east.



Plate 36: Sandstone block structure (2325). Viewed facing north.

5. THE FINDS

5.1 INTRODUCTION

5.1.1 The present excavation produced an assemblage of 421 fragments of artefacts and ecofacts, predominantly pottery; its composition is shown in Table 1. Vessels from the two cremation burials (from **2129**, and **2043**), being unexcavated at time of writing, were not quantified, and are omitted from the table shown below. Human bone from the cremation burials is discussed below (see *section 5.6*).

Material	No frags	Weight (g)	% of overall assemblage by fragment count
Animal bone	143	n/a	34
CBM	22	1888	5.2
Clay tobacco pipe	2	9	0.5
Industrial debris	2	92	0.5
Marine mollusc	1	n/a	0.2
Pottery	251	6813	60
Totals	421	8802	

Table 1: Quantification of artefacts and ecofacts by count and weight.

5.1.2 The material is generally in fair to good condition, with the pottery fragment size large, and many obvious refits within individual contexts. In the majority of cases the amount of abrasion is low, although individual pieces, especially amongst the Samian from the site, are badly abraded, to the extent that a few have completely lost their original surfaces. The reason for this is not clear, but is most likely to be localised soil conditions.

5.2 THE POTTERY

5.2.1 The pottery from the site was overwhelmingly of Roman date, with only five fragments being of later date. The assemblage can be divided by fabric as shown in Table 2. The average sherd weight is *c* 27g, reduced to *c* 25g if amphora is omitted, again suggesting that the assemblage is relatively unfragmented. The material was examined and catalogued following the guidelines for basic archiving laid out by the Study Group for Romano-British Pottery (Darling 2004), and a provisional fabric series compiled. Fabric codes follow, where possible, Tomber and Dore (1998). At this stage no full analysis of the Samian vessels was attempted, and identification of the figure-types and stamps has not been pursued. The comment presented below summarises the assemblage, and full data can be found in the site archive.

<i>Typology</i>	<i>Fabric Code</i>	<i>No frags</i>	<i>% assemblage</i>	<i>Weight (g)</i>	<i>% assemblage</i>
BB1 or Rossington Bridge BB 1	DOR BB 1 ROS BB 1	16	6.4	412	6
Crambeck greyware ?	CRA RE	1	0.4	114	1.7
Dales ware	DAL SH	1	0.4	16	0.2
Derbyshire ware	DER CO	84	33.5	2456	36.1
E Yorks C-G	?HUN CG	1	0.4	32	0.5
Greywares	-	36	14.3	1148	16.8
Mortaria (misc)	-	2	0.8	98	1.4
Nene Valley colour-coat	LNV CC	28	11.1	328	4.8
Oxidised ware	-	24	9.6	340	5
Oxidised with whiteslip	-	2	0.8	44	0.6
S Yorkshire wares		4	1.6	265	3.9
Samian (all production centres)	-	23	9.1	365	5.4
Other	-	14	5.6	521	7.6
Totals		251		6805	

Table 2: Quantification of Roman pottery by type and weight

5.2.2 Samian from the site is probably all from the Central Gaulish producers, although it is possible that some is of East Gaulish origin. Coming from 11 contexts, the overall average sherd weight is *c* 15.1g, although it varies considerably between individual contexts. The range of vessels present points to a mid-late second-century date for deposition, with an abraded fragment from a form 18/31R from ditch **2015** (fill **2014**) suggesting a mid-second to mid-third century date, and a stamped form 33 cup from ditch **2107** (fill **2106**) reaching the height of its popularity in the mid-late second century. The stamp has not been identified. Other forms present include a form 35 cup from ditch **2112** (fill **2126**), two form 37 decorated bowls also came from the same ditch **2112** (fill **2126**), and a third from buried soil **2229**. A possible form 30 cylindrical bowl was from ditch **2109** (fill **2108**). There is no evidence for repair or re-use amongst this small group, and none of the fragments are burnt.

5.2.3 Although the group of Samian is not large, it makes up *c* 9% of the pottery assemblage by fragment count, a representation typical of a military site (Willis and Table 24). There are only two relatively small fragments of amphora, from buried soil **2229** and ditch **2112** (fill **2125**), both are Dressel 20-type, but their presence serves to emphasise the military connections of the site.

5.2.4 Other finewares on the site were confined to Nene Valley colour-coated beakers and dishes, with 23 fragments from four contexts. Of the beakers, one, from ditch **2112** (fill **2106**) had applied scale decoration, suggesting a third-century date, and another, from ditch **2015** (fill **2014**) had barbotine floral

decoration, suggesting a second-third-century date. Possible bowl fragments, from ditch **2013** (fill **2011**) and buried soil **2229** imply later activity, as the Nene Valley potteries do not seem to have produced more prosaic colour-coated vessels until the fourth century.

- 5.2.5 The proportion of Back Burnished ware 1 from the site, at *c* 6% of the assemblage (16 sherds from five contexts), is low, perhaps suggesting that activity begins before the main period of export to the Midlands and the North. BB1 appears in the North from *c* AD 120 (Tyers 1996), and it is likely that the few vessels present, (including that from cremation burial **2129**) are all second-century forms, with an almost square decorative lattice pointing to the later part of the century. A bowl from ditch **2112** (fill **2127**), is probably dated 120-160 (Gillam 1970; form 220). It is possible that some, or all, of the small group is from the Rossington Bridge production site in Yorkshire, active in the Antonine period, but it must be stressed that this fabric is not easily distinguished from the more prolific South-east Dorset fabric. In general terms, BB1 made a major contribution to pottery supplies in the Midlands and the North during the third century, but the heavy reliance, here, on locally produced Derbyshire ware (*c* 33% by count, 36% by weight) might well account for its lack. Whether it implies that BB1 was not reaching the site in quantity, or that it simply was not required, must, however, be left open to speculation. The complete BB1 vessel containing a cremation, from layer **2129**, is markedly asymmetrical, raising the possibility that it is a second, and thus more likely to be from a local source than a more far-flung producer. The use of seconds or damaged vessels for cremations is not unknown (Willis nd Appendix 9.4).
- 5.2.6 By far the largest portion of the group was provided by Derbyshire ware, predominantly cupped rim jars, with fragments coming from 13 contexts. At *c* 33% of the assemblage, it is comparable to other sites in the locality of Little Chester, where it provides up to 40% of the assemblage (Tyers 1996). Whilst it comes into production in the mid-second-century, and would presumably have been taken up locally at a relatively early date, it reaches its maximum extent in the third century, with the deeply dished rims seen in this group appearing by the mid-third century (Gillam 1970; form 152). The cremation from **2043** was deposited within a typical Derbyshire ware jar. It is clearly the predominant fabric used on the site, presumably because it was locally made and thus easily available.
- 5.2.7 Other greywares, most of which are probably locally made, comprise the next largest part of the assemblage, being *c* 14.3% by fragment count and 16.8% by weight and were found in 10 contexts. The range of forms, for the most-part jars and flange-rimmed bowls, can be placed in the same mid/late second to third century range. An unusual long-necked beaker form comes from ditch **2107** (fill **2106**). Other greywares include fragments of a wide-mouthed jar of South Yorkshire type from ditch **2112** (fill **2106**), probably in production during the mid-late second century.
- 5.2.8 A single fragment from the distinctive rim of a Dales ware vessel came from **2104**. Dales ware was in production from the later second century, but saw its peak in the North of England in the period AD 250-340 (Tyers 1996). A single

calcite-gritted rim was recovered from buried soil **2229**, whilst not the typical Huntcliff-type, it is likely to fall into the 'proto'-Huntcliff group, and can be dated to the late third or early fourth-century. A possible Crambeck greyware bowl fragment from buried soil **2229** is typically fourth century.

- 5.2.9 A range of orange oxidised wares made up *c* 9.6% of the total assemblage by fragment count and 5% by weight, and were recovered from 10 contexts, with around a third of it from ditch **2112** (fills **2125** and **2126**). They seem most likely to be locally produced, although it is possible that some of the finer fabrics represented, for example, the delicate jar rim seen in ditch **2107** (fill **2106**), are from the Severn Valley kilns, although they were only a minor contributor to northern pottery supplies in the third century. Forms present include jars and flagons, a small number of which have a white slip-coat. Whitewares of Roman date, probably all from flagons, come from six contexts, and comprise 5.1% of the assemblage by count, and 2.4% by weight, and includes the neck and handle of a probably later second-century flagon from layer **2128**.
- 5.2.10 There are only two fragments of mortarium from the site, one of them a Mancetter-Hartshill product, stamped by SVRVS, and in production AD 100-130 (Tyers 1996) was found alongside a small fragment from a Samian form 35 cup (Flavian or later; Webster 1996), suggesting, perhaps, a mid-second century date for its context, ditch **2112**, fill **2126**. The second fragment, from rubble layer **2217**, has been tentatively identified as from the rim of an Oxford mortarium, probably dating to the late third-mid-fourth century. A single fragment from a handled lamp, in a sandy reduced fabric was from fill **2011** of ditch **2013**.
- 5.2.11 Late finds from the site are very sparse, recognisable fragments being two badly burnt fragments of (possibly) eighteenth-century Blackware from gravel surface **2302**, a single fragment of nineteenth-century blue and white underglaze transfer-printed whiteware, from buried soil **2229**, and two fragments of late redware from modern levelling **2205**, together weighing 244g. Two fragments of clay tobacco pipe, a small piece of stem from stone deposit **2309** and gravel surface **2302** include a pipe with a tailed foot, stamped THO WARD, and again likely to date to the eighteenth-century.

5.3 CERAMIC BUILDING MATERIAL

- 5.3.1 There were 22 fragments of ceramic building material, weighing together 1.888kg, giving an average fragment weight of only 86g, and emphasising its fragmentary nature. The fragments are largely chronologically un-diagnostic, but it seems likely that most of it is of Roman date. The largest amount (FIVE fragments, 604g) was from ditch **2018** (fill **2016**), with only two other contexts (modern levelling **2205** and ditch **2226** (fill **2224**) producing over 300g of CBM. Thus it might be suggested that this material was not a major contributor to the composition of structures on the site at any time, or that tile and brick was very carefully removed, perhaps for recycling.

5.4 OTHER FINDS

- 5.4.1 There was almost no evidence for industrial activity of any kind, with only two fragments (92g) of industrial debris (from ditches **2013** and **2015** (fills **2011** and **2014** respectively), neither of which were diagnostic of any particular process.
- 5.4.2 Ecofacts from the site included 126 fragments of animal bone, and a single valve of the marine mollusc *O edulis*, the native oyster. Although often eaten during the Roman period, a single valve, from modern levelling **2205**, has no further significance.

5.5 ANIMAL BONE

- 5.5.1 **Introduction:** In total 126 animal bone and teeth fragments, or number of individual specimens (NISP), were recovered from the most recent phase of evaluation of the Derby flood alleviation scheme, weighing a total of 2.44kg. Of the 126 fragments, 70 (55.6%) were identified to a species level.
- 5.5.2 This assessment quantifies the potential of the bone for analysis, assesses its potential to contribute to specific research questions, and makes recommendations for potential analysis.
- 5.5.3 **Methodology:** The material was identified using the reference collections held by the author, and with reference to Halstead and Collins (1995); Hillson (1999) and Schmid (1972). All parts of the skeleton were identified where possible, including long bone shafts, skull fragments, all teeth and fairly complete vertebra. Sheep/goat distinctions were made using reference material and published work by Boessneck (1969); Kratochvil (1969); Payne (1985) and Prummel and Frisch (1986). Bird bones were identified with reference to Cohen and Serjeantson (1996).
- 5.5.4 The assemblage was divided into countable 'A' bones and non-countable 'B' bones in-line with the principles detailed in Dobney *et al* (1999). For each 'A' bone, the following information was recorded where appropriate: context reference; species or species group; element; side; number of bones; the diagnostic zone as either more than or less than half present; fusion state; weight; fragmentation; butchery; measurements; tooth wear development; and any other comments. If pathology or other developmental or congenital anomalies were observed then they were also noted. 'B' bones were recorded by species group; number of bones; weight and element, unless they were measurable, displayed butchery marks, pathology or congenital traits, in which instance, they were recorded in the same detail as 'A' bones.
- 5.5.5 The diagnostic zones were numbered one to eight and followed those described in Serjeantson (1996), although this excludes the mandible, which was zoned as described by Grimm and Worley (2011). Fragments were recorded as 'A' bones when over 50% of a zone was present. Vertebrae (except atlas and axis) were recorded as 'A' bones when over 50% of the centrum was present.

- 5.5.6 The overall condition of the bone was recorded by each context as a whole as ranked data. This included the state of bone preservation; the angularity of archaeological breaks; the level of surface erosion; the relative size of bone fragments; the percentage of the original complete bones present; and the proportion of new breaks, butchered, burnt and gnawed bones.
- 5.5.7 The preservation categories provide a useful indicator to the general condition of each context within the assemblage. The categories used are as follows:
- *Very good*: complete or nearly complete bones with little surface erosion within the context;
 - *Good*: majority of the bones with an un-eroded surface and with half or more than half the anatomical part present;
 - *Moderate*: bones with approximately half the anatomical part present and with some erosion to the surface;
 - *Poor*: bones with an eroded surface and with less than half the anatomical part present;
 - *Very poor*: very fragmented with a highly eroded surface.
- 5.5.8 Fragmentation was assessed according to the proportion of bones fragmented within individual contexts, and scored as 'low' (<25% of present bone fragmented), 'medium' (25-75% of present bone fragmented), or 'high' (>75% of present bone fragmented).
- 5.5.9 The minimum number of elements (MNE) were calculated from the most frequently occurring diagnostic zone of each element. The minimum number of individuals (MNI) equates to the highest MNE value, taking side into account.
- 5.5.10 The extent of mandibular tooth wear and the epiphyseal fusion of long bones can be used to estimate the age at time of death of the principal stock animals. Mandibular wear stages were recorded for dP4s, P4s and lower permanent molars of the domestic species using Grant (1982) and grouped into age stages following the methods of Grant (1982) and Halstead (1985) for cattle and Payne (1973) and Jones (2002) for sheep. No pig tooth wear was recorded within this assemblage.
- 5.5.11 Measurements were taken on cattle, and sheep/goat bones following von den Driesch (1976) and Davis (1992). It was not possible to calculate withers heights from the single horse metacarpal within the assemblage.
- 5.5.12 ***Quantification and Condition***: In total, 126 fragments of bone and teeth represented 126 individual specimens as no articulating or adjoining bones were definitively identified. Of these, 70 (55.6%) were identified to a species level or low order group (Tables 3 and 4). The material recorded was collected by hand, with no fragments recorded from soil samples.

- 5.5.13 The degradation of bone from various taphonomic processes, such as butchery, gnawing, attack from acid roots and soils, may bias an assemblage in a number of ways. Larger mammals have a higher bone density than medium sized or small mammals and may therefore be better represented in a fragment count (Lyman 1994, 246-7). Conversely, in a higher fragmented assemblage, bone fragments from medium and smaller mammals may have a greater chance of displaying diagnostic characteristics (Maltby 1996, 19). Taphonomic processes will have affected the proportion of species and anatomical elements represented within the assemblage in comparison to the live herds and flocks, although the analysis of this bias is beyond the scope of this assessment.
- 5.5.14 In total, 17 individual contexts were recorded as containing animal bones, from four different evaluation trenches. Overall the animal bone is good to moderately preserved and with a low level of fragmentation, It has minimal to less than 50% of its surface eroded (Tables 5 to 6).
- 5.5.15 The principal domestic stock animals of cattle, sheep and pig are present within this assemblage, with cattle in larger numbers and sheep and pig in significantly lower numbers. Sheep are thought to be the most dominant species in the sheep/goat category, as no goat bones were definitively identified. A small number of wild species attests to hunting activities. Domestic birds, as well as a small number of dog bones, were also identified.
- 5.5.16 **Provenance:** Residual animal bone from earlier periods is inevitably a problem, but this is mitigated by the fact that the majority of the archaeological features excavated within the evaluation trenches are Romano-British in date. Division by sub-period should be a consideration during the analysis of the bone, but is not feasible at this stage.
- 5.5.17 With no knowledge as to how long bone fragments have suffered pre-depositional taphonomic processes it is difficult to assess whether bone derives from an earlier period or a sub-period. Where variable preservation of bone has been noted within a deposit, it could be suggested to contain potentially reworked material. However, no residual bone was recorded within this current assemblage.
- 5.5.18 In analysis, comparison could also be made to other finds groups, such as pottery, although this can be complicated where different groups of artefact or ecofact have been disposed of in differing manners.

Species	'A' or 'B' Bone		Total
	'A'	'B'	
Equus sp	1	0	1
Cattle	34	8	42
Sheep/Goat	12	5	17
Pig	2	1	3
Deer	2	1	3
Dog	2	0	2
Medium Mammal	0	11	11
Large Mammal	1	22	23
Unidentified Mammal	0	23	23
Domestic Fowl	1	0	1
Total NISP	55	71	126
NISP identified to a species level or low order group	54	15	69
Main Domestic Species as a percentage of their total NISP			
Cattle	63.0%	53.3%	60.9%
Sheep/Goat	22.2%	33.3%	24.6%
Pig	3.7%	6.7%	4.5%

Table 3: NISP of animal bones

Category	Preservation					Total
	Very Poor	Poor	Moderate	Good	Variable	
Number of Contexts	0	6	9	14	0	29
Percentage of Total	0.0%	20.7%	31.0%	48.3%	0.0%	100

Table 4: Preservation of various bones in each context

Category	Surface Erosion						Total
	None	<50%	50%	>50%	Fibrous	Not Visible	
Number of Contexts	15	6	2	2	0	0	25
Percentage of Total	60.0%	24.0%	8.0%	8.0%	0.0%	0.0%	100

Table 5: Surface Erosion of various bones within each context

Category	Fragmentation			Total
	Low	Medium	High	
Number of contexts	14	8	8	30
Percentage of Total	46.6%	26.7	26.7	100

Table 6: Fragmentation of various bones within each context

5.5.19 **Conservation and Discard Policy:** The animal bone from this assemblage requires no specialist conservation measures. The material should be stored in dry conditions in acid free bags with the relevant site code, context, small finds and sample number marked on the bag where appropriate. These in turn should be within acid free boxes, marked with the site code and material group and placed in a storeroom of a constant temperature and humidity.

5.5.20 All of the bone should be retained, with the exception of any un-stratified material which have no interpretative value.

- 5.5.21 **Comparative Material:** There are several sites within Derbyshire with a published analysis of comparable faunal remains. Within close proximity of the site a small number of excavations have been identified which have yielded small, medium and large collections of animal bones. This includes previous excavations conducted at the Roman fort (see Wheeler 1985) and just outside at Mansfield Road (Vickers 2013).
- 5.5.22 Previous evaluations at the site conducted by OA North (Bates 2014) yielded a total NISP of 858 bones. These can be combined with those from the current evaluations to add to the overall interpretation of this site.
- 5.5.23 Further afield, within England, there are several more comparable Roman fort sites with large assemblages of animal bones. These include the Legionary fortress at Wroxeter (Noddle and O'Connor 2002), Vindolanda (Bennett 2005) and Dodder Hill, Droitwich (Davis 1988).
- 5.5.24 Online resources include the Animal Bone Metrical Archive Project (University of Southampton 2003), a database of biometric data from over 100 sites excavated in southern Britain; A review of the Animal Bone Evidence from Central England (Albarella and Pirnie 2008); and A Review of the Animal Bone Evidence from Southern England (Hambleton 2009). Each of these provide substantial quantities of downloadable data.
- 5.5.25 **Potential for Further Work:** The material is quantified according to patterns of toothwear and epiphysial fusion states, biometric records (used to assess the size of individual animals and differentiate between breeds and in some cases assess the male/female ratio of the stock), and butchery records are given in Table 7. However, the sample sizes for each category of data, as divided by species, are too low or none existent to be overly useful. With this said, patterns of cattle fusion and butchery, taken as a whole from all four trenches, may warrant further discussion and analysis.

Trench	Species	Toothwear	Fusion	Butchery	Biometric
20	Cattle	0	2	0	0
	Sheep/Goat	0	0	0	0
	Pig	0	0	0	0
21	Cattle	1	1	2	0
	Sheep/Goat	3	1	0	0
	Pig	0	0	0	0
22	Cattle	1	4	4	3
	Sheep/Goat	2	1	0	0
	Pig	0	0	0	0
23	Cattle	0	2	3	0
	Sheep/Goat	0	0	0	0
	Pig	0	0	0	0

Table 7: Quantity of specimens from which toothwear, epiphysial fusion, butchery and biometric data may be obtained

- 5.5.26 Other work associated with depositional characteristics of the bone and any associated or articulated bone groups (ABG's) should include, where feasible, a comparison of the bone within deposits of different stratigraphic position, between feature types, by area and by association with other artefacts.

5.5.27 **Recommendations:** As previously discussed, the size of the assemblage for this evaluation of the Derby flood alleviation scheme creates limits to its potential analysis and direct comparisons to other sites. This precludes a more detailed discussion of animal husbandry practices carried out in the local region using this data alone. However, analysis of the animal bones does have potential to contribute to the wider data set for the site as a whole from previous evaluations undertaken by OA North, together with wider data sets that would allow a fuller understanding of animal husbandry practices in the Romano-British period.

5.5.28 It is recommended that, should the project move to the analysis stage, the current data should be added to previous assessments of the site. Following this, a report should be compiled that addresses certain intra – and inter-site analyses. These should include:

- An analysis to identify any taphonomic or cultural bias in the animal bone;
- An assessment of the relative proportion of the principal stock animals identified in the archaeological record as a representation of what was the live animal population;
- An assessment of the background deposition characteristics of various features;
- An analysis of any deposits containing possible Articulated or Associated Bone Groups (ABG's), and providing a narrative for their deposition;
- An analysis of the butchery marks;
- An analysis of the size of the domestic stock in comparison to other archaeological sites, and the possibility of imported breeds being present or influencing the size of the local stock;
- Where appropriate a comparison of the bone, the animal husbandry practices, and the patterns of consumption to other published sites of the region;
- A discussion of the site in general in comparison to wider national trends where feasible.

5.6 HUMAN BONE

5.6.1 **Introduction:** This report presents the findings of an assessment of two urned cremations small find 211, from deposit 2129, and cremation 2043, containing human remains recovered during the recent evaluation. The remains pertain to single individuals in each vessel, found in trenches 20 and 21.

5.6.2 **Methodology:** The vessels were removed intact and were excavated in the laboratory following the procedures outlined by McKinley (2004). The deposits were excavated in spits and subsequently quickly assessed in accordance with IfA guidelines on compiling a cremated human bone inventory (*ibid*, 9-13).

- 5.6.3 All the bone was weighed on digital scales and details pertaining to colour, the size of the largest fragment and, where possible, the presence of individual bones within the defined bone groups were recorded. While the survival of cremated bone, and, consequently, the total weight of the surviving deposit, can be significantly affected by taphonomic factors, a low weight can represent the effort expended by mourners in collecting the remains from the pyre following cremation (for example in a lower status burial only a token amount of bone may be considered sufficient for interment). Additional soil from the cremation deposit itself, was retained to be sieved at a later date in order to maximise the recovery of cremated bone, charred plant remains and small artefacts.
- 5.6.4 **Results: Vessel 2043:** This cremation vessel was disturbed during the excavation process but the remains were fully retrieved. It was found in Trench 20, cut into earthen rampart **2039**. It was not possible to excavate the vessel in spits due to its fragmentary nature. The bone was removed as a whole and the soil retained for sieving. The total weight of the cremated bone was 1015g.
- 5.6.5 cursory examination showed this cremation to be of one individual. The deposit was represented by bones from all elements of the skeleton, with large fragments surviving. The maximum length of a long bone fragment was from a femur measuring 111mm. The fused epiphyses of the long bones and that of the vertebrae indicated that the individual was an adult aged 18 +, it was not possible at this stage to narrow down the age range. From a surviving left mastoid process it is possible to tentatively suggest that the individual was male.
- 5.6.6 **Vessel 211:** This cremation vessel was found intact within Trench 21, to the north of gully **2111** and ditch **2112**, and cut into deposit **2129** representing a probable natural flood deposit. It was excavated in spits, with the bone and soil kept separately. The bone did not reach the top of the vessel and only became present at a depth of 96mm from the top of the vessel. The total weight of bone from combined spits was 641g. The largest fragment was of a humerus measuring 54mm, while the one fragment of skull measured 34mm. The low weight of the remains, together with the lack of skull and axial elements, suggests that this is not a complete individual.
- 5.6.7 The non-repetition of elements indicated that a minimum of one individual was represented by the deposit. The fused epiphyses of the long bones and that of the vertebrae indicated that the individual was an adult aged 18 +, it was not possible at this stage to narrow down the age range. It was not possible to determine a sex for this individual.
- 5.6.8 As the remains of both cremations were unwashed at this stage, it was not possible to observe any pathology on either individual.
- 5.6.9 **Pyre technology and funerary rite:** The heat of the funeral pyre was determined from the colour of the cremated bone as laid out in McKinley (2000, 405). The colour of cremated bone can range from brown or black (slightly charred) to hues of grey and finally to the white of full oxidation.

Full oxidation depends on numerous factors such as the construction of the pyre, quality of wood, body position, amount of body fat, the length of time that the body remains in the pyre, oxygen supply and the age of an individual.

5.6.10 The degree of oxidation of bone is related to the temperature acting on the bone in an oxidising atmosphere, which is reflected macroscopically in the colour of the bone (Holden *et al* 1995a; 1995b) The level of oxidation of the bone in this assemblage was assigned to one of the following firing stages:

- Stage 1: (20-<285°C): Normal surface; neutral white/ pale yellow/ yellow;
- Stage 2: (295-<525°C): Reddish brown/ very dark grey-brown/ neutral dark grey/reddish yellow;
- Stage 3: (525-<645°C): Neutral black with medium blue and some reddish-yellow appearing;
- Stage 4: (645-940°C): Predominantly neutral white with light blue-grey and light grey present;
- Stage 5: (940+°C): Neutral white with some medium-grey and reddish-yellow.

5.6.10 The bone present within the two urns was recorded as a pale yellow white colour, with some skull fragments showing a more bluish grey hue, indicative of being subjected to higher temperatures. As a whole, however, the general colour of the remains suggests firing stage 1 for both individuals, with the temperature not rising above 285 degrees Celsius. On this basis it would appear that complete cremation of the corpse was not necessarily significant for the mourners of these particular individuals.

5.6.11 Both urns contained no charcoal or evidence of pyre debris indicating that the remains had been carefully picked from the pyre rather than scooped up.

5.6.12 **Recommendations:** It is recommended that the cremated bone for both vessels be washed over a sieve and dried. The soil from within the urns should also be wet sieved and dried and then sorted, separating out the cremated bone. This will allow for a full analysis of both cremations to determine demography and pathology.

5.7 CHARRED AND WATERLOGGED PLANT REMAINS

5.7.1 **Quantification:** Eight environmental bulk samples, were taken for the recovery of charred (CPR) and waterlogged plant remains (WPR).

5.7.2 **Methodology:** The samples were hand-floated and the flots collected on a 250 micron mesh and air-dried. The flots were scanned with a Wild M3Z stereo-microscope and the plant material and charcoal quantified and provisionally identified. Botanical nomenclature follows Stace (2010). The plant remains were scored on a scale of abundance of 1-4, where 1 is rare (up to five items) and 4 is abundant (>100 items).

- 5.7.3 **Results and interpretation:** The results of the assessment of the CPR and WPR samples are shown in Table 8. Four of the samples assessed contained charred cereals (**2012, 2014, 2020, 2026**), of these, two contained chaff (**2012, 2014**). Charred seeds were recorded in three samples including Euphorbia (Spurge), Poaceae (Bromus) and Hazel nut (*Corylus*). Charcoal was recorded in three samples, including two samples with abundant quantities. Four samples from contexts **2014, 2020, 2022, 2026** contained bone, five contexts contained calcined bone **2012, 2014, 2022, 2026** and **2227**. One sample from context **2022** contained a small amount of metal working waste. Two of the samples, contexts **2022** and **2225** were waterlogged.
- 5.7.4 **Discussion and Potential:** This very rapid assessment of the plant remains has demonstrated that the potential for the survival of plant remains in the deposits from the site is good. Four of the samples, **2012, 2014, 2020, and 2026**, have the potential for further analysis, as they all contained charred plant remains. They would also be suitable for radiocarbon dating.

Table 8: Assessment of charred plant remains from Derby Flood Defences.

Recorded on a scale of 1 to 4 where 1 is rare presence (up to 5 items) and 4 is abundant (>100 items).

Sample	Context	Feature	Description	Sample Vol. (Litres)	Flot Vol. (ml)	Flot Description (with item score in bold)	Plant Remains Identified (with item score in bold)	Potential
101	2012	Fill of ditch 2013		20	10	Charcoal <2mm 3 , >3mm 3 , Roots 3 , Calcined Bone 1	CPR – Cereal 3 indet, Chaff 3 , <i>Corylus</i> nut shell fragment 1 WPR (1) – <i>Chenopodium album</i> .	High
102	2014	Fill of ditch 2015		20	40	Charcoal <2mm 4 , >2mm 4 , Roots 3 , Bone 2 , Calcined Bone 1 , Coal 1	CPR - Cereal 3 indet, Chaff 2, Bromus 1, Euphorbia 1 WPR (1)– Apiaceae, <i>Sambucus nigra</i> , <i>Chenopodium album</i>	High
103	2017	Fill of ditch 2018		20	10		No CPR. WPR (1) – Apiaceae, <i>Sambucus nigra</i>	Low
104	2020	Fill of posthole 2021		20	120	Charcoal <2mm 4 , >2mm 4 , Bone 2	CPR – Cereal 3 indet, <i>Corylus</i> nut shell fragment.	High
105	2022	Fill of re-cut ditch 2023	Waterlogged	20	10	Calcined Bone 1 , Bone 1 , Metal Working Waste 1	WPR (3) – <i>Ranunculus repens</i> , <i>Cirsium</i> , <i>Rubus fruticosus</i> , <i>Urtica dioica</i> , Lamiaceae	Low
106	2026	Fill of ditch 2027		20	5	Calcined Bone 1 , Bone 3 , small mammal bone 1	CPR – Cereal 2 indet..	Medium
107	2225	Fill of ditch 2226	Waterlogged	20	10		WPR (1) – <i>Sambucus nigra</i>	None
108	2227	Fill of ditch 2228		20	0	No Flot, Calcined Bone 1		None

6. DISCUSSION

6.1 INTRODUCTION

6.1.1 The archaeological evaluation has provided an important opportunity to investigate the defensive circuit associated with the Roman fort of *Derventio*, and add fresh information as to its composition, location and potential chronological development along the northern boundary of the fort. Whilst the footprint of the Roman fort has been subject to numerous archaeological investigations previously, the precise route and composition of the defensive circuit in this area remained uncertain. The current project has enabled a better understanding of the route of the various defensive elements within this part of the Scheduled Monument, and has demonstrated that they survive largely intact, representing an important archaeological resource, potentially extending north, over an area approximately 40m wide, from the fort wall and rampart. The evaluation has also demonstrated that Roman remains, relating to the civilian settlement immediately to the north and north-east of the Roman fort, also survive *in-situ*, and occur relatively intact not far below the current ground level.

6.2 THE DEFENSIVE CIRCUIT

6.2.1 ***The Defensive Wall and Rampart:*** Material clearly representing the earthen rampart (2039) was identified in Trench 20, rising from below the thick soil deposits, 2040 and 2041, probably associated with the former use of the area of the Community Centre gardens as a tree nursery, to an apex point in the vicinity of the northern boundary hedge to the garden. Here the rampart occurred less than 0.35m below the current ground surface, but had been extensively disturbed across its surface by late post-medieval and modern landscaping activity. With this said, structural remains (2021) and burials (2043) were still evident cut into the south-facing part of the rampart.

6.2.2 Trench 22 was also positioned so as to bisect the projected line of the rampart, based upon the location of remains identified during excavations in 1926 (Brassington 1993, Fig 5, 31), but failed to identify any deposits that could be clearly associated with the feature. This may in part be due to the presence of the late post-medieval structure (2211) and probable associated cuts (2208 and 2213), which may have removed or subsequently masked any remaining aspects of the rampart. Alternatively, the rampart may exist further north, under the rubble layer (2217), although this would not agree with the projected line of the defences based upon all previous excavations (Brassington 1993; OA North 2014b and this report), and would, consequently, generate a somewhat miss-shapen fort line, unless separate phases of rampart could be identified.

6.2.3 From excavations in the south-eastern corner of the fort (Spary-Green 2002) the construction of the earthen rampart was thought to occur during the Antonine period (The late first to late second century) (Wheeler 1985d). The

current phase of evaluation has recovered dating evidence, relating to the cremation deposit (2043) and pottery deriving from the surface of the bank material itself, deriving from the late second or third century. This provides a *terminus ante quem* for the construction of the rampart. It may also support notions that the fort passed out of military control during this period (ibid), as the placement of a cremation deposit in the rampart, during a period of active use, may be somewhat circumspect. However, burials during the Roman period do not always conform to expected notions of designated or indeed appropriate places and cannot therefore provide absolute confirmation of this idea.

- 6.2.4 Remains relating to a robbed-out section of the northern defensive wall were also clearly identified in Trench 20. Here there was clear evidence of a construction cut (2038) and backfill deposit (2037) for the wall (2036), having truncated the northern face of the earlier earth rampart, similar to evidence identified elsewhere in the fort (i.e. Brassington 1982). The wall itself was poorly preserved, with no evidence of intact stone courses and had seeming been robbed-out with evidence for a robber cut (2034) and backfill deposit (2035) recorded in section. Despite the poor preservation of this section of wall, the remains clearly related to the defensive structure and its location aligns well with the projected line of the wall based upon its identification within previous excavations (Fig 6; Brassington 1993).
- 6.2.5 The wall could not, however, be clearly identified in Trench 22. The partially robbed-out remains of a stone wall (2219), identified below the late post-medieval structure (2211), may well represent the north-facing facade of the defensive wall, lying very close to the projected line for the wall circuit. This would also find some support from the presence of rubble layer (2217), immediately to the north of the wall, which was taken to represent a demolition deposit associated with the destruction of the defensive wall. However, the rubble layer is extensive (over 11m wide) and may itself mask the exact position of the wall, in which case, wall 2219 may instead relate to a building within the fort interior. This suggestion is somewhat weakened by the projected line of the immediate defensive ditches, which theoretically extend under the rubble deposit and align well with ditches identified immediately adjacent to and north of the wall in Trench 20.
- 6.2.6 If the projected line of the rampart and wall can be accepted (see Fig 6), additional elements of the traditional layout of Roman forts may also be identified in relation to the gravel surfaces identified in Trench 20 (2042) and Trench 22 (2232). In both instances, it has been suggested that these gravel deposits may relate to the *via sagularis*, which would have occupied a position inside and parallel to the defensive circuit.
- 6.2.7 While there is therefore some element of uncertainty, as to the exact line of the defensive wall and rampart circuit in the vicinity of Trench 22, the excavations have largely confirmed the projected line of the principal fort defences, locating both the rampart and wall, and potentially the *via sagularis*.
- 6.2.8 ***The Defensive Ditches and Stukeley's Roman Road:*** Previous excavations concluded that the defensive circuit comprised two outer ditches, with some

suggestion of a third ditch that was added to the defensive system in the fourth century (Brassington 1996; Sparey-Green 2002; OA North 2014b). During the current phase of excavation, the remains of ditches associated with the Roman fort were identified in all three of the evaluation trenches (Trench 20-22), located to bisect the defensive circuit. Evidence for up to five ditches and two additional re-cuts were recorded in Trench 20, at least three ditches in Trench 21 and two ditches in Trench 22, with the potential for a further two ditches remaining hidden below subsequent demolition deposits. The number of ditches, together with apparent differences in spot dates derived from pottery assemblages associated with various features, suggest two or more phases of defensive works.

- 6.2.9 In Trench 20, two ditches (**2027** and **2025**) and a re-cut (**2023**) were identified immediately north of the defensive wall (**2036**). Their position aligns well with the projected line of the primary defensive ditches, extrapolated from those recorded during previous excavations relating to Trench 17 (**1705**, **1708**, **1713** and **1715**) and Trench 18 (**1807**, **1813** and **1815**), to the north-east of the fort (Fig 6; OA North 2014b), which were held to be the same as those identified in the south-eastern corner of the fort (Sparey-Green 2002). No pottery was recovered from the ditches in Trench 20 that would allow corroboration of the late first to third century dates obtained from the previous features, although some potential for dating does exist from the environmental samples. Despite these shortcomings, the position of the features, so close to the fort wall, almost certainly dictates that they represent the primary defensive ditches associated with the fort.
- 6.2.10 If the likely link between the ditches in Trench 20 and Trench 17 and 18 can be sustained, it is less clear how they relate to those recorded in Trench 22 (**2226** and **2228**), immediately north of the rubble layer (**2217**). These two ditches lie just to the north of the projected line of the primary defences and therefore at some distance from the probable defensive wall (**2219**), although given the profile and size of the features they are almost certainly part of the defensive circuit. A further two ditches, representing the primary line of defensive ditches identified in Trenches 20, 17 and 18, may therefore remain hidden in Trench 22, presumably below rubble layer **2217**.
- 6.2.11 Given the position of ditch **2226**, it is a good candidate to match a third ditch identified in Trench 20 (**2029**). However, this feature was not excavated and its exact form and function therefore remains unknown. Based upon the suggestion outlined in *section 6.2.8* above, ditch **2226** may also relate to aspects of the third, outer ditch in the sequence forming the eastern defensive circuit, identified in Trench 18 (**1813**, **1815** and **1817**) (Fig 6).
- 6.2.12 Ditch **2228**, while only partially examined, almost certainly represents the southern edge of ditch **2107**, also only partially exposed in the southern end of Trench 21, both features produced pottery with a spot date in the second or third century. The position of this ditch corresponds with a similar feature exposed during excavations conducted in 1983, immediately to the west of the trenches (Fig 6; Dool and Wheeler 1985). Extending the line of this feature even further, towards Trench 20, this ditch potentially correlates with the position of the large ditch towards the centre of the trench (**2018**). A spot date

in the third or fourth century does not correlate with the second or third century date obtained in Trench 21 and 22 for the feature, but does derive from the fill of a probable re-cut ditch (**2015**) along its northern edge. There is no evidence of the re-cut in Trench 21 and 22, although it is possible that this relates to a separate, similar shaped, shallow ditch (**2109**), immediately to the north in Trench 21. This suggestion is somewhat weakened by the variance in spot dates produced by material from ditch **2109**, probably no later than the second century.

- 6.2.13 The fifth ditch (**2013**) recorded in Trench 20, occurs at some remove from the defensive wall of the fort and its function and relationship to the fort is therefore unclear. This feature contained a sequence of fill deposits that were relatively distinct from the other defensive ditches, and was characterised by a high level of gravel inclusions. A similar, though more extensive, range of gravel-rich fills also characterised a third ditch recorded in Trench 21 (**2112**), and, by further extension, a probable gravel-filled ditch partially identified in Trench 23 (**2317**). While there are differences between the features, not least the variance in spot dates between the ditch recorded in Trench 20 in the third to fourth century compared to that from Trench 21 in the second century, as well as interpretation difficulties relating to the incomplete exposure of the features, it is possible that they relate to the same ditch. The putative line of this feature is presented in Figure 6 and would suggest a position and function perhaps unrelated to the immediate defence of the fort.
- 6.2.14 When first identified, the gravel fill of these features, particularly in Trench 20 and, to a lesser extent, Trench 21, was taken as evidence for the presence of the gravel road originally identified by Stukeley (1724) to the north of the fort (Fig 6). This seemed to be justified as the position of the feature in Trench 20, almost exactly ran in line with the projected course of Stukeley's road and in relation to a feature identified as the road during excavations in 1983 (Dool and Wheeler 1985, Fig 2, 10). In addition, the presence of the cremation deposit, in a position typical of Roman burials, apparently along the edge of the road, seemed to confirm this interpretation. However, excavations revealed the deposits to in-fill a negative feature rather than form a bank, as might typically be expected of a Roman road. In addition, the position of the gravel feature in Trench 20 occurs at some distance south of the projected line. These findings potentially have a number of implications for our understanding of the archaeological evidence associated with Stukeley's road.
- 6.2.15 Given the absence of alternative gravel deposits in the northern half of Trench 20, or indeed in Trench 21, it would seem that Stukeley's original interpretation was in error. In defence of Stukeley's original observations, the deposits in Trench 21 do appear to extend up and beyond the edges of the ditch cut, perhaps forming a low bank of sorts. This may therefore not preclude a function as a road but would necessitate the deliberate in-filling of a former negative feature expressly for such a purpose. Such an undertaking would not be beyond the means of the Roman military machine but would seem odd given that the ditch would act as a natural drainage feature, which presumably would then create adverse conditions for road use. In addition, it would seem that the projected line of the apparent road may also be incorrect.

This later point is somewhat weakened by reported evidence for the road recorded during excavations in 1983. However, it can be noted that these excavations were never published in their own right. Consequently, it is unclear upon what basis, besides Stukeley's original remarks, that the feature was subsequently interpreted as a road or how fully it was then examined. Furthermore, the position of the excavations and associated features also remain somewhat speculative and may therefore be open to a degree of movement. Their position in Figure 6 was roughly based upon Figure 2 developed by Dool and Wheeler (1985, 10) and was by no means securely linked to the Ordnance Survey grid.

- 6.2.16 The function and form of the feature identified by Stukeley and its subsequent alignment may therefore be subject to re-appraisal. If this feature extends on towards Trench 23, it is also unlikely to have formed part of the primary defences relating to the fort and may have had additional and more mundane functions, perhaps relating to the civilian settlement.
- 6.2.17 The ditched defences along the northern boundary of the fort would therefore appear to consist of up to four distinct ditches, with evidence for a further two or more episodes of re-cutting. Spot dating and the presence of the re-cut features would suggest that not all of the ditches were in use at the same time and may constitute multiple phases in the development of the fort, perhaps indicating significant remodelling to the position and composition of the site beyond the addition of the rampart and subsequent defensive wall. Given the position of the fort upon the immediate flood plain of the River Derwent, together with potential evidence for flood deposits identified in relation to a number of the ditch features, this may have been dictated by natural events rather than more overtly strategic considerations.
- 6.2.18 Important environmental samples, including an assemblage of charred cereal remains and nut shell, as well as a quantity of pottery fragments, animal bone and a small amount of metal working debris, were recovered from several of the ditch features. These remains have been subject to initial limited assessment to provide spot dates and identification of form and significance but have the potential to further provide firm dating as well as archaeobotanical information relating to the development and use of the site during the Roman period. It is therefore recommended that additional targeted analysis be undertaken, particularly in relation to the archaeobotanical remains.

6.3 THE CIVILIAN SETTLEMENT TO THE NORTH-EAST OF THE FORT:

- 6.3.1 Excavations during this third phase of evaluation have added to the extensive information gathered during previous investigations relating to the extent, composition and preservation of the civilian settlement north-east of the fort. Evidence from Trench 23 and to a lesser extent Trench 21, have demonstrated that extensive remains, including rudimentary, though widespread floor layers, the remains of stone and possible wooden structures, including potential industrial features, and various pits occur relatively intact and, in some places, relatively close to the current ground surface. These remains were mainly

recorded in Trench 23, which confirms evidence from previous trenches (9, 10, 12 and 13; OA North 2014a), for a concentration centred to the north-east of the fort, along and adjacent to the former line of Rykniel Street. It, however, also includes structural features (**2116** and associated deposits and cuts **2114**, **2115**, **2117** and **2118**), from Trench 21, that together with evidence from Trench 8 (*ibid*), indicate the presence of potential industrial activity extending west from Rykniel Street, towards the River Derwent.

6.4 IMPACT

- 6.4.1 The development of new flood defences will necessitate considerable ground-moving works, which will almost certainly have a substantial impact on the sub-surface archaeological resource. An appropriate scheme of further archaeological mitigation in advance of development will therefore be required to compensate the ultimate loss of the buried remains. The details of any further archaeological work required in advance of development should be devised in consultation with the Environment Agency, Derbyshire County Council Archaeological Services and English Heritage. However, the results obtained from the evaluation trenching indicate that the impact on the sub-surface archaeological resource may be less substantial towards the extreme north and north-west, and at some remove from the Roman fort, where the density of archaeological remains seemingly dissipates.

7. CURATION AND CONSERVATION

7.1 RECIPIENT MUSEUM

7.1.1 The Derby Museum and Art Gallery has been nominated as having the capacity to co-ordinate the deposition of the finds and the paper and electronic archive. Paper and digital copies of issued reports will be deposited with the museum. The material generated from the excavation has been allocated a unique archive accession number (DBYMU 2012-329).

7.2 CONSERVATION

7.2.1 Most of the assemblage is well-preserved and in good condition, and thus the conservation requirement is low.

7.3 STORAGE

7.3.1 The complete project archive, which will include written records, plans, black and white, digital plans and photographs, artefacts, ecofacts and sieved residues, will be prepared following the guidelines set out in *Environmental standards for the permanent storage of excavated material from archaeological sites* (UKIC 1984, Conservation Guidelines 3) and *Guidelines for the preparation of excavation archives for long-term storage* (Walker 1990), prior to deposition.

7.3.2 The digital data will be stored temporarily on the server at OA North, which is backed up on a daily basis. For long-term storage of the digital data, CDs will be used, the content including the reports, plans, scanned images and digital photographs. Each CD will be fully indexed and accompanied by the relevant metadata for provenance. The digital record should ideally be duplicated as a paper record for long-term archiving.

7.3.3 All dry and stable finds will be packed according to the museum's specifications, in either acid-free cardboard boxes, or in airtight plastic boxes for unstable material. Each box will have a list of its contents and will, in general, contain only one type of material, such as pottery or bone.

7.4 PACKAGING

- 7.4.1 The assemblage is currently well-packaged and will require no further packaging. Box lists derived from the site database have been compiled and will be updated when the identification of objects is complete. The paper records will be presented in either ring binders or in acid-free storage, fully indexed, and with the contents labelled.

8. BIBLIOGRAPHY

SECONDARY SOURCES

Albarella, A and Pirnie, T 2008 A Review of Animal Bone Evidence from Central England http://ads.ahds.ac.uk/catalogue/archive/animalbone_eh_2007

Annable, R and Wheeler, H, 1985, The West Gate Excavations 1968, *The Derbyshire Archaeological Journal*, **105**, 33-37

Bates, A, 2013 *Derby Flood Defences Animal Bone Assessment*, Oxford Archaeology North

Bennett, D, 2005 Bone from the Severan Ditch, Area A in A, Birley and B, Justin (eds) *Vindolanda Research Reports, The Excavations of 2003-2004*, The Vindolanda Trust, Hexham, Northumberland, 115-186

Beswick, P, and Fowkes, D, 2002 Excavations on the South-Eastern Defences and Extramural Settlement of Little Chester, Derby, 1971-2, *Derbyshire Archaeological Journal*, **122**, 1-328

Boessneck, J, 1969 Osteological Differences between Sheep (*Ovis aries Linne*) and Goat (*Capra hircus Linne*), in D Brothwell and E Higgs (eds), *Science and Archaeology* **2**, London, 131-58

British Geological Society (BGS), geological web based map accessed December 2014 (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>)

Brassington, M, 1971 A Trajanic kiln-complex near Little Chester, Derby, *Antiquaries Journal*, **51**, 36-69

Brassington, M, 1981 The Roman Roads of Derby, *Derbyshire Archaeological Journal*, **101**, 88-92

Brassington, M, 1982a Exploratory Excavations at Little Chester, Derby, *Derbyshire Archaeological Journal*, **102**, 74-83

Brassington, M, 1982b The Excavation of the Hypocaust on Parker's Piece, Little Chester, Derby, 1924-6, *Derbyshire Archaeological Journal*, **102**, 84-6

Brassington, M, 1993 Little Chester, Derby: The 1926 Excavations, *Derbyshire Archaeological Journal*, **113**, 21-44

Brassington, M, 1996 The Roman fort at Little Chester, Derby: The East Wall and Rampart, 1967-8, *Derbyshire Archaeological Journal*, **116**, 77-92

Cohen, A, and Serjeantson, D, 1996 *A manual for the identification of bird bones from archaeological sites*, London

Cranfield University, Soils and Agrifood Institute, Soilscape mapping accessed

December 2014. (<http://www.landis.org.uk/soilscapes/>)

Darling, MJ, 2004 Guidelines for the archiving of Roman pottery, *Journ Roman Pottery Studies*, **11**, 67-75

Davis, SJM, 1988 *Animal bones from Dodder Hill, a Roman fort near Droitwich (Hereford and Worcester), excavated in 1977*, London HBMC Ancient Monuments Laboratory Report 140/88

Davis, SJ, 1992 *A Rapid Method for Recording Information about mammal bones from Archaeological Sites*, AML **19/92**, unpublished report

Dobney, K M, Jaques, D, and Johnston, S, 1999 *A protocol for Recording Vertebrate Remains from Archaeological Sites*, Environmental Archaeology Unit Report **99/15**, unpublished report

Dool, J, 1985 Derby Racecourse: Excavations on the Roman Industrial Settlement, 1970, *Derbyshire Archaeological Journal*, **105**, 155-221

Dool, J and Wheeler, H, 1985 Roman Derby: Excavations 1968-1983, *Derbyshire Archaeological Journal*, **105**, 7-14

Ellis, P, 1989 Roman Chesterfield. Excavations by Terry Courtney 1974-78, *Derbyshire Archaeological Journal*, **109**, 51-130

English Heritage, 1991 *Management of Archaeological Projects*, 2nd edn, London

English Heritage, 2006 *Management of Research Projects in the Historic Environment (MoRPHE)*, London

Forrest, M, 1967 Archaeological Report: recent work at Strutt's Park, Derby, *Derbyshire Archaeological Journal*, **88**, 162-165

Gillam, JP, 1970 *Types of Roman coarse pottery vessels in Northern Britain*, 3rd edn, Newcastle upon Tyne

Grant, A, 1982 The use of toothwear as a guide to the age of domestic ungulates, in B Wilson, C Grigson, and S Payne (eds), *Ageing and sexing animal bones from archaeological sites*, BAR British Series **109**, Oxford, 91-108

Grimm, J M, and Worley, F, 2011 Animal Bone, in C Barnett, J I McKinley, E Stafford, J M Grimm and C J Stevens, *Settling the Ebbsfleet Valley: High Speed I Excavations at Springhead and Northfleet, Kent, The Late Iron Age, Roman, Saxon and Medieval Landscape. Volume 3: Late Iron Age to Roman Human Remains and Environmental Reports*, Oxford Wessex Archaeology, 15-52

Halstead, P, 1992 Demi & DMP: faunal remains plus animal exploitation in late Neolithic Thassaly, *Annual of the British School of Athens*, **87**, 29-59

Halstead, P, and Collins, P, 1995 *Sheffield animal bone tutorial: Taxonomic identification of the principal limb bones of common European farmyard animals and deer: a multimedia tutorial*, Archaeology Consortium, TL TP, University of Glasgow

Hambleton, E, 2009 *Animal Husbandry Regimes in Iron Age Britain: A comparative study of faunal assemblages from British Iron Age sites*, BAR British Series **282**, Oxford

Hillson, S, 1999 *Mammal Bones and Teeth: An Introductory Guide to Methods of Identification*, Institute of Archaeology, London

Holden, J L, Phakley, P P, and Clement, J G, 1995a Scanning electron microscope observations of incinerated human femoral bone: a case study. *Forensic Science International* **74**, 17-28

Holden, J L, Phakley, P P, and Clement, J G, 1995b Scanning electron microscope observations of heat-treated human bone. *Forensic Science International* **74**, 29-45

Institute for Archaeologists (IfA), 2008a *Standards and Guidance for Archaeological Evaluation*, Reading.

Institute for Archaeologists (IfA), 2008b *Standard and Guidance for the creation, preparation, transfer and deposition of archaeological archives*, Reading.

Institute for Archaeologists, (IfA) 2010 *By law governing Area (national, regional, local) and Special Interest (other) Groups of the Institute*, Reading.

Jones, G J, 2002 Tooth Eruption and Wear Observed in Live Sheep from Butser Hill, the Cotswold Farm Park and Five Farms in the Pentland Hills, UK, in D Ruscillo (ed), *Recent Advances in Ageing and Sexing Animal Bones, Proceedings of the 9th Conference on the International Council of Archaeozoologists 2002*, Oxford, 155-178

Kay, SO, 1961 Some Pottery Fragments from the Roman camp at Pentrich, *Derbyshire Archaeological Journal*, **81**, 139-41

Kratochvil, Z, 1969 Species Criteria on the Distal Section of the Tibia in *Ovis Ammon F. Aries* and *Capra Aegarus F. Hircus L.*, *Acta Veterinaria* (Brno) **389** 483-90

Legge, AJ, 1991 The Animal Bones in I M Stead, *Iron Age cemeteries in East Yorkshire*, English Heritage, Archaeological Report **22**, 104-147

Lister, A M, 1996 The morphological distinction between bones and teeth of Fallow Deer (*Dama dama*) and Red Deer (*Cervus elaphus*), *International Journal of Osteoarchaeology* **6**, 119-43

Lyman, R L, 1994 *Vertebrate taphonomy*, Cambridge

Mackreth, DF, 2011 *Brooches in Late Iron Age and Roman Britain* (2 vols), Oxford

Maltby, J M, 1996 The exploitation of animals in the iron Age: the archaeozoological evidence, in T C Champion and J R Collis (eds), *The Iron Age in Britain and Ireland: recent trends*, Sheffield

May, E, 1985 Widerristhöhe und Langknochenmasse bei Pferd - ein immer noch aktuelles Problem. *Zeitschrift für Säugertierkunde*, **50**, 368-382

- Mckinley, J I, 2000 The analysis of cremated bone in Cox, M and Mays, S (eds) *Human Osteology in Archaeology and Forensic Science*, London, 403-421
- McKinley, J I, 2004 Compiling a skeletal inventory: cremated human bone in Brickley, M, and McKinley, J I, (eds) *Guidelines to the Standards for Recording Human Remains*, British Association for Biological Anthropology and Osteoarchaeology and Institute for Field Archaeology, 9-13
- Museums in Derbyshire 2003, *Procedures for the Transfer of Archaeological Archives*
- Noddle, B A, and O'Connor, T, 2002 Faunal Remains in G, Webster, *The Legionary Fortress at Wroxeter, Excavations by Graham Webster 1955-85*. English Heritage Archaeological Report **19**, 255-262
- OA North 2014a *Little Chester, Derby, Derbyshire: Archaeological Evaluation Assessment Report*, unpubl rep 2014-15/1519
- OA North 2014a *Little Chester Roman Fort, Derby, Derbyshire: Archaeological Evaluation Assessment Report*, unpubl rep 2014-15/1520
- Page, W, 1905, The Victoria History of the County of Derby, Vol 1: Natural History, Early Man, Romano-British Remains, Anglo-Saxon Remains, Early Christian Art, Victoria County History
- Payne, S, 1973 Kill-off patterns in sheep and goat mandibles: the mandibles of Asvan Kale, *Anatolia Studies* **23**, 281-303
- Payne, S, 1985 Morphological Distinctions between the Mandibular Teeth of Young Sheep, *Ovis*, and Goats, *Capra*, *Journal of Archaeological Science* **12**, 139-47
- Prummel, W, and Frisch, H J, 1986 A guide for the distinction of species, sex and body side in bones of sheep and goat, *Journal of Archaeological Science* **13**, 567-77
- Schmid, E, 1972 *Atlas of animal bones, for prehistorians, archaeologists and quaternary geologists*, London
- Serjeantson, D, 1996 The animal bones, in S Needham and T Spence, *Refuse and Disposal at Area 16 East Runnymede: Runnymede Bridge research excavations*, Volume 2. London, 194-223
- Sparey-Green, C, 2002 Excavations on the South-eastern Defences and Extramural Settlement of Little Chester, Derby 1971-2, *Derbyshire Archaeological Journal*, **122**.
- Stace, C. 2010 *New Flora of the British Isles*, 3rd ed, Cambridge
- Stukeley, W, 1724 *Itinerarium Curiosum*, London
- Tomber, R, and Dore, J, 1998 *The National Roman Fabric Reference Collection: a handbook*, MoLAS Monog, **2**, London
- Tyers, P, 1996 *Roman Pottery in Britain*, London

UKIC, 1990 *Guidelines for the Preparation of Archives for Long-Term Storage*, London

University of Southampton 2003 Animal Bone Metrical Archive Project, <http://ads.ahds.ac.uk/catalogue/specColl/abmap>

Vickers, K, 2013 Faunal Remains in J, Sheppy, Roman Remains from Mansfield Road, Little Chester, Derby, *Archaeological Research Papers* 7, 1-13

von den Driesch, A, 1976 *A guide to the measurement of animal bones from archaeological sites*, Harvard

Walker, K, 1990 *Guidelines for the Preparation of Archaeological Archives for Long Term Storage*, UKIC Archaeology Section, London

Webster, G, 1961 An Excavation on the Roman Site at Little Chester, Derby, *Derbyshire Archaeological Journal*, **81**, 85-110

Webster, P, 1996 *Roman Samian Pottery in Britain*, CBA Practical Handbook in Archaeology, **13**, York

Wheeler, H, 1985a The Racecourse Cemetery, *Derbyshire Archaeological Journal*, **105**, 222-280

Wheeler, H, 1985b The Racecourse Industrial Area 1969 and 1973, *Derbyshire Archaeological Journal*, **105**, 154

Wheeler, H, 1985c North-West Sector Excavations 1979-1980, *Derbyshire Archaeological Journal*, **105**, 38-153

Wheeler, H, 1985d Conclusions: The Development of Roman Derby, *Derbyshire Archaeological Journal*, **105**, 300-304

Willis, S, nd Samian Pottery, a Resource for the Study of Roman Britain and Beyond: the results of the English Heritage funded Samian Project. An e-monograph, internet archaeology, 17; <http://intarch.ac.uk/journal/issue17/1/toc.html>

9. LIST OF FIGURES AND PLATES

9.1. LIST OF FIGURES

Figure 1: Site location

Figure 2: Trench location

Figure 3: Plan and sections of Trench 20

Figure 4: Plan and sections of Trench 21 and Trench 22

Figure 5: Plan and sections of Trench 23

Figure 6: Composite plan of excavations conducted at Little Chester Roman Fort (1926 to current day)

9.2. LIST OF PLATES

Plate 1: Aerial view of Little Chester, marking the projected footprint of the Roman fort

Plate 2: The projected footprint of the Roman fort and the courses of the Roman roads, with the location of the previous evaluation trenches excavated in 2013

Plate 3: Picture of the hypocaust system associated with the *mansio*/bath house excavated on Parker's Piece c 1924

Plate 4: The west-facing section of Trench 20, showing the made ground deposits comprising the bank and cycle path. Viewed facing east.

Plate 5: The east-facing section of Trench 20 showing the thick soil deposits (**2041**) at the southern end of the trench, above the gravel surface (**2042**). Viewed facing west.

Plate 6: The northern rampart (**2039**) rising towards its current apex near the northern boundary of the Community Centre garden. Viewed facing north-east.

Plate 7: Posthole (**2021**), with the stone base deposit (**2020**) and a charcoal spread deriving from the same fill. Viewed facing south-west.

Plate 8: Cremation deposit (**2043**), partially excavated. Viewed facing north.

Plate 9: The west-facing section of Trench 20 showing the construction cut (**2038**) and backfill deposit (**2037**) for the robbed-out fort wall (**2036**) exposed in the machine slot., as well as the robber cut (**2035**) and backfill deposit (**2034**). Viewed facing East.

Plate 10: Ditch (**2027**) as exposed in the machine sondage north of wall (**2036**). Viewed facing east.

Plate 11: Ditch (**2025**) and re-cut ditch (**2023**) (left) as exposed in the machine sondage. Viewed facing east.

Plate 12: Un-excavated ditch (2029) as exposed in plan. Viewed facing west.

Plate 13: The southern machine sondage in Trench 20, viewed obliquely, featuring ditch (2013), centre foreground, and ditch (2018) with re-cut (2015), background. Viewed facing South.

Plate 14: The southern machine sondage in Trench 20, featuring ditch (2018) and re-cut (2015) foreground and ditch (2013) beyond. Viewed facing north-east.

Plate 15: The east-facing section of Trench 21 and ditch (2107). Viewed facing west.

Plate 16: The east-facing section of Trench 21 and ditch (2109). Viewed facing west.

Plate 17: The west-facing section of Trench 21 and ditch (2112). Viewed facing north-east.

Plate 18: Gully (2111) in plan before excavation of the slot across ditch (2112). Viewed facing north-east.

Plate 19: The cremation deposit north of gully (2111) and ditch (2112). Viewed facing south.

Plate 20: The sandstone slab structure (2116) and heat-affected clay deposit (2117) within the gravel-filled linear (2118). Viewed facing east.

Plate 21: The tile deposit (2212) at the base of made ground layer (2205) prior to removal. Viewed facing north-west.

Plate 22: General view of Trench 22 featuring the gravel surface (2232), foreground, post hole (2231) cut into the buried soil (2229), centre, clay deposit (2207) within cut (2208), centre distance, and the red brick floor (2211) and rubble deposit (2217) beyond. Viewed facing north-east.

Plate 23: The red brick wall and floor (2211) above the partially robbed out sandstone wall (2219). Viewed facing south-west.

Plate 24: The rubble deposit (2217), probably representing the demolished remains of the fort wall with the start of the machine sondage visible in the foreground. Viewed facing south-west.

Plate 25: The north-west-facing section of the machine sondage in Trench 22 featuring ditch (2226), with the rubble deposit (2217) in the foreground. Viewed facing north-east.

Plate 26: The north-west-facing section of the hand-excavated sondage into ditch (2228). Viewed facing North-east.

Plate 27: The compact sandstone deposit (2307) at the southern end of Trench 23. Viewed facing south.

Plate 28: The east-facing section of beam slot (2306). Viewed facing west.

Plate 29: Sandstone cobble surface (2308). Viewed facing north.

Plate 30. Sandstone structure (2309) with the linear cut feature (2311) and clay fill (2310) beyond. Viewed facing west.

Plate 31: Sandstone block structures (2312), foreground, and (2314), centre background, with floor surface (2313) between. Viewed facing north.

Plate 32: Sandstone block structure (2319). Viewed facing east.

Plate 33: Sandstone structure (2321). Viewed facing west.

Plate 34: Sandstone block structure (2326). Viewed facing south.

Plate 35: Sandstone block structure (2323) along the southern edge of the banked area. Viewed facing east.

Plate 36: Sandstone block structure (2325). Viewed facing north.

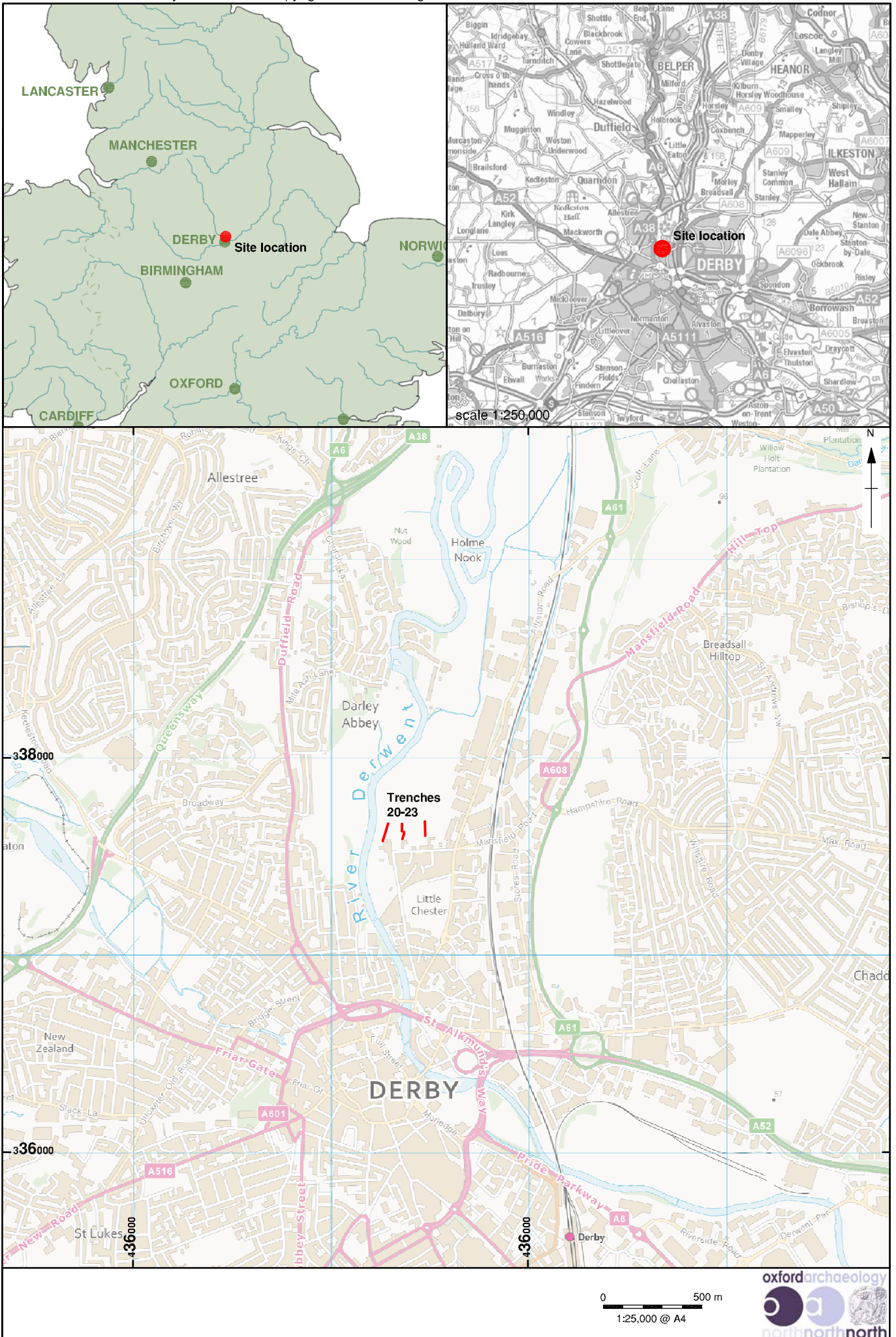


Figure 1: Site location

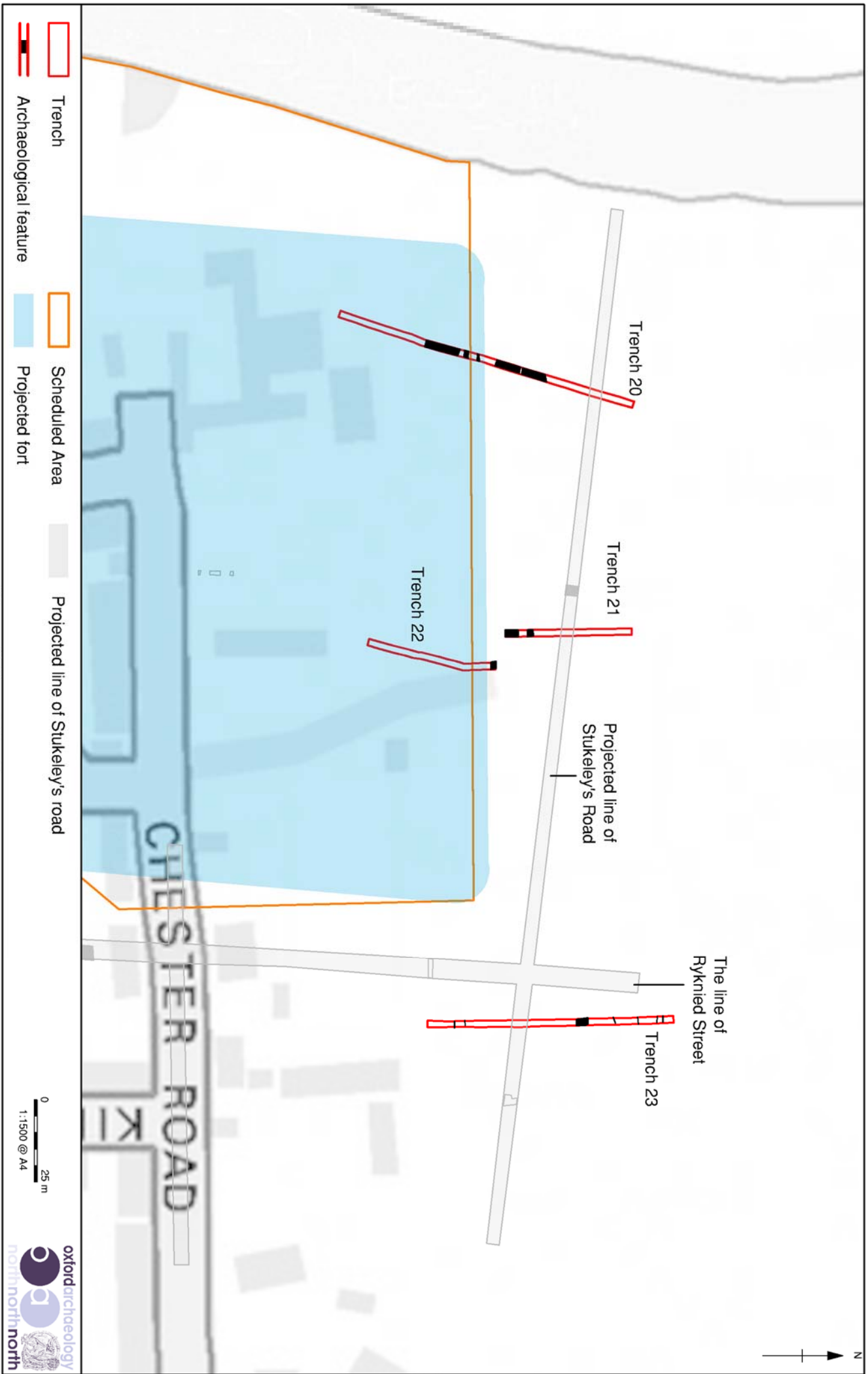


Figure 2: Trench locations

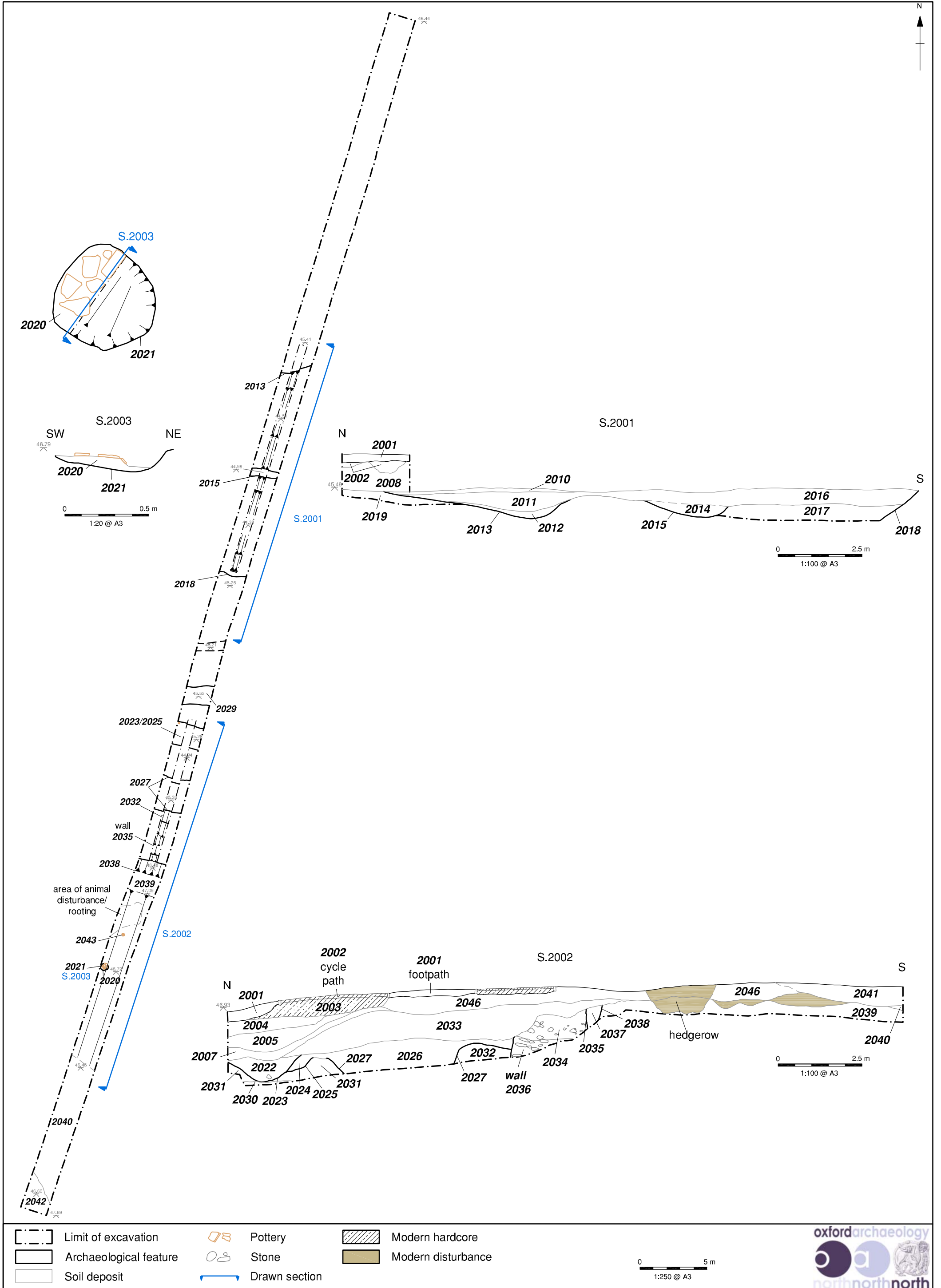
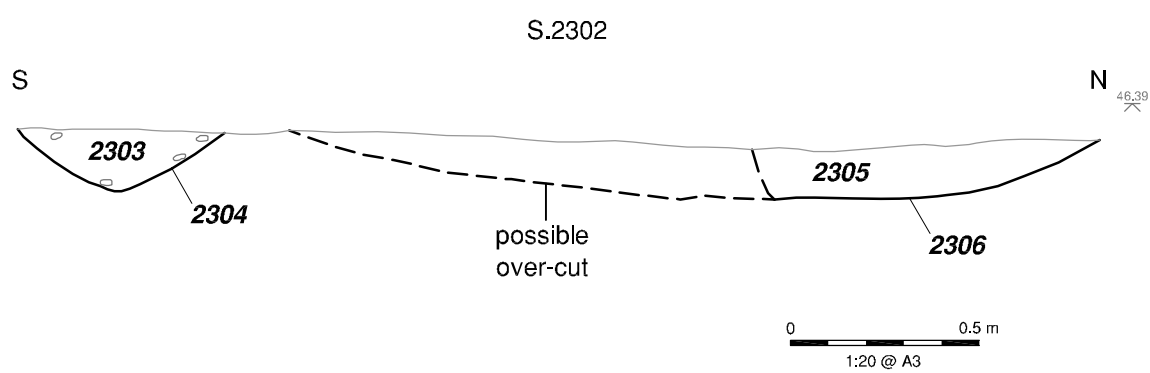
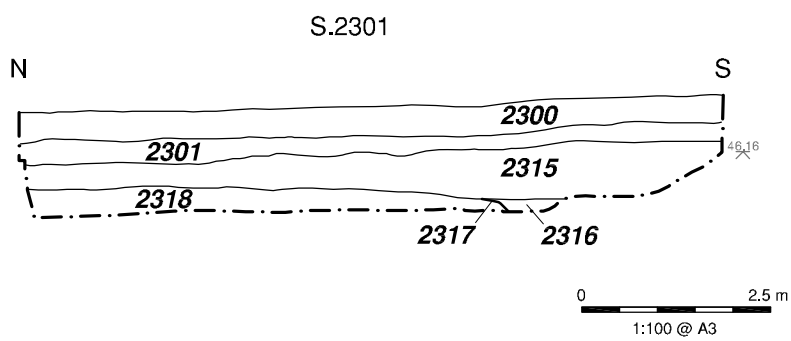
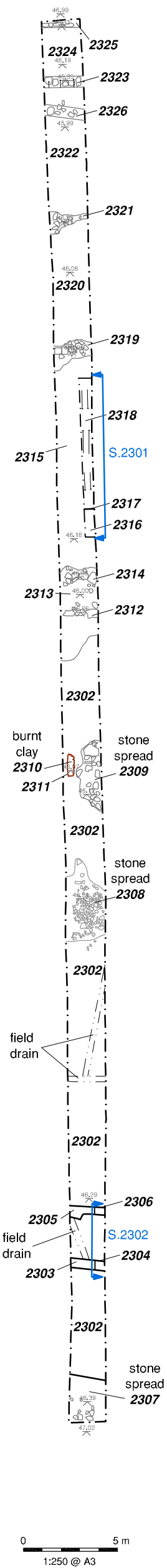


Figure 3: Trench 20, plan and sections



- Limit of excavation
- Archaeological feature
- Soil deposit
- Pottery
- Stone
- Drawn section

Figure 5: Trench 23, plan and sections

APPENDIX 1: SUMMARY FINDS CATALOGUE

Context	OR number	Material	Category	Type	Count
Trench 20					
2010	1060	Ceramic	vessel		1
2011	1028	Bone	Animal		6
2011	1040	Ceramic	vessel		18
2011	1041	Ceramic	Building material		2
2011	1042	Ind debris			1
2012	1025	Bone	Animal		1
2012	1027	Ceramic	Kiln furniture		2
2014	1033	Ceramic	vessel		1
2014	1034	Ind debris			1
2014	1035	Ceramic	vessel		1
2014	1036	Ceramic	vessel		1
2014	1046	Ceramic	vessel		34
2014	1047	Ceramic	Building material		1
2016	1024	Ceramic	Building material		5
2016	1026	Bone	Animal		1
2017	1013	Bone	Animal		5
2017	1014	Ceramic	vessel		3
2017	1029	Ceramic	vessel		1
2039	1015	Ceramic	vessel		6
2039	1016	Bone	Animal		2
2040	1020	Ceramic	kiln furniture		1
2040	1021	Ceramic	vessel		1
Trench 21					
2104	1061	Ceramic	vessel		1
2105	1022	Bone	Animal		3
2105	1023	Ceramic	vessel		1
2106	1011	Ceramic	vessel		9
2106	1049	Bone	Animal		3
2106	1050	Ceramic	Building material		5
2106	1051	Ceramic	vessel		14
2106	1066	Ceramic	vessel		37
2106	1067	Ceramic	vessel		8
2108	1063	Ceramic	vessel		4
2108	1064	Bone	Animal		3
2125	1056	Ceramic	vessel		10
2125	1057	Bone	Animal		2
2126	1043	Ceramic	vessel		10
2126	1044	Ceramic	Building material		1
2126	1045	Bone	Animal		5
2126	1058	Bone	Animal		8
2126	1059	Ceramic	vessel		21
2128	1054	Ceramic	vessel		6
2128	1055	Bone	Animal		1
2128	1062	Ceramic	vessel		5
Trench 22					
2205	1002	Shell	Marine		1
2205	1003	Ceramic	vessel		2

Context	OR number	Material	Category	Type	Count
2205	1004	Ceramic	Building material		2
2214	1005	Ceramic	vessel		1
2214	1030	Bone	Animal		7
2214	1037	Bone	Animal		4
2217	1010	Ceramic	vessel		4
2217	1012	Bone	Animal		10
2217	1017	Ceramic	vessel		3
2217	1018	Ceramic	kiln furniture		1
2224	1007	Ceramic	Building material		1
2225	1006	Ceramic	vessel		1
2227	1031	Ceramic	vessel		2
2227	1032	Bone	Animal		1
2229	1000	Ceramic	Building material		5
2229	1001	Bone	Animal		5
2229	1038	Ceramic	vessel		7
2229	1039	Ceramic	vessel		20
2229	1065	Bone	Animal		41
Trench 23					
2302	1048	Bone	Animal		30
2302	1052	Bone	Animal		4
2302	1053	Ceramic	vessel		6
2305	1019	Ceramic	vessel		1
2309	1008	Ceramic	Tobacco pipe		1
2309	1009	Bone	Animal		1
2309	1068	Ceramic	vessel		1

APPENDIX 2: CONTEXT INDEX

Context No	Trench No	Category	Description
2001	20	Deposit	Topsoil
2002	20	Layer	Tarmac Path
2003	20	Layer	Stone Aggregate make up for path 2002
2004	20	Layer	Make up of bank under 2003
2005	20	Layer	Made up ground under 2004
2006	20	Features	Series of 19 th and 20 th century pits
2007	20	Deposit	Tertiary fill of Ditch under 2005
2008	20	Layer	Thick layer, flood plain under 2007
2009	20	Layer	Flood plain under 2008
2010	20	Deposit	Fill of Ditch 2013
2011	20	Deposit	Fill of Ditch 2013
2012	20	Deposit	Fill of Ditch 2013
2013	20	Cut	Ditch
2014	20	Deposit	Fill of Ditch 2015
2015	20	Cut	Ditch
2016	20	Deposit	Fill of Ditch 2018
2017	20	Deposit	Fill of Ditch 2018
2018	20	Cut	Ditch
2019	20	Layer	Natural
2020	20	Deposit	Fill of Posthole 2021
2021	20	Cut	Posthole
2022	20	Deposit	Fill of re-cut of Ditch 2023
2023	20	Cut	Re-cut of Ditch
2024	20	Deposit	Fill of Cut 2025
2025	20	Cut	Earlier Ditch
2026	20	Deposit	Fill of Ditch 2027
2027	20	Cut	South Ditch near wall
2028	20	Deposit	Fill of Ditch 2029
2029	20	Cut	Ditch
2030	20	Layer	Natural orange gravels
2031	20	Layer	Natural light grey brown sand
2032	20	Layer	Natural light yellow brown sand
2033	20	Layer	Layer sealing 2023, 2027, 2035
2034	20	Deposit	Fill of Robber Cut 2035
2035	20	Cut	Robber Cut 2035
2036	20	Structure	Remains of Fort Wall
2037	20	Deposit	Backfill of Construction Cut 2038
2038	20	Cut	Construction Cut
2039	20	Deposit	Clay Rampart
2040	20	Deposit	Levelling deposit/ Roman soil
2041	20	Deposit	Soil Layer
2042	20	Deposit	Gravel Layer
2043	20	Deposit	Cremation deposit
2044	20	Deposit	Backfill of cremation cut
2045	20	Cut	Cremation cut
2046	20	Layer	Made ground deposit
2101	21	Layer	Topsoil
2102	21	Features	Series of 19 th and 20 th century Pits
2103	21	Layer	Clay below 2101 and 2102
2104	21	Layer	Layer below 2103
2105	21	Layer	Brown homogenous fluvial layer
2106	21	Deposit	Fill of Ditch 2107
2107	21	Cut	Ditch

Context No	Trench No	Category	Description
2108	21	Deposit	Fill of Ditch 2109
2109	21	Cut	Ditch
2110	21	Deposit	Fill of Shallow Linear 2111
2111	21	Cut	Shallow Linear
2112	21	Cut	Gravel filled ditch
2113	21	Deposit	Gravel deposit
2114	21	Deposit	Fill of Linear 2118
2115	21	Deposit	Fill of Stone Structure 2116
2116	21	Structure	Stone Structure
2117	21	Deposit	Clay heat affected deposit
2118	21	Cut	Linear
2119	21	Layer	Layer below 2102
2120	21	Deposit	Fill of Ditch 2112
2121	21	Deposit	Fill of Ditch 2112
2122	21	Deposit	Fill of Ditch 2112
2123	21	Deposit	Fill of Ditch 2112
2124	21	Deposit	Fill of Ditch 2112
2125	21	Deposit	Fill of Ditch 2112
2126	21	Deposit	Fill of Ditch 2112
2127	21	Deposit	Fill of Ditch 2112
2128	21	Layer	Layer
2129	21	Layer	Layer
2201	22	Layer	Tarmac and Concrete
2202	22	Layer	Topsoil
2203	22	Layer	Stone Aggregate
2204	22	Deposit	Modern levelling, black loose material
2205	22	Deposit	Modern levelling deposit
2206	22	Deposit	Mixed levelling deposit
2207	22	Deposit	Pink Clay
2208	22	Cut	Linear Feature
2209	22	Deposit	Levelling
2210	22	Deposit	Rubble Levelling
2211	22	Structure	Brick floor
2212	22	Structure	Tile feature
2213	22	Cut	Construction Cut for brick floor
2214	22	Deposit	Silty clay deposit
2217	22	Layer	Rubble
2218	22	Deposit	Fill of Rubber cut
2219	22	Structure	Stone Structure
2220	22	Cut	Robber cut
2221	22	Deposit	Friable light brown silt
2222	22	Deposit	Bank material beneath rubble 2217
2223	22	Deposit	Compact mortar and stone
2224	22	Deposit	Upper fill of Ditch 2226
2225	22	Deposit	Lower fill of Ditch 2226
2226	22	Cut	Ditch
2227	22	Deposit	Fill of Ditch 2228
2228	22	Cut	Ditch
2229	22	Deposit	Buried soil at the south end
2230	22	Deposit	Fill of modern posthole 2231
2231	22	Cut	Modern posthole
2232	22	Deposit	Gravel surface at the south end
2233	22	Layer	Natural
2300	23	Layer	Topsoil
2301	23	Layer	Levelling Deposit

Context No	Trench No	Category	Description
2302	23	Deposit	Gravel Surface
2303	23	Deposit	Fill of Linear 2304
2304	23	Cut	Linear
2305	23	Deposit	Fill of Linear 2306
2306	23	Cut	Linear
2307	23	Layer	Layer of large boulders
2308	23	Deposit	Stone deposit
2309	23	Deposit	Stone deposit east of 2311
2310	23	Deposit	Heat affected clay fill of 2311
2311	23	Cut	Slot?
2312	23	Structure	Stone wall foundation
2313	23	Deposit	Stone and gravel surface between 2312, 2314
2314	23	Structure	Stone wall foundation
2315	23	Deposit	Gravel surface
2316	23	Deposit	Fill of Ditch 2317
2317	23	Cut	Possible Ditch
2318	23	Layer	Natural
2319	23	Structure	Stone wall foundation
2320	23	Deposit	Gravel and soil surface
2321	23	Structure	Stone wall foundation
2322	23	Deposit	Gravel and soil surface
2323	23	Structure	Large boulder structure
2324	23	Deposit	Gravel and soil surface
2325	23	Structure	Large boulder structure
2326	23	Structure	Large boulder structure

APPENDIX 3: WRITTEN SCHEME OF INVESTIGATION



Oxford

Archaeology

North

July 2014

‘OUR RIVER, OUR CITY’,
LITTLE CHESTER,
DERBY



Aerial view of Darley Playing Fields

FURTHER ARCHAEOLOGICAL TRIAL TRENCHING
ON DARLEY FIELDS

1. INTRODUCTION

1.1 CONTRACT BACKGROUND

- 1.1.1 The Environment Agency is devising proposals to erect new flood defences alongside the River Derwent in Derby, which will include the construction of new embankments at Little Chester. Situated a short distance to the north of Derby city centre, Little Chester is the site of a Roman fort, whilst Romano-British, Saxon and medieval deposits have also been discovered in the area. The new flood defences will be located at Darley Playing Fields and Parker's Piece, situated between the sites of the Roman fort and a Roman bath house.
- 1.1.2 The Roman fort at Little Chester was founded in the AD 70s, and continued into the second century. An associated civilian settlement also developed at Little Chester, the remains of which were identified by archaeological excavation in the 1920s, 1960s and 1970s. These excavations also investigated elements of the fort's interior, and provided evidence for a granary, a hypocaust building and a colonnaded building.
- 1.1.3 In order to understand and manage the archaeological risks associated with the proposed scheme, in 2013 the Environment Agency (EA) commissioned Oxford Archaeology North (OA North) to undertake an archaeological evaluation of potential flood defence alignments, comprising the excavation of fifteen trenches. Following on from the results of this initial phase of work, a second phase of evaluation trenching was undertaken, comprising three trenches, two over the north-east defences of the fort and one to the west of the fort.
- 1.1.4 Both phases of previous work identified a significant archaeological resource on the site. The proposed third phase of trenching, comprising the excavation of four trenches in locations agreed with the EA and English Heritage, is intended to establish *inter alia* the exact line of the northern defences of the fort so that the piling line associated with a new flood defence embankment can be positioned to cause the least damage to the underlying archaeology. A further rationale of the trenches is to fix the alignment of the roadway to the north of the fort and to characterise features between it and the northern defences.

1.2 OXFORD ARCHAEOLOGY

- 1.2.1 Oxford Archaeology has over 30 years of experience in professional archaeology, and can provide a professional and cost effective service. We are the largest employer of archaeologists in the country (we currently have more than 250 members of staff) and can thus deploy considerable resources with extensive experience to deal with any archaeological obligations you or your clients may have. We have offices in Lancaster, Oxford and Cambridge, trading as Oxford Archaeology North (OA North), Oxford Archaeology South (OA South), and Oxford Archaeology East (OA East) respectively, enabling us to provide a truly nationwide service. OA is an Institute of Archaeologists' Registered Organisation (No 17). All work on the project

will be undertaken in accordance with relevant professional standards, including:

- IfA's *Code of Conduct*, (1999); *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology*, (1999); *Standard and Guidance for Archaeological Evaluations*, (1999);
- English Heritage's *Management of Archaeological Projects (MAP2)*, 1991;
- *The European Association of Archaeologists Principles of Conduct for Archaeologists Involved in Contract Archaeological Work* (1998).

1.2.2 It is intended to co-ordinate the Derby project from our northern office in Lancaster. Between our offices our company has unrivalled experience of the excavation of complex urban stratigraphy, notably from major excavations undertaken in the North at Carlisle, Wigan, Newcastle, Lancaster and Chester, each of which involved the recording of complex urban stratigraphy of extensive Roman, medieval and post-medieval deposits. Most recently, OA North carried out the previous two phases of evaluation on the Little Chester site, so are extremely familiar with the significant levels of archaeology that exist there.

1.3 ARCHIVE DEPOSITION

1.3.1 The results of the archaeological evaluation will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Research Projects in the Historic Environment*, 2006) and 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. 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 by the IfA in that organisation's code of conduct.

1.3.2 OA conforms to best practice in the preparation of project archives for long-term storage. As with the previous phases of evaluation trenching undertaken by OA North, it is intended that the archive and the excavated material will be deposited ultimately with the Derby Museum and Art Gallery on The Strand, Derby under the accession code DFD13 / L10592 for the previous works. A further copy of the archive can be made available for deposition in the National Archaeological Record. In addition, 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.

1.3.3 The material and paper archive generated from the archaeological investigation will be transferred in accordance with the guidelines provided by *Procedures for the Transfer of Archaeological Archives* (2003).

2. AIMS AND OBJECTIVES

- 2.1.1 The main research aim of the evaluation will be to establish the presence or absence of buried archaeological remains on the site and, if present, characterise the level of preservation and significance, and provide a good understanding of their potential.
- 2.1.2 Trenches 1 - 3 are designed to locate the northern ditches of the fort with more confidence. This will help us to avoid running any construction works along the line of the Roman ditch, where previous work has indicated some of the more significant deposits may survive.
- 2.1.3 Trench 4 is designed to help confirm if the current understanding of the layout of the fort / forts is correct and to examine the possible road line running east to west, to the north of the fort, which was recorded by the famous antiquarian Stukeley in 1721.

3 METHOD STATEMENT

3.1 INTRODUCTION

- 3.1.1 Prior to the commencement of any excavation, the position of the trenches will be surveyed accurately, and marked on the ground. Each trench will then be scanned for buried services using a cable-avoidance tool.
- 3.1.2 The trenches and a small compound for welfare facilities and tool storage will be enclosed by double-clipped Herras-type fencing. The welfare facilities will provide washing and mess facilities for the field staff, together with a toilet, and will have electricity and hot and cold water.

3.2 EVALUATION

- 3.2.1 **General Methodology:** excavation of the topsoil will be undertaken carefully by a tracked machine of appropriate power fitted with a toothless ditching bucket. The topsoil will be stored on the side of each trench ready for replacement on completion of the work. The work will be supervised closely by a suitably experienced archaeologist. Thereafter, all deposits will be cleaned manually to define their extent, nature, form and, where possible, date. Spoil from the excavation will be stored on the opposite side to the topsoil, and will be backfilled upon completion of the archaeological works.
- 3.2.2 It is not anticipated that the trenches will be excavated to depths in excess of 1.2m, but if deeper excavation is required, the trenches will be widened out and/or battered back to a safe angle of repose; it is not anticipated that shoring will be implemented.
- 3.2.3 All excavation will proceed in a stratigraphical manner. However, given the scheduled nature of much of the site, the general rationale for the evaluation will be as low-impact as possible, simply exposing the surface of the archaeology, doing an absolute minimum of characterisation and survey. The primary aim of this is to find the linears associated with the fort and its various incarnations to guide the detailed route of the flood defences.
- 3.2.4 Features will, in general terms, be subject to limited excavation, sufficient to characterise them and their relationships with one another. Particular care will be taken to clarify lines of features in plan so that linears can be matched between trenches.
- 3.2.5 If features/deposits are revealed which need to be removed and which are suitable for machine excavation, such as large-scale post-medieval dump deposits, then they would be sample excavated to confirm their homogeneity before being removed by machine.
- 3.2.6 On completion of the evaluation and following approval by the Development Control Archaeologist and English Heritage, the trenches will be carefully backfilled with the arisings. Particular care will be taken re: the backfilling of any Roman period masonry exposed during the evaluation.

- 3.2.7 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 of English Heritage (CfA), with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features.
- 3.2.8 **Context Recording:** the features will be recorded using *pro-forma* sheets which are in accordance with those used by CfA. Similar object record and photographic record *pro-formas* will be used. All written recording of survey data, contexts, photographs, artefacts and ecofacts will be cross referencable from *pro-forma* record sheets using sequential numbering. The contextual details will be incorporated into a Harris matrix, which is normally generated using specially designed ArchEd matrix generation software.
- 3.2.9 **Photography:** a full and detailed photographic record of individual contexts will be maintained and similarly general views from standard view points of the overall site at all stages of the excavation will be generated. Photography will be undertaken using 35mm cameras on archivable black and white print film, and all frames will include a visible, graduated metric scale. Extensive use of digital photography will also be undertaken throughout the course of the fieldwork. Photographs records will be maintained on special photographic *pro-forma* sheets.
- 3.2.10 **Planning:** archaeological planning will be undertaken using a combination of manually-drafted drawings and instrument survey, and the data will be digitally incorporated into a CAD system. All information will be tied in to Ordnance Datum. The precise location of each trench will be surveyed by EDM tacheometry using a total station linked to a pen computer data logger. This process will generate scaled plans within AutoCAD software, which will then be subject to manual survey enhancement. The drawings will be generated at an accuracy appropriate for 1:20 scale, but can be output at any scale required.

3.3 FINDS

- 3.3.1 Finds recovery and sampling programmes will be in accordance with best practice (current IfA guidelines) and subject to expert advice. OA has close contact with Ancient Monuments Laboratory staff at the Universities of Durham and, in addition, employs in-house artefact and palaeoecology specialists, with considerable expertise in the investigation, excavation, and finds management of sites of all periods and types, who are readily available for consultation. Finds storage during fieldwork and any site archive preparation will follow professional guidelines (UKIC). Emergency access to conservation facilities is maintained by OA North with the Department of Archaeology, the University of Durham.
- 3.3.2 Neither artefacts nor ecofacts will be collected systematically during the mechanical excavation of the topsoil, unless significant deposits are encountered. In such an eventuality, material will be sampled in such a manner as to provide data to enhance present knowledge of the production

and dating of such artefacts, although any ensuing studies will not be regarded as a major element in any post-excavation analysis of the site. Other finds recovered during the removal of overburden will be retained only if of significance to the dating and/or interpretation of the site. It is not anticipated that ecofacts (*eg* unmodified animal bone) will be collected during this procedure. Otherwise artefacts and ecofacts will be collected and handled as per specification. All material will be collected and identified by stratigraphic unit. Hand collection by stratigraphic unit will be the principal method of collection, but targeted on-site sieving will serve as a check on recovery levels. Objects deemed to be of potential significance to the understanding, interpretation and dating of individual features, or of the site as a whole, will be recorded as individual items, and their location plotted in 3-D.

- 3.3.3 Finds will be processed and administered at regular intervals (on a daily basis) and removed from the site. All finds will be treated in accordance with OA standard practice, which is cognisant of IfA and UKIC Guidelines. In general this will mean that (where appropriate or safe to do so) finds are washed, dried, marked, bagged and packed in stable conditions; no attempt at conservation will be made unless special circumstances require prompt action. In such case guidance will be sought from OA North's consultant conservator, Karen Barker.
- 3.3.4 All waterlogged finds will be treated as appropriate. In the case of large deposits of waterlogged environmental material (*eg* unmodified wood), advice will be sought with the OA North consultant with regard to an appropriate sampling strategy.
- 3.3.5 Any gold and silver artefacts recovered during the course of the excavation will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996.

3.4 ENVIRONMENTAL SAMPLING

- 3.4.1 A programme of palaeo-environmental sampling will be carried out during the excavation in accordance with the guidelines provided by English Heritage (2002). The sampling programme will proceed under the guidance of the in-house palaeo-environmental expertise (Denise Druce). Samples will be collected for technological, pedological and chronological analysis as appropriate. Particular attention will be paid to the recovery of environmental evidence of Roman or early medieval date.
- 3.4.2 The contexts will be sampled as appropriate, subject to palaeo-environmental survival, and an assessment of the samples will be undertaken. In the event of substantial cultivation horizons being encountered, particularly those constituting a 'dark earth', monolith, in addition to bulk, samples will be taken, which will be assessed for pollen and plant macrofossils.
- 3.4.3 Bulk (30 litres) samples will be taken from all sealed pit fills, and particularly from any discrete fills within single pits, which may provide evidence for a change in function. Attention will also be paid to the identification of insects,

particularly within waterlogged deposits, and a sampling strategy shall be devised accordingly.

3.4.4 It is proposed that the floatation of suitable samples be undertaken off site following completion of the fieldwork. OA North has full access to the laboratory facilities of the Institute of Environmental and Biological Sciences at Lancaster University, where assessment would be undertaken.

3.4.5 Bone recovered from stratified deposits will be subject to assessment, and analysis will be limited to material that can provide metrical, ageing or sex information. Attention will be paid to the collection of small animal bones from stratified contexts, and to the retrieval of fish bones and molluscs from pits.

3.5 BURIALS

3.7.1 Human remains are not expected to be present, but if they are found they will, if possible, be left *in-situ*, covered and protected. The remains will then be subject to a formal appraisal by an appropriate specialist, which will inform the Development Control Archaeologist as to whether the remains merit further study. If removal is necessary, then the relevant Department of Cultural Affairs permission will be sought, and the removal of such remains will be carried out with due care and sensitivity, as required by current legislation.

3.6 MONITORING

3.6.1 During the course of the fieldwork, it is anticipated the Development Control Archaeologist and English Heritage inspector will undertake monitoring visits. The Development Control Archaeologist and English Heritage will be given at least a weeks prior notice of the commencement of fieldwork. No backfilling of trenches will be carried out without the approval of the Development Control Archaeologist and English Heritage.

3.7 POST-EXCAVATION

3.7.1 Post-excavation work will comprise the following:

- checking of drawn and written records during and on completion of fieldwork;
- production of a stratigraphic matrix of the archaeological deposits and features present on the site, if appropriate;
- cataloguing of photographic material, which will be mounted appropriately
- cleaning, bagging and labelling of finds according to the individual deposits from which they were recovered. Any finds requiring specialist treatment and conservation will be sent to an appropriate Conservation Laboratory. Finds will be identified and dated by appropriate specialists;

- assessment of all artefacts, biological samples and soils recovered from the site, providing recommendations for further analysis;
- assessment of any technological residues recovered will be undertaken, providing recommendations for further analysis.

3.8 REPORT PRODUCTION

3.8.1 A report will be produced and will include:

- 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 description of the topography and geology of the study area;
- a description of the methodologies used during the fieldwork;
- a description of the findings of the fieldwork;
- detailed plans of the excavated trenches, showing the archaeological features exposed;
- an overall phased plan with sections of the excavated archaeological features;
- 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;
- a consideration of the importance of the archaeological remains present on the site in local, regional and national terms;
- a statement of the predicted impact of the proposed development on the buried archaeological remains.

3.9 OTHER MATTERS

3.9.1 The client is asked to provide OA North with information relating to the position of live services on the site. OA North will use a cable detecting tool in advance of any excavation.

3.9.2 Normal OA North working hours are between 9.00 am and 5.00 pm, Monday to Friday, though adjustments to hours may be made to maximise daylight working time in winter and to meet travel requirements. It is not normal practice for OA North staff to be asked to work weekends or bank holidays and should the client require such time to be worked during the course of a project a contract variation to cover additional costs will be necessary.

3.10 HEALTH AND SAFETY

- 3.10.1 Full regard will be given to all constraints during the course of the project. OA North provides a Health and Safety Statement for all projects and maintains a Safety Policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers.
- 3.10.2 OA North undertakes to safeguard, so far as is reasonably practicable, the health, safety and welfare of its staff and of others who may be affected by our work. OA North will also take all reasonable steps to ensure the health and safety of all persons not in their employment, such as volunteers, students, visitors, and members of the public.
- 3.10.3 OA North is fully familiar with 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 (2007);
 - The Control of Asbestos Regulations (2006);
 - Confined Spaces Regulations (1997);
 - Construction (Health, Safety and Welfare) Regulations (1996);
 - The Control of Substances Hazardous to Health Regulations (2002);
 - The Health and Safety (First-Aid) Regulations (1981);
 - The Provision and Use of Work Equipment Regulations (1998);
 - Lifting Operations and Lifting Equipment Regulations (1998).
- 3.10.4 During the machining of the trenches a temporary plastic barrier will be provided between the field archaeologist supervising the machine and the plant. This will be placed between operating plant / the machine bucket and the observing archaeologist at all times. Only when the machine is switched off will the archaeologist move beyond the barrier. The machine operator will similarly be instructed not to switch on the plant when the archaeologist is on the machine side of the barrier. As the machine moves back along the length of the trench the archaeologist will move the barrier forward.

4 RESOURCES AND PROGRAMMING

4.1 STAFF PROPOSALS

- 4.1.1 The project team will be led by **Alan Lupton BA, MA, PhD MIFA** (Operations Manager OA North) who will be based in Lancaster. Alan has considerable experience of project managing multi-phase urban excavations in Lancaster and Carlisle.
- 4.1.2 Alan will provide strategic project management, financial and resource management, and will co-ordinate the provision of specialist input, liaising externally with sub-contractors and internally with OA staff and managers. He will be responsible for all aspects of staff and resource logistics, ensuring the smooth running of the project programme. He will liaise with the client and the Development Control Archaeologist with regard to progress, and will maintain relationships with other contractors.
- 4.1.2 Day-to-day running of the fieldwork is likely to be undertaken by **Adam Tinsley BA, BA, MA, PhD AIFA** (OA North Project Officer). Adam has over 15 years experience of commercial archaeology. He has directed numerous programmes of archaeological evaluation and excavation in both urban and rural contexts throughout Britain and abroad and has experience of the archaeology of numerous periods from the Palaeolithic to the Industrial Revolution.
- 4.1.3 **Christine Howard-Davis BA, MIFA** (OA North Finds Manager) would undertake the necessary finds management. In addition, she has many years' experience of finds analysis, and is a recognised expert in the analysis of Roman and medieval metalwork and glasswork.
- 4.1.4 **Environmental management** will be undertaken by **Denise Druce BA, MSc PhD** (OA North Project Officer), who will also provide specialist input on pollen analysis/charred and waterlogged plant remains. Denise will advise on site sampling procedures and co-ordinate the processing of samples and organise internal and external specialist input as required.
- 4.1.5 It is not possible to provide details of specific technicians that will be involved with the fieldwork at this stage, but all shall be suitably qualified archaeologists with proven relevant experience. It is anticipated that up to two technicians will be required during the course of the fieldwork to assist the site director.

4.2 PROGRAMMING

- 4.2.1 It is proposed that the evaluation trenching will commence during the week beginning 21st July with a view to completing the fieldwork by 8th August 2014.
- 4.2.2 A report on the work will be submitted to the Environment Agency *c* six-eight weeks after completion of the fieldwork, depending on whether environmental samples need to be processed and residues examined. Subject

to approval, a single bound copy, together with a PDF on CD, will then be provided to the Derbyshire HER and to the English Heritage inspector