



ArcHeritage



HOPE SHALE QUARRY,

HOPE, DERBYSHIRE

EVALUATION REPORT

by J.M. McComish

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ArchHeritage

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Abbreviations

YAT	York Archaeological Trust
AOD	Above Ordnance Datum
OS	Ordnance Survey
BGL	Below Ground Level
WSI	Written Scheme of Investigation
CBM	Ceramic building material

ABSTRACT

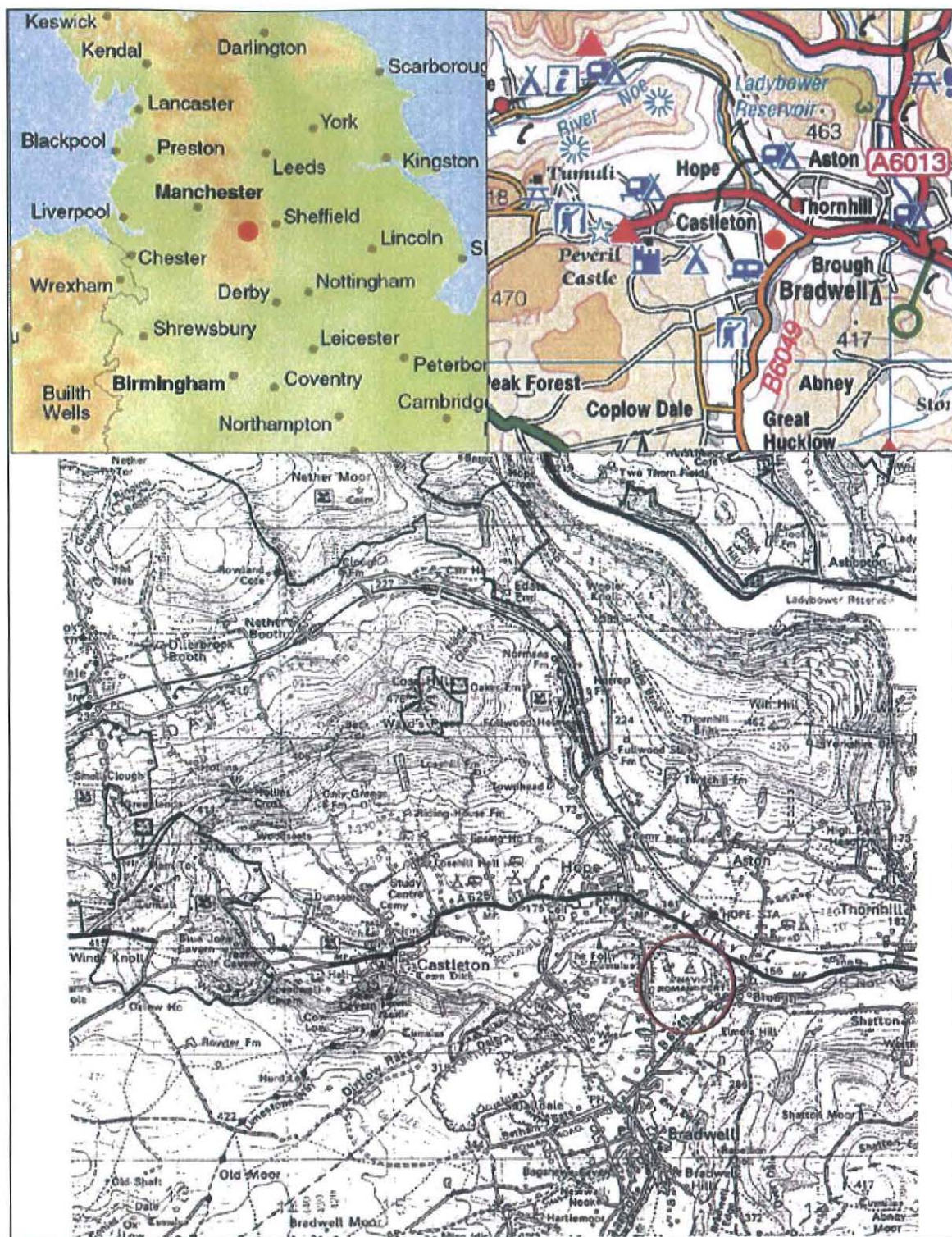
In August 2010 an archaeological evaluation was undertaken by ArchHeritage on behalf of CgMs Consulting for their clients Lafarge Cement UK, on land adjacent to Hope Shale Quarry, Hope, Derbyshire (NGR SK 17907 83655). A series of 26 evaluation trenches, each 1.8x25m in area, was excavated as a planning condition in advance of an extension to the shale quarry. The earliest deposit encountered was natural shale, which was sealed by naturally occurring clay. A number of ditches and gullies were present across the eastern half of the site, some of which contained Roman artefacts. The western half of the site yielded no remains of archaeological significance.

1. INTRODUCTION

From 2nd-13th August 2010 an archaeological evaluation was undertaken on land adjacent to Hope Shale Quarry, Hope, Derbyshire (NGR SK 17907 83655, Figure 1). Planning consent (Planning reference NP/HPK/0403/038) had been granted for an extension to the shale quarry, and the archaeological evaluation was in response to Planning Condition 27. The work was undertaken by ArchHeritage and was commissioned by CgMs Consulting on behalf of their clients Lafarge Cement UK. The evaluation was monitored by S. Whiteley (Archaeologist for the Peak District National Park Authority) and P. Chadwick of CgMs Consulting.

The site does not have any statutory designations, although it is close to the western limits of *Navio* Roman fort (Scheduled Ancient Monument 29795). A number of excavations took place on the fort throughout the 20th century. Excavation and geophysical survey from the 1980s onwards has concentrated upon the area surrounding the fort. This work has yielded evidence for a *vicus* to the south-east and west of the fort (see 4.2 below). Excavations in fields to the west of the present study area produced no evidence of Roman settlement (Bell 2004, iii and Barnett 2008, 1). As the study area is located directly between the western *vicus* and fields devoid of archaeological remains it offers the potential to define the westernmost limits of the western *vicus*.

The trenching strategy (Figure 2), which covered 4% of the development area, was designed to investigate features seen on an earlier geophysical survey of the site (GSB Prospection 2003). The archaeological evaluation aimed to assess the extent, character, condition, importance and date of any archaeological remains present, and to place such remains in their local, regional and national context. The evaluation also aimed to provide information to the local authority to enable decisions on any further mitigation for the site to be made.



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Figure 1 Site location, not to scale, (from CgMs 2010, Figure 1)



Figure 2 Location of the trenches

2. METHODOLOGY

The fieldwork was undertaken in accordance with the Project Design (Badcock 2010, Appendix 6). The 26 trenches were all 1.8x25m in size, located using a Total Station and tied to the national grid. The surveying was undertaken by M. Abbott. The trenches were CAT scanned prior to excavation. Excavation proceeded using a 360° mechanical excavator fitted with a toothless bucket under archaeological supervision. Deposits were removed to a level at which archaeological features appeared or to naturally occurring deposits. Once archaeological features were identified, machining ceased and excavation continued by hand. The topsoil was stored separately from the subsoil to enable tidy infilling of the trenches.

The trenches were inspected by S. Whiteley the Planning Archaeologist for the Peak District National Park Authority and P. Chadwick for CgMs Consulting on behalf of Lafarge Cement UK on 6th August 2010 and on 10th August 2010.

All archaeological recording was undertaken using York Archaeological Trust standard procedures. Contexts were recorded on pro-forma sheets. Black/white film photographs and colour slide photographs were taken of the trenches and features. Digital photographs were also taken for use in the report. In compliance with the archiving policy of Buxton Museum the digital photographs do not form part of the site archive deposited with the museum. The trenches were planned at 1:50, with individual features being planned at 1:20; sections were drawn at 1:10. Artefacts were retained, analysed, and stored in compliance with the Project Design. Levels for the site were based on a bench mark of 169.20m AOD located at the north-easternmost portion of the concrete surface of the stable yard in the field between the study area and the B6049 road to the south. The trenches were backfilled by machine.

The report has been compiled in accordance with the Institute for Archaeologists standards and guidance for field evaluation (IFA 1994, updated 2008). The site archive is currently stored at YAT under the project code 5386, it will be transferred to Buxton Museum under the accession code DERSB:2010.38.

3. LOCATION, GEOLOGY AND TOPOGRAPHY

The site is c. 2.7 hectares in area and lies at the eastern edge of Hope Quarry, north-west of the confluence of the River Noe and Bradwell Brook. The land lies at an average elevation of c. 173m AOD, ranging from 179.03m AOD at the northern extent of the site to 167.8m AOD at the south-east corner. The land is currently used as rough grazing and to the east there is a small plantation of trees.

The solid geology of the area comprises Carboniferous Millstone Grit, and within the shale quarry the deposits are 'siltstone with thin soft micaceous and hard flaggy sandstone beds, and siltstone with thin flaggy sandstone beds, and siltstone with silty shale and shale' (CgMs 2010, 4).

4. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

A number of stray finds of Mesolithic and Neolithic date are known from the vicinity (Chadwick 2002, 12-13), which hint at local occupation. Bronze Age activity is seen in the form of burial mounds at Dirt Low and The Folly, together with finds of a bronze socketed axe from near Brough and Beaker pottery from a site at Burghwash (ibid., 13).

There is evidence of early Iron Age activity in the area in the form of the large pre 6th century hill-fort at Mam Tor at the head of the Hope valley. This activity does not appear to extend into the late Iron Age. There is little evidence of permanent late Iron Age settlement throughout the majority of the upland South Pennines (Dearne 1993, 1). This apparent lack of settlement may, however, be due misidentification of pottery types. Later Iron Age pottery in the area is broadly similar to native Roman pottery possibly causing an underrepresentation of sites interpreted as being of Iron Age date (Chadwick 2002, 14).

The Roman period saw more intensive occupation. The first signs of Roman activity are a small number of Neronian military installations within Derbyshire at Strutts Park, Derby (early 50's), Chesterfield (c. AD 54) and possibly at Castle Hill Camp fortlet (AD 60s) (Myers 2000, 2). Much of the territory of the Brigantes was conquered under the Roman governor Q. Petilius Cerialis between AD 69-73, and consolidation took place under the subsequent governors Julius Frontinus and Julius Agricola. By the late 1st century a series of forts had been established which encircled the Southern Pennines including those listed above together with Slack, Castleshaw, Manchester, Melandra, Little Chester, Brough-on-Noe and Templeborough (ibid., 1-2 and 4, and Dearne 1993, 4). The development of Brough-on-Noe is discussed in more detail in 4.1 and 4.2 below.

Some of these forts closed during the first half of the second century, probably in connection with the garrisoning of Hadrian's Wall, Brough-on-Noe closed c. AD 120 (Dearne 1993, 4). A few forts were reoccupied from the mid 2nd century, possibly in response to a Brigantian revolt c. AD 154. Brough-on-Noe was reoccupied from c. AD 155-8 and Manchester was reoccupied from c. AD 160, both forts remaining in use until the fourth century (ibid., 4). The foundation of the majority of rural upland settlements in Derbyshire seems to date from the

2nd century AD, and it is thought possible that the development of lead mining may have been related to the expansion of rural settlement (Myers 2000, 9).

Evidence for early medieval activity in the area is found in local place-names. Brough is derived from the Old English 'burh' meaning fortification, while Hope is derived from the Old English 'hop' meaning a valley (<http://www.nottingham.ac.uk/~aezins/kepnp.php>). A linear earthwork in the Bradwell Brook valley is known to be of post-Roman date (Chadwick 2002, 26). The villages of Hope, Castleton, Brough and Bradwell all developed throughout the medieval period primarily on the basis of agricultural activity. Ridge and furrow ploughing of medieval or post-medieval date is known to have occurred within the present study area (Dearne 1993, 99).

The precise date of enclosure of the area is unclear (Chadwick 2002, 26). By 1847 the area was divided into sub-rectangular fields, most of which were used for pasture, though some were ploughed (ibid., 17). The lead mining industry developed in the area from the 17th century, running to the late 19th century when many of the workings were abandoned (ibid., 27). A cement works associated with a major limestone and shale quarry was constructed between 1920-30 (<http://www.peakdistrictonline.co.uk/content.php?categoryId=135>). This has expanded throughout the 20th century and is the dominant man-made feature of the present day landscape.

4.1 THE DEVELOPMENT OF BROUGH-ON-NOE (NAVIO) FORT AND VICUS

Unless otherwise stated the following summary of the development of Brough-on-Noe fort and *vicus* is based upon Dearne (1993), which brought together all the earlier works undertaken on the site in a single volume publication.

The name of the site is known from a Roman milestone found at Buxton which was inscribed A NAVIONE M P IX, meaning 'from Navio 11 miles' (Dearne 1993, 3, 8-9).

Brough-on-Noe fort occupies an important strategic position in the widest part of the Hope valley which acts as a natural corridor north-south (Dearne 1993, 1). It is unclear if the fort was founded under governor Frontinus or governor Agricola (ibid., 4, 135). The first phase of the fort was short-lived and relatively little is known about it from excavation. The fort's precise size is uncertain. The few internal buildings excavated include part of the *praetentura*, a possible barracks veranda with associated hearths, and a granary (ibid., 138-9). This first phase of activity ended c. AD 120-5 when the fort was deliberately sealed by a deposit of clay thought to derive from demolition of the ramparts (ibid., 13, 135-6).

The fort was re-founded c. 154/8 and underwent three sub-phases of occupation dating to c. AD 154/8-200 (Phase 2a), c. AD200-300 (Phase 2b), and c. AD 300-350 (Phase 3). The Phase 2a defences comprised up to three ditches, though defences on the north-east and north-west sides were less substantial due to the presence of the Noe which acted as a natural barrier (ibid., 139). Phase 2b was characterised by the insertion of a new gate on the south-eastern side of the fort and construction of a new strong room within the *principia*. The re-founded fort related to the road system with at least four Roman roads meeting at or passing through the site (ibid., 1). Phase 3 saw a change to stone or at least stone-founded half-timbered construction within the fort. No features associated with the fort post-date AD 350/5. There is a suggestion that the site closed with the deliberate destruction of the internal buildings, though it is unclear if the defences were also slighted (ibid., 149).

Many problems exist regarding the interpretation of the fort. Little is known of the early fort, the units garrisoning it or their size, though the *Cohors Aquitanorum equitata quingeraria* is known from the site in the second half of the second century (ibid., 157). Despite the problems of interpretation it is clear that the longevity of Brough-on-Noe is significant. It is the only nearly continuously garrisoned site in the Peak District. This presumably reflects some degree of importance, though whether this was related in some way to policing the lead mining industry of the area is unclear.

A *vicus* grew up around the early fort, only to be abandoned then re-founded in tandem with the fort c. 154/8 (ibid., 155). The *vicus* seems to have been concentrated to the south-east of the fort, possibly being delimited by one of the roads leading to the fort (Road A Figure 3) (ibid., 150). A winding road led through the *vicus* to a baths at the confluence of the Noe and Bradwell Brook. The *vicus* seems to have declined in the later third century, which fits into a pattern seen elsewhere in the north (ibid., 156). There is no evidence for civilian use of the fort after it was finally abandoned in the mid fourth century (ibid., 156).

Limited settlement activity dating to the second half of the second century was also present to the west of the fort (ibid., 152). The western *vicus* was delimited on the eastern side by a ditch. This western *vicus* seems to have been relatively isolated as there is no clear evidence of a gate leading into the fort on the south-western side. In addition the western *vicus* appears only to have been connected to the south-eastern *vicus* by a path. The precise function of the western settlement is unclear but its relative isolation has led to speculation that it may have been for an activity that was noxious in some way, such as smelting or tanning. No evidence to support this has been found to date and it may simply have been associated with farming (ibid., 155).

A rectangular enclosure is also known to the east of the fort through aerial reconnaissance work (ibid., 152), though its precise function is unclear.

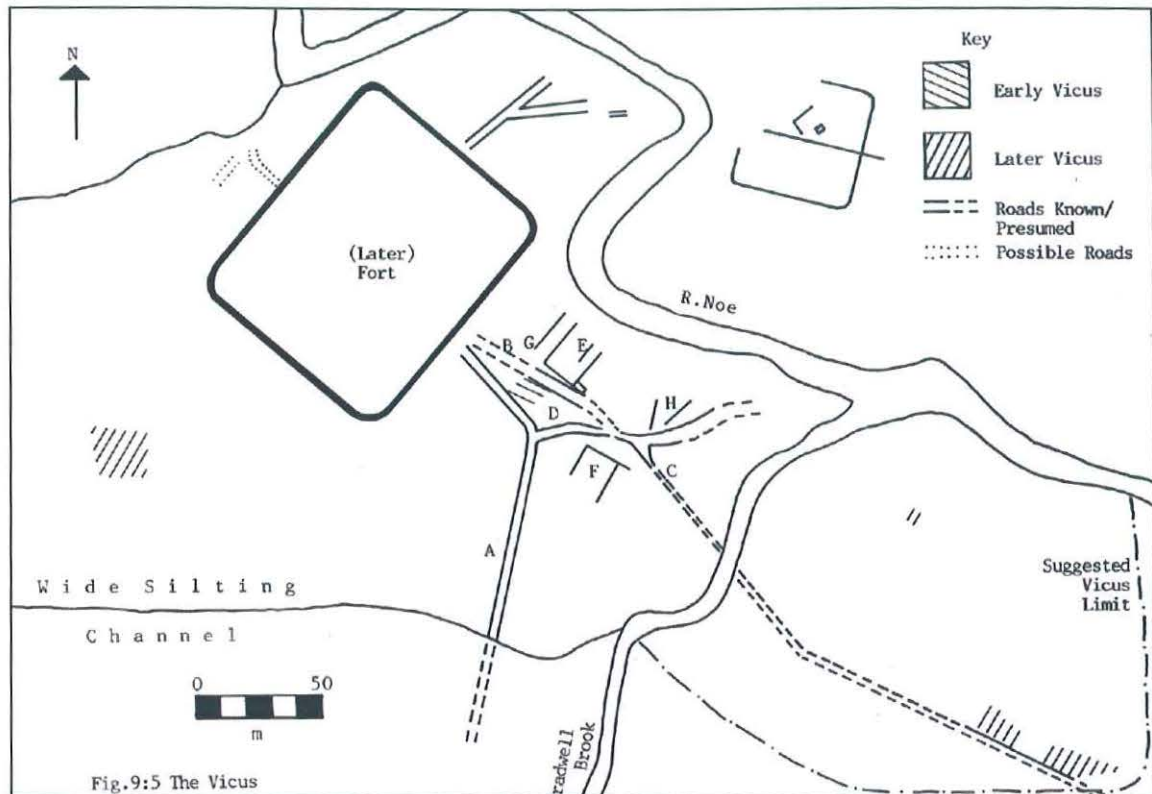


Figure 3 Location of the vicus, from Dearne 1993

4.2 SUMMARY OF ARCHAEOLOGICAL INVESTIGATIONS AT BROUGH-ON-NOE FORT AND VICUS

Unless otherwise stated the following summary of previous finds and excavations at Brough-on-Noe is based on Dearne 1993, 6-7. The presence of a Roman site at Brough-on-Noe has been known since 1761, and between then and 1885 a number of finds were made at the site. An oblong stone building, on a site at the confluence of the Noe and Bradwell Brook, with a double row of pillars and possibly with an *opus signinum* floor, was interpreted as a bath house. Stray finds recovered in the 18th-19th centuries include a bust of Apollo, a carving of a female figure within a rebated panel, a gold coin of Vespasian dating to AD 71, tiles stamped COH and a number of urns some containing ashes.

Systematic excavation first took place under John Garstang in 1903. This work uncovered part of the fort walls, west angle tower, north-west gate and stone headquarters building,

which contained a stone cellar. Few finds from these excavations survive except for some altar stones now housed at Buxton Museum.

Further excavations in 1938/9 under Sir Ian Richmond and John Gillam yielded evidence for the chronological development of the site. An earlier fort, shown to date to the late 1st to early 2nd centuries, was discovered beneath and on the same alignment as the fort recorded by Garstang (ibid., 11, 13, 22). Evidence for the defences of the early fort was recorded, as were associated early buildings within the fort including sleeper-beam trenches, two hearths and an open V profiled drain. The early fort was sealed by a 0.23-0.3m thick deposit of clay, presumed to derive from the deliberate slighting of the fortress rampart when the fort was abandoned (ibid., 13). The fort was re-founded c. AD 154/8 and continued in use until the second half of the 4th century (ibid., 24). The date of the re-founding is confirmed by a re-used stone in the walls of the strong room first seen in Garstang's excavations which commemorated building work under governor Julius Verus, governor of Britain c. 154-8, (ibid., 16 and 22). The later fort was shown to have two phases of use, the inner ditch and rampart remained in use throughout the life of the re-founded fort, while the outer two ditches went out of use relatively soon after construction (ibid., 14). Richmond noted that the upper levels of the site were highly disturbed, a feature seen on subsequent excavations (ibid., 23). Gillam proposed a chronology for occupation of the site based on an assessment of the pottery recovered during the excavations. This chronology has been confirmed by later work. Most of the finds from the excavation have since been lost.

Excavations by J. E. Bartlett in 1958/9 clarified details of the south eastern defences. Portions of the defensive ditches of the early fort were seen, though not excavated, and the four ditches of the later fort were found, though not fully excavated (ibid., 28-9). The excavation also identified evidence for the insertion of a later gateway through the south-east wall, dated by the find of a coin to c. 312-8 (the reign of Constantine) (ibid., 33-4). Internal structures of the later fort were investigated including a granary 16.7x21m in size with sleeper walls with external buttresses (ibid., 29)

A series of excavations undertaken from 1965-9 by Manchester University recovered parts of the granary, stables, *principia* and possible *praetorium*. Importantly, this excavation refined the chronology of the site into three phases of use.

The site of the possible baths at the confluence of the Noe and Bradwell Brook was relocated in excavations in 1971/2 by H. Lane, and in 1978-9 two altars were found on the site of the *vicus* during construction work.

Between 1980-3 a geophysical survey and associated excavations were undertaken by Sheffield University in the area to the immediate south-east of the fort. These surveys identified two roads leaving the south-east fort gate and a number of associated linear high resistance features interpreted as buildings of a *vicus* settlement (ibid., 37 and 39). The nature of the signals suggested that these buildings had stone foundations. The few stone founded buildings known from Pennine *vici* (with the exception of bath houses) seem to date to the second century (ibid., 39). If a second century date is correct, these buildings probably relate to the re-founded fort of AD154/8 (ibid., 39). An 8x2m trench was opened in 1980 across the line of one of the roads. The trench demonstrated that the road had two successive metallised surfaces and an associated V shaped ditch (ibid., 42). A 10m² trench was also excavated in 1980 (ibid., 41-2) which yielded evidence of two phases of smithing activity. The later phase of activity comprised a smithing hearth with associated slag within a workshop (ibid., 49). The majority of the material recovered by the excavation probably related to the first phase of the fort c. 80-120 AD, with some pottery consistent with the fort's later phase (ibid., 49).

In 1983-4 excavations were undertaken by Sheffield University and Trent and Peak Archaeological Trust on a field to the south-east of the confluence of the Noe and Bradwell Brook. These located traces of timber structures of the later 2nd and 3rd centuries together with a small quantity of earlier 2nd century and 4th century material. A large inscribed altar was found together with a smaller uninscribed altar (ibid., 65). The site produced evidence of metal-working in the form of iron slag, a mould stone for an ingot and six hearths (ibid., 75). A second resistivity survey was undertaken in 1985 in the area outside the southern corner of the fort, but the results were largely negative (ibid., 39).

In 1985-6 a geophysical survey was undertaken by the University of Sheffield on a 1.8 hectare area of land to the west of the fort. The area was proposed for forestation to provide a tree belt between the quarry and fort. This geophysical survey showed features concentrated in the area along the south-western side of the fort, with relatively little activity indicated to the north-west. Due to the limited number of archaeological remains identified in the present evaluation and the absence of landscape features that can be related to the earlier survey it is not possible to determine a correlation between the 1985-86 geophysics and the results of the present work. A series of trial trenches followed to investigate geophysical anomalies seen in the survey. The excavations indicated that a far more substantial water-course originally ran east-west across the southern end of the site. A series of gullies in the excavated trenches presumably drained into this water-course (ibid., 115). The western *vicus* settlement seems to have been limited in scale (Figure 4 below). It was delimited on the eastern side by a possible boundary ditch in Trench T and beam-slots

indicative of a rectangular building were present in Trench U. Trench U also revealed spreads of compacted pebbles suggestive of a series of hard-standings (ibid., 115-6). No structural remains were present south of Trench O (ibid., 115). Clay pits were present in Trench M. The path linking activity on the western side of the fort to the *vicus* on the fort's south-east side was identified in Trench G (ibid., 115). No trace of a road leading into the south-western side of the fort was seen (ibid., 115). The features appear to have been primarily Antonine in date, probably relating to the re-founding of the fort in AD 154/8. The site seems to have been in use for a relatively short period of c. 50 years (ibid., 115). Geophysical anomalies recorded in the eastern half of the site corresponded to naturally occurring shale blocks and slabs (ibid., 99).

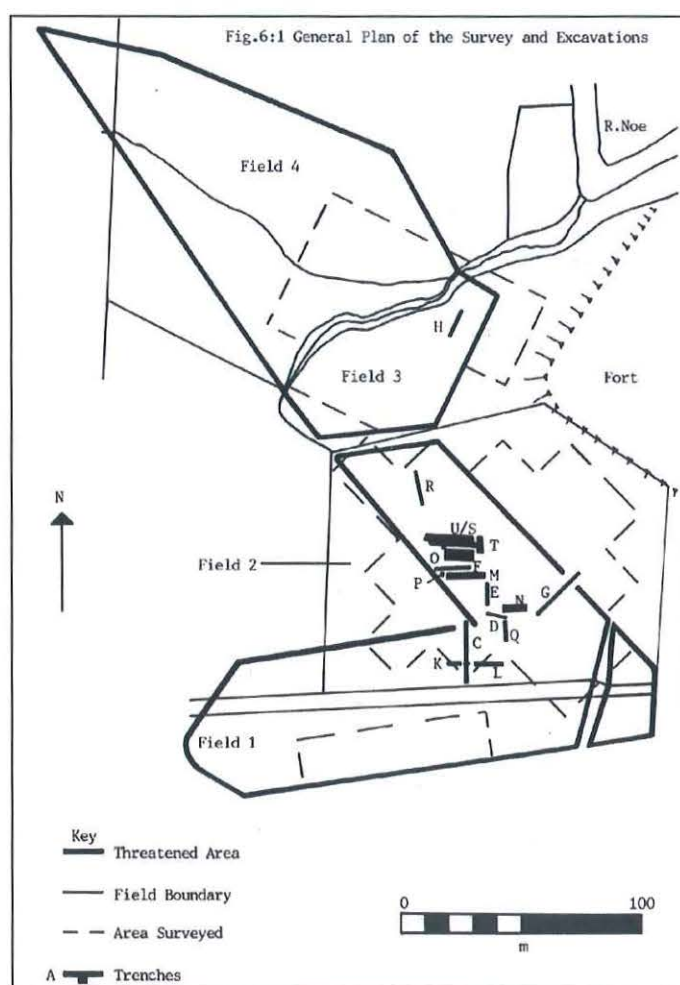


Figure 4 Location of trenches excavated in 1985-6, from Dearne 1993

Aerial photography work in 1988 revealed details of the road network south east of the fort and a possible rectangular enclosure on the opposite side of the River Noe.

A geophysical survey of the present study area, and fields to its immediate west, was undertaken in 2003 by GSB Prospection. This identified some possible archaeological features notably linear trends and possible pits (GSB Prospection 2003, Site Summary Sheet). Archaeological evaluation work in relation to the 2003 geophysical survey was first undertaken by Arcus under the direction of S. Bell in 2004. Thirteen trial trenches were excavated (Figure 5). Changes to field boundary layouts were seen including the linear remains of a former hedge line and associated cuts interpreted as sockets for stone gate-posts. No features of archaeological significance were identified (Bell 2004, iii).



Figure 5 Location of investigations in 2004, from Bell 2004, Figure 2, not to scale

A second archaeological investigation by Arcus in 2008, under the direction of R. Barnett, involved controlled turf and topsoil stripping in Field B (Figure 6) with seven trial trenches across adjacent fields. The only feature identified in the trial trenches was an agricultural furrow of medieval or post-medieval date in Trench 19. Layers containing burnt material were present in Trenches 19 and 20 and were interpreted as a drainage aid for agricultural landuse (Barnett 2008, 4). Ceramic finds of 18th century and later date were suggested to be the product of manuring (ibid., 4). Most trenches were archaeologically sterile and many of the geophysical anomalies targeted by the investigation were seen to be of natural origin (Barnett 2008, v, 4). Nothing was present in the form of features or artefacts which related to the Roman period, suggesting that the western *vicus* did not extend into this area.

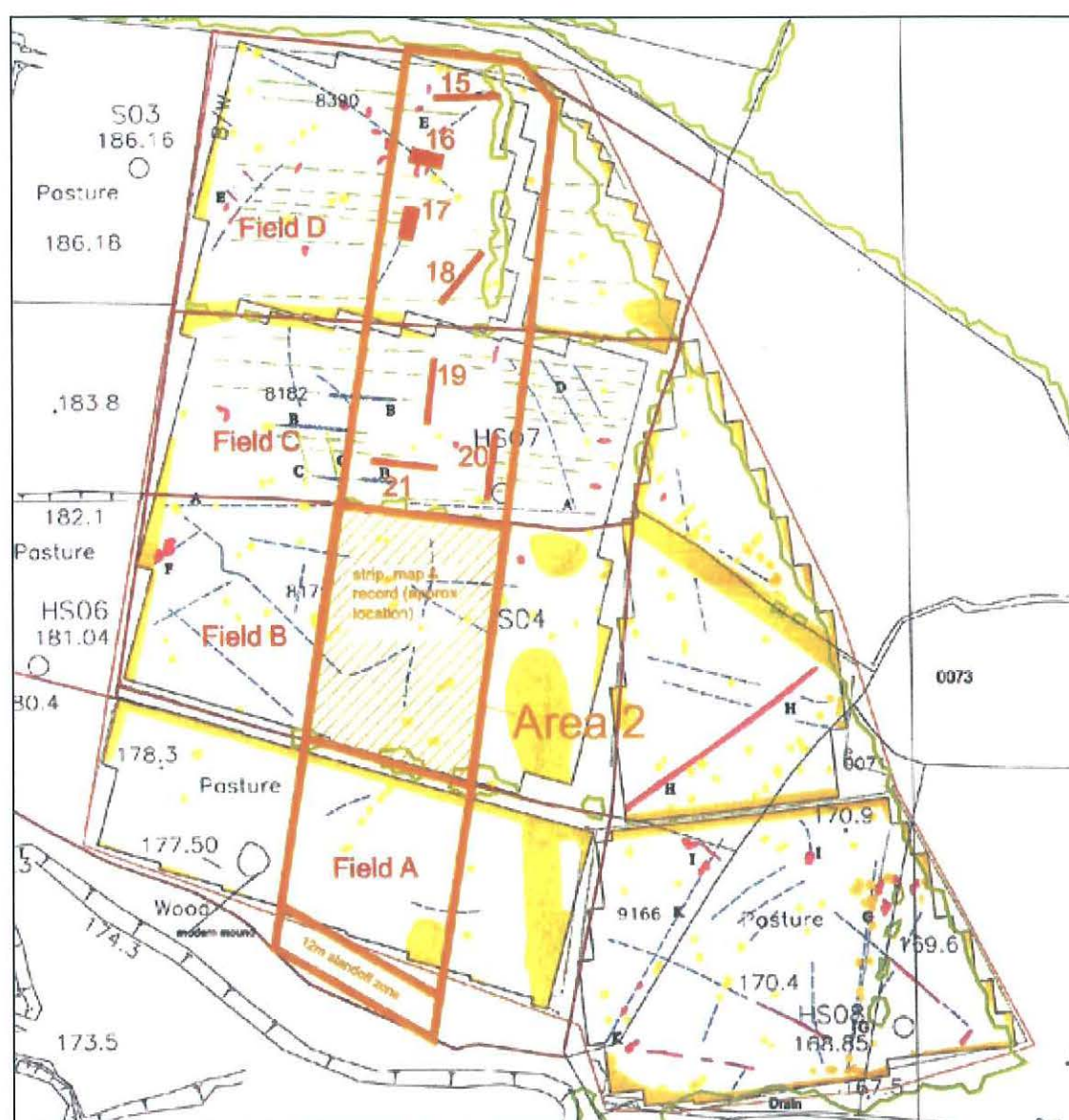


Figure 6 Location of investigations in 2008, from Barnett 2008, not to scale

5. RESULTS

An overall plan of the results is given on Figure 7, with more detailed plans of Trenches containing features (Trenches 6, 12, 17, 18, 23 and 24) given on Figures 8-9.

5.1 PHASE 1, NATURALLY OCCURRING DEPOSITS

The earliest deposit seen was laminated shale bedrock which was visible directly below the topsoil in Trenches 19-22 and 25 (Contexts 1905, 2004, 2104, 2204 and 2502).

Sealing the shale, and extending across the entire study area, was a deposit of naturally occurring clay (Contexts 101, 208, 302, 404, 506, 613, 703, 803, 905, 1001, 1107, 1203, 1303, 1401, 1503, 1601, 1705, 1815, 1904, 2003, 2103, 2203, 2309, 2409, 2501 and 2601) which ranged in thickness from a few millimetres at the southern end of site; to 0.3m thick in Trench 18 (Context 1815); to in excess of 0.7m thick in Trench 6 (Context 613). The thickness of the clay over the western half of the site is unknown, as it was the earliest deposit reached in this area. The clay ranged in colour from light yellow; to light yellow-grey; to mid yellow-brown to mid brown. The darker clay occurred at the southern end of the site where the deposit was thinnest. In places fragments of shale were present within the clay (Contexts 208, 1001, 1303, 1503, 1601, 1705, 1815, 1904, 2003, 2103, 2203, 2309, 2409, 2501 and 2601), and in the case of Trench 26 the quantity of shale fragments suggested that the underlying shale was very close to the surface. The clay was typically 0.25-0.3m below the present ground surface.



Plate 1 Natural shale bedrock, Trench 20, Context 2004, facing south-east, scale unit 0.1m



Plate 2 Natural clay, Trench 8, Context 803, facing north-west, scale unit 0.5m

5.2 PHASE 2, PREHISTORIC

Although no structural features could be clearly assigned to the prehistoric period, the presence of a residual flint flake within a later Roman cut (see Context 1801, Phase 3 below) suggests that there was some prehistoric activity in the vicinity.

5.3 PHASE 3, FEATURES DATED AS ROMAN

Six cut-features on site contained Roman pottery or CBM within their backfills, and are therefore interpreted as being associated with the fort of *Navio* or its associated western *vicus*.

Towards the western end of Trench 17 a cut was present which continued beyond the southern limit of excavation (Context 1702). This feature could represent part of a sub-rectangular pit, or the butt-end of a ditch. The cut (Context 1702) was 1.6m wide and 0.4m deep, with a slope of c. 45° on the eastern side and 60° on the western side. The cut was infilled with mid orange-brown friable clayey-silt (Context 1701) with frequent flecks of charcoal, occasional fragments of laminated stone and occasional pebbles. Roman pottery and CBM were present in the backfill.

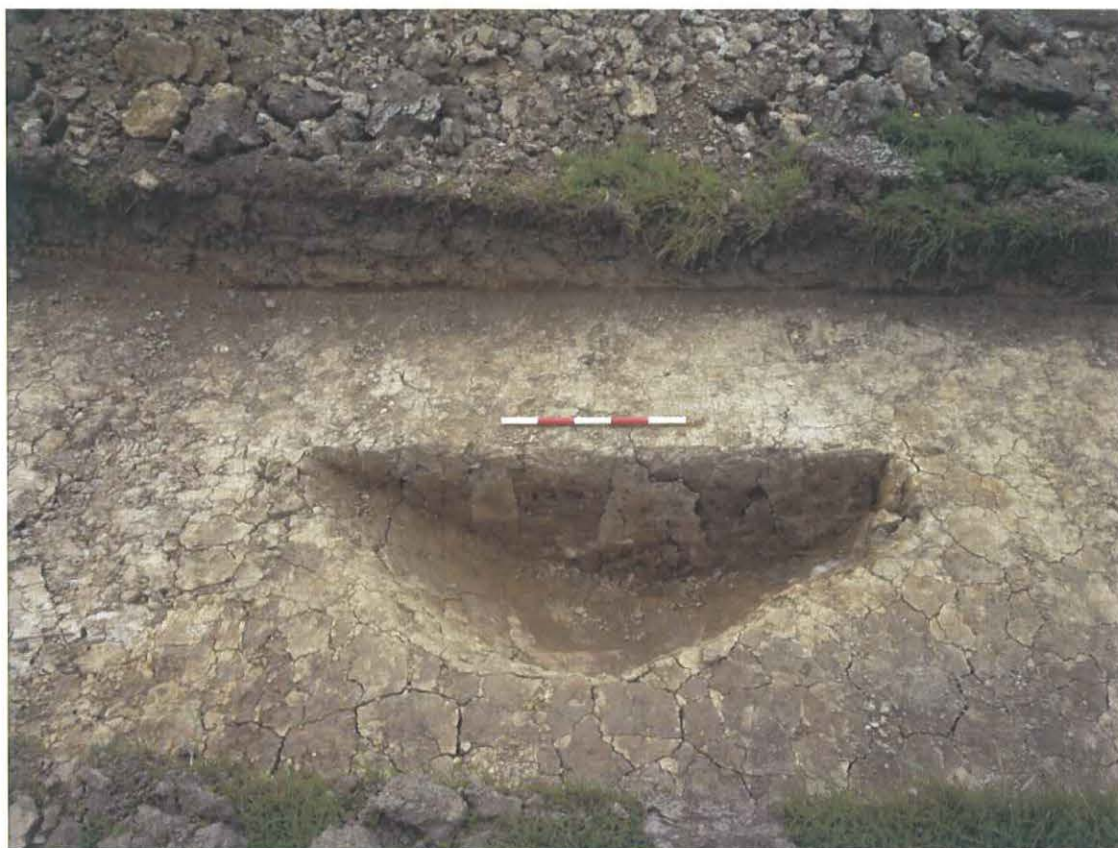


Plate 3 Context 1702, facing south-west, scale unit 0.1m

At the southern end of Trench 17 there was a right angled ditch (Context 1704), one arm was aligned north-west to south-east and the other arm aligned north-east to south-west. This ditch was 1m wide and 0.45m deep with steep sides and a flat narrow base. The cut (Context 1704) was infilled with mid orange-grey friable to compact clayey-silt with moderate

charcoal flecks and occasional limestone fragments (Context 1703). Roman pottery and CBM were present in the backfill.



Plate 4 Context 1704, facing north-west, scale unit 0.1m

Near the southern end of Trench 18 there was a roughly east-west aligned gully (Context 1805), 0.6m wide and 0.14m deep, with steep sides at an angle of 70-80° and a flat base. This gully was infilled with mid orange-grey clayey-silt with moderate charcoal flecks (Context 1804); Roman pottery and an iron nail were present in the backfill. These contexts were truncated by a later ditch (Context 1803). The ditch was aligned north-east to south-west, was 1.5m wide and 0.48m deep, with sides at 40-60° and a shallow U-shaped profile. The primary fill of the ditch (Context 1802) was dark orange-grey silty-clay with rare charcoal flecks and sub-angular stone fragments, while the upper fill (Context 1801) was mid orange-grey clayey-silt with occasional flecks of charcoal and rare limestone fragments. Roman pottery, Roman CBM and a residual prehistoric flint flake were present within the backfill.



Plate 5 Contexts 1805 (to the left of the scale) and 1803 (directly beneath the scale), facing north-west, scale unit 0.5m

A ditch aligned west-north-west to east-south-east (Context 1814) was present at the northern end of Trench 18. The cut had a shallow, concave profile, 2.44m wide and 0.33m deep. A single backfill (Context 1813) was present consisting of compact light brown clayey-silt with occasional flecks of charcoal and a small quantity of abraded Roman CBM. The base of the ditch was dug into underlying shale bedrock.



Plate 6 Context 1814, facing north-east, scale unit 0.5m

An 'L' shaped ditch (Context 2408) was located at the eastern end of Trench 24. The two arms of the ditch being aligned north-east to south-west and north-west to south-east. The western arm of the ditch was 1.53m wide. The width of the eastern arm was not established as it extended beyond the limits of excavation. A cross-section excavated across the eastern arm of the ditch showed that it had a stepped profile and was 0.71m deep within the limits of the trench. The ditch was infilled with re-deposited natural clay which contained fragments of Roman CBM (Context 2407).



Plate 7 Context 2408, facing south-east, scale unit 0.1m



Plate 8 Context 2408, the eastern arm running directly towards the bottom-left of the image, and the south-western limit of the western arm immediately in front of the scale, facing south-west, scale unit 0.5m

5.4 PHASE 4, UNDATED FEATURES

Six undated features were excavated. Given the total absence of any artefactual evidence from the medieval or post-medieval periods it seems unlikely that these features post-date the Roman period. The most likely origin for these features is Roman, although a prehistoric date cannot be ruled out.

A ditch and gully were present in Trench 6. The gully (Context 605) was located near the western end of the trench, and was aligned north-north-west to south-south-east. It was 0.54m wide and 0.26m deep, with steep sides at angle of between 45-60° and a flat base. The gully was infilled with mid orange-brown silty-clay mottled with patches of yellow clay, with rare small rounded limestone fragments and occasional flecks of manganese (Context 604). A ditch (Context 610) ran across the central portion of Trench 6 which was aligned north-north-east to south-south-west, though it was slightly curving in plan. It was between 1-1.95m wide and 0.6m deep, with steep sides at an angle of between 60-70° and a narrow flat

base. Ditch 610 contained two backfills, the primary fill (Context 609) being light orange-grey silty-clay with patches of grey alluvial clay and orange sand. The upper fill (Context 608) was light orange-grey clayey-silt with rare sub angular pebbles, charcoal flecks and manganese flecks.



Plate 9 Gully 605 (directly beneath the scale), with field drain 603 running diagonally across the image (directly above the number-board), facing north-north-west, scale unit 0.1m



Plate 10 Context 610, facing south, small scale unit 0.1m

Near the southern end of Trench 12 there was a north-east to south-west aligned ditch 1.25m wide and 0.28m deep with sides sloping at 45° and a flat base (Context 1202). This ditch was infilled with mid orange-brown silty-clay mixed with patches of light orange clay (Context 1201).



Plate 11 Context 1202 facing south, scale unit 0.5m

A linear ditch (Context 1812) aligned almost east-west, was present near the northern end of Trench 18. The cut was 0.9m wide and 0.33m deep with a sharp break of slope at the surface, steep sides and a concave base. The lower portion of the cut was dug into underlying shale bedrock. The lower backfill of the ditch was compact light grey silty-clay with moderate flecks of charcoal (Context 1811). The upper fill (Context 1810) was a 0.18m thick deposit of light yellow-brown clayey-silt with occasional flecks of charcoal and occasional fragments of shale up to 20x20x10mm in size.



Plate 12 Context 1812, facing north-west, scale unit 0.1m

A north-north-west to south-south-east aligned ditch was present close to the eastern end of Trench 23. This was 1.23m wide and 0.23m deep with gently sloping sides and a concave base (Context 2308). The ditch was infilled with compact mottled light yellow-brown to mid-brown clay with occasional fragments of shale up to 100x50x20mm in size and rare flecks of charcoal (Context 2307).



Plate 13 Context 2308, facing east, scale unit 0.1m

In the western half of Trench 23 there was a gully aligned north-north-east to south-south-west which was 0.4m wide and 0.06m deep with a shallow concave base (Context 2302). The gully was infilled with compact pale grey clay with occasional fragments of shale up to 60x40x20mm in size (Context 2301).

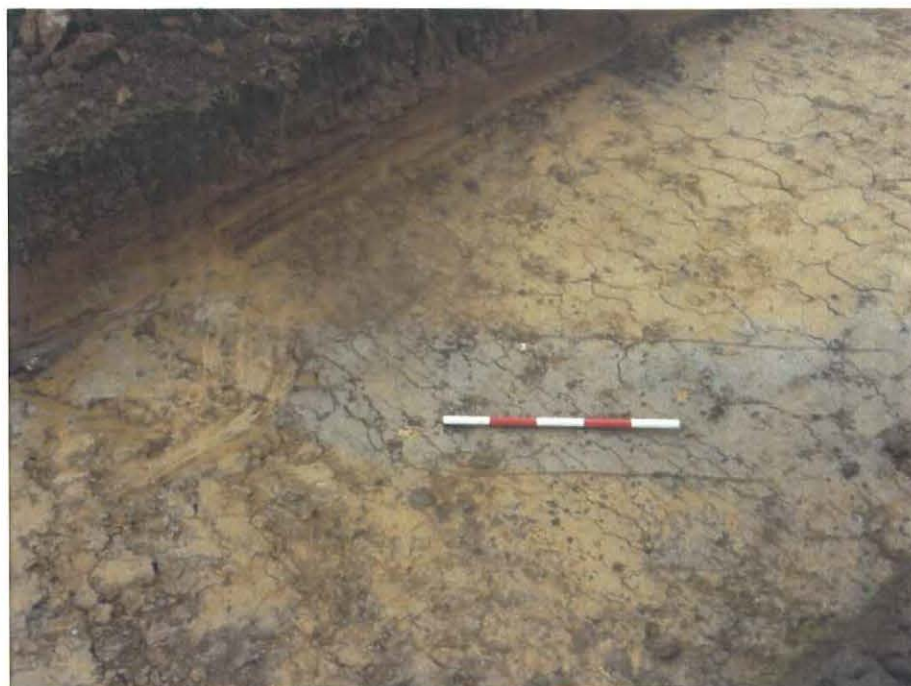


Plate 14 Context 2301-2, facing north, scale unit 0.1m

5.4 PHASE 4, POSSIBLY POST-MEDIEVAL AND MODERN

Most of the features recorded on the site were field drains, several differing types were present.

In Trenches 9, 12 and 18 (Contexts 903-4, 1204-5 and 1808-9) were drains that comprised narrow cuts with sloping sides against which stones had been placed, forming an almost V shaped profile. The stones in the sides of the drain ranged from 230x150x40mm to 450x150x50mm in size. In the case of Trench 18 five capping stones were also present above the drain. These ranged from 260x520x40mm to 400x400x50mm in size. One of the capping stones was a re-used stone with a circular hole drilled through the middle. It was initially thought that this was a millstone, however, the uneven nature of the surfaces and edges suggests that it is more likely a socketed block to support some kind of timber upright. It seems highly likely that these stone-lined drains had been partially robbed for re-usable stone as the drain did not extend across the full width of Trench 18. Many of the capping stones in Trench 18 were missing and no capping stones survived in Trench 9. The date of these drains is uncertain. They do not seem well-constructed which may suggest that they

post-date the Roman period. The lack of medieval and post-medieval artefacts on the site may suggest that they are relatively modern, possibly 18th-early 19th century in date.



Plate 15 Contexts 903-4 facing north-west, scale unit 0.1m



Plate 16 Context 1808-9 facing south-east, scale unit 0.1m

A cast-iron pipe was present in Trenches 4 and 5 (Contexts 405 and 501). The segments of pipe are 110mm in diameter and in excess of 4.25m in length, but the full length of any individual segment is unknown. Just beyond the southern limits of Trench 4 a flange could be seen at the end of one segment of the pipe, this flange was 60mm wider than the pipe. A small gap existed between the flange and the next segment of iron pipe to the south. Examination of the gap showed that the pipe had silted up. The two segments of pipe seen were on differing alignments, but clearly they are part of the same structure. This pipe is of late 19th or early 20th century date.



Plate 17 Context 405, facing west, scale unit 0.1m

A number of field drains comprised machine dug linear trenches c 0.25m wide containing clay pipes beneath a backfill of redeposited natural clay or redeposited clay with angular limestone fragments (Contexts 202-3, 204-5, 206-7, 602-3, 606-7, 801-2, 1006-7, 1501-2, 1806-7, 1817-8 and 2305-6/2405-6). The clay pipes were machine made, of circular cross-section, with the individual segments being 0.3m in length and 0.11m in width. None of these pipes were removed to avoid compromising their function as drains. This type of drain is of 20th century date.



Plate 18 Detail of the flange on Context 405, facing west, scale unit 0.1m



Plate 19 Context 2405-6, facing south-west, scale unit 0.1m

Several field drains comprised machine dug linear trenches c 0.2m wide containing a primary backfill of broken clay pipes, broken flower pots and broken fragments of 20th century machine made bricks. They were sealed by a secondary backfill of redeposited natural clay (Contexts 1004-5/1101-2, 1105-6, 1901-2/2001-2 and 2401-2). None of the crushed ceramic deposits were removed to avoid compromising their function as drains.



Plate 20 Detail of the ceramic backfill of Context 1101-2, facing south-east, scale unit 0.1m

There were also a number of machine cut linear trenches present which were backfilled with redeposited natural clay (Contexts 402-3, 502-3, 504-5, 611-2, 701-2, 901-2, 1002-3/1103-4, 2403-4). Despite excavation of a number of these features to the maximum depth possible (i.e. arms length) no clay drain-pipes or broken clay artefacts were present within them. The lack of such items would seem to render these features useless for drainage. It is possible that these drains do contain ceramic pipes but at too great a depth to be reached by hand-excavation.



Plate 21 Context 701-2, facing north-west, scale unit 0.1m

A number of features interpreted as earlier hedge lines due to the uneven nature of their bases were also identified. A linear gully 0.45m wide and 0.06m deep with an uneven base ran north-east to south-west across Trenches 21-2 (Contexts 2102/2202). This was infilled with compact mid brown to light yellow-brown clay (Contexts 2101/2201). A north-north-east to south-south-west aligned cut was present in the eastern half of Trench 23 (Context 2304). This was 1.4m wide and 0.2m deep with a very uneven base. The cut was infilled with compact mottled yellow to mid-brown clay with occasional fragments of charcoal, and occasional fragments of shale up to 40x40x20mm in size (Context 2303). A single fragment of abraded Roman CBM was present within the fill, but this may simply be residual material. In addition to the features interpreted as hedge lines there was a feature interpreted as the remains of disturbance from a tree-hole in Trench 13. This was an irregularly shaped hollow 0.56m long and up to 0.08m deep with a very uneven base (Context 1302). The feature was infilled with dark grey moderately compact silty-clay with fragments of modern ash (Context 1301). It is possible that the ash within the fill was resultant from burning the tree or hedge in order to remove it.

The line of a present day hedge was clearly visible running north-north-west to south-south-east across Trenches 22 and 23. A modern ditch was also present at the southern end of Trench 7. A modern plastic water-pipe 25mm in diameter was present across the northern end of Trench 19 (Context 1903). The presence of the water-pipe made it impossible to fully excavate the northern portion of this trench to naturally occurring levels.

The uppermost deposit seen over most of the site was the top-soil of the present field, this was a mid-brown silty-clay that ranged in thickness from 0.12-0.4m but was typically 0.25m thick (Contexts 100, 201, 301, 401, 500, 601, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2100, 2200, 2300, 2400, 2500 and 2600). Very few artefacts were present within the topsoil, though a few abraded fragments of Roman pottery and CBM were present in Trenches 14, 17, 23, 25 and 26 (Contexts 1400, 1700, 2300, 2500 and 2600).

In Trench 3 the uppermost deposit seen was a large heap of fresh stable-manure (Context 300). This was restacked to the south of Trench 3 prior to excavation of the trench.

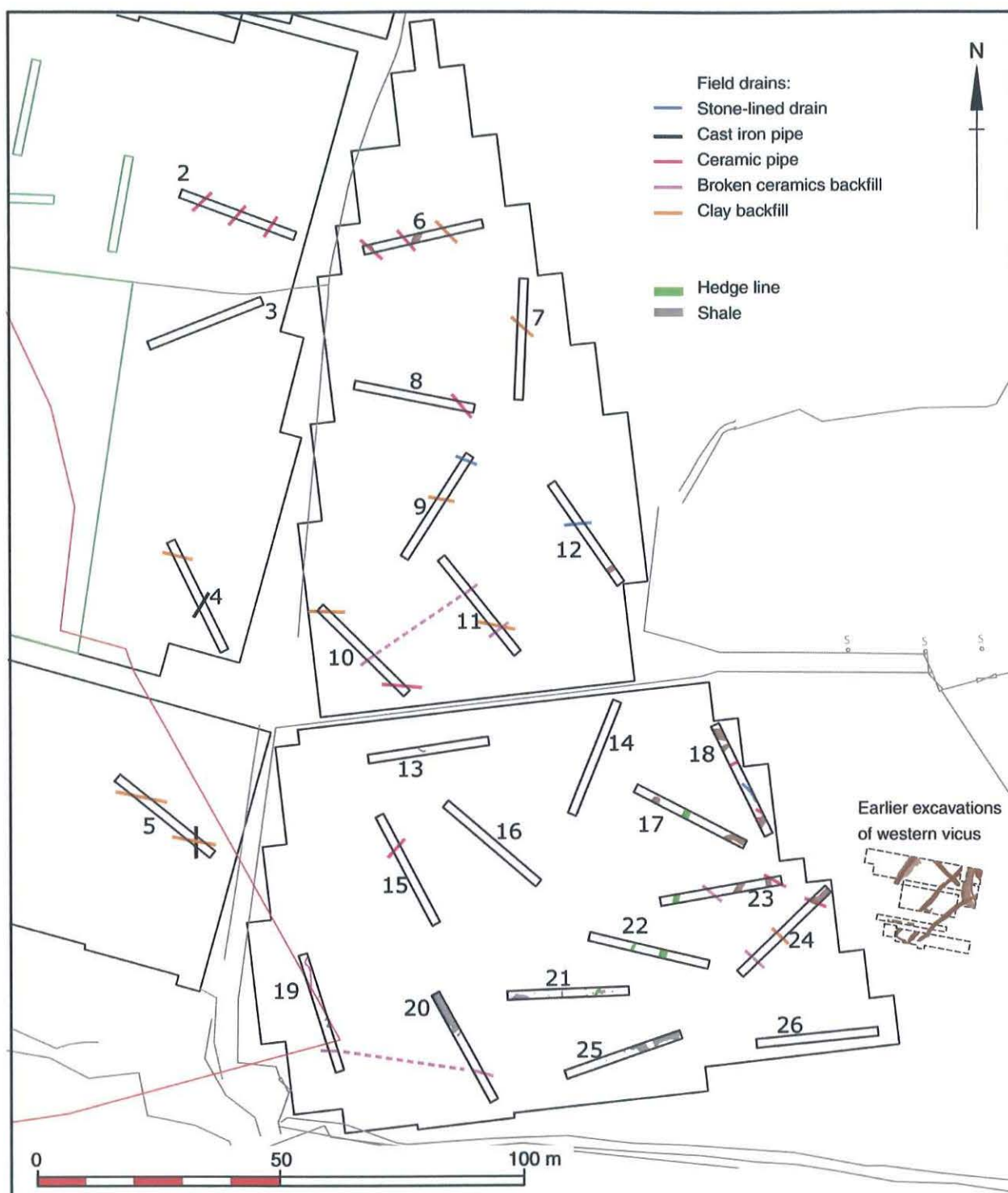


Figure 7 Location of the excavated features

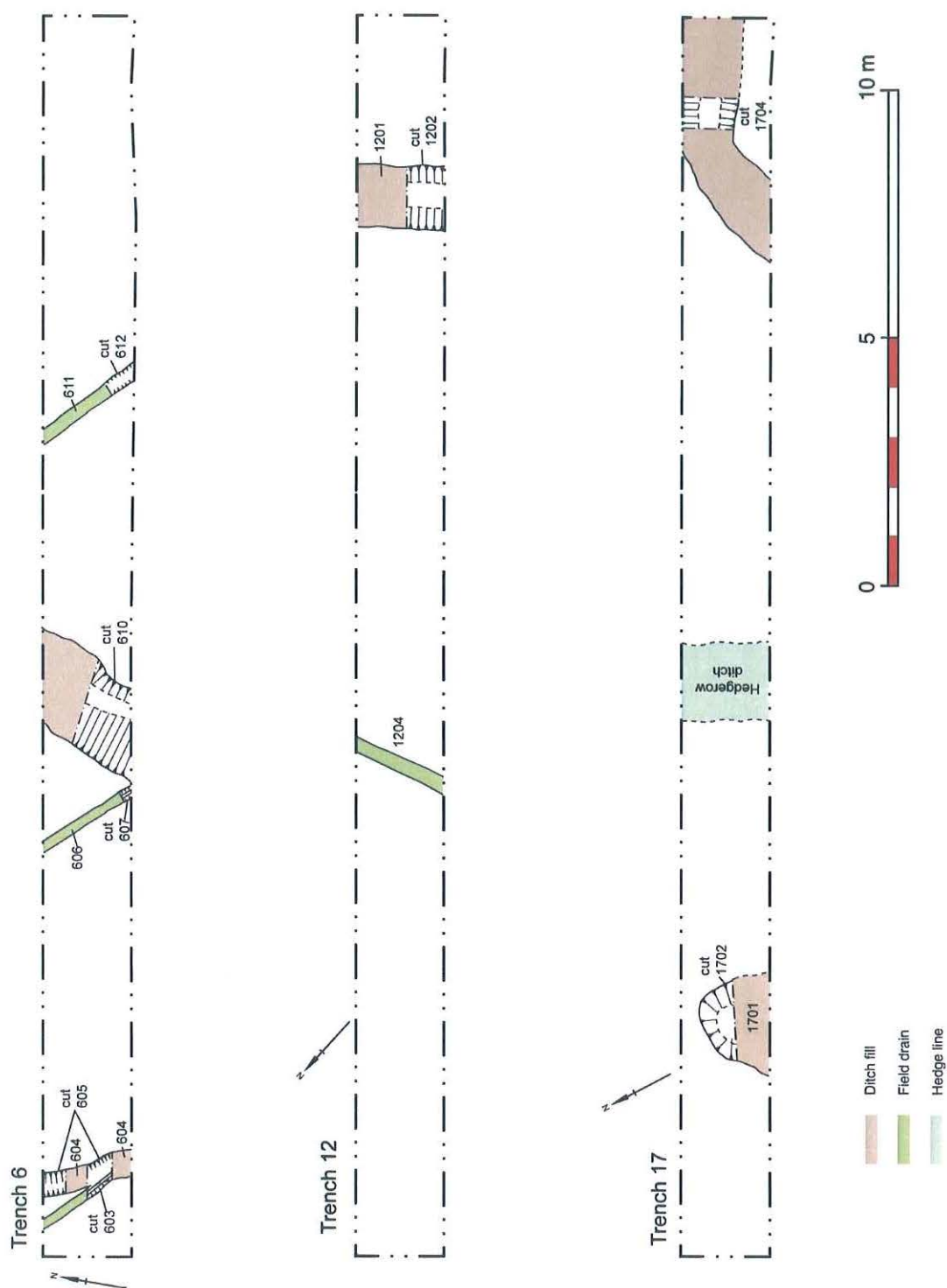


Figure 8 Plan of trenches 6, 12 and 17

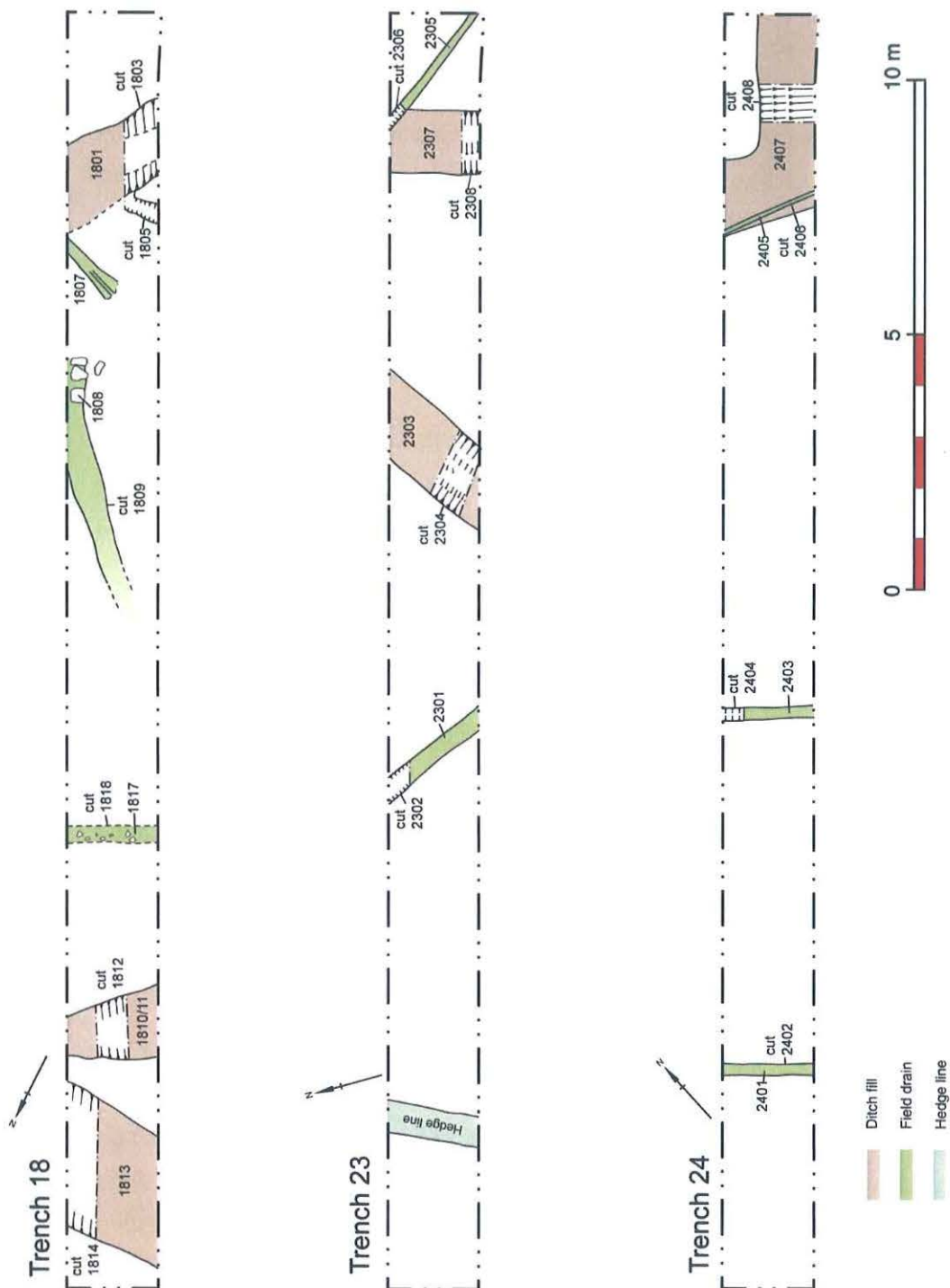


Figure 9 Plan of Trenches 18, 23, 24

6. DISCUSSION

6.1 THE RELATIONSHIP OF RECORDED FEATURES TO THE GEOPHYSICAL SURVEY

Most of the features seen on the geophysical survey (Figure 2) were located during the evaluation, but there were some exceptions. A series of east-west aligned linear geophysical anomalies at the northern end of the site, resembling ridge and furrow plough marks, were not seen in either Trenches 1 or 2. A series of almost circular anomalies at the western end of Trench 3, the northern portion of Trench 7; the western end of Trench 8, the southern end of Trench 12, towards the southern end of Trench 14, the southern end of Trench 15, across Trench 16 and centrally in Trench 26 were not observed. It is possible that these anomalies may simply reflect the underlying geology of the site, as bedrock is relatively close to the present ground surface. There was also no clear trace of the linear north-east to south-west aligned anomaly running across Trenches 10-2.

Many of the geophysical anomalies recorded clearly related to relatively modern features. The geophysical anomaly seen in Trench 3 was a modern heap of stable manure. The major geophysical anomaly aligned north-south across Trenches 4-5 may have been caused by the presence of a large cast iron pipe in this area. Two of the larger linear anomalies seen were caused by modern hedge/ditch lines; one running north-west to south-east across the southern end of Trench 7 and one aligned north-east to south-west across Trenches 22-23 and 25. In addition, most of the narrow linear anomalies seen on various alignments across the study area were modern field drains.

Geophysical anomalies relating to archaeological features were seen in Trenches 6, 17 and 18. The anomaly seen towards the western end of Trench 6 was caused by a combination of a field drain and earlier undated ditch. A series of irregularly shaped anomalies in the northern portion of Trench 17 probably relate to a feature which could be either a pit or butt-ended ditch. The anomalies seen in Trench 19 were probably caused by the presence of underlying bedrock close to the present ground-surface.

Some of the features recorded during the evaluation were not identified on the geophysical survey, notably a ditch located centrally in Trench 6, a field drain at the eastern end of Trench 6, field drains across Trenches 10-11, a ditch at the southern end of Trench 17, a ditch and gully at the southern end of Trench 18, a ditch at the eastern end of Trench 23 and a ditch at the eastern end of Trench 24. It is possible that the highly compact nature of the backfills in many of these features explains why they were not seen on the geophysical survey.

6.2 INTERPRETATION OF THE RESULTS

The underlying shale bedrock is closest to the present ground-surface along the southernmost limits of the site in Trenches 19-20, 23 and 25. Over the remainder of the site the shale is sealed by a deposit of natural clay ranging from a few centimetres thick at the southern end of the site to in excess of 0.7m thick in Trench 6. The thickness of the clay over the western half of the study area is unknown as it was the earliest deposit reached in this area.

Features of archaeological interest are concentrated in the eastern half of the study area, with cut features being present in Trenches 6, 12, 17, 18, 23 and 24. Six of these features contained Roman artefactual evidence.

Cut features containing Roman artefacts were present in Trenches 17 and 23-24 (Contexts 1702, 1704, 1803, 1805, 1814 and 2408). The concentration of Roman features in this area is unsurprising given that these trenches are geographically closest to both the fort of *Navio* and the western *vicus*. Context 1702 could be either part of a sub-rectangular pit or the butt-end of a ditch, it is 1.6m wide and 0.4m deep. Context 1805 is a gully 0.6m wide and 0.14m deep. The remaining four cuts are all ditches ranging from 1-2.44m in width and 0.33-0.71m in depth. There is no evidence in the present trenches for structures in the form of post-holes or beam-slots. Based on the evaluation results it is difficult to establish the overall layout of these cuts and their inter-relationships. The linear nature of the features suggests that they are boundaries of some kind. The lack of any associated structural remains may suggest an agricultural or pastoral use. Pottery was present in four of the Roman dated features, the remaining two cut features containing CBM. The pottery evidence would suggest that these features date from AD150-300. The CBM is in forms seen throughout the Roman period and is therefore of little use in providing specific date ranges for the contexts in question.

Six undated linear gullies and ditches were present in Trenches 6, 12, 18 and 23 (Cuts 605, 610, 1202, 1812, 2302 and 2308). These were similar in character and size to those dated as Roman, and while they could be of any date from the prehistoric period through to the modern period, they are probably also of Roman date (given that there is little evidence on site for prehistoric, medieval or post-medieval activity in terms of artefacts or archaeological deposits). The presence of a residual prehistoric flint flake on the site suggests that there was some prehistoric activity in the vicinity.

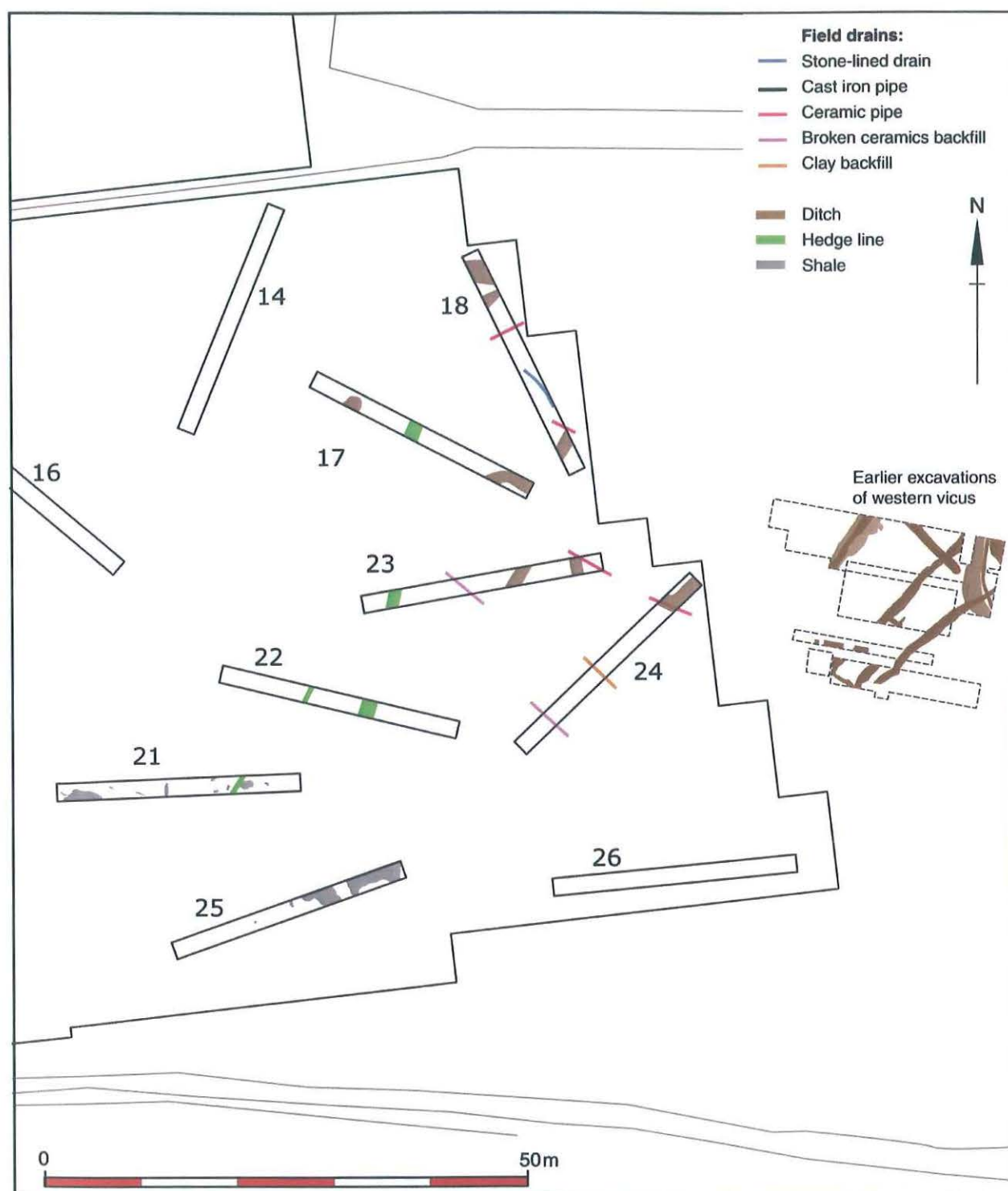


Figure 10 Principal features of the 1985-6 western vicus excavations and the south-eastern portion of the present excavations

The cut features seen in the evaluation suggest that ditches relating to the western vicus occur within the study area. These are predominantly located across the south-eastern portion of the site in the area of Trenches 17-8 and 23-4, but also possibly extend

northwards incorporating the area of Trenches 6 and 12. In terms of overall layout the pattern of cuts seen is similar to a number of linear features seen in excavations of the western *vicus* undertaken in 1985-6 (Dearne 1993, figures 6.3-6.6). Some of the principal features excavated in 1985-6 are shown on Figure 10, together with those excavated in the south-eastern portion of the present works. It is almost impossible to provide clear links between any of the features described by Dearne and those seen in the present excavations. In terms of dating evidence the present excavations have suggested the date range for the start of occupation in the western *vicus* as c. AD 154/8 (Dearne 1993, 115). The presence of pottery forms dating from c. 150-350AD does, however, suggest a longer period of settlement than the 50 year period of occupation suggested by the earlier excavations. The *vicus* seems to have declined in the later third century, which fits into a pattern seen elsewhere in the north (ibid., 156).

The function of the western *vicus* has always been a matter for speculation with suggestions that it may have been for an activity that was noxious in some way, such as smelting or tanning, or that it was not a *vicus* as such but simply a site associated with farming (Dearne 1993, 155). There is no evidence in the present evaluation to support the idea that the western *vicus* was for noxious trades. No fragments of metalworking waste were present in the backfills of the various features seen, suggesting that the site had no association with metalworking. The striking absence of animal bone within the backfills of the various features suggests that animals were not being slaughtered/consumed in this area. Clearly tanning was not undertaken on the site. The lack of animal bone may even imply that the site is not a 'typical' domestic settlement. A lack of Black Burnished Ware pottery from the excavations is in contrast to material from the fort where it formed a significant proportion of the assemblage (See Appendix 3), perhaps implying that the features seen were from a settlement with different sources of supply to the fort. This confirms the picture suggested by earlier excavations where the western settlement seems to have been relatively isolated from the fort. There was no gate into the fort on the western side and therefore no direct road leading from the fort into the settlement to the west and it was only connected to the southern *vicus* by a path rather than a road. The pottery types seen, and those absent from the excavations, may therefore imply that the settlement was of relatively low status with relatively few links to the fort. The suggestion that the site was associated with farming would seem to be the best fit with the features excavated during the present evaluation.

The bulk of the features seen during the excavations are modern features relating to agricultural use, comprising field drains, hedge line scars, tree-bole scars, a modern water pipe, top-soil and in the case of Trench 3 a dump of stable-manure.

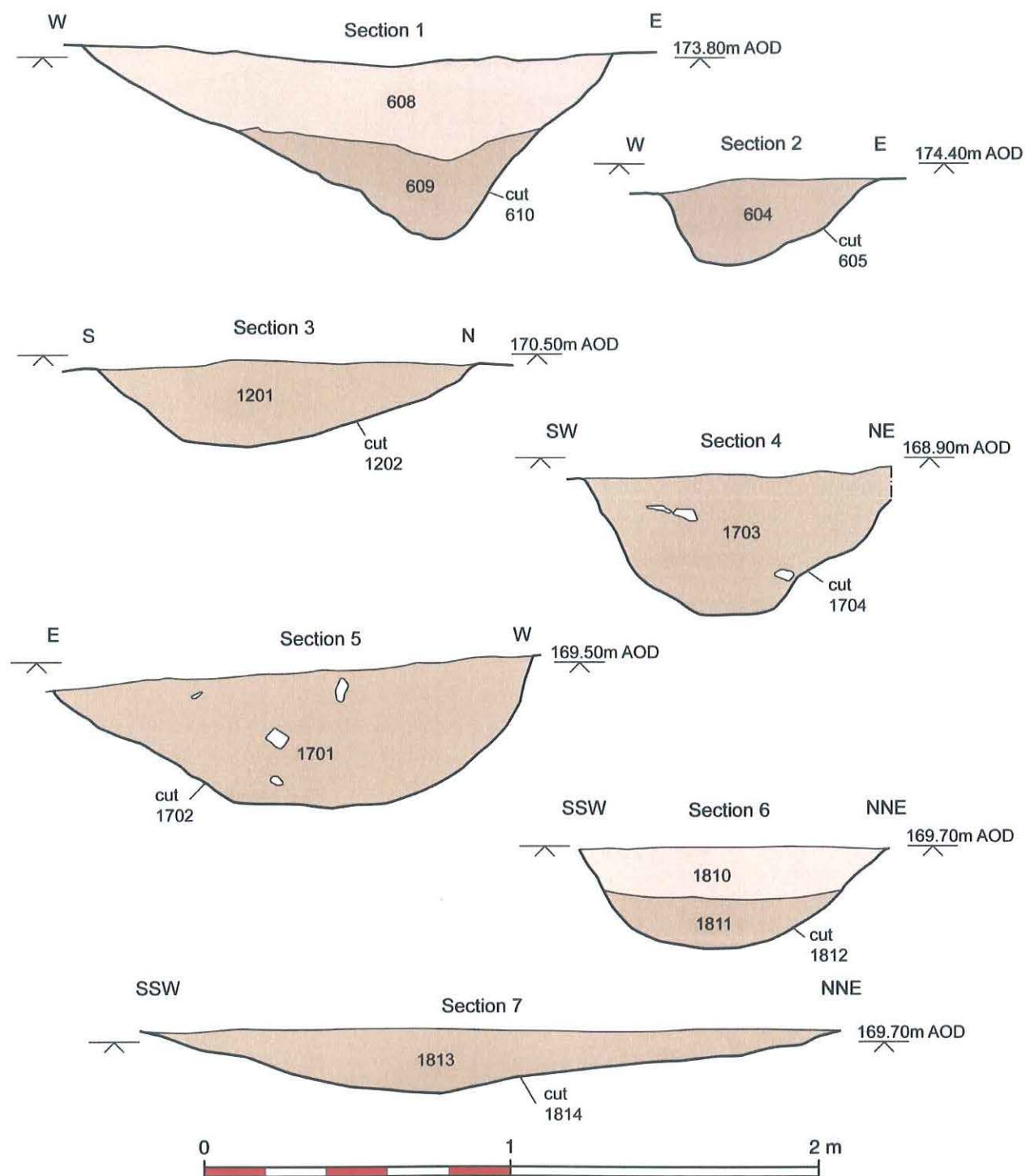


Figure 11 Sections 1-7

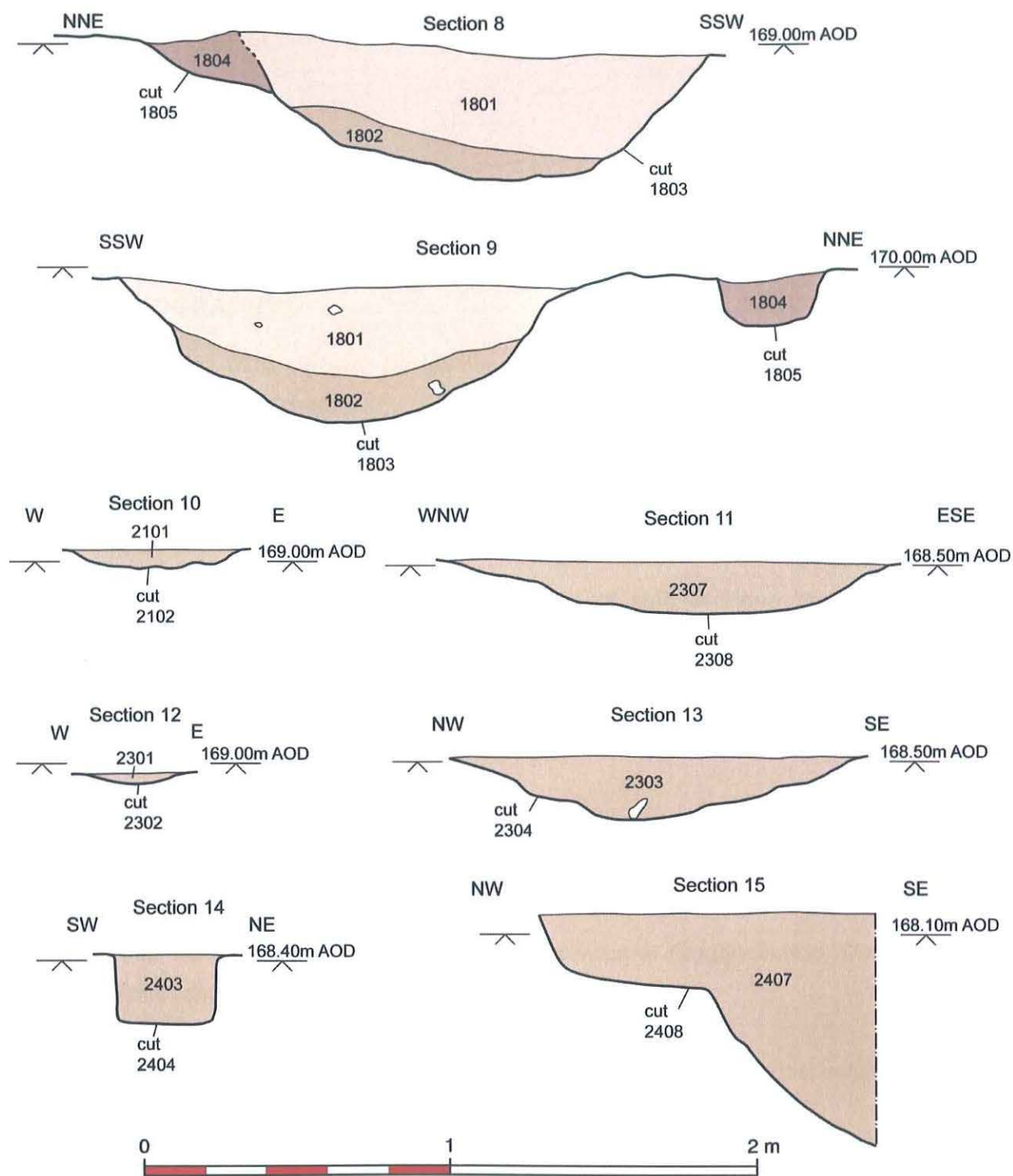


Figure 12 Sections 8-15

7. ACKNOWLEDGEMENTS

Surveying	M. Abbott
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Illustrations	L. Collett
Editor	M. Stockwell, D. Aspden

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APPENDIX 1: PHOTOGRAPHIC CATALOGUE

Although this register includes the digital photographs taken on site these are specifically excluded from the archive under the accessioning conditions for the recipient museum. The digital photographs are stored on the YAT computer system and its associated remote backup. In the following catalogue compass directions are abbreviated to N, S, W and E for north, south, east and west.

Digital photo no.	Description
001	Excavation of Trench 1 facing NNE
002	Trench 1 facing NNE
003	Trench 2 facing SW
004	Trench 2 Context 203 facing NW
005	Trench 2 Context 205 facing NW
006	Trench 2 Context 207 facing NW
007	Trench 3 facing WSW
008	Trench 4 facing SE
009	Trench 4 context 403 facing SW
010	Trench 5 facing NW
011	Trench 5 context 501-3 facing SW
012	Trench 5 context 504-5 facing W
013	Trench 6 facing E
014	Trench 6 context 603-5 facing NNW
015	Trench 6 context 607 and 610 facing S
016	Trench 6 context 607 and 610 facing N
017	Trench 6 context 607 and 610 facing N
018	Trench 6 context 612 facing NNE
019	Trench 7 facing N
020	Trench 7 context 701-2 facing NW
021	Trench 8 facing NW
022	Trench 8 context 801-2 facing SE
023	Trench 9 facing NE
024	Trench 9 context 901-2 facing W
025	Trench 9 context 901-2 facing W
026	Trench 9 context 903-4 facing SW
027	Trench 9 context 903-4 facing NW
028	Trench 9 context 903-4 facing NW
029	Trench 11 facing SE
030	Trench 11 context 1101-2 facing SE
031	Trench 11 context 1101-2 facing SE
032	Trench 11 context 1103-6 facing SE
033	Trench 10 facing SE
034	Trench 10 context 1003 facing E
035	Trench 10 context 1005 facing E
036	Trench 10 context 1007 facing E
037	Trench 13 facing E
038	Trench 13 context 1301-2 facing N
039	Trench 13 tree root disturbance facing N

040	Trench 15 facing NW
041	Trench 15 context 1501-2 facing SE
042	Trench 15 context 1501-2 facing SE
043	Trench 14 facing NE
044	Trench 12 facing NW
045	Trench 12 context 1201-2 facing SW
046	Trench 16 facing SE
047	Trench 19 facing NW
048	Trench 19 context 1905 facing NW
049	Trench 19 context 1905 facing NW
050	Trench 19 context 1901 facing NW
051	Trench 20 facing SE
052	Trench 21 context 2001-2 facing SE
053	Trench 20 context 2004 facing SE
054	Trench 21 facing E
055	Trench 21 context 2101-2 facing E
056	Trench 21 context 2104 facing E
057	Trench 22 facing E
058	Trench 22 context 2201-2 facing N
059	Trench 22 context 2201-2 facing W
060	Trench 17 facing SE
061	Trench 17 context 1702 facing SW
062	Trench 17 context 1704 facing NW
063	Trench 23 facing E
064	Trench 23 context 2301-2 facing NW
065	Trench 23 context 2303-4 facing SW
066	Trench 23 context 2307-8 facing SW
067	Trench 23 context 2305-6 facing NNE
068	View across Trench 1 facing NNW
069	General view across site
070	View across Trenches 6-8 facing SSE
071	View across Trenches 6-8 facing SE
072	View across Trench 2 facing S
073	View across Trench 8 facing SE
074	View across Trench 4 facing S
075	View across Trench 9 facing SE
076	View across Trench 2 facing SW
077	West end of trench 8 facing NE
078	View across Trench 7 facing SE
079	View across Trench 9 facing SE
080	View across Trench 10 facing SW
081	View across Trench 10 facing SE
082	View across Trench 5 facing SW
083	View across Trenches 13-6 facing SW
084	Trench 25 facing E
085	Trench 25 context 2502 facing E
086	Trench 26 facing E
087	Trench 26 context 2307 facing E
088	Trench 26 context 2307 facing SE
089	Trench 24 facing NE
090	Trench 24 context 2401-2 facing NE
091	Trench 24 context 2403-4 facing NE
092	Trench 24 context 2405-8 facing NE
093	Trench 24 context 2407-8 facing SE

094	Trench 24 context 2405-8 facing SW
095	Trench 24 context 2405-6 facing SW
096	Trench 18 context 1810-2 facing NW
097	Trench 18 context 1810-2 facing NW
098	Trench 18 context 1813-4 facing NE
099	Trench 18 context 1803-4 facing SE
100	Trench 18 facing NNW
101	Trench 18 context 1803-5 facing SW
102	Trench 18 context 1803-5 facing NE
103	View across Trenches 15-6 facing SW
104	View across Trench 13 facing NW
105	View across Trench 10 facing N
106	View across Trench 4 facing NW
107	View across Trench 5 facing W
108	View across Trench 5 facing WSW
109	Recording Trench 18 facing SE
110	Recording Trench 18 facing SE
111	Trench 17 context 1701-2 facing SW
112	Trench 17 context 1703-4 facing NW
113	Trench 16 context 608-10 facing SE
114	Trench 4 context 405 facing W
115	Trench 4 context 405 facing W
116	View across Trench 3 facing N
117	View across Trench 5 facing NW
118	Trench 18 context 1814 after machining facing NE
119	Detail of Trench 18 context 1808 facing NE
120	Detail of Trench 18 context 1808 facing SE
121	Detail of Trench 18 context 1808 facing SE
122	Infilled Trench 5 facing NE
123	Context 405 facing SW
124	Context 405 facing SW
125	Infilled Trench 13 facing ENE
126	Infilled Trench 6 facing W
127	General view across site following infilling of trenches
128	General view across site following infilling of trenches

The following black and white photographic prints were taken with a 35mm negative format.

B&W photo no.	Description
Film 1/1	Trench 1 facing NNE
Film 1/2	Trench 2 facing SW
Film 1/3	Trench 2 Context 203 facing NW
Film 1/4	Trench 2 Context 205 facing NW
Film 1/5	Trench 2 Context 207 facing NW
Film 1/6	Trench 3 facing WSW
Film 1/7	Trench 4 facing SE
Film 1/8	Trench 4 context 403 facing SW
Film 1/9	Trench 5 facing NW
Film 1/10	Trench 5 context 501-3 facing SW
Film 1/11	Trench 5 context 504-5 facing W
Film 1/12	Trench 6 facing E

Film 1/13	Trench 6 context 603-5 facing NNW
Film 1/14	Trench 6 context 607 and 610 facing S
Film 1/15	Trench 6 context 607 and 610 facing N
Film 1/16	Trench 6 context 607 and 610 facing N
Film 1/17	Trench 7 facing N
Film 1/18	Trench 7 context 701-2 facing NW
Film 1/19	Trench 8 facing NW
Film 1/20	Trench 8 context 801-2 facing SE
Film 1/21	Trench 8 detail of 801-2
Film 1/22	Trench 9 facing NE
Film 1/23	Trench 9 facing NE
Film 1/24	Trench 9 context 901-2 facing W
Film 1/25	Trench 9 context 903-4 facing NW
Film 1/26	Trench 9 context 903-4 facing SW
Film 1/27	Trench 11 facing SE
Film 1/28	Trench 11 context 1101-2 facing SE
Film 1/29	Trench 11 context 1101-2 facing SE
Film 1/30	Trench 11 context 1103-6 facing SE
Film 1/31	Trench 10 facing SE
Film 1/32	Trench 10 context 1003 facing E
Film 1/33	Trench 10 context 1005 facing E
Film 1/34	Trench 10 context 1007 facing E
Film 1/35	Trench 13 facing E
Film 1/36	Trench 13 context 1301-2 facing N
Film 1/37	Trench 15 facing NW
Film 2/2	Trench 14 facing NE
Film 2/3	Trench 12 facing NW
Film 2/4	Trench 12 context 1201-2 facing SW
Film 2/5	Trench 16 facing SE
Film 2/6	Trench 19 facing NW
Film 2/8	Trench 19 context 1901 facing NW
Film 2/9	Trench 20 facing SE
Film 2/10	Trench 20 context 2004 facing SE
Film 2/11	Trench 21 context 2001-2 facing SE
Film 2/12	Trench 21 facing E
Film 2/13	Trench 21 context 2104 facing E
Film 2/14	Trench 21 contexts 2101-2 facing E
Film 2/15	Trench 22 facing E
Film 2/16	Trench 22 context 2201-2 facing W
Film 2/17	Trench 22 context 2201-2 facing N
Film 2/18	Trench 17 facing SE
Film 2/19	Trench 17 context 1702 facing SW
Film 2/20	Trench 17 context 1704 facing NW
Film 2/21	Trench 23 facing E
Film 2/22	Trench 23 hedge line at western end of trench NW
Film 2/23	Trench 23 context 2301-2 facing NW
Film 2/24	Trench 23 context 2303-4 facing SW
Film 2/25	Trench 23 context 2305-6 facing NNE
Film 2/27	General view across site
Film 2/29	View across Trench 5 facing SW
Film 2/30	View across Trenches 13-6 facing SW
Film 2/31	View across Trench 4 facing NW
Film 2/32	View across Trench 6 facing E
Film 2/33	View across Trenches 2-3 facing N

Film 2/34	View across Trench 3 facing N
Film 2/35	View across Trenches 11-3 facing E
Film 3/1	Trench 25 facing E
Film 3/2	Trench 25 context 2502 facing E
Film 3/3	Trench 26 facing E
Film 3/4	Trench 26 context 2307 facing E
Film 3/5	Trench 26 context 2307 facing SE
Film 3/6	Trench 24 facing NE
Film 3/7	Trench 24 context 2401-2 facing NE
Film 3/8	Trench 24 context 2403-4 facing NE
Film 3/9	Trench 24 context 2405-8 facing NE
Film 3/10	Trench 24 context 2405-6 facing SW
Film 3/11	Trench 24 context 2407-8 facing SE
Film 3/12	Trench 24 context 2407-8 facing SE
Film 3/13	Trench 18 context 1810-2 facing NW
Film 3/14	Trench 18 context 1813-4 facing NE
Film 3/15	Trench 18 context 1813-4 facing SW
Film 3/16	Trench 18 facing NNW
Film 3/17	Trench 18 context 1803-5 facing SW
Film 3/18	Trench 18 context 1803-5 facing NE
Film 3/19	View across Trenches 15-6 facing SW
Film 3/20	View across Trench 5 facing W
Film 3/21	View across Trench 15 facing W
Film 3/22	Infilling Trench 16 facing SW
Film 3/24	Recording Trench 18
Film 3/25	Recording Trench 18
Film 3/26	Trench 17 Context 1701-2 facing SW
Film 3/27	Trench 17 Context 1703-4 facing NW
Film 3/28	Trench 16 Context 608-10 facing SE
Film 3/30	Trench 4 Context 405 facing W
Film 3/31	Trench 4 Context 405 detail facing W
Film 3/33	View across Trench 11 facing SW
Film 3/34	View across Trench 13 facing W

Colour slide photo no.	Description
Film 1/2	Trench 1 facing NNE
Film 1/3	Trench 2 facing SW
Film 1/4	Trench 3 facing WSW
Film 1/5	Trench 4 facing SE
Film 1/6	Trench 5 facing NW
Film 1/7	Trench 6 facing E
Film 1/8	Trench 7 facing N
Film 1/9	Trench 8 facing NW
Film 1/10	Trench 9 facing NE
Film 1/11	Trench 11 facing SE
Film 1/12	Trench 10 facing SE
Film 1/13	Trench 13 facing E
Film 1/14	Trench 15 facing NW
Film 1/15	Trench 14 facing NE
Film 1/16	Trench 12 facing NW

Film 1/17	Trench 16 facing SE
Film 1/18	Trench 19 facing NW
Film 1/19	Trench 20 facing SE
Film 1/20	Trench 21 facing E
Film 1/21	Trench 22 facing E
Film 1/22	Trench 17 facing SE
Film 1/23	Trench 23 facing E
Film 1/24	Trench 25 facing E
Film 1/25	Trench 26 facing E
Film 1/26	Trench 24 facing NE
Film 1/27	Trench 18 facing NNW

APPENDIX 2: CONTEXT LIST

Context Number	Brief description
100	Top-soil 0.2-0.3m thick
101	Natural clay
201	Top-soil 0.2-0.3m thick
202	Ceramic field drain and associated clay backfill
203	Cut for field drain
204	Ceramic field drain and associated clay backfill
205	Cut for field drain
206	Ceramic field drain and associated clay backfill
207	Cut for field drain
208	Natural clay
300	Deposit of stable manure
301	Top-soil 0.06-0.16m thick
302	Natural clay
401	Top-soil 0.1-0.12m thick
402	Clay backfill
403	Cut for field drain
404	Natural clay
405	Cast iron pipe
500	Top-soil 0.23-0.26m thick
501	Cast iron pipe
502	Clay backfill
503	Cut for field drain
504	Clay backfill
505	Cut for field drain
506	Natural clay
601	Top-soil 0.2m thick
602	Ceramic field drain and associated clay backfill
603	Cut for field drain
604	Backfill of 605
605	Gully
606	Ceramic field drain and associated clay backfill
607	Cut for field drain
608	Backfill of 609
609	Primary backfill of 609
610	Ditch cut
611	Clay backfill
612	Cut for field drain
613	Natural clay
700	Top-soil 0.25-0.4m thick
701	Clay backfill
702	Cut for field drain
703	Natural clay
800	Top-soil 0.2-0.3m thick
801	Ceramic field drain and associated clay backfill
802	Cut for field drain
803	Natural clay
900	Top-soil 0.25-0.28m thick
901	Clay backfill
902	Cut for field drain

903	Stone lining of drain
904	Cut for stone lined field drain
905	Natural clay
1000	Top-soil 0.12-0.22m thick
1001	Natural clay
1002	Clay backfill
1003	Cut for field drain
1004	Clay backfill
1005	Cut for field drain
1006	Ceramic field drain and associated clay backfill
1007	Cut for field drain
1100	Top-soil 0.25-0.27m thick
1101	Crushed ceramics beneath clay. Backfill of field drain.
1102	Cut for field drain
1103	Clay backfill
1104	Cut for field drain
1105	Crushed ceramics beneath clay. Backfill of field drain.
1106	Cut for field drain
1107	Natural clay
1200	Top-soil 0.25-0.3m thick
1201	Ditch backfill
1202	Ditch cut
1203	Natural clay
1204	Stone lining of drain
1205	Cut for stone lined field drain
1300	Top-soil 0.15-0.3m thick
1301	Backfill of 1302
1302	Tree-root disturbance
1303	Natural clay
1400	Top-soil 0.2-0.28m thick
1401	Natural clay
1500	Top-soil 0.2-0.25m thick
1501	Ceramic field drain and associated clay backfill
1502	Cut for field drain
1503	Natural clay
1600	Top-soil 0.2-0.3m thick
1601	Natural clay
1700	Top-soil 0.2-0.25m thick
1701	Backfill of 1702
1702	Pit or ditch cut
1703	Backfill of 1704
1704	Ditch cut
1705	Natural clay
1800	Top-soil 0.2-0.25m thick
1801	Backfill of 1803
1802	Primary backfill of 1803
1803	Ditch cut
1804	Backfill of 1805
1805	Gully
1806	Ceramic field drain and associated clay backfill
1807	Cut for field drain
1808	Stone lining of drain
1809	Cut for stone lined field drain
1810	Backfill of 1812

1811	Primary backfill of 1812
1812	Ditch cut
1813	Backfill of 1814
1814	Gully
1815	Natural clay
1817	Backfill of 1818
1818	Cut for field drain
1900	Top-soil 0.2-0.22m thick
1901	Crushed ceramics beneath clay. Backfill of field drain.
1902	Cut for field drain
1903	Plastic water pipe
1904	Natural clay
1905	Natural shale
2000	Top-soil 0.15-0.2m thick
2001	Crushed ceramics beneath clay. Backfill of field drain.
2002	Cut for field drain
2003	Natural clay
2004	Natural shale
2100	Top-soil 0.2-0.3m thick
2101	Backfill of 2202
2102	Gully from a hedge line
2103	Natural clay
2104	Natural shale
2200	Top-soil 0.2-0.25m thick
2201	Backfill of 2202
2202	Gully from a hedge line
2203	Natural clay
2204	Natural shale
2300	Top-soil 0.2-0.4m thick
2301	Backfill of 2302
2302	Gully
2303	Backfill of 2304
2304	Ditch cut
2305	Backfill of 2306
2306	Cut for field drain
2307	Backfill of 2308
2308	Ditch cut
2309	Natural clay
2400	Top-soil 0.2-0.35m thick
2401	Crushed ceramics beneath clay. Backfill of field drain.
2402	Cut for field drain
2403	Clay backfill
2404	Cut for field drain
2405	Ceramic field drain and associated clay backfill
2406	Cut for field drain
2407	Backfill of 2408
2408	Ditch cut
2409	Natural clay
2500	Top-soil 0.2-0.25m thick
2501	Natural clay
2502	Natural shale
2600	Top-soil 0.25-0.3m thick
2601	Natural clay

APPENDIX 3: FINDS REPORTS

THE POTTERY BY I. ROWLANDSON

The pottery has been archived using count and weight as measures according to the guidelines laid down for the minimum archive by *The Study Group for Roman Pottery* (Darling 2004) using the codes developed by the City of Lincoln Archaeological Unit- CLAU (see Darling and Precious *forthcoming*) and the fabric scheme developed by Leary from the pottery from Brough-on-Noe (prefixed with a 'D'). Rim equivalents (RE) have been recorded and an attempt at a 'maximum' vessel estimate has been made following Orton (1975, 31). The archive record is an integral part of this report and will be curated in an Access database, available from the author in a digital format.

The ceramics presented for study total 39 sherds, weighing 0.307 kg, RE 0.46, from 6 contexts. The low average sherd weight of 7.87g/sh is what would be expected from a rural site in the north of England. All of the pottery should be retained and deposited in the relevant museum to enable future scrutiny.

The six small groups of Roman pottery predominantly date to AD150-350 on the basis of the presence of the distinctive Derbyshire ware fabric. Two of the groups, contexts 2300 and 2600, only contain scraps of a local oxidised ware and should be considered to be of broadly Roman date. The groups are all small and most of the sherds are abraded. Of note amongst the group are fragments of a Derbyshire ware jar from Context 1804 (as Gillam 1970, Type 152) and a bowl with flared rim from context 1701. The pottery is probably all of local Derbyshire origin (as discussed by Leary 2003). Also of note is the lack of any Black Burnished Ware amongst this small group despite the proximity to the Brough on Noe fort where BB1 made up 22% of the assemblage (Leary 1993). This suggests that the inhabitants of this site may not have had access to supplies of BB1. This assemblage from Hope probably represents the presence of a relatively unsophisticated Roman settlement in the vicinity of the site.

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DERSB:2010.38- Dating summary					
Context	Spot date	Comments	Sherd	Weight (g)	Total RE %
1701	AD150-350	A small group including a fragment of a bowl with a flared rim	17	115	13
1703	AD150-350	A small group including a sherd from a bowl with a flared lip	12	55	4
1801	AD150-350	A small abraded group	4	9	0
1804	AD150-350	A small group including a Derbyshire ware jar	3	120	29
2300	ROM	A small abraded group	2	4	0
2600	ROM	A small abraded group	1	4	0

DERSB:2010.38- Fabric summary							
Fabric	Fabric group	Fabric details	Sherd	Sherd %	Weight	Weight %	Total RE %
DBY	Coarse	Derbyshire ware	18	46.15%	229	74.59%	37
DFLA	Oxid	Derbyshire Light firing flagon wares	1	2.56%	13	4.23%	0
DOAA	Oxid	Derbyshire Fine Oxidised	6	15.38%	9	2.93%	0
DOAB	Oxid	Derbyshire Oxidised	4	10.26%	9	2.93%	0
DOAC	Oxid	Derbyshire Coarse Oxidised	2	5.13%	4	1.30%	0
DOBC	Oxid	Derbyshire Coarse Buff/Brown ware	2	5.13%	8	2.61%	0
DGRB	Reduced	Derbyshire Greyware	3	7.69%	17	5.54%	0
DGRC	Reduced	Derbyshire Coarse Greyware	3	7.69%	18	5.86%	9

DERSB:2010.38- Form summary							
Form	Form Type	Form Description	Sherd	Sherd %	Weight (g)	Weight %	Total RE %
BFL	Bowl	Flange rimmed	2	5.13%	33	10.75%	9
CLSD?	Closed	Form	7	17.95%	17	5.54%	0
CLSD	Closed	Form	15	38.46%	109	35.50%	0

DERSB:2010.38- Form summary							
Form	Form Type	Form Description	Sherd	Sherd %	Weight (g)	Weight %	Total RE %
JDBY	Jar	Derbyshire ware lid-seated- Gillam type 152	2	5.13%	115	37.46%	29
J?	Jar	Unclassified form	2	5.13%	5	1.63%	8
-	Unknown	Form uncertain	11	28.21%	28	9.12%	0

DERSB:2010.38- Roman pottery archive													
Context	Fabric	Form	Decoration	Vessels	Alt	Drawing	Comments	Join	Sherd	Weight	Rim diam	Rim eve	Pu b
1701	DGRC	-		1	VAB		BODYSHERD		1	5	0	0	
1701	DGRC	J?		1	VAB		BS; RIM SCRAP-LID SEATED JAR? OR DISH		1	2	16	5	
1701	DBY	CLSD		2			BODYSHERD		2	26	0	0	
1701	DBY	J?		1	ABR		RIM; JDBY?- POSSIBLE DERBYSHIRE WARE LID SEATED JAR RIM SCRAP		1	3	20	3	
1701	DBY	BFL		1			RIM; BOWL WITH A FLARED LIP		1	22	18	5	
1701	DBY	CLSD		9	ABR		BODYSHERD; OXID; A CLOSED FORM- ?JAR		9	53	0	0	
1701	DOAB	-		2	VAB		BODYSHERD		2	4	0	0	
1703	DOAC	-	HM?	1	VAB		BODYSHERD?- THIS SHERD MAY BE FIRED CLAY		1	3	0	0	
1703	DOAA	CLSD ?		3	VAB		BODYSHERD; ?JAR		3	4	0	0	
1703	DBY	-		2	ABR		BODYSHERD		2	6	0	0	
1703	DOAC	-		1	VAB		BODYSHERD		1	1	0	0	
1703	DGRB	CLSD		1	VAB		BODYSHERD		2	3	0	0	
1703	DGRB	CLSD		1			BODYSHERD		1	14	0	0	

DERSB:2010.38- Roman pottery archive													
Context	Fabric	Form	Decoration	Vessels	Alt	Drawing	Comments	Join	Sherd	Weight	Rim diam	Rim eve	Pub
1703	DGRC	BFL		1	ABR		RIM; BOWL WITH A FLARED LIP; LOW FIRED		1	11	28	4	
1703	DFLA	CLSD		1	ABR		BODYSHERD; JAR?		1	13	0	0	
1801	DBY	-		1	ABR		BODYSHERD		1	4	0	0	
1801	DOBC	-		1	ABR		BODYSHERD		1	3	0	0	
1801	DOAB	-		1	VAB		BODYSHERD		1	1	0	0	
1801	DOAA	-		1	VAB		BODYSHERD		1	1	0	0	
1804	DOBC	CLSD ?		1	VAB		BODYSHERD		1	5	0	0	
1804	DBY	JDBY		1			RIM AND SHOULDER- DERBYSHIREWARE JAR		2	115	20	29	
2300	DOAA	CLSD ?		1	VAB		BODYSHERD; ?JAR		2	4	0	0	
2600	DOAB	CLSD ?		1	ABR		BASE; ?JAR		1	4	0	0	

DERSB:2010.38- Roman pottery archive- simplified summary		
Context	Comments	Sherd
1701	BODYSHERD	1
1701	RIM SCRAP-LID SEATED JAR? OR DISH	1
1701	BODYSHERD	2
1701	RIM; JDBY?- POSSIBLE DERBYSHIRE WARE LID SEATED JAR RIM SCRAP	1
1701	RIM; BOWL WITH A FLARED LIP	1
1701	BODYSHERD; OXID; A CLOSED FORM- ?JAR	9
1701	BODYSHERD	2
1701	TOTAL	17

DERSB:2010.38- Roman pottery archive- simplified summary		
Context	Comments	Sherd
1703	BODYSHERD?- THIS SHERD MAY BE FIRED CLAY	1
1703	BODYSHERD; ?JAR	3
1703	BODYSHERD	2
1703	BODYSHERD	1
1703	BODYSHERD	2
1703	BODYSHERD	1
1703	RIM; BOWL WITH A FLARED LIP; LOW FIRED	1
1703	BODYSHERD; JAR?	1
1703	TOTAL	12
1801	BODYSHERD	1
1801	BODYSHERD	1
1801	BODYSHERD	1
1801	BODYSHERD	1
1801	TOTAL	4
1804	BODYSHERD	1
1804	RIM AND SHOULDER- DERBYSHIREWARE JAR	2
1804	TOTAL	3
2300	BODYSHERD; ?JAR	2
2300	TOTAL	2
2600	BASE; ?JAR	1
2600	TOTAL	1

THE ARTEFACTS BY R. CUBITT

Flint Flake from Context 1801. Bulk find 11

Misc retouch along left hand edge of ventral face. 40x15x3mm.

A prehistoric item, presumed residual on a Roman site.

Iron Nail from Context 1804. Bulk find 12

Square shank with square/sub-square flat head. Complete. 56x14x13mm. Type 1b in Mannings typology of Roman nails (1985,134).

Stone Object from Context 1808. Bulk find 13

Sub-circular stone with maximum diameter 495mm and maximum thickness 60mm. Central perforation, diameter 60mm. In two fragments that re-fit. Some tooling marks visible on the sides of the central perforation, none on the upper or lower surface. Originally thought to be part of a quern, but possibly a pivot stone from a building.

BIBLIOGRAPHY

Manning W H 1985 Catalogue of the Romano-British iron tools, fittings and weapons in the British Museum. London

THE CERAMIC BUILDING MATERIAL BY J. M. MCCOMISH

A small quantity of CBM was present on the site (1880g), all of which was of Roman date. CBM fragments were present in Contexts 1400, 1700, 1701, 1703, 1801, 1813, 2303, 2407, 2500 and 2600. Most of the CBM comprised small abraded fragments of indeterminate form. The exceptions were Context 2600 which contained a fragment which could represent either a brick or a tegula with the flange knocked off, and Context 2500 which contained eight small fragments of non-adjoining imbrex (it is possible that they all eight fragments originated from a single imbrex originally). The small quantity of CBM is not suggestive of intense occupation, though clearly indicates a Roman presence on the site. No attempt was made to undertake a fabric analysis for the CBM as the majority of the fragments were very small and abraded. The collection is primarily of use for dating the contexts in question, but it is too small a collection to merit any further research. All the material was retained in accordance with the accessioning policy of the recipient museum.

APPENDIX 4: ARCHIVE CONTENTS FOR MUSEUM DEPOSITION

The archive was prepared in compliance with the accessioning policy for Buxton Museum.

THE SITE ARCHIVE

155x A4 context cards

6xA5 sheets of site levels AOD

40 permatrace sheet 0.3x0.3m in size of site plans.

3 rolls of black and white photographs and associated negatives

27 colour slides (unmounted)

Roman pottery from contexts 1701, 1703, 1801, 1804, 2300, 2600 bagged by context

Roman CBM from contexts 1400, 1700, 1701, 1703, 1801, 1813, 2303, 2407, 2500 and 2600, bagged by context

A Roman nail from context 1804

A residual flint flake from context 1801

A stone block pierced by a circular hole from context 1808

THE POST-EXCAVATION ARCHIVE

Copy of the evaluation report which includes a context list, photographic register and copy of the Project Design.

APPENDIX 5: KEY OASIS FORM DETAILS

The Oasis Form Identifier for this project is yorkarch1-81379

**APPENDIX 6: COPIES OF THE PROJECT DESIGN BY A. BADCOCK AND
SUPPLEMENTARY WRITTEN SCHEME OF INVESTIGATION
FOR ARCHAEOLOGICAL EVALUATION, HOPE SHALE QUARRY,
DERBYSHIRE, BY P. CHADWICK AND J. GIDMAN**



PROJECT DESIGN FOR ARCHAEOLOGICAL EVALUATION

Prepared for CgMs by ArcHeritage, 24th June 2010

Site Location: Hope Shale Quarry, Derbyshire
NGR: centred SK 17907 83655
Proposal: Extension of existing shale quarry
Status of WSI: **Final**

1 SUMMARY

- 1.1 Planning consent has been granted for an extension to the existing shale quarry.
- 1.2 Planning condition 27 requires a programme of archaeological works to be undertaken prior to shale extraction.
- 1.3 This Project Design has been prepared in response to a Written Scheme of Investigation (WSI) supplied by CgMs. The work will be carried out in accordance with the Brief and the WSI, and according to the principles of the Institute for Archaeology (IfA) Code of Conduct and all relevant standards and guidance. This will form the third phase of archaeological evaluation to have taken place in this area, in relation to the quarry expansion.

2 SITE LOCATION & DESCRIPTION

- 2.1 The proposal site is located at the eastern edge of the Hope shale quarry, north-west of the confluence of the River Noe and the Bradwell Brook. The evaluation area comprises c.2.7 hectares of pasture, to the west of a small plantation.

3 DESIGNATIONS & CONSTRAINTS

- 3.1 Navio roman fort lies to the east of the evaluation area. The fort is a Scheduled Ancient Monument (SAM 29795). The evaluation area itself does not have any statutory designations.

4 ARCHAEOLOGICAL INTEREST

- 4.1 Excavations in 1986 (Branigan and Dearne 1986) revealed evidence for a *vicus* to the west of the fort, underneath the current tree plantation. A geophysical survey (GSB Prospection 2003) detected anomalies across the whole area, but the first two phases of archaeological evaluation undertaken previously did not reveal any evidence for archaeological deposits, apart from traces of medieval ridge and furrow (Bell 2004, Barnett 2008).

5 AIMS

- 5.1 The aims of the evaluation are:
 - to determine the extent, condition, character, importance and date of any archaeological remains present
 - to provide information that will enable the remains to be placed within their local, regional, and national context and for an assessment of the significance of the archaeology of the proposal area to be made

- to provide information to enable the local authority to decide any requirements for further archaeological mitigation for the site

6 EXCAVATION METHODOLOGY

6.1 The evaluation will comprise the following elements:

- Trial trenching
- Reporting

Please note that further stages of work or other mitigation measures could be required by the local authority, depending upon the results of the evaluation.

- 6.2 A series of 26 trenches will be excavated. This comprises 4% of the area. The location of the trenches is shown on Figure 2 of the CgMs WSI. Trenches will be stepped if necessary, to ensure their stated size at the base of the trench.
- 6.3 The trench locations will be accurately plotted using an EDM Total station, by measurement to local permanent features shown on published Ordnance Survey maps. All measurements will be accurate to +/-10cm, and the trenches locatable on a 1:2500 Ordnance Survey map. This is to ensure that the trenches can be independently relocated in the event of future work.
- 6.4 Soil will be removed by a machine fitted with a toothless bucket. **Topsoil will be removed and stored separately to subsoil.** Mechanical excavation equipment will be used judiciously, under archaeological supervision down to the top of archaeological deposits, or the natural subsoil, whichever appears first. If archaeology is present machining will cease and excavation will normally proceed by hand.
- 6.5 All trenches will be sufficiently cleaned by hand to enable potential archaeological features to be identified and recorded; areas without archaeological features will be recorded as sterile and no further work will take place in these areas. The stratigraphy of all trenches will be recorded on trench record sheets even where no archaeological features are identified.
- 6.6 A sufficient sample of any archaeological features and deposits revealed will be excavated in an archaeologically controlled and stratigraphic manner in order to establish the aims of the evaluation.
- Discrete features will be half-sectioned in the first instance.
 - Linear features will be sample excavated with each sample being not less than 1m in length
 - Deposits at junctions or interruptions in linear features will be sufficiently excavated to allow relationships to be determined.
 - Structures will be sample excavated to a degree whereby their extent nature, form, date, function and relationships to other features and deposits can be established.

7 RECORDING METHODOLOGY FOR EXCAVATION

- 7.1 All archaeological features will be recorded using standardised pro forma record sheets. Plans, sections and elevations will be drawn as appropriate and a comprehensive photographic record will be made where archaeological features are encountered.
- 7.2 Archaeological deposits will be planned at a basic scale of 1:50, with individual features requiring greater detail being planned at a scale of 1:20. Larger scales will be utilised as appropriate. Cross-section of features will be drawn to a basic scale of 1:10 or 1:20 depending on the size of the feature. All drawings will be related to Ordnance Datum. Where it aids interpretation, structural remains will also be recorded in elevation.
- 7.3 Each context will be described in full on a pro forma context record sheet in accordance with the accepted context record conventions. Each context will be given a unique number. These field records will be checked and indexes compiled.

- 7.4 Photographs of work in progress and post-excavation of individual and groups of features will be taken. This will include general views of entire features and of details such as sections as considered necessary. The photographic record will comprise 35mm format colour slides and black and white film. Digital photography may be used in addition, but will not form any part of the formal site archive. All site photography will adhere to accepted photographic record guidelines.
- 7.5 Areas which do not contain any archaeological deposits will be photographed and recorded as being archaeologically sterile. The natural stratigraphic sequence within these areas will be recorded on trench record sheets but full sections will not be drawn.
- 7.6 All finds will be collected and handled following the guidance set out in the IfA guidance for archaeological materials. **All artefacts will be retained.** Finds of particular interest or fragility will be retrieved as Small Finds, and located on plans. Other finds, finds within the topsoil, and dense/discrete deposits of finds will be collected as Bulk Finds, from discrete contexts, bagged by material type. Any dense/discrete deposits will have their limits defined on the appropriate plan.
- 7.7 All artefacts and ecofacts will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication *First Aid for Finds*, and recording systems must be compatible with the recipient museum. All finds that fall within the purview of the Treasure Act (1996) will be reported to HM Coroner according to the procedures outlined in the Act, after discussion with the client and the local authority.
- 7.8 Other samples will be taken, as appropriate, in consultation with ArchHeritage specialists and the English Heritage Regional Science Advisor, as appropriate (e.g. dendrochronology, soil micromorphology, monolith samples, C14, etc.). Samples will be taken for scientific dating where necessary for the development of subsequent mitigation strategies. Material removed from site will be stored in appropriate controlled environments.
- 7.9 In the event of human remains being discovered during the evaluation these will be left *in-situ*, covered and protected, in the first instance. The removal of human remains will only take place in compliance with environmental health regulations and following discussions with, and with the approval of, the Ministry of Justice. If human remains are identified, the Ministry of Justice, CgMs and the curator will be informed immediately. An osteoarchaeologist will be available to give advice on site.
- If **disarticulated** remains are encountered, these will be identified and quantified on site. If trenches are being immediately backfilled, the remains will be left in the ground. If the excavations will remain open for any length of time, disarticulated remains will be removed and boxed, for immediate reburial by the Church.
 - If **articulated** remains are encountered, these will be excavated in accordance with recognised guidelines (see 6.12) and retained for assessment.
 - Any grave goods or coffin furniture will be retained for further assessment.
- 7.10 Where a licence is issued, all human skeletal remains must be properly removed in accordance with the terms of that licence. Where a licence is not issued, the treatment of human remains will be in accordance with the requirements of Civil Law, IfA Technical Paper 13 (1993) and English Heritage guidance (2005).

8 SPECIALIST ASSESSMENT

- 8.1 The stratigraphic information, artefacts, soil samples, and residues will be assessed as to their potential and significance for further analysis and study. The material will be quantified (counted and weighted). Specialists will undertake a rapid scan of all excavated material. Ceramic spot dates will be given. Appropriately detailed specialist reports will be included in the report.
- 8.2 Materials considered vulnerable should be selected for stabilisation after specialist recording. Where intervention is necessary, consideration must be given to possible investigative

procedures (e.g. glass composition studies, residues on or in pottery, and mineral-preserved organic material). Allowance will be made for preliminary conservation and stabilization of all objects and a written assessment of long-term conservation and storage needs will be produced. Once assessed, all material will be packed and stored in optimum conditions, in accordance with Watkinson and Neal (1998), IfA (2007) and Museums and Galleries (1992).

- 8.3 All finds will be cleaned, marked and labelled as appropriate, prior to assessment. For ceramic assemblages, any recognised local pottery reference collections and relevant fabric Codes will be used.
- 8.4 Allowance will be made for the recovery of material suitable for scientific dating and contingency sums will be made available to undertake such dating, if necessary. This will be decided in consultation with CgMs and the curator.

9 REPORT & ARCHIVE PREPARATION

- 9.1 Upon completion of the site work, a report will be prepared to include the following:
 - a) A non-technical summary of the results of the work.
 - b) An introduction which will include the planning reference number, grid reference and dates when the fieldwork took place.
 - c) An account of the methodology and detailed results of the operation, describing structural data, archaeological features, associated finds and environmental data, and a conclusion and discussion.
 - d) A selection of photographs and drawings, including a detailed plan of the site accurately identifying the areas monitored, trench locations, selected feature drawings, and selected artefacts, and phased feature plans where appropriate.
 - e) Specialist artefact and environmental reports where undertaken, and a context list/index.
 - f) Details of archive location and destination (with accession number, where known), together with a context list and catalogue of what is contained in that archive.
 - g) A copy of the key OASIS form details
 - h) Copies of the Brief and WSI
 - i) Additional photographic images may be supplied on a CDROM appended to the report
- 9.2 Six bound (and one unbound) copies of the report will be submitted to the commissioning body. Digital copies will also be provided. A bound and digital copy of the report will be submitted direct to the PDNPA and HER for planning purposes, and subsequently for inclusion into the HER.
- 9.3 A field archive will be compiled consisting of all primary written documents, plans, sections and photographs. Catalogues of contexts, finds, soil samples, plans, sections and photographs will be produced. ArcHeritage will liaise with Buxton Museum prior to the commencement of fieldwork to establish the detailed curatorial requirements of the museum and discuss archive transfer and to complete the relevant museum forms. The relevant museum curator would be afforded access to visit the site and discuss the project results.
- 9.4 The owner of the Intellectual Property Rights (IPR) in the information and documentation arising from the work, would grant a licence to the Local Authority and the museum accepting the archive to use such documentation for their statutory functions and provide copies to third parties as an incidental to such functions. Under the Environmental Information Regulations (EIR), such documentation is required to be made available to enquirers if it meets the test of public interest. Any information disclosure issues would be resolved between the client and the archaeological contractor before completion of the work. EIR requirements do not affect IPR.
- 9.5 Upon completion of the project an OASIS form will be completed at <http://ads.ahds.ac.uk/project/oasis/>.

10 POST EXCAVATION ANALYSIS & PUBLICATION

- 10.1 The information contained in the evaluation report will enable decisions to be taken regarding the future treatment of the archaeology of the development site and any material recovered during the evaluation.
- 10.2 If further archaeological investigations (mitigation) take place, any further analyses (as recommended by the specialists, and following agreement with the curator) may be incorporated into the post-excavation stage of the mitigation programme unless such analysis are required to provide information to enable a suitable mitigation strategy to be devised. Such analysis will form a new piece of work to be commissioned.
- 10.3 In the event that no further fieldwork takes place on the site, a full programme of post excavation analysis and publication of artefactual and scientific material from the evaluation may be required by the curator. Where this is required, this work will be a new piece of work to be commissioned.
- 10.4 If further site works do not take place, allowance will be made for the preparation and publication in a local and/or national journal of a short summary on the results of the evaluation and of the location and material held within the site archive.

11 HEALTH AND SAFETY

- 11.1 Health and safety issues will take priority over archaeological matters and all archaeologists will comply with relevant Health and Safety Legislation.
- 11.2 A Risk Assessment will be prepared prior to the start of site works.
- 11.3 **All livestock must be removed from the fields for the duration of the works.**

12 PRE-START REQUIREMENTS

- 12.1 The client will be responsible for ensuring site access has been secured prior to the commencement of site works, and that the perimeter of the site is secure.
- 12.2 The client will provide ArchHeritage with up to date service plans and will be responsible for ensuring services have been disconnected, where appropriate. **A digital survey base will be provided by the client, including quarry survey stations.**

13 REINSTATEMENT

- 13.1 Following excavation and recording the spoil from the trenches will be backfilled unless requested otherwise. Topsoil and subsoil will be replaced in the correct sequence. The backfill material will be levelled and compressed as far as possible with the mechanical excavator bucket, but will not be compressed to a specification. ArchHeritage are not responsible for reinstating any surfaces, including reseeded, unless specifically commissioned by the client who will provide a suitable specification for the work.

14 TIMETABLE & STAFFING

- 14.1 The works will commence on or around the 19th July. The works will take approximately two weeks in the field.
- 14.2 Specialist staff available for this work are as follows:
 - Head of Artefact Research - Dr Ailsa Mainman
 - Human Remains - Malin Holst (York Osteoarchaeology Ltd) & Rebecca Storm (University of Bradford)
 - Palaeoecological remains - Palaeoecology Research Services Ltd
 - Head of Curatorial Services - Christine McDonnell
 - Finds Researcher - Nicky Rogers

- Post-medieval Pottery - Dr David Barker
- Medieval Pottery Researcher - Anne Jenner
- Roman Pottery - Ruth Leary
- Roman Small Finds - Hillary Cool
- Finds Officers - Geoffrey Krause & Rachel Cubitt
- Archaeometallurgy & Industrial Residues - Dr Rod Mackenzie & Dr Roger Doonan
- Conservation - Ian Panter

15 MONITORING OF ARCHAEOLOGICAL FIELDWORK

- 15.1 As a minimum requirement, the curator will be given a minimum of one week's notice of work commencing on site, and will be afforded the opportunity to visit the site during and prior to completion of the on-site works so that the general stratigraphy of the site can be assessed and to discuss the requirement any further phases of archaeological work. ArcHeritage will notify CgMs of any discoveries of archaeological significance so that site visits can be arranged with the curator, as necessary. Any changes to this agreed WSI will only be made in consultation with CgMs and the curator.

16 Copyright

- 16.1 ArcHeritage retain the copyright on this document.

17 KEY REFERENCES

- Barnett, R. 2008 Archaeological Evaluation of Land at the Hope Cement Works, Hope, Derbyshire. ARCUS unpublished report 811c.2(2)
- Bell, S. 2004 Archaeological Field Evaluation at Hope Shale Quarry, Hope, Derbyshire. ARCUS unpublished report 811b.1
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- English Heritage. 2004. *Geoarchaeology: using earth sciences to understand the archaeological record*.
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Standing Conference of Archaeological Unit Managers (SCAUM). 2007. *Health and Safety in Field Archaeology*

Neal, V., and D. Watkinson (eds). 1998. *First Aid for Finds: practical guide for archaeologists*. United Kingdom Institute for Conservation of Historic & Artistic Works, Archaeology Section; 3rd Revised Edition.

See also the **HELM** website for a full list of English Heritage Guidance documents.

<http://www.helm.org.uk/server/show/nav.19701>

Any queries relating to this WSI should be addressed to Anna Badcock, ArcHeritage, Campo House, 54 Campo Lane, Sheffield S1 2EG (Tel: 0114 3279793, email: abadcock@yorkat.co.uk)

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Fig. 1	Site location
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1.0 INTRODUCTION AND SCOPE OF DOCUMENT

- 1.1 This document has been prepared by CgMs Consulting on behalf of Lafarge Cement UK.
- 1.2 It presents a Written Scheme of Investigation for implementing a programme of archaeological works at Hope Quarry and Cement Works to comply with a conditions placed on planning consent (outlined in the Mineral Site Monitoring Report for a visit on 7th July 2009 by the Senior Mineral Planner at the Peak District National Park Authority). This programme is to be implemented prior to continuing of the topsoil strip and initially comprises trial-trenched evaluation, post excavation analysis, reporting and publication, as appropriate.
- 1.3 Further mitigation works may be required if well-preserved archaeological remains are recorded by the evaluation. The scope of any mitigation works will be agreed with the Planning Archaeologist for the Peak District National Park Authority and this Written Scheme of Investigation will be updated accordingly and submitted to the local planning authority for approval prior to implementation.
- 1.4 This programme of archaeological works has been required as a condition of planning consent (Condition 27) for the continuation of shale extraction within the limit of extraction boundary. This written scheme of investigation is designed to evaluate Area 3 and follows on from evaluation of Area 1 in 2004 (Bell 2004) and Area 2 in 2008 (Barnett 2008). The archaeological and historical potential of the development area was identified in a desk-based assessment (Chadwick 2002).
- 1.5 The area to be evaluated forms one small part of the overall application site (Fig. 1) which forms the Hope Limestone and Shale Quarries. The evaluation site is approximately 2.9 hectares of land located in the eastern part of the application site, centred at NGR 417907, 382655.
- 1.6 The presence of Roman fort, a Scheduled Ancient Monument (SAM 29795), which lies immediately to the east of the quarry boundary and evidence of a vicus from the tree belt at the eastern quarry boundary represents significant archaeological remains in the vicinity of the quarry. However, previous archaeological investigations within the quarry have identified only medieval ridge and furrow. Nevertheless, there remains a potential for medieval and Roman archaeological remains within the quarry, with

potential for archaeological remains relating to the Roman vicus and fort increasing as investigations progress eastwards.

- 1.7 This Specification therefore details the methodological approach to be applied for the evaluation, post-excavation analysis, reporting and publication only.
- 1.8 In accordance with the Institute of Field Archaeologist's Guidance and Standards relating to archaeological field evaluations (IfA 2008), this WSI summarises the available archaeological and topographic information in order to document the archaeological potential of the site and provide a reasoned justification for the proposed evaluation.

2.0 GEOLOGICAL AND TOPOGRAPHIC BACKGROUND

2.1 Geology

2.1.1 The Institute of Geological Sciences (1979) show the Shale Quarry occupying an area of Carboniferous Millstone Grit Series.

2.1.2 Further detail is provided by the Geological Survey (Sheet 99, 1:50,000 and Sheet SK 18 SE, 1:10560). This shows that the Limestone and Shale Quarry and its immediately adjacent area comprise Mam Tor Beds of the Millstone Grit Series. Within the Shale Quarry, the geological map describes the Mar Tor Beds as 'siltstone with thin soft micaceous, ad hard flaggy sandstone bands, and siltstone with thin flaggy sandstone bands, and siltstone with silty shale and shale'.

2.2 Topography

2.2.1 The quarry originally comprised farm fields that occupy a section of the Hope Valley between Hope and Bradwell, immediately north-west of the confluence of the River Noe and Bradwell Brook. The evaluation area comprises approximately 2.7 ha at the east end of the Shale Quarry.

2.2.2 The site lies at approximately 175m AOD on land that grades down in a south-east facing slope towards the confluence of the River Noe and Bradwell Brook.

3.0 ARCHAEOLOGICAL BACKGROUND

- 3.1 A desk-based assessment has been prepared for the site (Chadwick 2002). Subsequent field investigations of Area 1 (Bell 2004) and Area 2 (Barnet 2008) revealed Medieval and post-Medieval ridge and furrow. The Scheduled Ancient Monument of Navio Roman Fort (SAM 29795) lies to the east of Area 3 with its associated vicus, identified in 1986 excavations under what is currently a tree belt (Branigan & Dearne 1986), on the eastern boundary of the quarry. A geophysical survey undertaken in 2003 (GSB Prospection 2003) identified some possible archaeological anomalies in Area 3 and these will be targeted during investigations. As stated above, previous investigations targeting the geophysical anomalies have found Medieval ridge and furrow and natural geological features.
- 3.2 The archaeological potential of the site is considered to comprise the possibility of below-ground survival of remains associated with Roman vicus within the south-east corner of Area 3 and evidence of Medieval agriculture elsewhere within Area 3.

4.0 AIMS AND OBJECTIVES

4.1 The objectives of the evaluation are to:

- i. clarify the presence/absence and extent of any buried archaeological remains within the site that may be impacted on by quarrying;
- ii. identify, within the constraints of the evaluation, the date, character, condition and depth of any surviving remains within the site, with particular reference to the Roman vicus;
- iii. to provide sufficient information to enable additional archaeological mitigation measures to be designed and implemented as necessary.

5.0 METHOD STATEMENT

- 5.1 In order that the investigation supplies information of the required quality, the Codes, Standards and Guidance issued by the Institute of Field Archaeologists (IFA) form a requirement of this specification.
- 5.2 CgMs has consulted the National Archaeology Record (NAR), the Derbyshire Sites and Monuments Record (SMR), the Peak National Historic Landscape Change Survey (HLCS) as part of the DBA in order to address the stated aims and objectives of the evaluation detailed above in Section 4.0 of this document. An examination of available maps, aerial photographs and archive material has been carried out.
- 5.3 As outlined above the evaluation will comprise the excavation of a 3% sample of Area 3, totalling 19 trial trenches, each measuring 1.8m x 25m at base (Fig. 2). The trenches have been located to provide a representative sample of the site and to target geophysical anomalies and 'blank' areas, with a bias towards the Roman vicus to the south-east of Area 3.
- 5.4 Trench locations may be moved slightly in light of ground conditions, but any new location must first be approved by CgMs and the Planning Archaeologist prior to excavation.
- 5.5 The width of each trench will be 1.8m. The length of each trench will measure 25m.
- 5.6 A digital version of the plan will be made available prior to the start of the evaluation.
- 5.7 All topsoil will be carefully removed by mechanical excavator fitted with a toothless or toothed bucket, as necessary, to the top of the first significant archaeological horizon or natural geology, whichever is the higher. That level should be cleaned by hand.
- 5.8 Topsoil and subsoil will be separated to facilitate reinstatement in sequence.
- 5.9 All machine work will be under archaeological supervision and will cease immediately if significant evidence is revealed.
- 5.10 The machine used will be powerful enough for a clean job of work and able to mound spoil neatly, a safe distance from trench edges.

- 5.11 Stripped material will be visually examined for archaeological material.
- 5.12 Any human remains must be left in-situ, covered and protected. Removal can only take place under appropriate Home Office and environmental health regulations. Such removal must be in compliance with the Disused Burial Grounds Amendment Act 1981.
- 5.13 Those areas of the site where visual inspection suggests the presence of features or possible features e.g. ditches, pits, postholes, occupation horizons/surfaces or structural remains etc., these will be hand-cleaned to ensure that features are properly defined to a level sufficient to produce a base plan.
- 5.14 A sample of each feature and/or deposit type e.g. pits, postholes, ditches, occupation horizons etc., will be excavated and recorded. Sample excavation will specifically target intersections of features so that their stratigraphic relationships may be recorded. Where extensive or complex archaeological remains and deposits are encountered sample excavation will be more selective, examining a range of feature and deposit types to a sufficient level to achieve the stated aims of the evaluation.
- 5.15 Provision may be required for specialist assessment of the sites potential for the survival of palaeo-environmental remains. A suitably experienced specialist to conduct this work will be named by the archaeological contractor in their method statement for the works. Recourse will be made to the English Heritage Centre for Archaeology guidelines *Environmental Archaeology* (2002).
- 5.16 On completion of recording trenches are to be backfilled with material as dug.
- 5.17 **Provisional Programme**
- 5.17.1 Subject to the prior approval of this WSI, it is anticipated that the evaluation will be undertaken in Summer 2010. A report will be submitted to CgMs within three weeks of completion of the fieldwork.

5.18 **Monitoring**

- 5.18.1 Reasonable access to the site is to be arranged for the local authority's Planning Archaeologist, Sarah Whiteley of the Peak District National Park Authority, who will wish to make regular site inspections to ensure that the archaeological investigation is progressing satisfactorily.
- 5.18.2 The local authority and the Planning Archaeologist will be notified at least 14 days prior to commencement of work on site.

5.19 **Recording Systems**

- 5.19.1 Context sheets should include all relevant stratigraphic relationships and for complex stratigraphy a separate matrix diagram should be employed. This matrix should be fully checked during the course of the investigation.
- 5.19.2 The site archive will be so organised as to be compatible with other archaeological archives produced in the Peak District. Individual descriptions of all archaeological strata and features excavated or exposed will be entered onto prepared pro-forma recording sheets. Sample recording sheets, sample registers, finds recording sheets, access catalogues, and photo record cards will also be used. This requirement for archival compatibility extends to the use of computerised database.
- 5.19.3 Plans of archaeological features on the site should be drawn at 1:20 or 1:50, depending on the complexity of the data to be recorded. Sections should be drawn at 1:10 or 1:20 depending on the complexity of the feature.
- 5.19.4 All archaeological plans and sections should be on drawing film and should include context numbers and OD spot heights for all principal strata and features.
- 5.19.5 Other plans will include a site location plan, a general plan (e.g. OS 1:1250) showing investigation area and development site in relation to surrounding locality and street pattern. These will be supplemented by trench plans at 1:500 (or 1:200), which will show the location of the areas investigated in relationship to the investigation area, OS grid and site grid (if any). The locations of the OS bench marks used and site TBMs will also be identified.

5.19.6 A photographic record of the project is required. This will include digital, black and white prints and colour transparencies (on 35mm film), as appropriate, illustrating in both detail and general context the principal features and finds discovered. The photographic record will also include working shots to illustrate more generally the nature of the archaeological operation mounted. The transparencies will be mounted in suitable frames.

5.20 **Finds and Samples**

5.20.1 A high priority should be given to dating any remains and so all artefacts and finds are to be retained.

5.20.2 Assessments of artefacts will be made by appropriately qualified named specialists, a list of which should accompany the archaeological contractors method statement for the work. Any Saxon or later ceramics recovered by the evaluation are required to be classified in accordance with the Warwickshire Ceramic Type Series (at Warwickshire Museum).

5.20.3 All identified finds and artefacts will be retained, although certain classes of building material can sometimes be discarded after recording if an appropriate sample is retained. No finds will, however, be discarded without the prior approval of the local authority's Archaeological Advisor.

5.20.4 All finds and samples will be treated in a proper manner and to the standards of the UK Institute of Conservators Guidelines. They will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the guidelines set out in the UK Institute for Conservation "Conservation Guideline No 2". Appropriate guidelines set out in the Museums and Galleries Commissions "Standards in the Museum Care of Archaeological Collections (1991)" will also be followed.

5.21 **Reports and Archives**

5.21.1 Currently it is proposed that within three weeks of completion of site work, the archaeological contractor will produce a report, one unbound copy, six bound copies and two digital copies of which are to be provided to CgMs for distribution to relevant parties. The digital copy should include both the report text and all illustrations in a single electronic document in a Word-compatible format.

5.21.2 Details of style and format to be determined by the archaeological contractor. In any event it should include:-

- (i) a summary of the project's background;
- (ii) the site location;
- (iii) a methodology;
- (iv) a description of the project's results;
- (v) an interpretation of the results in the appropriate context;
- (vi) a summary of the contents of the project archive and its location (including summary catalogues of finds and samples);
- (vii) site layout plans on an O S base, with the location of the trenches;
- (viii) plans of each trench in which archaeological features were recognised;
- (ix) trench sections and feature sections (with OD heights);
- (x) site matrices where appropriate;
- (xi) a consideration of evidence within its wider context. However, no recommendations on the need for any further work are required;
- (xii) a summary table and descriptive text showing the features, classes and numbers of artefacts located, and soil profiles, with interpretation;
- (xiii) an evaluation of the methodology employed and the results obtained (i.e. a confidence rating).

5.21.3 Subject to the agreement of the site owner, it is recommended that the written, drawn and photographic records of the evaluation, together with any finds, are deposited in the city museum within a reasonable time of completion. The deposit will be accepted in accordance with the guidelines issued by the Society for Museum Archaeologists, *Transfer of Archaeological Archives to Museums*. Finds must be deposited in the standard boxes used by the city museum and be accompanied by box lists. The site archive will conform to guidelines set down in Appendix 3 of the Management of Archaeology Projects.

5.21.4 The archaeological contractor shall be responsible for complete an online OASIS form for the project following consultation with the Derbyshire SMR.

(<http://ads.ahds.ac.uk/project/oasis>)

5.25 **Archaeological Contractor**

- 5.25.1 The Archaeological Contractor will have a proven track record in undertaking field evaluations and investigations on Prehistoric and Roman settlement sites.
- 5.25.2 The field team deployed by the Archaeological Contractor will include only full time professional archaeological staff. All staff in supervisory positions should be members, at the appropriate level, of the Institute for Archaeologists (IfA).
- 5.25.3 The Archaeological Contractor should preferably be a body on the IfA Register of Archaeological Organisations.
- 5.25.4 The composition of the project team must be detailed and agreed in advance with CgMs Consulting (this is to include any subcontractors).

6.0 HEALTH AND SAFETY CONSIDERATIONS

- 6.1 All relevant health and safety regulations must be followed.
- 6.2 A risk assessment should be prepared and a copy should be sent to CgMs prior to commencement of the contract.
- 6.3 Machinery should be kept away from unsupported trench edges and access routes should be supervised and controlled. Hi-visibility plastic mesh and warning notices should be installed as appropriate. Safety helmets and high visibility jackets are to be used by all personnel as necessary.
- 6.4 All personnel will be required to undertake a site induction under the direction of the quarry operators. All guidance and directions from the quarry operators will be followed. All personnel must keep away from the quarry face.
- 6.5 The main contractor on site will be Lafarge Cement UK. Designated working areas will be agreed and implemented and copies of Health and Safety documentation will be exchanged prior to works commencing.

7.0 OTHER MATTERS

7.1 Communication

All queries and communication are to be directed through CgMs. No comment is to be made about this WSI or project to the media or other parties.

7.2 Copyright

It is recognised that the copyright of written, graphic and photographic records and the evaluation report rests with the originating body. However, CgMs Consulting and their client require an agreement to facilitate the copying and use of any or all materials resulting from this project.

8.0 **BIBLIOGRAPHY**

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