NAA

ARCHAEOLOGICAL WATCHING BRIEF REPORT

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REPAIRS TO A VICTORIAN SEWER AT BOOTHAM BAR, HIGH PETERGATE

CITY OF YORK

On behalf of

Yorkshire Water

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Summary

Archaeological monitoring was undertaken during excavations associated with the repair of an existing deep-laid Victorian sewer at Bootham Bar, High Petergate, York. The work exposed the foundation and the first course of stone superstructure related to a 'guard room' forming the south-east component of the Porta Principalis Dextra, the western gateway to the Roman fort. This portion of wall and foundation had previously been partially examined during the initial construction of the sewer in 1910. Only a thin and insubstantial road surface was identified indicating that the road and thus the southern arch of the gateway were in use for only a short period. Fragments of Roman Tegula and later medieval bricks were recovered from a dark silty clay deposit that overlay the Roman road surface and a gritstone block, deriving from the Roman defences, had been incorporated into a sequence of the later medieval road surfaces that ran beneath Bootham Bar. It is likely that subsequent surfaces and structures had been truncated by later development and the eventual construction of the sewer.

1.0 INTRODUCTION

1.1 This report details the results of an archaeological watching brief undertaken during works associated with repairs to a Victorian sewer which runs below Bootham Bar and into High Petergate. The resulting excavations identified remains relating to this historic principal route-way into the City of York (Figure 1; Plate 1). The watching brief was undertaken by Northern Archaeological Associates as part of a scheme of works that had been agreed with the planning authority, the Archaeological Officer of the City of York Council (NAA, 2007a) and English Heritage. The works were carried out during February 2007. This document has been prepared for Peter Duffy on behalf of Yorkshire Water Services Ltd to accord with Yorkshire Water's general duties under the Water Industries Act (1991).

1.2 The excavations showed that the brick built sewer had been constructed within a *c*.1m wide 'open cut' trench, which had been excavated partly alongside a concrete foundation related to the Roman gateway thought to have been erected during the reign of Constantius in *c*.A.D. 296. The sewer trench had truncated various cobbled and metalled medieval road surfaces and associated levelling layers, which were recorded in section.

2.0 LOCATION, TOPOGRAPHY AND GEOLOGY

2.1 Bootham Bar, a gateway within the medieval city walls of York, is located at the intersection of Bootham (A19), Gillygate (A19) and High Petergate in the City of York (SE 59738 51446). The main sewer trench was located beneath Bootham Bar and extended out into High Petergate to the south-east for approximately 12m at a ground surface height of some 17m AOD (Plate 1) (Figure 2).

2.2 Bootham was historically the main north-west entrance to the City of York and the street pattern laid out in the medieval period has survived mostly unchanged. However, in the mid 19th century, traffic was diverted to the south of Bootham Bar to pass along the newly created street of St. Leonard's Place. Bootham Bar and much of High Petergate are now open only to restricted vehicular traffic, and are thus largely pedestrianised.

2.3 The solid geology of the area consists of undifferentiated Permian and Triassic sandstones, overlain by glacial sands, gravels and alluvial deposits (IGS 1977; 1979).

3.0 ARCHAEOLOGICAL BACKGROUND

Prehistoric

3.1 It is likely that the glacial morainic ridge that crosses the Vale of York at York would have formed an important route-way from at least the Neolithic period (RCHME 1962, xxix). Though there is little evidence in the immediate vicinity of Bootham Bar, the numerous Neolithic finds recovered from the higher ground to the south-west of the Ouse suggest that York may have formed a regional focus for prehistoric activity. Bronze Age activity in the locale is suggested by limited pottery finds recovered from Watson Street, located some 1.2km to the south-west of Bootham Bar. There is sparse evidence for Iron Age settlement in the vicinity of the York, though the Roman city name *Eboracum* may be of Celtic derivation, meaning the 'place of the Yews' (*op. cit.*). The crouched burials found below later Roman burials during construction of York Station may have been of Iron Age date and suggest the presence of a contemporary settlement close by (YAT 2000, 12).

Roman

3.2 The establishment of permanent legionary fortress by the *Legio IX Hispana* on the northern bank of the river Ouse some time in AD 71 marked the foundation of *Eboracum* (or *Eburacum*). By AD 121 the legion had been replaced by the *Legio VI Victrix* and the 2nd-century 'boom time' saw the settlement develop and expand to fill an area to the north-east of the fortress and over the river to the south, recognisable today as the area enclosed by the medieval city walls (Ottaway, 1993, 73). The civil settlement that grew up on the south-western side of the river is usually referred to as the *Colonia*, thus distinguishing it from the *Canabae*, the settlement to the north-east of the legionary fort (though in the strictest sense both are likely to have become *Colonia,* the highest category of chartered Roman town) (RCHME, 1962, xxxv;

Ottaway 1993,69). By the later 3rd century *Eboracum* was the capital of the newly created province of *Britannia Inferior* (lower Britain) and, in addition, was probably the headquarters of the *Dux Britanniarum*, the commander of the field army for the four British provinces (RCHME 1962, xxxiv-xxxviii).

3.3 The primary defences of the original fortress, constructed by the *Legio IX,* occupied an area just over 20 hectares and comprised an earthen bank, with turf front, founded upon a 'corduroy' of green wood. This was soon improved upon with the creation of a larger rampart and, by A.D. 107-8, towers and gates were rebuilt in stone, and linked by a stone fronted curtain wall reflecting a sense of permanence befitting a legionary headquarters, as *Eboracum* had become by this time (Figure 3). The defences were to undergo extensive repair and re-building following incursion and partial destruction both in A.D. 197 and in A.D. 296 (RCHME 1962, xxx-xxxi; 6). Ottaway (1993, 61-2) notes that the traditional fortress construction sequence may be in need of revision, for whilst some stone towers and the south-east gate were constructed in the Trajanic-Hadrianic period, the stone curtain wall was probably erected piecemeal, most likely in the later 2nd and earlier 3rd century. The walls and towers around the eastern quadrant may not have been added until the later 3rd century, implying a hiatus of between 50 and 100 years; thus the impression is of a gradually evolving fortress as opposed to the series of grand edifices outlined above. The annexe, or fortified enclosure, added to the north-west side of the fortress, to the west of *porta principalis dextra*, is of unknown date, though it is generally assumed to be a late addition (*ibid*, 45).

3.4 Intermittent antiquarian excavation around the site of the *porta principalis dextra*, the north-western entrance into the fort, has focused mainly upon the 'guard room' forming the southern part of the large gatehouse. The initial excavation in 1835 was described by Wellbeloved (1842), and subsequently re-excavated in 1893 and 1909-10 by George Benson (1910). These excavations indicated that the south-west gatehouse was externally some 9m (30ft) square, though not all of the walls were examined. The south-west wall was, however, examined in greater detail. Two courses of the wall were found to have survived, comprising large gritstone blocks up to 1000mm by 1730mm by 380mm, closely set without mortar, and bonded into the core of the curtain wall. The gatehouse was thus demonstrated to be part of the Constantinian fortress, built in the later 3rd century (RCHME 1962, 25). Evidence of any gates or gatehouse structures, either of wood or stone, which may precede this have yet to be identified (Ottaway 1993, 100). The examination of what survived of the north-east guardroom wall revealed a concrete foundation, up to 1.2m wide and between 1.2m and 1.7m deep. Excavations in 1876 by Canon J. Raine identified a further gritstone wall (with a 1m section of a collapsed 'attic' column at one end) located some 2.1m to the north-east of, and running parallel to, the guardroom foundation. This has been interpreted as representing a passageway through the *porta principalis dextra*, and should the gateway be symmetrical, with a central carriage-way flanked by passage-ways and guardrooms, the gatehouse would have been overall almost 30m wide (RCHME 1962, 26). The north-west gatehouse forms the only 4th-century gate at *Eboracum* documented from excavation (*ibid*, 11)

3.5 The *porta principalis dextra* defined the northern extent of the *Via Principalis*, the main road that ran south-east to north-west across the fortress; surfaces pertaining to this road have yet to be identified. Exterior to the fortress the road continued north-westward and is identified by Margary (1973, 427) as road 801, York to Clifton. During the early years of the fortress, the road was probably part of the main road, running parallel to Dere Street, leading north to *Cataractonium* (Catterick) and thus on toward *Pons Aelius* at modern Newcastle (RCHME 1962, 3), the road identified by Margary (1973, 431) as road 80a. As the Roman town developed the road appears to have shifted to the south, to pass in front of the south-western fortress gate and intersect the south-west road to *Calcaria* (Tadcaster) (Margary 1973, road 28c, 417). The thoroughfare outside the *porta principalis dextra* decreased in importance to become a side-road. Though segments of this road surface have been recorded between 150m and 500m to the north-west of the gate, no surface associated with the *Via Principalis* inside the fortress has ever been identified.

Anglo-Saxon and Anglo-Scandinavian

3.7 The evidence from excavations across York show that despite frequent flooding and overcrowding, York continued to flourish as a vibrant and cosmopolitan trading centre. The continued development of the town in the early 7th century marks *Eoforwic* as a regional capital in the kingdom of Deira prior to unification with the kingdom of Bernicia, forming Northumbria. There are extensive records relating to the early christian church in this period and these, along with the foundation of the Minster church dedicated to St Peter, attest to the importance of the town as a regional centre (Ramm 1972, 244). Throughout the Scandinavian period in York, or *Jorvik* from the 9th century, the development of the city continued unabated. However, as a result of later rebuilding of the defences and alterations to street patterns, the medieval, and thus the recognisably modern, townscape began to emerge. However, in the wider area of the former *Colonia*, particularly at the Wellington Row site, evidence of Anglo-Saxon occupation is seen in the so-called 'dark earth' layers (Ottaway 1993, 113-6). These dark loam deposits are derived from a mixture of domestic refuse and organic material and are thought to reflect a shift in domestic deposition patterns. This 'lowering of standards' is arguably related to the decline of municipally organised refuse collection and disposal following the decline of Roman influence (*Op. Cit*.).

3.8 The 'great' western gate of the city, probably the *porta principalis dextra,* is mentioned in a 7th-century land grant, preserved in an 11th-century summary (RCHME, 1962, 12), and it is thought that the north-west walls of the legionary fortress were still standing to their full height during the Scandinavian period of the city's history (RCHME, 1972, 8). Excavations in the vicinity of the Minster attest to the survival of Roman buildings, though adapted and much repaired, into the 7th century (Ramm, 1972, 242). The name Bootham is suggested to have derived from the Scandinavian period, meaning a temporary development of shanties/huts in a relatively unimportant suburb (*ibid*, 252). The gate was also known as *Galmanlith* (alternatively *Galmonelid* or *Galmouelid*) up to the later medieval period, the name a reference to the pre-conquest name for the hill of Galmou upon which St Mary's Abbey was constructed.

3.9 Following the English reconquest of Northumbria in the 11th century the fortified royal residence of Earlsborough was created in an area south of the street of Bootham and to the north-west of the city defences. This area, later occupied by St Mary's Abbey, is thought to have important pre-Danish origins, the nature of which are unrecorded or unknown at this time (RCHME, 1972, 9).

Medieval

3.10 Despite the rigors of the Norman Conquest and the ensuing 'Harrying of the North', the city's location at the hub of traditional land-routes, along with the advantage of inland waterways, ensured its continued growth and prosperity. In addition, York retained both secular and ecclesiastical powers which furthered the city's riches and prospects.

3.11 The earliest parts of the medieval Bar at Bootham, built immediately in front of, and over the location of the Roman gateway, date from the 11th century. By the 14th century a house had been constructed above the Bar, which had been heightened to allow the addition of a portcullis. A barbican had also been constructed, projecting out into the street of Bootham. The name 'Bootham' is first recorded in the 13th century and relates to the right of St Mary's Abbey, built within the area of the old Roman fortified annexe, to hold a weekly market in the vicinity, thus the 'the bar at the booths' (RCHME, 1972, 116).

Post-Medieval

3.13 Much of York, particularly the area to the east round Walmgate Bar, suffered greatly from the Parliamentarian siege during the Civil War in 1644. Restoration works to repair the damage from the siege were carried out upon Bootham Bar in 1645 and later in the early 18th century; the wooden gates were finally removed in 1789. The barbican and the city walls to the south of Bootham Bar were demolished during construction of St Leonard's Place in 1831-5, and the Bar itself was threatened with destruction. However, the Bar was renovated at the city's expense, with foot passages being added either side of the gateway. Conservation of the Bar continues to the present day, with major restoration works undertaken in both the 1950s and 1970s (*ibid*, 116-7).

3.14 Public sanitation has a long, if interrupted, history in York, with the earliest sewers dating back to the Roman period (Carver 1987, 33). There are numerous references relating to sewer construction from the post-medieval period onwards, many of the archaeological discoveries detailed above in the vicinity of Bootham were made during sanitation works (RCHME 1962, 2-3, 26-7).

3.15 In 1850 responsibility for public sanitation was transferred from an ineffectual group of city improvement commissioners to the city corporation. Little had been done prior to this to ease the public health problems related to the prevalence of open dung-heaps and lack of proper drainage at that time. The sewers that did exist flowed into the same rivers that supplied much of the city's water supply. Though various reports were commissioned and works undertaken to alleviate the problems of sanitation, it was not

until the Improvement Act of 1884 and the implementation of a scheme prepared by James Mansergh that much of the city's sanitation problems were addressed. Work began in 1890 and was completed in 1895 and entailed the construction of some 22 miles of sewers, many of them tunnelled below the city, with associated sewer interceptors and pumping stations (VCH 1961, 281-86 and 460-72).

4.0 AIMS AND OBJECTIVES

4.1 The principle objectives of the archaeological watching brief were:

- to establish the date, nature and degree of preservation of any archaeological remains, particularly related to this historic route-way, encountered during the course of the groundworks
- to investigate and record any archaeological features identified, recover any associated artefacts and establish the potential for the preservation of environmental evidence
- to produce a report and provide a permanent archive for future research and interpretation
- to undertake a scheme of works that meets with the professional standards for archaeological work both nationally and within the area of the City of York Historic Environment Record

5.0 METHODOLOGY

5.1 Archaeological monitoring was undertaken during the excavation of six preliminary trenches to locate existing water and gas services, and the re-excavation of a 19th century trench. A 10m north-west to south-east portion of this trench was opened in order that repairs could be carried out to the sewer main; it extended from beneath the medieval Bootham Bar into High Petergate to the south-east and was 1m wide and up to 3.25m deep (Figure 3).

5.2 The excavations were undertaken using a 360º mechanical excavator fitted with rubber tyres. Though the nature of the excavation through rubble and cemented surfaces dictated the use of a toothed bucket, works were at all times supervised by an archaeologist. The depth to which the main trench was excavated necessitated the introduction of metal trench shoring, thus obscuring some deposits below a depth of some 1.2m. All archaeological horizons and structures encountered were examined, and where appropriate photographed, prior to being recorded in three trench sections. Sections 1 and 3 face north-east, whilst section 2 faces south-east.

5.3 A photographic record of the site was taken using monochrome prints and colour slide at a 35mm format. Appropriate sections of trenches were drawn at a scale of 1:10 and a written description of features was recorded on *pro forma* sheets using the NAA

context recording system. All recovered finds were appropriately packaged and stored under optimum conditions and submitted for post-excavation assessment. Finds recovery and storage strategies were in accordance with published guidelines (English Heritage 1995; Watkinson and Neal 1998). Trenches were located with an EDM and levels tied into Ordnance Datum. The site code for the watching brief and excavation was HPY07. On completion of the excavation, an assessment of the site records and finds was undertaken in accordance with national guidelines. This included collation of all site records and the compilation of a context catalogue in a computerised database and catalogues of slide and print photographs.

6.0 MONITORING RESULTS

6.1 Due to the use of metal shoring to support the trench edges, the sewer trench was recorded in three separate sections (Figure 4), the results of which area discussed below.

Section 1

6.2 This north-east facing section of the sewer trench extended for 2.45m from north-west to south-east, and was recorded to a depth of 1.1m prior to the insertion of trench shoring (Plate 2).

6.3 Overlying the natural orange sandy clay (32), at a depth of some 1.1m, was a 0.2m thick deposit of orange clay (25). This layer was sealed by an uneven layer of compacted mortar and stone (24) between 0.05m and 0.15m thick, in turn overlain by various tipped deposits of sand and grey brown clays (21, 23, 22, 20), overall some 0.5m thick. This sequence of deposits was sealed by 0.2m of sand and stone rubble (19), and a deposit of brown clayey sand (29) containing brick and rubble fragments. Layer 29 was truncated by the construction trench for the brick sewer, see section 3 below for detailed discussion. Also truncating layer 29 to the east and west were modern service trenches (27 and 28). Concrete and the modern tarmac road surface (26) sealed the trench.

Section 2

6.4 This south-west facing section of the sewer trench extended for 3.6m from north-west to south-east, and was recorded to a depth of 1.65m prior to the insertion of trench shoring (Plate 3).

6.5 Much of the lower portion of this section was obscured by Victorian trench shoring (see below); however, the natural orange clay (32) was overlain by a 0.08m thick metalled road surface (15). This surface comprised densely packed cobbles up to 50mm by 50mm by 30mm in size and yielded a single, undiagnostic abraded tile fragment. Surface 15 was sealed to the west by a deposit of dark grey silty clay (17), up to 0.1m thick, containing four fragments of medieval brick and a partial cow mandible with two attached teeth. Partial removal of the Victorian wooden shoring (12) revealed a similar silty clay deposit to the east (16), which yielded a large

fragment of a Roman tegula (roof tile). This deposit also yielded 20 fragments of animal bone, including the butchered remains of cattle, pig and sheep/goat. Set into these silty clay layers was a road surface (13) constructed from large and medium sized sub-rounded and sub-angular gritstone cobbles, up to 100mm by 150mm. A single large squared sandstone block, some 750mm by 200mm by 150mm, had also been laid to form part of the road surface. To the east, a pothole or rut within the road (13) had been infilled with small stones (3), up to 0.8mm in diameter. Similar material was then applied to the whole road surface, thus sealing layer 13 and forming a thin layer of metalling (14). This surface was overlain by an orange clay (33), up to 0.1m thick, probably the same as the clay layer (25) recorded in section 2. It should be noted that neither the metalled road surface (14) nor the clay (33) overlay the portion of road surface 13 constructed from the large sandstone block. The sequence of road deposits were sealed by a mixed 0.8m thick deposit, comprising sands, rubble and brown clays (9). This layer was truncated by a construction cut (07) for a drain (08), constructed from brick and stone, capped with a concrete slab. The drain was aligned across the trench from north-east to south-west, was some 0.45m wide and up to 0.35m deep; it was filled with dark grey silty clay (6). The drain had been truncated by the construction trench for the brick sewer, see section 3 below for detailed discussion. The trench was sealed by a mixed modern levelling layer (5) into which kerbstones (04) had been set, marking the edge of modern roadway.

Section 3

6.6 This north-east facing section of the sewer trench extended for some 6m from north-west to south-east, and was recorded to a depth of 3.6m (Plate 4).

6.7 The natural sandy clay (35) was cut by a construction trench (34) containing a wall foundation (31), the face of which was exposed within the trench. This large footing was battered slightly from the base, extended for 5.85m along the trench and stood to a height of some 1.5m. This concrete foundation was constructed from small and medium sub-angular sandstones and gritstones, up to 150mm by 100mm x 80mm in size, set within a matrix of yellow gritty mortar (Plate 5). Set upon the wall foundation was a fragmentary single course of squared sandstone blocks (30), measuring up to 1100mm by 220mm by 200mm, also set with yellow mortar. The remains of the wall (30) was overlain by a 1.5m thick deposit of sand, gravel and post-medieval and modern rubble (9), which infilled and sealed the multiplicity of services exposed throughout the trench, and was the same deposit as 29 and 5 in sections 1 and 2.

6.8 Layer 9 was also the latest layer to be truncated by the original sewer trench. The top of the brick-built sewer was exposed at a depth of some 3.6m, was cut into the natural orange sandy clay (35), and extended throughout the trench. The remains of the original timber shoring, constructed to support the edges of the trench during the original excavation of the sewer, were identified within sections 1 and 2 (12 and 18) with much of the original framework running down the trench (Plate 6). The sewer was constructed from machine-manufactured bricks, measuring approximately 230mm x 115mm x 75mm, arranged using a stretcher bond to form what appeared to be a cylinder. The sewer was aligned north-west to south-east with a probable internal diameter of 450mm and an external diameter of approximately 600mm and the trench

was infilled with a mixture of sands and clays, derived from the truncated deposits. The sewer trench was sealed with concrete and the modern tarmac road surface (26).

7.0 DISCUSSION

7.1 Due to heavy truncation by modern services and by the 19th-century sewer excavations the deposits recorded within the trench were in part fragmentary, and seen in section only.

7.2 Despite the lack of datable material the construction methodology employed fro the wall footing, that is a mortared rubble or concrete core set with small facing stones, was identifiably Roman and is common to many defensive Roman walls in Britain (Bidwell, 1997, 49), and particularly to the fortress walls of *Eboracum* (Ottaway, 1993, 53). It is almost certain that the foundation identified during this excavation is the same as that described by Wellbeloved (1842, 51) and recorded by Benson in 1909-10 (Benson, 1910, 41-54; RCHME, 1962, 25 and 28;), and is thus the north-east wall of the so-called 'guardroom' forming the south-western part of the *porta principalis dextra* gatehouse. The fragmentary, and slightly off-set, single course of gritstone masonry recorded during this excavation is likely to be the same material identified by Benson as being part of the 'Severan' plinth', thus dated to c. A.D. 197, upon which the later Constantinian defences were built. The evidence to support this dating is limited; however the foundation and first course of masonry identified during the excavations beneath Bootham Bar appear remarkably similar to, if a little larger than, a segment of the south-east fortress wall recorded during excavations in Parliament Street, probably built in *c*. A.D. 200 (Ottaway, 1996, 228; 1993, 61).

7.3 As noted above, few road contemporary surfaces have been identified within the fortress, and none along the route of the *Via Pincipalis*. Unfortunately, the single abraded brick or tile fragment recovered from the surface in section 2 cannot be conclusively dated, however, the position and relative height of the road to the 'plinth' layer of masonry would indicate the surface to be of commensurate date; it was noted at Parliament Street that the contemporary ground surface lay at a similar level, probably near the top of this course of masonry (Ottaway, 1996, 230).

7.4 The insubstantial nature of the carriageway would seem to be inconsistent with a Roman road surface which, as part of the *porta principalis dextra,* would be a highly trafficked entrance into the fortress. Excavations adjacent to the Roman gateway at Micklegate, the major southern entrance to the Colonia at *Eboracum,* identified a solidly constructed road comprising a foundation layer of large cobbles overlain by up to 0.2m of metalling (NAA, 2007). The road surface excavated at Wellington Row, also in the *Colonia*, comprised up to 0.8m of metalling, though the site was located in a flood-vulnerable area (Ottaway 1993, 113-6). By contrast, the metalling recorded in the primary metalled road surface in section 2 was just 0.1m thick with no apparent underlying foundation layer. The implication is that this surface was either not intended for the heavier traffic of a major thoroughfare, or that the use of the road was curtailed; thus precluding the gradual accumulation of depth through repairs and additions, and need for durability seen, for instance, at Wellington Row (*op. cit.*). The

'poorly recorded discovery' of a wall in 1876 running parallel with the mortared foundation recorded in this excavation has previously been offered as evidence of a pedestrian passageway which flanked the main carriageway to the north-east (RCHME, 1962, 26). However, this kind of passageway is completely without precedent in the context of a military installation in northern Britain, and it is questionable at best that provision for pedestrian access of this kind would be needed in the gateway of a legionary fortress (Mike Bishop, *pers. comm*.). An alternative, if tentative, assertion would first assume, as is reasonable and suggested from the design of the gatehouse, that the *porta principalis dextra* was of a standard form for a 2nd and 3rd-century fortress in the north of Britain; that is with a double carriageway or archway linked by a central pier (Bidwell, 1997, 48). It was common practice for one of these gates to be blocked or walled-up soon after construction; Bidwell (*op. cit*) asserts that this demonstrates these gates to have been unnecessarily elaborate, particularly in the case of defensive frontier forts. Alternatively, it may be that during the initial construction phases, with materials and labour being moved around the fort, the double gateways provided extra access and flexibility; once the fort was complete the gateways became points of vulnerability and were thus partly blocked (Mike Bishop, *pers. comm*.). The apparent transience of the south-western carriageway surface at the fortress at *Eboracum* may be indicative of the blocking of the southern gateway. At Housesteads Fort on Hadrians Wall it is noted that these blocking walls were mostly removed unrecorded by 19th century excavators (Crow, 1995, 33). It is tempting to speculate on the 'vague' location and orientation of the wall recorded by Canon Raine in 1876, with the collapsed 'attic' column possibly forming part of the central pier of the gateway. Though this may not constitute direct evidence of the Roman gate being walled up, it may indicate that the gateway was being used for other purposes once blocked, as at Housesteads where the blocked gateway was used as a coal store for the late 4th-century bathhouse (*op. cit*.).

7.5 The dark clay silt layers (16 and 17) lying upon the primary metalled road surface are similar to deposits, often containing preserved organic material, identified during various excavation across the city, including at Low Petergate, further along the *Via Principalis* to the south-east (Wenham, 1972, 69-70). Across the river in the *Colonia*, excavations at Micklegate Bar identified a humic layer composed of 'stable manure' and probable flood silts overlying the Roman road surfaces (NAA, 2007b, 13) and similar deposits, though containing more artefacts, were also identified during excavations on Tanner Row at a site near the General Accident buildings (Ottaway 1993, 85-6). These decomposing organic materials and faunal remains have been identified as partly originating from stables or similar buildings in areas of dense occupation and, where the ground level is below seasonal flood levels, from deposition during inundation throughout the later Roman and early medieval periods. Several fragments of medieval brick were recovered from within this deposit at Bootham Bar, together with fragments of Roman tegula. The apparent longevity of this deposit, extending from the later Roman probably to the 13th century, may evidence the extensive phases of re-development that took place upon, and in the vicinity of, the Bar during the medieval period. Documentary evidence suggests that the north-west Roman gate and walls remained in use into the Anglo-Scandinavian period and initial construction of the medieval gateway probably took place during

the 11th century; the slight shift in alignment of the road is thus likely to date to this period.

7.6 The first identifiably medieval surface was cobbled road 13, which incorporated a Roman gritstone block, a relatively common feature of road surfaces within medieval cities with Roman origins (Mike Bishop *pers. com*.). The infilling of the rut or pot-hole within the surface (13) and subsequent application of the final metalled road surface of the sequence would seem to have been concurrent events. The medieval road surfaces recorded here were similar to the 13th to 15th century road surfaces identified at Gallowgate in Newcastle. Though recorded in the context of an open area excavation, these road surfaces were also constructed from rounded river cobbles of various sizes with metalling applied both as a surface and in the form of material for repairs (NAA 2004, 7).

7.7 The clay layers recorded at similar depths of some 1.1m below current street level in both sections 1 and 2, together with the large rubble deposit (9) and sequence of clay, rubble and sand backfill layers, indicate the probable truncation of subsequent road surfaces to this level during later post-medieval re-development of the area.

7.8 The presence of the brick-built sewer within an open cut trench would seem to confirm the documentary evidence, which indicated that the likely construction date for the sewer would have been between 1892 and 1895, particularly given the description of Roman remains identified just to the west at St Mary's at this time. The route of the sewer shows it to pass from High Petergate to the east and directly beneath the medieval Bar, before heading out into Bootham itself to the west.

11.0 CONCLUSION

11.1 The re-excavation of the deep-laid Victorian sewer in High Petergate in the City of York provided an opportunity to re-examine part of the Roman gateway in this area. In addition, surfaces related to the medieval road that ran beneath Bootham Bar were also recorded. These excavations have demonstrated that despite conditions being excellent for the preservation of several phases of road surfaces contemporary to the Roman defences, only a thin, insubstantial surface was identified. This may possibly indicate that that the road, and thus part of the gateway, in this particular location was in use for only a short period. Any future excavation in the vicinity, particularly beneath the archway that was cut through the defences in the post-medieval period immediately to the north of the Bar, may give further insight as to the nature of the Roman gateway and accompanying road surfaces.

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Appendix A

CONTEXT AND FINDS CATALOGUE

Gail Hama

Context	Description	Relationships	Trench	Notes	Animal bone	cbm
1	Not used					
2	Not used					
3	Layer	Small stones within pot-hole in surface 13				
4	Kerb	Kerbstones along pavement above section 2				
5	Levelling layer	Post-medieval and modern layer above 6 and 9				
6	Fill of drain 8	Colluvial drain fill				
7	Cut for stone drain	Filled by 8 and 6	7			
8	Stone drain	Within 9. Cut by 10	7, 8			
9	Layer	Contains 8. Above 30, 33.	7			
10	Cut of trench	Filled by 11. Cuts 8, 13, 33. Below 12	7			
11	Fill of trench 10	Above 12, below 26	7			
12	Timber shoring	Above 10. Below 11. Same as 18	7			
13	Road	Cut by 10. Above 16, 17. Below 14, 33	7			
14	Cobbles	Above 13. Below 33	7	Resurfacing of road 13		
15	Road	Above 32. Below 17	7	? Contains CBM		1
16	Layer	Below 13	7	? Contains CBM and bone	21	4
17	Layer	Above 15. Below 13	7	? Contains CBM and bone	2	6
18	Timber shoring	Same as 12. Within 28	3			
19	Layer	Above 20, Below 29	3			
20	Layer	Above 22. Below 19	3			
21	Layer	Above 24. Below 20, 23	3			
22	Layer	Above 23. Below 20	3			
23	Layer	Above 21. Below 22	3			
24	Layer	Above 25. Below 21	3			
25	Layer	Below 24. Same as 33	3			
26	Tarmac road	Above 27, 28, 29	3	Tarmac road and foundations		
27	Cut of service trench	Cuts 29. Below 26	3	Disturbed ground		
28	Cut of service trench	Cuts 29. Below 26, Contains 18	3			
29	Layer	Cut by 27, 28. Above 19. Below 26	3			
30	Masonry	Above 31. Below 9	8			
31	Foundation	Within 34. Below 30	7, 8			
32	Natural deposit	Below 15	7			
33	Layer	Cut by 10. Above 13, 14. Below 9. Same as 25	7	Seals road 13		
34	Cut of trench	Cuts 35. Filled by 31	8	Foundation trench		
35	Natural deposit	Below 34	8			
TOTALS					**23**	**11**

Appendix B

FINDS ASSESSMENT

Gail Hama

Introduction

A small quantity of material was retrieved as part of a watching brief during excavations associated with the repair of a deep-laid sewer. The assemblage consisted of animal bone and ceramic building material.

Methodology

The finds were quantified by count and weight as summarised in Table 1. Given the nature of the material a conservation assessment was not required. All the finds have been packaged accordingly for long-term storage, if required.

Table 1

Context	Material	Description	Quantity	Weight (gms)
15	CBM	Tile fragments	1	82
16	CBM	Tegula, incomplete. L: 104mm, W: 76mm; H: 65mm	1	308
16	CBM	Tile fragments	3	26
16	Animal bone		21	264
17	CBM	Brick/tile fragments	6	850
17	Animal bone	Teeth	2	80

Discussion

Ceramic Building Material

One fragment of Roman tegula (roof tile) was recovered from context 16. It consisted of a hard fired clay fabric, oxidised throughout with less than 3% of gritty inclusions. The fragment was from the central portion of a tile with part of the longitudinal straight-sided flange surviving. Tegulae were the main form of roof cladding within York's Roman fortress (Ottaway 1993, 54). The arrival of the Ninth Legion in York provided the impetus for pottery and tile production, which was under the supervision of the legion itself (Cool 2002, 2). The area to the south east of the fortress was a major focus of pottery and tile manufacture. Excavations at 21-33 Aldwark produced quantities of tile wasters and pottery vessels which had been dumped on the site by c. AD 225 (Cool op.cit., 3). With no other dating evidence surviving in context 16 it is not possible to refine the date of the tegula beyond the 1st-3rd century AD. Three pieces of non-diagnostic ceramic building material also derived from this context.

An abraded tile or brick fragment from context 15 was of a hard-fired clay fabric. Oxidised throughout and dark orange in colour, it had c.5% of fine grit and shell inclusions.

Four fragments of medieval hand-made brick were found in context 17. Two of these were oxidised throughout and have c.3% inclusions. The larger of the two fragments had a surviving thickness of 60mm and traces of mortar adhere to one face. Two other fragments had reduced cores and c.3% of fine inclusions. The thickness of the bricks was 53mm and 61mm. Both fragments had sanded surfaces and traces of mortar. Two non-diagnostic fragments also came from this context.

Animal Bone

Twenty-one fragmentary animal bones and six teeth have been identified and assessed by Palaeoecology Research Services Ltd (PRS) and summarised below (see Appendix C below).

Statement of potential and recommendation

The tegula fragment confirms the presence of Roman activity on the site but represents a common find for the archaeology of York. No further work is recommended for the finds. The tegula would be a useful addition to reference or handling collection. The remaining finds should be discarded.

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Appendix C

BIOLOGICAL REMAINS

Deborah Jaques
Palaeoecology Research Services

Introduction

Archaeological monitoring was undertaken by Northern Archaeological Associates at High Petergate, York (approximate NGR SE 601 521) as part of a programme of emergency sewer repairs.

In addition to several modern debris layers and service trenches, a medieval road surface, two Roman or early post-Roman layers and the foundation of a Roman gateway were encountered. The very small assemblage of hand-collected vertebrate remains, submitted to Palaeoecology Research Services Limited (PRS), County Durham, for evaluation, was recovered from deposits within and overlying the upper Roman road surface.

Methods

For the vertebrate remains, subjective records were made of the state of preservation, colour of the fragments and appearance of broken surfaces ('angularity'). Additional information, such as fragment size, dog gnawing, burning, butchery and fresh breakage, was noted where applicable.

Fragments were identified to species or species group using the PRS modern comparative reference collection. Remains that could not be identified to species were described as the 'unidentified' fraction. Within this fraction, fragments were grouped into a number of categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal (assumed to be caprovid, pig or small cervid) and completely unidentifiable.

Results

Vertebrate material, amounting to 21 fragments, was recovered from two deposits, Contexts 16 and 17, both associated with the upper Roman road surface. Preservation of the remains was recorded as fair, although most of the bones were of somewhat battered appearance, and the single fragment from Context 17 had rather rounded edges. Evidence of dog gnawing and butchery was present but limited in extent.

Species represented included the remains of cattle (Context 17), caprovid and pig (Context 16), together with a collection of large mammal rib fragments and two medium-sized mammal shaft fragments. Details of the remains can be found in Table 1.

Two of the fragments from Context 16 were measurable (see Table 2 for details) and there was a single cattle mandible fragment with teeth in situ from Context 17 (tooth wear records can be found in Table 1).

Discussion and statement of potential

The vertebrate remains included a few fragments representing the major domesticates, but most of the assemblage was unidentified to species. These fragments were of no interpretative value.

Recommendations

As a result of the very small size of the assemblage, no further study of the current material is warranted.

Retention, disposal and archive

All of the remains should be retained as part of the physical archive of the site. All material is currently stored by Palaeoecology Research Services (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here.

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Table 1. Vertebrate remains recovered from a watching brief at High Petergate, York. Key: frags = total number of fragments; pres = preservation notes. Mandible wear stages for cattle after Grant 1982.

Context	frags	pres	notes
16	20	Fair to good preservation, colour of fragments variable. Some fragments a little battered in appearance.	*Cow*: 1 x calcaneum, chopped *Sheep/goat*: 1 x metacarpal *Pig*: 1 x distal humerus, 1 x fibula fragment *Large mammal*: 12 x rib fragments, 1 x scapula fragment, 1 x mandible fragment *Medium-sized mammal*: 2 x shaft fragments
17	1	Fair preservation, rather battered in appearance with rounded edges.	Cow: 1 x mandible fragment with M2 (wear stage J) and M3 (wear stage G) in situ.

Table 2. Measurements (after von den Dreisch 1976).

Context	Species	Element	Measurement	Value (mm)
16	sheep/goat	metacarpal	Bp	22.37
			Dp	15.43
			GL	111.75
			Bd	24.67
	pig	humerus	BT	36.97
17	cow	M3	L	36.28
			B	15.27

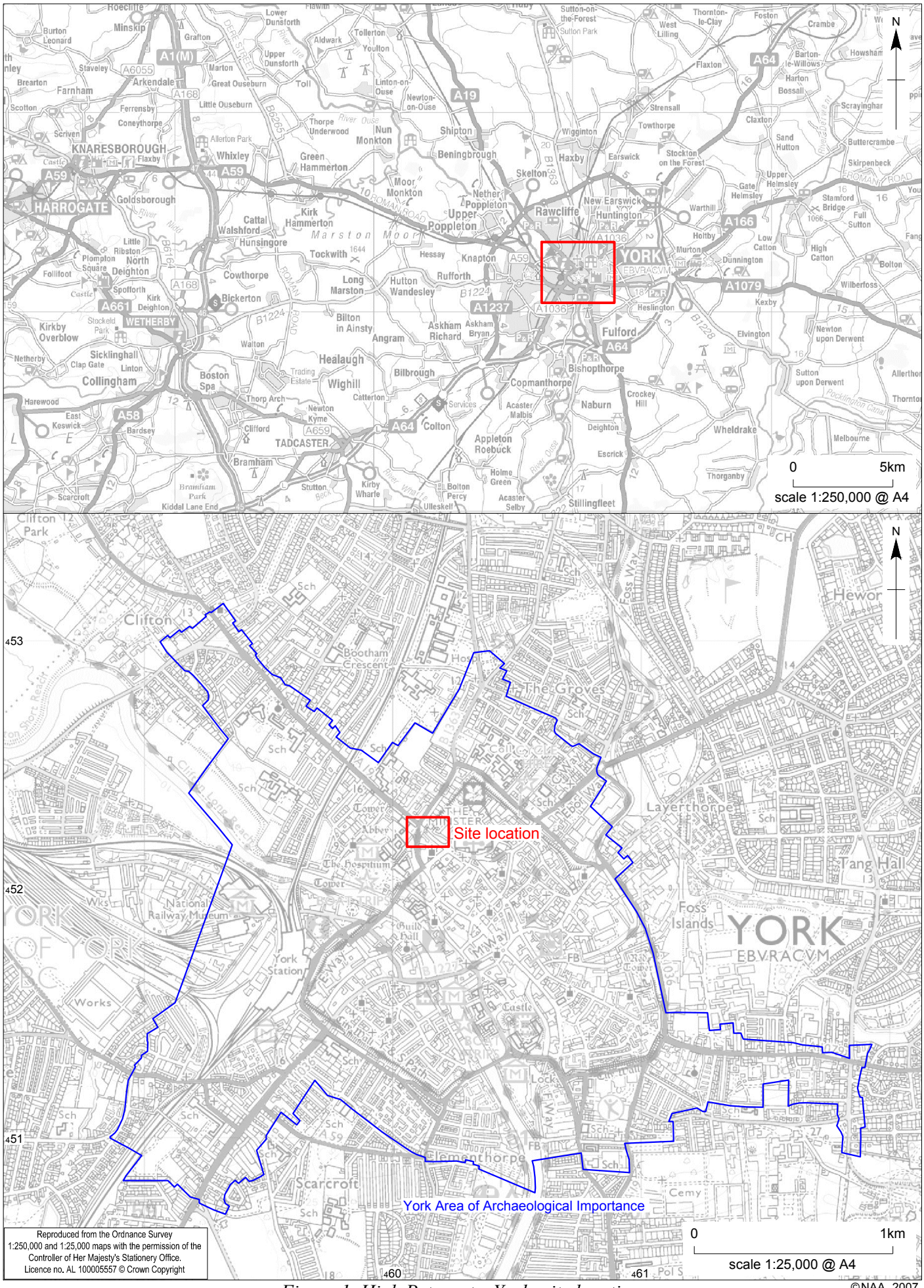


Figure 1 High Petergate, York: site location

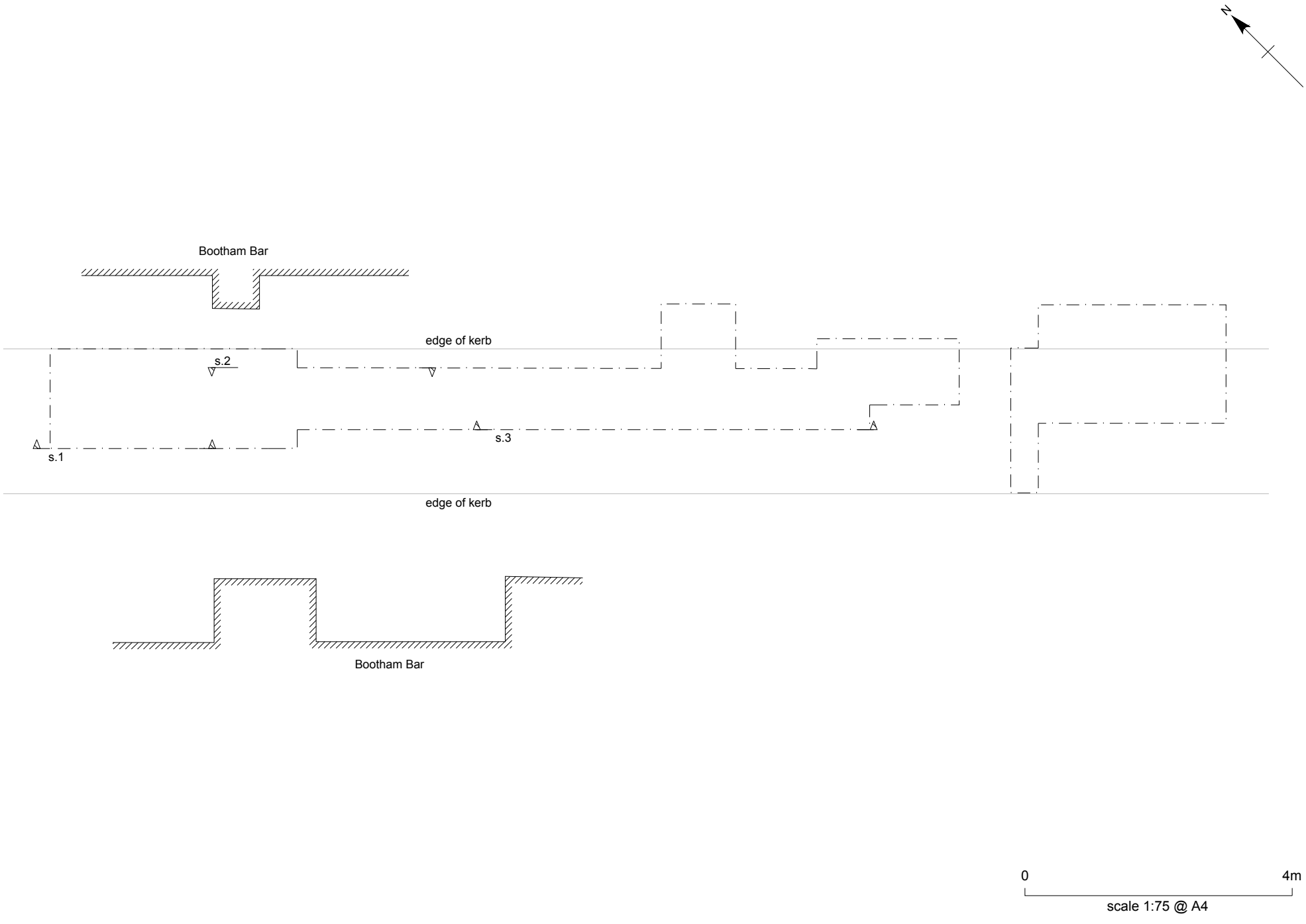
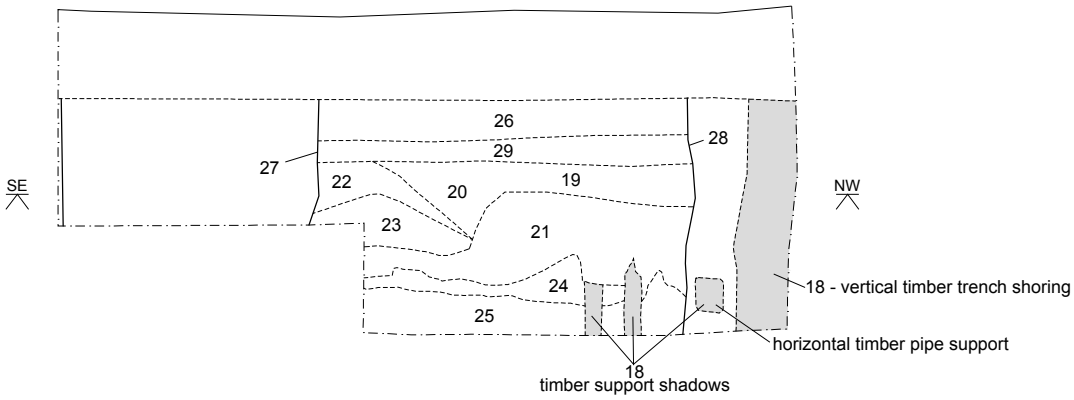


Figure 2 High Petergate, York: excavation plan

Figure 3 High Petergate, York: location of the trench and the Roman Legionary Fortress

section 1



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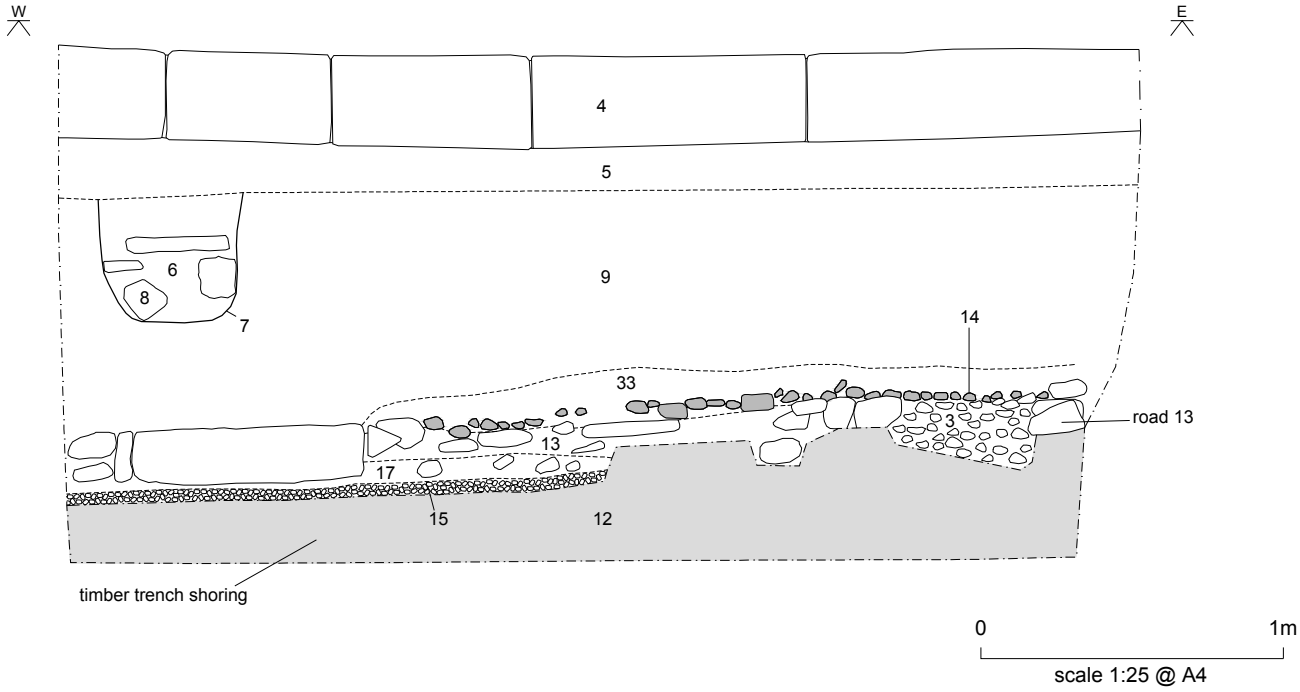

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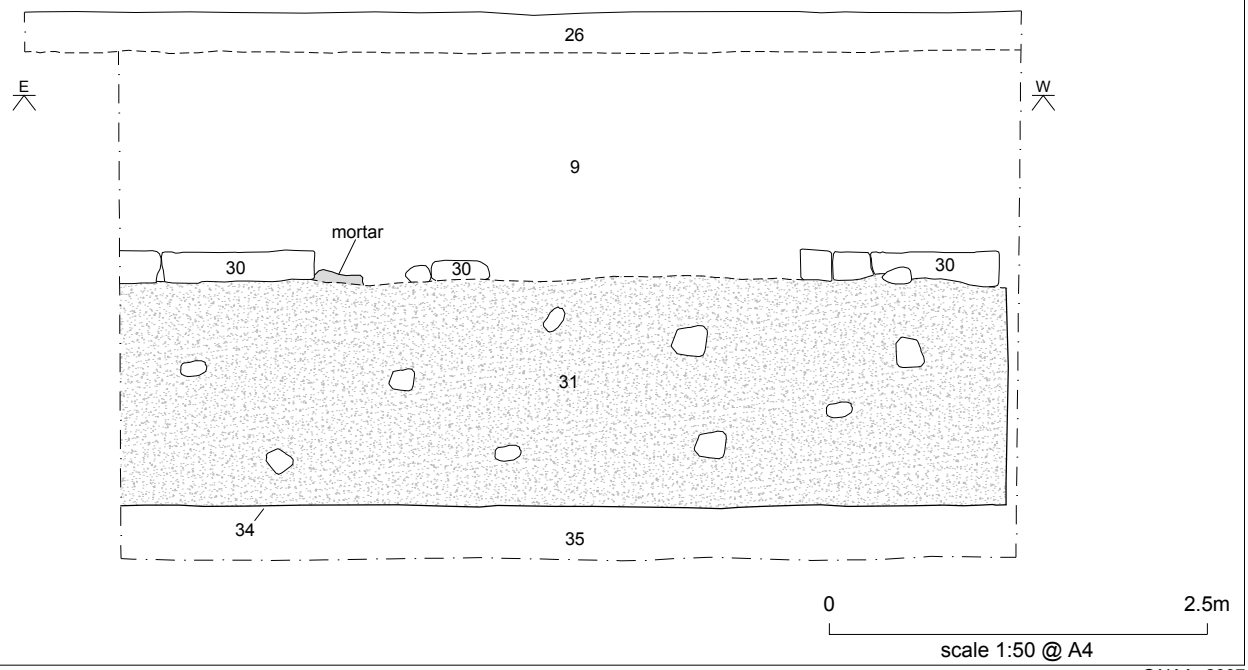

Figure 4 High Petergate, York: sections

Plate 1 High Petergate, York: excavations at Bootham Bar

Plate 2 High Petergate, York: view of north-east of trench section 1

Plate 3 High Petergate, York: south-west facing section 2 with Medieval road surfaces 13 and 14 visible towards the base

Plate 4 High Petergate, York: oblique view of north-east face of mortared foundation of Roman gatehouse

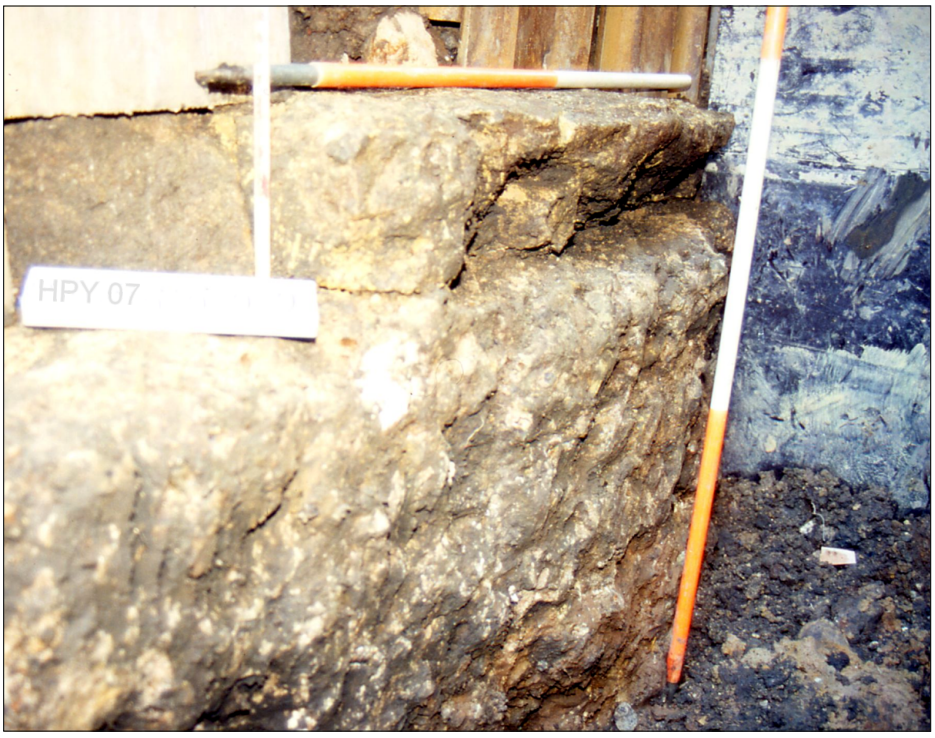

Plate 5 High Petergate, York: detail view of mortared foundation and first course of masonry

Plate 6 High Petergate, York: Victorian sewer trench with original woden shoring. Note road surfaces 13 and 14 to the east