REDCROSS WAY
15–23 Southwark Street, Southwark London SE1

London Borough of Southwark

An archaeological evaluation report

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MUSEUM OF LONDON
Archaeology Service

REDCROSS WAY
15–23 Southwark Street,
Southwark
London
SE1

London Borough of Southwark

Site Code: RXW05
National Grid Reference: 532450 180050

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Summary (non-technical)

This report presents the results of an archaeological field evaluation carried out by the Museum of London Archaeology Service on the site of Redcross Way/15–23 Southwark Street, Southwark, SE1. The report was commissioned from MoLAS by Mills Whipp Partnership on behalf of the client Transport For London.

The evaluation has shown that there is no archaeological survival along the Southwark Street frontage and there is a low potential for significant medieval or post-medieval features (except for the Cross Bones burial ground). Features of these dates were recorded rapidly in the evaluation and removed.

Features of interest were the Roman stream deposits that ran across the site and the geoarchaeological work which showed its development into an episodically inundated grassy hollow which contained a narrow expanse of shallow stagnant water.

Of importance was the survival of burnt deposits which may contain information about the buildings of early Roman Southwark and parts of the 1st–4th century Roman building complex first excavated in 1980 and also found here in the form of floors and robber trenches. Three Roman burials were also found.

The evaluation defined the limits of the Cross Bones burial ground and estimates were made of the number of burials left.

The decision for any further archaeological work rests with the Local Planning Authority.

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Front cover: Cleaning the floor in trench 6

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1 Introduction

1.1 Site background

The site lies to the south-west of London Bridge and is bounded by Southwark Street to the north, Redcross Way to the west, Union Street to the south, and the range of buildings fronting onto the west side of Borough High Street to the east (Fig 1). The centre of the site lies at National Grid reference 53245 18005. Modern pavement level near to the site lies at *c* 4.70m OD to the north and 4.00m OD to the south. The site code was RXW05.

A *Method Statement for an archaeological evaluation* on the site (Drummond-Murray 2005) was prepared in response to a previous *Archaeological Desktop Report* (Mills Whipp Partnership 2004) which recommended the need for archaeological field evaluation. The *Method Statement* defined preliminary trialwork (*an archaeological field evaluation*) to be carried out on the site. It recommended nine evaluation trenches to be excavated. These would provide further information on the nature and levels of deposits beneath the modern ground level and if necessary enable an appropriate mitigation strategy to be agreed with the Local Planning Authority.

Part of the site has already been subject to archaeological excavations. At Redcross Way (the south-east corner of the development area) a sample of the buried population from the post-medieval poor ground of St Saviour's parish was excavated in advance of the construction of a substation. An access shaft was also excavated through the archaeological sequence immediately north (both under sitecode REW92). The centre of the site under sitecodes 15SKS80, RWG94, RWT93 located a series of Roman buildings including a large stone building complex. Two further trenches under sitecode RCW90 recorded Roman and post-medieval burials.

1.2 Planning and legislative framework

The legislative and planning framework in which the archaeological exercise took place was summarised in the *Method Statement* (Section 1.2).

The proposed redevelopment site consists of three zones and has been undeveloped for some time, being used as a construction site for the Jubilee line extension in the 1990s and subsequently for a variety of temporary uses.

Zones 1 and 3 (evaluation trenches 1, 2, 6, 7 and 8) have received planning permission with archaeological conditions attached. Zone 2 will be subject to a new planning application. This document forms the report of the archaeological evaluation on the site as required under the archaeological planning condition placed on the development, Zones 1 and 3, and to support an application for planning consent for Zone 2 (trenches 3, 4, 5 and 9).

The site lies within an Archaeological Priority Zone of Borough/Bermondsey/Riverside as defined in the London Borough of Southwark UDP.

1.3 Origin and scope of the report

This report was produced by the Museum of London Archaeology Service (MoLAS). The report has been prepared within the relevant Standard specified by the Institute of Field Archaeologists (IFA 1999).

This indicates that the purpose of field evaluation is to quantify the archaeological resource in order to define a suitable strategy to safeguard any remains that may be effected by proposed development. Such safeguards would normally consist of :

- the preservation *in situ* or management of those remains and/or

- further archaeological investigations prior to development, within a programme of research

In this case though the results are unlikely to merit further safeguarding measures.

1.4 Aims and objectives

The *Method Statement* lists the following archaeological research objectives:

What is the nature and level of natural topography? In particular what evidence survives of the natural channel (the Southwark Street channel) known to have been present on the site and which divided the two low-lying islands whose location has been established by previous archaeological work?

What are the earliest deposits identified? Is there any evidence for the fragmentary prehistoric occupation recorded elsewhere on the two islands (see above)?

Is there any evidence for the substantial Roman settlement known to occupy the area and uncovered during previous archaeological work on the site (including a number of Roman burials)?

Is there any evidence for medieval Southwark, when the site is thought to lie in open ground behind buildings fronting onto Borough High Street?

Is there any evidence for the development of the site in the post-medieval period?

2 Topographical and historical background

2.1 Topography

The geology of the area consists of Pleistocene river terrace gravels overlain by Holocene fluvial sediments. The site lies on two islands of relatively high natural ground interesected by river channels (Fig 2). One of these channels, known as the Southwark Street channel, has been projected to run east–west across the site. Untruncated natural sands were recorded at around 1m OD on previous excavations on the site 15SKS80. The higher ground of the islands would naturally have been attractive to early settlers.

Part of the channel was found on the site at REW92 access shaft, where waterlain fills of ?prehistoric date were recorded in the channel with rows of postholes, possibly forming part of a revetment. At RCW90 trench 2, channel fills in the form of sands and clays were found.

2.2 Prehistoric

A detailed description of the geology, archaeology and history of the site was provided in the earlier *Archaeological Desktop Report* (Mills Whipp Partnership 2004). A brief resume is provided here:

Prehistoric artefacts and evidence of occupation have been discovered on the site during the 15SKS80 excavations including Mesolithic and Neolithic flints, and Beaker pottery dated 2200–1800 BC within a small slot and pit. There were also numerous Iron Age gullies, some with stakeholes and a circular building of late Iron Age/early Roman date (Cowan 1995, 10–11).

2.3 Roman

The site lies within the main Roman Southwark settlement, concentrated on Borough High Street, and to the south of a Roman road which possibly connected London Bridge to a river crossing at Westminster.

The earliest Roman features were Roman timber-framed buildings which were replaced by a large masonry building in AD 74 found at 15SKS80 (Cowan 1995). It contained many rooms including hypocausts, and tessellated and mosaic floors and at the east end was a corridor surrounding a courtyard area. The building was decorated with imported marbles and wall plaster; the most spectacular plaster was of Hercules wrestling with the Nemean lion found at RWT93 (Drummond-Murray et al 2002). The building was interpreted as a ‘mansio’ which provided accommodation for the imperial posting service and other officials and travellers along the Roman road into the city of Londinium. An apsidal room was found on RWG94 which may have been a dining room.

The building went out of use in the mid 4th century and the area was used as a Roman cemetery and 13 Roman burials were recorded.

To the south of the building further Roman deposits were recorded in RCW90 trench 1 with layers of dumped debris and a gulley. They were dated from AD 75 to the late 2nd/early 3rd century. In RCW90 trench 2 Roman layers, a gulley, a possible hearth, pits and five Roman burials were found.

At REW92 access shaft a sequence of Roman dumped deposits dating to the 1st–3rd centuries, into which five late Roman burials had been interred, lay above natural deposits.

2.4 Saxon and medieval

There is little evidence for Saxon occupation in the site vicinity though the site lies within the medieval settlement of Southwark and medieval pits were found at 15SKS80.

In the medieval period the site was divided with the western part belonging to the Park of the Bishops of Winchester, and the eastern half belonging to the King's Manor and forming the backyards of properties fronting onto Borough High Street. A drainage channel demarcated the division and was known as the Park Ditch. This was found during excavations at Union Street and may run north–south across the site.

2.5 Post-medieval

Post-medieval features excavated at 15SKS80 included a clay pipe kiln dated to the 17/18th centuries and 18/19th century brick cellars. In Area 3 was a building with a cobbled floor dating to the late 16th/early 17th century, perhaps part of a documented inn called 'The Goat'.

No medieval or Tudor features were found on the other excavated sites due mainly to truncation by later post-medieval basements.

In the later post-medieval, period much of the site was occupied with housing and factories, alleys and yards and the Cross Bones Burial Ground to the south (Brickley and Miles 1999). The exact opening date of the cemetery is unclear but probably around 1665 and it was closed in 1853. Within the southern part of the burial ground was a boy's school, a charity school built 1791, and the National Free School for girls constructed 1828. Cellars of the latter school were found during REW92 excavations in the south-east corner of the site. Here also 160 burials were found and 28 burials were recorded in RCW90 trench 1. Further burials were removed during construction works for a proposed electricity sub-station, part of the Jubilee Line Project in 1992/93. These were not recorded or retained.

3 The evaluation

3.1 Methodology

The archaeological evaluation was carried out in accordance with the preceding *Method Statement for an archaeological evaluation* on the site (Drummond-Murray 2005) and the MoLAS *Archaeological Site Manual* (MoL 1994).

The trenches were opened by machine with a grading bucket, then hand cleaned. Plans were drawn at 1:20. Photographs were taken in colour and black-and-white film. A temporary benchmark was established on site using the Ordnance Survey benchmark on the Southwark Street viaduct, value 4.92m OD. The locations of evaluation trenches were surveyed by MoLAS Geomatics Section.

All the trenches were stepped in for safety reasons to provide up to three 1m wide steps around the sides of the trenches and 1m in depth.

3.2 Results of the evaluation

For augerhole locations see Fig 3 and for trench locations see Fig 4.

Evaluation Trench 1	
Location	North side of the site
Dimensions	5m by 2m by 3.20m
Modern ground level/top of slab	4.42m OD
Base of modern fill/slab	1.22m OD
Depth of archaeological deposits seen	None

Natural deposits consisted of yellow sand. It was truncated throughout the trench by the red brick foundations of a Victorian basement and survived up to a height of 1.22m OD. No archaeological deposits were seen.

Above this was a layer of modern demolition rubble and concrete slab up to a height of 4.42m OD

Evaluation Trench 2	
Location	North-east side of the site
Dimensions	15m by 6m by 3.32m
Modern ground level/top of slab	4.72m OD
Base of modern fill/slab	1.40m OD
Depth of archaeological deposits seen	None

Natural deposits consisted of yellow sand truncated throughout the trench by the concrete floor of a Victorian basement and survived up to a height of 1.40m OD. One piece of struck flint was found which represents the broken off distal end of a blade-like flake in black flint with white cortex present. It is an undiagnostic piece of debitage and was not within a feature but lay within the sands.

Above this was basement backfill and a layer of modern demolition rubble and concrete slab up to a height of 4.72m OD.

Evaluation Trench 3	
Location	North-east side of the site within standing building
Dimensions	13m by 8m by 3.67m
Modern ground level/top of slab	4.48m OD
Base of modern fill/slab	3.60m OD
Depth of archaeological deposits seen	1.07m (max height = 1.54m OD)

Natural deposits consisted of mid brown-orange sand [38] seen in one small area of the trench up to a height of 0.47m OD. It was augured down to –1.83m OD but gravel was not reached. It appeared untruncated and was overlain by [37] a humic soil horizon up to a height of 0.55m OD. It contained pottery dating AD 50–160. Above this was an alluvial deposit [36] up to a height of 0.81m OD (see Geoarchaeological assessment). This contained pottery dated to AD 120–150.

Above the natural deposits were dump layers [34] of grey-green silty clay with lenses of wall plaster and yellow mortar debris, frequent flint pebbles, pottery and ceramic building material up to a height of 1.54m OD. These were of Roman date, dated to AD 140–160, and had been dumped in to stabilise the marshy ground. Glass was found in [34].

They were overlain by dark earth [33] up to 3.10m OD which was machine removed down and cut by a post-medieval pit [35] in one corner of the trench. A 19th century cellar had cut into the dark earth and had a stone flag floor [32] at a height of 1.90m OD. A few sherds of medieval pottery, dated 1240–1400, were found in these deposits.

Above this was the cellar backfill and a layer of 19th century red brick rubble which was cut by a concrete tank 3.5m diameter and 2.8m deep filled with water. It had two lead pipe holes in it and was probably a water tank from the Second World War used during the blitz to put out fires. It had utilised an existing cellar. Its top was at 4.01m OD and it was infilled with bricks and sealed under the makeup for the concrete slab of the standing building at 4.48m OD.

Evaluation Trench 4 (Fig 5)	
Location	South side of the site
Dimensions	13m by 6m by 3.47m

Modern ground level/top of slab	4.78m OD
Base of modern fill/slab	1.60m OD
Depth of archaeological deposits seen	0.74m (max height = 1.60m OD)

Natural deposits consisted of light brown-orange sand seen in two small areas of the trench in the sections 4.1 and 4.2 revealed by post-medieval cut features. Natural was truncated and survived up to a height of 0.86m OD.

Above the natural deposits was a layer of brickearth of orange-tan silty sandy clay with frequent flint pebbles and occasional flecks of ceramic building material up to a height of 1.36m OD. This was likely to have been the remains of clay and timber Roman buildings. In one area this had been burnt and consisted of compact red-orange clay and daub [24] up to a height of 1.58m OD.

At the south end of the trench was a dump of mid-grey sandy clay with frequent flint pebbles and occasional flecks of ceramic building material and wall plaster [25] at a height of 1.36m OD. In one of the sections (S4.3) a pit [26] perhaps of Roman or later date could be seen.

A post-medieval well [21] contained pottery dating to 1690–1800 and a tin-glazed wall tile decorated with a landscape scene and which dates from the 18th century.

A late post-medieval cellar [20] contained residual Roman pottery and building material dated 50–160. The wall of the cellar was irregular as if two or more rebuilds had occurred. Also the wall extended south of the line of the cellar, represented by section 4.2, as if it belonged to an earlier phase.

The sequence was truncated by a floor, irregularly paved with brick and stone, of an 18th century basement at a height of 1.60m OD.

Above this was basement backfill and a layer of modern demolition rubble and concrete slab up to a height of 4.78m OD

Evaluation Trench 5 (Fig 6)	
Location	South-west side of the site
Dimensions	14m by 6m by 3.16m
Modern ground level/top of slab	4.46m OD
Base of modern fill/slab	3.62m OD
Depth of archaeological deposits seen	1.10m (max height = 2.40m OD)

Natural deposits consisted of yellow-orange sand [27] seen in one small area of the trench at 1.30m OD although in the section a yellow sand deposit survived up to a height of 1.63m OD which was also thought to have been natural deposits. These deposits may in fact have been disturbed sands as they are much higher than natural deposits in other areas of the site. Above these was a layer of light brown silt with frequent flint pebbles and occasional flecks of ceramic building material up to a height of 1.30m OD.

In one part of the trench an opus signinum floor [30] of Roman date was seen partly covered by a dump of light grey sandy clay [2] with frequent flint pebbles and occasional flecks of ceramic building material and pottery of Roman date AD 120–160. The floor was at a height of 1.30m OD. Its north and east sides respected the lines of two backfilled trenches [28], probably the robbed out remnants of Roman masonry walls which would have originally formed a room. The robber trenches were found at a height of 1.30m OD but could be seen in the section to have originally stood to at least 2.41m OD. Another robber trench was seen in slot [1] parallel to these.

A slot [1] was hand dug through this part of the trench down to 1.92m OD where a ?beam slot [12] and a pit [29] were seen but not excavated. The slot was on the same alignment as the robber trenches and two Roman graves – a north-west/south-east alignment. The features [12] and [29] had cut into dumped deposits of brown sandy clay silt with frequent flecks of ceramic building material, wall plaster and charcoal [31]. A medium amount of pottery was found in the slot and was dated to AD 120–140. Two Roman burials were found [22] and [5], at a height of 1.96 and 2.28m OD. Only the skull and neck were seen and the burials were not excavated. They had their own grave cuts.

The Roman features were overlain by dark earth up to 3.38m OD which was machine removed down to 2.28m OD.

Cut into the dark earth was a small post-medieval pit [14] with clay pipes dated 1680–1710 from fill [13] and two brick-lined pits, all of 19th century date. Above them was 0.22m of post-medieval dumping up to a height of 3.62m OD.

Above this was a layer of modern demolition rubble and concrete slab up to a height of 18.59m OD

Evaluation Trench 6 (Fig 7)	
Location	South-west side of the site
Dimensions	20m by 6m by 3.02m
Modern ground level/top of slab	4.32m OD
Base of modern fill/slab	3.68m OD
Depth of archaeological deposits seen	1.32m (max height = 1.50m OD)

Natural deposits consisted of gravel and was reached by auger only (AH1, 2) at a height of –1.47m OD overlain by sands to –0.44m OD [16–17], the latest of which [17] contained Roman pottery dated AD 50+ (Fig 3). Above the sands were layers of silty clay interpreted as channel fills. The uppermost channel fills were clays and sands up to +0.18m OD [15], [19] dated AD 120–160 (see Geoarchaeological assessment).

Above these were deposits of silty clays in both auger holes with frequent flecks of ceramic building material, mortar and charcoal fragments up to 1.03m OD and 1.53m OD, probably of Roman date [18].

Above these, in one part of the trench, was a tessellated floor [4] consisting of red tile tesserae 34x30x30mm laid on an opus signinum base on a north-west/south-east alignment (the drawing shows the alignment of the tesserae, they would have been on the same alignment as the walls of the building). It was of Roman date and was at a height of 1.43m OD.

The majority of tesserae are various shades of red, although there are a few cream and white examples present. Some areas of this floor may have been bordered by bands of white and cream tesserae as loose tesserae were found in the deposits above [3]. The tesserae making up the floor, with one possible exception (see Builiding material assessment), all date from the 1st to mid 2nd century, which is perhaps the date when the floor was laid. Two pottery tesserae are also present.

Its north side appeared to respect the line of probably a backfilled trench, probably the robbed out remnants of a Roman masonry wall which would have originally formed a room. Both the floor and possible robber trench were overlain by dark earth [3] which was machined removed in this area down to 1.50m OD. Pottery from [3] was dated AD 200–250 and there was a sherd of medieval pottery.

In the rest of the trench a slot [6] was hand dug and a ?beam slot [10] and a fragment of opus signinum [7] were seen with other patches of what might have been mortar floors [8] and [9] but not excavated. The opus signinum [7] was on the same alignment as the other Roman features. They were at a height of 1.31m OD and were overlain by dark earth [3] at 2.14m OD which was machined removed in this area down to 1.31m OD. Pottery from this area [6] was dated AD 150–200 with one sherd of AD 250–300.

Cut into the dark earth was a post-medieval brick-lined pit of 19th century date. Above the dark earth was 1.5m of post-medieval dumping up to a height of 3.68m OD. The dumps included a lens of clay pipe kiln debris at 2.78m OD but no kiln was seen. Above this was a layer of modern demolition rubble and concrete slab up to a height of 4.32m OD.

Evaluation Trenches 7 and 8 (Fig 8)	
Location	South-east side of the site
Dimensions	20m by 6m by 1.88m
Modern ground level/top of slab	4.04m OD
Base of modern fill/slab	1.73m OD
Depth of archaeological deposits seen	1.88m (max height = 1.73m OD)

Trenches 7 and 8 were combined as the whole area had been truncated by a modern basement. The concrete floor of the basement was at a height of 2.16m OD but in one area was a sunken area with lower concrete slab, perhaps a lift pit. This lower concrete was at 1.21m OD and was removed to reveal features underneath.

A previous evaluation in this area (RCW90 trench 2) revealed the rest of the basement which had truncated the deposits below down to 1.73m OD.

Natural deposits in trenches 7/8 consisted of sand and gravel and was reached by auger only (AH3) at a height of –0.15m OD. Above the natural deposits were layers of clay interpreted as channel fills. The uppermost deposit was a layer of dark grey sandy silty clay up to a height of 0.84m OD (see Geoarchaeological assessment).

Probably cut into this was a Roman burial [23] on a north-west/south-east alignment in a cut. Only the skull and neck were seen at a height of 0.57m and it was not excavated. Above this was a Roman dumped deposit of grey silty clay up to 1.05m OD truncated by concrete makeup. Above the lower concrete floor was basement backfill and a layer of modern demolition rubble and concrete slab up to a height of 4.04m OD.

Evaluation Trench 9 (Fig 9)	
Location	Burial ground
Dimensions	40m by 5m by 0.75m
Modern ground level/top of slab	4.59m OD
Base of modern fill/slab	3.46m OD
Depth of archaeological deposits seen	2.1m (max height = 3.46m OD)

Natural deposits were reached in three places in trench 9.

Natural deposits consisted of yellow sand and was reached by machine in the most northerly part of the trench, on the south side of a modern cellar wall (S9.3) at a height of 0.92m OD. Above this at 1.16m OD was a pink clay which might have been a natural channel deposit. Above this was a grey-black sandy clay up to 1.76m OD. This might also have been a channel deposit. None of these deposits contained human bone as far as could be seen but they were only machine excavated and they could represent Roman channel fills.

In the south end of the trench an area of post-medieval brick wall was removed and was hand augured (S9.1) down to -0.70m OD where natural deposits was a coarse yellow sand with frequent pebbles at 0.74m OD. Towards the upper part, natural deposits was a yellow orange slightly clayey sand with occasional pebbles and iron pan. Above this was a mid brown sandy silt deposit with few inclusions but occasional human bone up to 1.64m OD. This could be the Roman deposits as seen at the same level in RCW90 trench 1.

Above this in S9.1 and above the channel deposits in S9.3 was the cemetery soil, a layer of dark grey-black silty clay with frequent human bone, both in situ and disarticulated. Coffins were seen at a height of 2.20m OD in the section S9.3 stacked three high down to 1.92m OD and articulated skeletons were at 2.84m OD in S9.1. The top of disarticulated skulls was seen at 3.11m OD and 3.46m OD. The cemetery soil also contained frequent slate, Victorian pottery, mortar flecks and red brick up to a height of 3.46m OD.

Cut into the cemetery soil at the south end were red brick foundations with lime mortar, probably of the documented boy's school. The base of these was at a height of 1.44m OD and their tops were truncated at 4.10m OD. They were machined down to

3.25m OD. The area of the school almost exactly matches that of Gwilt's plan of 1821.

Parallel to this in the sections of the trench were two later yellow stock brick walls of 19th century date, their tops also truncated at 4.10m OD and their bases at (west facing section) 3.40m OD and (east facing section) 2.81m OD. Above these was a layer of modern demolition rubble and concrete slab with varying height of 4.12m OD up to a height of 4.59m OD.

In the northern end of the trench was a vertical steel plate and a yellow stock brick wall on a concrete base 0.60m wide. The base of the foundation was not reached due to its extreme depth. The top of the wall was under the concrete slab at 3.94m OD. The wall was machined down to -0.28m OD and the section was drawn (S9.3).

Beyond the wall was a different sequence described in S9.2. Here natural deposits was a yellow clayey sand at 0.29m OD overlain by a brown-pink sticky clay at 0.89m OD. Above this was a mid brown-black sandy clay at 1.39m OD above which was the concrete floor of the basement which had truncated it. This area appeared to be outside the cemetery as no human bone was seen and the deposits recorded could have been Roman channel fills as seen in the lower part of S9.3. However the height of the natural sand was lower in S9.2 than S9.3 perhaps indicating the southern slope of the channel down to the north where it was recorded to the north of trench 9 in trench 6. One piece of Roman tile was seen but no other dateable material. Above this was the basement fill and concrete slab at a height of 4.10m OD.

The length of the burial ground from Union Street to the wall recorded in S9.3 is 37m which compares to Gwilt's plan of 1821 which had two measurements of 36.5 m and 37.4m.

4 Archaeological potential

4.1 Summary of archaeological potential

Archaeological evaluation trench 1 is located at the north of the site, parallel to the Southwark Street frontage. It is in an area that was previously subject to archaeological excavation 15SKS80 down to natural deposits. Its purpose was to confirm the absence of archaeological survival in this area and this has been confirmed and there is no archaeological survival in this trench. Natural deposits were truncated at 1.22m OD.

Archaeological evaluation trench 2 is located at the north-east of the site. It lies in an area to the west of that which that was previously subject to archaeological excavation 15SKS80 Area 3 down to the dark earth. Its purpose was to establish the nature and depth of archaeological survival in this area. Unfortunately due to the removal of a portion of the site into a new property, the trench was placed too far to the west. Natural deposits was truncated by a basement at 1.40m OD and there was no archaeological survival although a flint was found in the natural sands. Nevertheless a small area remains to the east of the basement within Area 3 and the current site, where Roman archaeological deposits may survive under the dark earth.

Archaeological evaluation trench 3 is located in the central part of the site to the south of 15SKS80. Roman burials and Roman buildings were revealed beneath the Dark Earth in 15SKS80 and could be anticipated in this trench. However no buildings or burials were seen and Roman dumped deposits overlying the flood deposits of a 'channel' were the only surviving deposits. The overbank flood deposits survive from at least –1.83m OD up to 0.81m OD and Roman deposits 0.73m deep survive up to 1.54m OD. Cut features may be found below the level, that is cut into the natural deposits. There were no significant medieval or post-medieval deposits.

Archaeological evaluation trench 4 is located to south of a large double basement that removed all the archaeological deposits between Areas I and II at 15SKS80. If there is archaeological survival in this trench, a complete sequence of Roman deposits including buildings and burials was anticipated. However, a cellar had truncated deposits in trench 4 and Roman deposits 0.74m deep consisting of burnt debris and possibly the remains of buildings survived up to 1.60m OD. Cut features may survive below the level of 0.86m OD of natural deposits. There were no significant medieval or post-medieval deposits.

Archaeological evaluation Trench 5 is located towards the northeast corner of the site, just west of the cable trench of RWT93. The cable trench was excavated to a finished level of 1.85m OD. The remains of Roman buildings and demolition debris, including highly decorated painted wall plaster, were exposed at the bottom of a sealing layer of

Dark Earth at 2.5m OD. In trench 5 was a similar sequence of Roman deposits 1.10m deep consisting of buildings with intact floor surfaces and two late Roman burials up to 2.40m OD. Cut features may survive below the level of 1.30m OD of natural deposits. There was no significant medieval or post-medieval deposits.

Archaeological evaluation Trench 6 is located close to the western boundary of the site and is projected to provide a north–south profile across a channel, termed the Southwark Street channel, that existed in the late prehistoric/ Roman period.

In trench 6 alluvial channel fills of (?prehistoric and) Roman date survive from –1.47m OD to +0.18m OD and Roman deposits 1.32m deep consisting of buildings including intact floor surfaces survive up to 1.50m OD. Cut features may be found below the level, that is cut into the natural deposits. There was no significant medieval or post-medieval deposits.

Archaeological evaluation Trench 7 is located on the west side of the site north of the sub-station. Archaeological evaluation Trench 8 is located to the south of trench 7. It is aligned roughly parallel with, and towards the south side of, the Southwark Street Channel. The trenches were combined in the evaluation as they had been truncated by a basement.

Channel fills of (?prehistoric and) Roman date were found in trench 7/8 and RCW90 trench 2 from –0.15m OD to +0.84m OD. Roman deposits 1.16m deep consisting of dumps, pits and possibly buildings at RCW90 trench 2, as well as Roman burials (at 0.57m OD–1.73m OD), survive up to 1.73m OD. Cut features may be found below the level, that is cut into the natural deposits. There were no significant medieval or post-medieval deposits.

Trench 9 is located in the south west corner of the site within the boundary of the former Cross Bones burial ground and extending to the north beyond the boundary. The trench lies to the west of REW92 excavated for the electricity sub-station as part of the Jubilee Line. At the north-west corner of the sub-station, an access shaft was excavated.

Channel fills of ?Roman date were found in the north of trench 9 from at least 0.29m OD to 1.76m OD. Cut features may be found below the level, that is cut into the natural deposits. At REW92 access shaft, channel fills of ?prehistoric date were found from –0.72m OD up to 0.37m OD.

?Roman deposits 0.90m deep consisting of ?dumps were seen in trench 9 up to 1.64m OD. Roman deposits 0.44m deep consisting of dumps dating to the 1st–3rd centuries and Roman burials survived up to 0.81m OD at REW92. Roman deposits 0.51m deep were recorded in RCW90 trench 1 consisting of dumps and a gulley also dating to the 1st–3rd centuries up to 1.36m OD.

Post-medieval burials were found in trench 9, bones from above 1.64m OD and coffins from at least at 1.92m OD to 3.46m OD were seen. Under the sub-station, 160 post-medieval burials were revealed at approximately 3.5m OD and excavated down

to the finished formation level of 3.1m OD. Twenty-eight post-medieval burials in RCW90 trench 1 were found from 2.28m OD to 3.52m OD.

Summary table

Trench 1	no archaeological survival	
Trench 2	no archaeological survival	
Trench 3	Overbank flood deposits; ?prehistoric or Roman	at least -1.83–0.81m OD
	Roman deposits; dumps only	0.81–1.54m OD
Trench 4	Roman deposits; dumps, ?pit, burnt debris and possibly remains of buildings	0.86–1.60m OD
Trench 5	Roman deposits; buildings with intact opus signinum floor surface, dumps, ?beam slot, two late Roman burials	?at least 1.30–2.40m OD
Trench 6	channel fills; ?prehistoric and Roman	-1.47–to +0.18m OD
	Roman deposits; buildings with intact tessellated floor surface, ?beam slot, floor patches	0.18–1.50m OD
Trench 7/8 and RCW trench 1	Channel fills; ?prehistoric and Roman	-0.15–+0.84m OD
	Roman deposits; dumps, pits, six burials and possibly buildings	0.57–1.73m OD
Trench 9 and RCW trench 2	Channel fills: ?prehistoric and Roman	?at least -0.72–1.76m OD
	?Roman deposits: dumps, gulley, five burials	0.74–1.64m OD
	Post-medieval burials	?1.64/1.92–3.46m OD

4.2 Realisation of original research aims

The *Method Statement* lists the following archaeological research objectives:

What is the nature and level of natural topography? In particular what evidence survives of the natural channel (the Southwark Street channel) known to have been present on the site and which divided the two low-lying islands whose location has been established by previous archaeological work?

The highest area of the site was in the north in trenches 1, 2 and 5 and RWT93 where the natural sand was at 1.30m OD. The site than sloped gradually to the south so that in trench 9 and RCW90 trench 1 at the southern end of the site the natural sand was at 0.74–0.85m OD.

The augerhole logs, drilled in Trenches 6 and 7/8 suggest a stream may have crossed the southern part of Trench 6 and the Roman pot inclusions from sand deposits in AH1 suggests the stream was active at this time but the deposits encountered were typical of a stream channel which over time became increasingly redundant. The alluvial sands at the base of the channel may date to the prehistoric period (see Geoarchaeological assessment).

The earlier fills were dated AD 50+ and the later 120–160. For the most part, the deposits recorded in AH3 (Trench 7/8) and AH2 (north part of Trench 6) appear to represent the clays of seasonal overbank flooding, and it is suggested that most of the valley presently mapped as the Southwark Street Channel was, at least by the Roman period, an episodically inundated grassy hollow, which was followed by a narrow stream and may have contained a narrow expanse of shallow stagnant water.

What are the earliest deposits identified? Is there any evidence for the fragmentary prehistoric occupation recorded elsewhere on the two islands (see above)?

No more evidence of prehistoric activity was discovered on the site except for a fragment of worked flint (see Flint assessment).

Is there any evidence for the substantial Roman settlement known to occupy the area and uncovered during previous archaeological work on the site (including a number of Roman burials)?

See *Summary table* above for the deposits found in each area. Trenches 1 and 2 were truncated and no Roman deposits survived. In trench 3, Roman dumped deposits were the only surviving Roman activity. In trenches 4 and 7/8 was the possible remains of Roman burnt timber-framed buildings but these trenches probably just contained pits and dumps.

Of importance were the Roman burials found in trenches 5, 7/8 and RCW90 trench 1 near trench 9 and parts of the Roman building complex first excavated in 15SKS80 and also found here in the form of floors and robber trenches in trenches 5 and 6.

Part of this building complex at 15KSK80, RWT93, RWG94 in its late 2nd/early 3rd century phase is shown on Fig 4. Its floors lay at 2–2.45m OD and the yard surface with two wells at RWG94 lay at 1.68–1.98m OD. The floors in trenches 5 and 6 were lower, at 1.30–1.43m OD which suggests they might belong with the earliest phase of the building, perhaps as the pottery from material overlying the floor in trench 5 indicates, AD 120–160. The alignments of the wall in trench 5 can be seen to match those of 15SKS80.

The flue tiles and perhaps the wall tile come from a hypocaust heating system. This indicates a Roman buildings or buildings of some status, as too do the tesserae and the wall painted plaster fragments.

The levels on the burials are similar to those at 15KSK80 at 1.70–2.60m OD.

Is there any evidence for medieval Southwark, when the site is thought to lie in open ground behind buildings fronting onto Borough High Street?
There was no evidence of medieval features on the site but medieval pottery dating to 1050–1150, and to 1240–1400, was found in later post-medieval contexts. No evidence of the Park ditch was found which probably ran north from 14 Union Street and would lie just to the west of trench 4. However it was not found during excavations at 15SKS80.

Is there any evidence for the development of the site in the post-medieval period?
There was no evidence of significant post-medieval features on the site (apart from the burial ground) but the floor of a stone-flagged cellar was recorded as well as some brick-lined cellars and wells. No lanes or alleys were found.

All of the post-medieval pottery is typical of a Tudor and Stuart assemblages from Southwark dating from between 1630 to 1800 including a chamber pot, tin-glazed ointment pots and pharmacy jars. A stoneware spirit flask is of interest as is has a local trade stamp from 'RED CROSS STREET, BORO'.

Several fragments of clay pipe kiln muffle were found in a 19th century dumped deposit but no trace of the kiln was found. The kiln muffle was a cylindrical chamber constructed of pipeclay reinforced by pipe wasters from earlier firings that overlay the firebox and stoke pit. The pipe reinforcers were dated 1640–60 thus dating the operation of this workshop. Part of a kiln was found in 15SKS80 and it may be that this debris came from that kiln.

The Cross Bones burial ground ?1665–1853
The remains of the burial ground would appear to be defined by Redcross Way, Union Street, the electric sub-station and the northern limits defined by a concrete and yellow stock brick wall recorded in trench 9 in S9.3. This is an area some 26m by 37m and 1.5m deep (Post-medieval burials were found between 1.92 and 3.46m OD in trench 9). With the area of the boys school removed from the calculation, a cubic metreage of 1300 cu. m is estimated as the remains of the burial ground (ie the area not including the truncated area of the sub-station).

In RCW90 trench 1 measuring 5m by 4m were found 28 post-medieval burials from 2.28m OD to 3.52m OD. By extrapolation from RCW90 a figure of 2268 burials would be found in a cubic meterage of 1300 cu. m. The north end of REW92 was truncated and it is difficult to extrapolate from this site.

However the figure of 2268 seems very low. A list of interments in the burial ground in the years 1845–1851 indicate that between 130–210 people per year were buried (Miles 1999, 15). With an average of 150 per year in the 19th century, the total burials would be 7950 but this is not taking into account the cholera epidemic in the 1830s.

Less people would be buried in the 17th and 18th centuries; Southwark would have had a smaller population then before the industrial revolution. Also, only the latest phases of the burials would be present as articulated skeletons, the earlier ones being removed or much disturbed and these would survive only as disarticulated or loose

bones. Miles normally predicts an average of four burials per cubic meter which would total 5200 burials left (Adrian Miles: pers comm).

4.3 General discussion of potential

The evaluation has shown that the potential for survival is high for the Roman period but low for the medieval and post-medieval periods, excepting the Cross Bones burial ground. There is also a possibility of some prehistoric activity not quantifiable during the evaluation but previous excavations have shown that some prehistoric features do survive.

5 Proposed development impact and recommendations

The proposed redevelopment involves the construction of new offices and residential buildings but no details are yet available. The potential impact of this on the surviving archaeological deposits will be to totally remove most surviving deposits and cut features identified in this evaluation.

The evaluation has shown that there is no archaeological survival along the Southwark Street frontage and there is a low potential for significant medieval or post-medieval features (except for the Cross Bones burial ground). Features of these dates were recorded rapidly in the evaluation and removed.

Features of interest were the Roman stream deposits that ran across the site and the geoarchaeological work which showed its development into an episodically inundated grassy hollow which contained a narrow expanse of shallow stagnant water.

Of importance was the survival of burnt deposits which may contain information about the buildings of early Roman Southwark and parts of the 1st–4th century Roman building complex first excavated in 1980 and also found here in the form of floors and robber trenches. Three Roman burials were also found.

The evaluation defined the limits of the Cross Bones burial ground and estimates were made of the number of burials left.

The decision for any further archaeological work rests with the Local Planning Authority.

6 Assessment reports on the finds

6.1 Assessment of the flint

Tony Grey

One piece of struck flint that was unstratified was submitted for identification. It represents the broken off distal end of a blade-like flake in black flint with white cortex present. It is an undiagnostic piece of debitage.

6.2 Building Material Assessment

Ian Betts and Terence Paul Smith

Table 1 Finds and environmental archive general summary

Building material	*1 mushroom crate and 1 shoe box of ceramic building material (some discarded after assessment).* Total 6.8kg 1 retained shoe boxes

6.2.1 The worked stone

None

6.2.2 The building material

Table 2 Building material

Material	Count	Count as %	Weight (kg)	Weight as %
Daub	2	1.7	0.04	0.6
Roman ceramic	102	84.3	5.90	86.8
Post-med ceramic	1	0.8	0.05	0.7
Mortar	1	0.8	0.40	5.9
Painted wall plaster	15	12.4	0.41	6.0
Total	121	100.0	6.8	100.0

6.2.2.1 Introduction/methodology

All the building material has been recorded using the standard recording forms used by the Museum of London. This has involved fabric analysis undertaken with a ×10 binocular microscope. The information on the recording forms has been added to an Oracle database.

6.2.2.2 Roman ceramic building material

6.2.2.2.1 FABRICS

Early Roman fabrics
2815 group, 2454, 3023, 3059, 3060, 3238

Late Roman fabric
2459B
There is also a possible tessera in what may be either later fabric type 3229 (context [3]. Alternatively it may be a variant of fabric 2454 of 1st century date.

6.2.2.2.2 FORMS

Tesserae

Fabric types: 2815 group, 2454, 3238, 3499

The majority of tesserae are various shades of red, although there are a few cream and white examples present. These almost certainly derive from a plain tessellated floor (context [4]) which lay beneath the dark earth deposits which contained the tesserae (context [3]). Some areas of this floor may have been bordered by bands of white and cream tesserae.

The tesserae making up the floor, with one possible exception (see above), all date from the 1st to mid 2nd century, which is perhaps the date when the floor was laid. Two pottery tesserae are also present.

Brick

Fabric type: 2815 group

Three fragments of brick in fabric 2815 come from context [34]. They date from the period *c* 50 to *c* 160.

Roofing tile

Fabric types: 2815 group, 2454, 2459B, 3023, 3060

The roofing tiles, which are all in common fabric types found in London, are all fragmentary.

Flue tile

Fabric types: 2815 group, 3059

There are five box-flue tiles in fabric group 2815 (contexts [1], [34]). Two have scored keying and probably date from the 1st to the early 2nd century; another has been keyed using a six tooth comb and probably dates from the 2nd century. A fourth

has roller-stamped keying (die 16) and again probably dates from the 2nd century. The fifth preserves only a small part of its plain face.

There is also a small reused fragment of tile in fabric 3059 (context [3]) dating from the late 1st to the early 2nd century. It was probably brought in from an as yet undiscovered tilery located near the south coast of Sussex. Tiles from the same tilery have been found on other London sites although always in small numbers.

Wall tile

Fabric type: 2815 group

A wall tile from context [34] has combed keying in a zigzag pattern in its upper bedface. It is in fabric 3006 (2815 group) and dates from the period *c*50 to *c*160.

Markings on tiles and bricks
None (other than keying)

6.2.2.3 Roman painted wall plaster

Fifteen fragments of plaster were recovered with Roman ceramic building material in contexts [1], [3], [33], [34], and [35]. Some are plain red, whilst one (or possibly two) pieces have a border area in dark red (above? green) and red separated by a 5-6mm white band; another red fragment has the remains of what appears to be a green strip; another has red and white bands; and two are grey, one of them with red spots forming an unidentifiable pattern; The plaster fragments from context [1] are slightly curved, suggesting that they come a fragment found with the large tesserae assemblage in context [3] is faded but appears to show the junction between areas of red and purple; the latter has areas of bluish-grey paint but it is uncertain what these represent: presumably this fragment came from the same probable masonry building which contained the tessellated floor. from a door or window opening..

Some of the plaster from context [1] shows signs of burning, indicating that is derives from a building destroyed, or damaged, by fire.

6.2.2.4 *Daub*

A fragment of daub, found with Roman ceramic building materials in context [34] is of a fine orange-brown fabric with a few small stones and with impressions of grass or straw.

6.2.2.5 Post-medieval ceramic building material

6.2.2.5.1 FABRIC

Later fabric
3067

6.2.2.5.2 FORM

Wall tile

A partially complete tin-glazed wall tile was recovered from context [21] <6>. This is decorated in blue on white and has a landscape scene set in a twin circular border with a variant of the barred ox-head corner. The tile dates from the 18th century and could be of either English or Dutch manufacture.

6.2.2.6 Assessment work outstanding

None

6.2.3 Analysis of potential

The flue tiles and perhaps the wall tile come from a hypocaust heating system. This indicates a Roman buildings or buildings of some status, as too do the tesserae and the wall painted plaster fragments.

Likewise, the 18th-century tin-glazed wall tile with have come from a building of some status, although not too much can be concluded from a single fragment.

6.2.4 Significance of the data

The building material is commonplace within London and has no particular significance.

6.2.5 Revised research aims

The building material does not suggest any further research aims.

6.2.6 Method statements

Task 3: The building material assemblage should be compared with the stratigraphical sequence and all available dating evidence = 0.5 day

Task 4: Write publication report = 1.5 days

Task 5: Editing publication report = 0.5 day

Task 6: Attend Finds Review = 0.25 day

Total time required = 2.75 DAYS

6.2.6.1 Finds analysis/investigation

6.2.6.2 Work required for illustration/photography

Photograph:
Decorated tin-glazed tile – [21] <6>

6.2.6.3 Preparation for deposition in the archive

No further work is required in this connexion.

6.3 Assessment of the Roman pottery

Rupert Featherby

Table 3 Finds and environmental archive general summary

Roman pottery	534 sherds.

6.3.1 The pottery

Table 4 Pottery

Roman pottery	534 sherds	13.74 grams

6.3.1.1 Roman pottery

6.3.1.1.1 SUMMARY/INTRODUCTION

There are 534 sherds of Roman pottery from thirteen contexts; nine are small in size (less than 30 sherds), two are medium (30 to 99 sherds) and two large (100 to 499 sherds). The sherds are small to medium sized and many exhibit a high degree of abrasion.

6.3.1.1.2 METHODOLOGY

The pottery was spot-dated using standard MoLSS methods. It was quantified by rows, sherds, ENV, EVE and weight and the data entered into the MoLAS/MoLSS Oracle database.

6.3.1.1.3 DISCUSSION

Table 3 below shows the range of dates for RXW05.

Table 5 Date range of assemblage

Date of Context	L date							
E date	120	140	150	160	200	250	400	Total
50				2			3	5
90	1							1
120		1	1	2				4
140				1				1
150					1			1
200						1		1
Total	1	1	1	5	1	1	3	13

6.3.1.1.4 FABRICS

Imported wares account for 15.7% of the assemblage by sherd count, which is just more than half the inland City average of 25.8%. Amphora at 8.6% by sherd count is nearly twice as common than Samian at 4.9% by sherd count. However, both of these are lower than their respective expected averages with amphora at 14.3% and Samian at 11.5%. The range of amphorae mainly represents vessel types from Gaul and Spain with a very small proportion (0.7%) from other sources being represented on the site.

Reduced wares were the most common ware of all at 28.3% by sherd count, with Oxidised the next most common at 28.1%. Black-burnished wares comprised 19.9 % by sherd count of the assemblage, which is twice the expected inland City average of 9.8% by sherd count. Black-burnished ware '2' was twice as common as black-burnished ware '1' indicating an Antonine emphasis to the early Roman contexts. Imported fine wares represented only 0.6% and Romano-British fine wares, both reduced and oxidised, represented 5.1% and 3.0% respectively. The slightly lower than expected figure for imported fine wares is mirrored by the slightly figure for reduced fine wares. Although south Gaulish Samian, dated *c* AD 50–100, is the most common Samian fabric it is residual. Amongst the imported wares a sherd of Moselkeramik was identified, dating *c* AD 200–275. Unfortunately, this assemblage is too small to provide much information on many pottery-based issues.

Table 6 Breakdown by fabric

Fabrics	Sherds	%	Weight	%	ENV	%	EVE	%
Amphora	46	8.6%	6057	44.1%	31	7.1%	0.45	3.9%
Samian	26	4.9%	198	1.4%	25	5.7%	0.79	6.9%
Fine wares, Imported	3	0.6%	13	0.1%	3	0.7%	0	0.0%
Fine wares, Romano-British	16	3.0%	263	1.9%	15	3.4%	0.45	3.9%
Black-burnished wares	106	19.9%	1474	10.7%	84	19.3%	2.17	19.0%
Fine wares, reduced	27	5.1%	395	2.9%	23	5.3%	0.47	4.1%
Reduced wares	151	28.3%	1557	11.3%	127	29.1%	2.64	23.2%
Tempered wares	6	1.1%	103	0.7%	6	1.4%	0	0.0%
Oxidised wares	150	28.1%	3659	26.6%	119	27.3%	3.98	34.9%
Miscellaneous wares	3	0.6%	19	0.1%	3	0.7%	0.45	3.9%
Total	485	100.0%	7662	100.0%	436	100.0%	11.4	100.0%

6.3.1.1.5 FORMS

A generally very standard range of vessels has been identified on RXW05 (Table 5). Many forms are close to their expected averages for Southwark but amphora, cups and jars are below and bowls far more common than would be expected, 17.2% as opposed to 8% respectively by sherd count. Many common forms were identified along with an uncommon platter variant in north Kent grey ware. This vessel has properties of both a bowl and dish and appears to date *c* AD 70–120.

Table 7 Breakdown by form

Forms	Sherds	%	Weight	%	ENV	%	EVE	%
Amphora	47	8.8%	6068	44.2%	32	7.3%	0.5	4.4%
Beaker	25	4.7%	181	1.3%	21	4.8%	0.61	5.3%
Beaker/Jar	9	1.7%	89	0.6%	9	2.1%	0	0.0%
Bowl	92	17.2%	1854	13.5%	80	18.3%	1.87	16.4%
Bowl/Dish	8	1.5%	212	1.5%	6	1.4%	0.14	1.2%
Cup	5	0.9%	25	0.2%	5	1.1%	0.41	3.6%
Dish	20	3.7%	354	2.6%	19	4.4%	0.81	7.1%
Flagon	22	4.1%	598	4.4%	11	2.5%	2.46	21.6%
Flagon/Jar	6	1.1%	270	2.0%	6	1.4%	0	0.0%
Lamp	1	0.2%	4	0.0%	1	0.2%	0	0.0%
Lid	20	3.7%	349	2.5%	19	4.4%	0.75	6.6%
Jar	80	15.0%	1234	9.0%	48	11.0%	2.87	25.2%
Mortaria	14	2.6%	908	6.6%	12	2.8%	0.45	3.9%
Tazza	1	0.2%	30	0.2%	1	0.2%	0.09	0.8%
Amphora Seal	2	0.4%	18	0.1%	2	0.5%	0.45	3.9%
Unknown	182	34.1%	1544	11.2%	164	37.6%	0	0.0%
Total	534	100.0%	13738	100.0%	436	100.0%	11.41	100.0%

6.3.1.1.6 DISCUSSION

In general the pottery gives no indication as to the function, even though it is relatively large for the number of contexts containing Roman pottery. Previous excavations in the area identified intense Roman activity and two contexts from this site, which contained assemblages over 100 sherds, confirm this. The total assemblage suggests a peak in activity during the second half of the second century AD, context [1] is dated *c* AD 120–40 but in fact could date *c* AD 180–250, indicating a 2nd/3rd century expansion southwards. All appear to be more domestic in nature than anything else, despite a sherd from a tazza and a lamp being identified within the assemblage. However, these could represent lighting and incense-burning rather than ritual activity. Cemeteries have been identified further south but these two sherds cannot be taken to indicate any connection to those areas.

6.3.2 Analysis of potential

Due to its size, the Roman assemblage has limited potential for the refinement of the dating once the spot-date information has been fully integrated with the stratigraphic sequence.

6.3.3 Significance of the data

6.3.3.1 International and National

The pottery has little national or international significance as a standalone assemblage

6.3.3.2 Regional and Local

This assemblage has little significance in understanding the Roman land-use in general of the area itself and would best be served by being considered alongside other sites within a limited area.

6.3.4 Revised research aims

What information does this assemblage provide regarding the land-use.

The assemblage extends out knowledge of the development of Roman Southwark, indicating a 2nd/3rd century growth southwards, a trend for which there is growing evidence. In combination with sites in a limited area our understanding of this development can be greatly enhanced.

6.3.5 Method statements

Task 1.Full integration of spot-date information with stratigraphic sequence on the ORACLE database, checking of discrepancies to finalise phasing and preparation of dating table and write contributing text to the chronological narrative (if required) 2.0pd

Task 2. Research and write text comparing sites within immediate vicinity 1.0pd

Task 3. Preparation of figure list using Oracle, the selection, preparation and packaging of pottery for Finds Review 0.5pd

Task 4. Attendance at Finds Review 0.5pd

Task 5. Illustration of five Vessels by Drawing Office at 6 vessels/day 1.0pd

Task 6. Check pencil illustrations @ a rate of 50pd 0.5pd

6.4 Assessment of the post-Roman pottery

Lucy Whitingham with Nigel Jeffries

6.4.1 Site archive: finds and environmental, quantification and description

Table 1 Finds and environmental archive general summary

Post-Roman pottery	40 sherds. Total 1kg. 2 shoe boxes

6.4.2 The pottery

Table 2 Pottery

Post-Roman pottery	0.9kg	40 sherds

This site mostly produced small-sized groups of mostly post-medieval pottery from two phases of excavation (pottery from contexts [32] to [35] pertain to the later excavation). The six sherds of medieval pottery recovered from [33], [34], [35] are small fragments often in an abraded condition, whereas the bulk of the post-medieval sherds are from well-preserved and often substantially complete vessels. Much of the pottery is however unstratified, with the medieval pottery usually found alongside Roman material. The one near complete chamber pot is recommended for illustration or photography.

6.4.3 *Methodology*

All of the post-Roman pottery has been identified with reference to the MOLSS fabric reference type series. All of the sherds have been quantified using sherd count, weight and estimated number of vessels. Fabric type, vessel form and attributes, such as decoration and glaze, have also been noted. The size of each context assemblage is estimated and a spot date calculated on the fabrics present. This information has been entered onto the MOLAS database (Oracle) with the spot dating sheets eventually stored with the site archive.

*6.4.3.1 Medieval pottery (*c *400–1500)*

6.4.3.1.1 SUMMARY/INTRODUCTION

The small or often abraded medieval sherds are likely to be intrusive in [3], [34], and [35] as the majority of the pottery found from these deposits is Roman; the sherds from [33] are likely to be residual.

6.4.3.1.2 FABRICS AND FORMS

The one sherd from [3] of early medieval shell-tempered ware (EMSH) dates from 1050–1150, but is too small to be diagnostic of any particular form. The remaining

medieval pottery from [33], [34] and [35] is of a later 13th- or 14th century date, and is composed of the products of the Surrey whiteware industry.

6.4.3.1.3 DISCUSSION

The one early medieval sherd is not representative of Saxo-Norman occupation in this area of Southwark and should be considered as a casual find.

*6.4.3.2 Post-medieval (*c *1500–1900)*

6.4.3.2.1 SUMMARY/INTRODUCTION

All of the post-medieval pottery dates from the 17th and 18th centuries. The majority of the sherds (31 out of 40) are well-preserved but unstratified.

6.4.3.2.2 FABRICS

Much of the pottery is typical of a Tudor and Stuart assemblages from Southwark dating from between 1630 to 1800. A range of vessels are represented in early Surrey/Hampshire border whiteware (EBORD), Surrey/Hampshire border whiteware with green-glaze (BORDG), various decorative styles of tin-glazed earthenware (TGW A, D and H), London-area post-medieval redware (PMR), Metropolitan Slipware (METS) and London stoneware (LONS). One piece of ceramic kiln shelf is also represented by five thick fragments, probably from a kiln shelf. These have a glaze which is the by-product of a stoneware kiln firing. The latest pottery found is from [32], a refined whiteware with polychrome decal decoration dates from the later 19th century.

6.4.3.2.3 FORMS

A variety of domestic vessels for table, kitchen and sanitary wares are all represented in this small assemblage, which also includes ornamental vessel used for display dating from the first half of the 17th century. Three distinct functional groups can be recognised in this assemblage. Basic functional and hygiene related vessels include the near complete example of a white tin-glazed (TGW C) chamber pot, a white tin-glazed (TGW C) ointment pots and two albarellos with geometric blue and purple banded decoration (TGW D). Multi-purpose vessels which could be used in the kitchen for food preparation or at table include a pipkin in Surrey/Hampshire border whiteware with green-glaze (BORDG) and two Metropolitan slipware flanged dishes. Finer tablewares and display vessels are represented by seven tin-glazed ware chargers (TGW A, TGW D); three with blue and white geometric patterns and four with polychrome geometric designs. Drinking vessels range from a basic London Stoneware (LONS) spirit flask to a fine teacup in a late tin glaze ware (TGW H) and a pedestal cup in early Surrey/Hampshire border whiteware (EBORD).

6.4.3.2.4 DISCUSSION

Much of the pottery is typical of a Tudor and Stuart ceramic assemblage found in the Southwark region. The range of fabrics and forms represent a domestic assemblage which includes basic utilitarian vessels such as the near complete white tin-glazed chamber pot, ointment pots and albarellos through to tablewares in Metropolitan Slipware and more decorative polychrome decorated tin-glazed chargers which may

have been hung up for decoration. Only four vessels are from stratified contexts; the two tin-glazed ware vessels in context [21] date from 1690–1800, a London-area post-medieval redware (PMR) sherd in context [13] is broadly dated 1580–1800 and a Metropolitan Slipware (METS) dish in context [6] can be dated as 1630–1700. The bulk of this assemblage is well preserved but unstratified.

6.4.4 Assessment work outstanding (all periods)

There is no outstanding assessment work.

6.4.5 Analysis of potential

This assemblage is of little potential for further research. It should be integrated with the stratigraphic data, to establish a chronological narrative which will place the pottery into a historical framework. This assemblage is not recommended for publication.

6.4.6 Significance of the data

National Significance: None

Local significance:
All of the fabrics and vessel forms within this assemblage are typical components of a 17th to 18th-century domestic household. This is a typical domestic assemblage, in which a good number of display quality vessels are represented. The spirit flask is of interest as is has a local trade stamp from 'RED CROSS STREET, BORO'. The early medieval pottery is not indicative of early medieval occupation in the area but more representative of a stray find.

6.4.7 Method statements

The Oracle database will be used to integrate the pottery evidence with the stratigraphic data, after which a basic chronological narrative will establish the sequence of pottery types and vessels within the site sequence. Should further archaeological investigation take place on this site these small assemblages should be integrated with any other material produced.

6.4.8 illustration/photography

One vessel

6.4.9 Preparation for deposition in the archive

None

6.5 Assessment of the clay tobacco pipes

Tony Grey

Table 1 Finds and environmental archive general summary

Clay pipe	3 boxes = 47 fragments (incl. 8 accessions)

6.5.1 The clay pipes

6.5.1.1 Introduction/methodology

The clay tobacco pipe assemblage from RXW05 was recorded in accordance with current MoLSS practice and entered onto the Oracle database. The English pipe bowls have been classified and dated according to the Chronology of London Bowl Types (Atkinson and Oswald 1969), with the dating of some of the 18th-century pipes refined where appropriate by reference to the Simplified General Typology (Oswald 1975, 37–41). The prefixes AO and OS are used to indicate which typology has been applied. Quantification and recording follow guidelines set out by Higgins and Davey (1994; Davey 1997).

6.5.1.2 Quantification

There are three standard boxes of bulk (8 fragments) and accessioned (8 fragments) pipes and kiln material. Only two fragments were recovered from two contexts while the rest of the material including the kiln furniture was unstratified: a detailed breakdown of the assemblage is given in Table 2. Eleven pipe bowls were recorded, all of them datable according to current typologies. None bear makers' marks and none are decorated.

Table 2 Clay tobacco pipe quantification

Total no. of fragments	47
No. of bowl fragments	11
No. of stem fragments	24
No. of mouthpieces	0
Accessioned pipes	8
Marked pipes	0
Decorated pipes	0
Imported pipes	0
Complete pipes	0
Wasters	27
Kiln material fragments	12
Boxes (bulk\accessioned)	3boxes bulk/accn.

6.5.1.3 Condition

Although some of the pipe bowls are complete there are no complete pipes. Only one pipe bowl shows clear evidence of having been smoked and three are obviously burned as kiln wasters. Of the eight pipe bowls that are not kiln muffle reinforcers

there is little sign of wear or excessive fragmentation. Two of these are broken. There is little evidence of heavy usage through smoke staining, residue or burning. Only one pipes shows obvious signs of having been smoked.

6.5.1.4 Provenance and dating of the clay pipes

All clay pipes recovered were made between *c* 1640 and 1710. The earliest pipe dated context is [1] 1640-1660 and the latest pipe dated context is [13] 1680-1710.

Table 3 Clay tobacco pipe dates, by context (B – bowl; M – mouthpiece; S – stem)

Ctxt	TPQ	TAQ	B	S	M	Total
0	1690	1710	9	24		**33**
1	1640	1660	1			**1**
13	1680	1710	1	3		**1**
Total			**11**	**46**		**57**

Table 4 The chronological distribution of datable clay pipe bowls (ED – earliest date; LD – latest date)

	LD		
ED	**1660**	**1710**	**Total**
1640	8		**8**
1680		3	**3**
Total	**8**	**3**	**11**

6.5.1.5 Character of the pipe assemblage

The pipes are all of London manufacture. None are imported and none decorated. The pipes have all been milled. None show signs of burnishing so they are not of the highest (most expensive) quality.

The importance of this assemblage is largely due to the presence of pipe kiln material. Several fragments of kiln muffle were excavated and accessioned but recorded as unstratified from a dump overlying a brick-lined 19th century pit and overlain by modern demolition rubble. The remains of a clay pipe kiln were revealed during the earlier excavation of this site at 15-23 Southwark Street, 15SKS80 (Cowan 1992, 61). This kiln was rectangular in shape with an apsidal east end measuring 2.6m by 1.2m. Ash, charcoal, white pipe clay and clay pipe fragments were excavated from within the kiln dating the structure to c 1650 and later. The kiln muffle was a cylindrical chamber constructed of pipeclay reinforced by pipe wasters from earlier firings that overlay the firebox and stoke pit. The pipe reinforcers from this assemblage are of type AO9 and AO10 dated 1640-60 thus dating the operation of this workshop. It is possible that the workshop associated with this site manufactured the later pipes of type AO19 and AO20 dated 1680-1710. There are no makers' marks to immediately suggest the maker associated with this workshop. The material should be closely compared with the Arcadia Buildings clay pipe workshop excavated 1977-8 (AB78) and discussed by Peachey 1982, 3-15. This workshop was located in Tabard Street, Southwark some 500 metres from Redcross Way and consisted of two kilns, two clay

pits, a coal pit and a stoke pit containing pipes of type AO15 dated 1660-80 in muffle fragments. The Arcadia Buildings kilns were constructed of red brick with muffle support pillars of stone. Clay samples from the clay storage pit were analysed and found to closely resemble pipe-clay from the Bagshot Beds of Hampshire and Dorset (Young 1982).

The Redcross Way kiln muffle fragments were accessiond from <8> to <15> with <8> to <14> consisting of one piece per accession and <15> consisting of six pieces. White clay lute over <14> indicates use within a deliberately maintained clean environment (*ibid* 3-15). Flue bosses are apparent in fragments from <9> and >15> and a chevron pattern of reinforcing pipe stems from a fragment in <15>.

6.5.2 Analysis of potential

There is potential for further study of the pipe kiln material with further comparison with the Arcadia Buildings workshop and for identification of any further clay pipe workshop material from Southwark sites.

6.5.3 Significance of the data

The evidence of the clay pipe assemblage from RXW05 is certainly significant in the local context and in relation to the site. It is likely that 17th century clay pipe manufacturing was commonplace in Southwark probably to service the entertainment venues of the borough that would have provided a ready market for pipes. Further work could be valuable in seeking to identify makers and workshops from 17th century (and later) Southwark.

6.5.4 Revised research aims

The following additional research aims are suggested by the pipe assemblage from RXW05:

- Examination of site records, pictures and clay pipes from 15SKS80 excavation (available in LAARC Archive)
- Close comparison with Arcadia Buildings workshop material
- Identify evidence for other 17th century pipe workshops in Southwark and known makers

6.5.5 Method statements

Research into the identity of the pipemakers is needed. Ideally, the pipes would be reported on as part of a wider study of the finds from selected groups at least. In order to carry out the requisite research and prepare a text for inclusion in any proposed publication, the following tasks will be necessary:

- Research into the identities of the makers of pipes in 17th century Southwark, and to determine which, if any, have been published before. Estimated specialist time: 0.5 pd.
- Research into published (or available to view) pipe kiln workshop material from excavated sites in Southwark Estimated specialist time 0.5 pd.
- Liaison with other specialists to assist and take forward the above. Estimated specialist time 0.5 pd.
- Writing report. Estimated specialist time 1.5 pd.

- Illustration of selected pipes and muffle fragments. Estimated specialist time 1.5 pd.

6.6 Conservation Assessment

Liz Barham

6.6.1 Conservation

Table 1 Summary of conservation work

	Material	**No. accessioned**	**No. conserved**	**No. for which further work recommended** (see below)
	Glass	10		2
	Ceramic	1		

6.6.1.1 Introduction/methodology

The following assessment of conservation needs for the accessioned and bulk finds from the excavations at Redcross Way, encompasses any requirements for finds analysis, illustration, analytical conservation and long term curation. Work outlined in this document includes any needed to produce a stable archive in accordance with MAP2 (English Heritage 1992) and the Museum of London's Standards for archive preparation (Museum of London 1999).

Conservation is carried out under the guiding principles of minimum intervention and reversibility. Whenever possible preventative rather than interventive conservation strategies are implemented. Procedures aim to obtain and retain the maximum archaeological potential of each object: conservators therefore work closely with finds specialist and archaeologists.

All conserved objects are packed in archive quality materials and stored in suitable environmental conditions. Records of all conservation work are prepared on paper and on the Museum of London collections management system (Multi MIMSY) and stored at the Museum of London.

6.6.1.2 Finds analysis/investigation

The accessioned finds were assessed by visual examination of the objects. The accessioned finds were reviewed with reference to the finds assessment by Nicky Powell.

The finds assessment requested that one item <21> be investigated to check the form of the glass embedded in an unidentified hard sedimentary matrix, and identification of this material.

6.6.1.3 Work required for illustration/photography

The finds specialist considered there may be sufficient glass fragments in <21> to reconstruct a profile for illustration, and that these may connect to the glass fragments from <22>.

6.6.1.4 Preparation for deposition in the archive

The small finds from this site are stable and appropriately packed for the archive

6.6.1.5 Remedial work outstanding

There is no remedial work outstanding.

6.6.2 Method Statements

6.6.2.1 Finds analysis/investigation

<21> Removal of glass from matrix to check form, and repack and identification of matrix constituents	0.5 day

6.6.2.2 Work required for illustration/photography

<21> reconstruct profile if possible with <22> incorporated if possible and repack	1 day

6.6.2.3 Preparation for deposition in the archive

No further work required.

6.7 **Registered finds assessment**

Nicola Powell

Table 1 Finds archive general summary

Accessioned finds	11, including 1 ceramic and 10 glass (remaining assessed separately)

6.7.1 The accessioned finds

Table 2 Summary of accessioned finds by material and period

Material	**Roman**	**Comment**
Glass	10	2 accessions may be part of the same object
Ceramic	1	
Total	**11**	

6.7.1.1 Introduction/methodology

The accessioned finds were recovered during the excavation at Redcross Way, Southwark, London (RXW05). The finds have been processed in accordance with Museum of London (MoL) standards and the records have been entered onto the Oracle relational database. The accessioned finds have been examined briefly for the assessment and the initial identifications confirmed or revised. The finds have also been examined in the light of the available stratigraphic and dating evidence. A summary of the material is given below, and its significance and potential discussed in terms of understanding the function and development of the site itself.

6.7.1.2 Categories by dating and materials

6.7.1.2.1 ROMAN

Glass

Of the 10 accessioned glass finds from the site, two (<21> and <22>) came from the same context [32] and appear to be from the same object. It is a glass bowl, made of natural blue-green glass with a thick tubular rim. Several rim sherds are included and it appears to have been folded outwards and down, forming a rim with no gap. The sherds are thick walled and one large sherd shows the bowl may have bulged outwards towards the base. One base sherd has the remains of a foot ring. The bowl was free blown and conforms to Isings 44. It was a long-lived form, dating from the late 1st to 2nd century. The glass from <22> has been pressed into a mortar or ceramic matrix and appears to be affixed to a tile.

Context [34] produced a body sherd from a square bottle <23>. It is made of natural green glass and was mould blown. There are some elongated bubbles trapped inside. Again, this was a long-lived from, dating from the time of the Roman conquest to the end of the 2nd century. A base sherd from a similar square bottle <24> also came from [34]. It too was mould blown and was made from natural glass, but it does not appear to come from the same bottle as accession <23>.

Also from context [34] was the remains of a small unguent bottle <25>. Made of natural green glass, it had a tall, narrow neck and a discoid bulge that would have held the unguent or oil. It is 2nd century in date.

The remaining accessioned glass is undiagnostic and can be broadly termed vessel glass. All come from context [34]. Two (<26> and <27>) consist of small body sherds of natural green glass. Both can only be given broad Roman dates. A sherd of clear glass <28> may have come from a cup or bowl. It is thin walled and fine, with some iridescence on the surface. Accession <30> is a small body sherd of natural blue vessel glass.

The site produced a single sherd of window glass <29>. Made by casting, it is thick, of natural blue-green glass with a rounded edge. There is some iridescence on the upper and back surfaces. It too can only be given a broad Roman date.

5.1.1.2.2. UNKNOWN

Ceramic
A single piece or tile was recovered from context [34]. It has one edge and is decorated with a raised chequered pattern. Date is uncertain.

6.7.1.3 Functional analysis

The assemblage is too small to attempt any form of functional analysis but does indicate there was 1st–3rd-century activity in the area. Some of the glass is of good quality and all appears domestic.

6.7.1.4 Assessment work outstanding

There is no assessment work remaining to be done.

6.7.1.4.1 LIST OF OBJECTS FOR INVESTIGATIVE CONSERVATION AND CLEANING

None of the accessioned finds require investigative conservation or cleaning.

6.7.1.4.2 LIST OF OBJECTS FOR ILLUSTRATION

The following accessioned finds should be illustrated for publication:

<22> rim sherd
<25> unguent bottle

6.7.2 Analysis of potential

The accessioned glass supports the dating from this and previous archaeological interventions on the site and indicates Roman activity

6.7.3 Significance of the data

The accessioned glass is of local significance.

6.7.4 Revised research aims

There are no revised research aims for the accessioned finds.

6.7.5 Method statements

The accessioned finds should be further discussed for any publication of the site.
Further analysis of the glass affixed to the mortar matrix (<22>) would be desirable; to determine what it is affixed to and if this had any purpose or occurred post deposition. It would also confirm the relationship with accession <21>.

6.8 Geoarchaeological Assessment

Graham Spurr

The aim of the geoarchaeological investigation on RXW05 was to locate and elucidate any information relating to the Southwark Street Channel thought to run through the site from east to west.

6.8.1 Methodology

All geoarchaeological on-site drilling and off-site core preparation work, during the evaluation was carried out in accordance with the *Specific Methodology for Geoarchaeological Evaluation* (MoLAS 2000) and where appropriate the MoLAS *Archaeological Site Manual* (MoLAS 1994).

Three auger holes were cored using a Cobra power auger by MoLAS geoarchaeologists. Coring ceased at the level of river terrace gravels.

Sediments were recorded in the field and samples were taken for further analysis. All the auger samples were described using standard sedimentary criteria (relating to colour, compaction, texture, structure, bedding, inclusions, and clast-size). The auger hole locations were recorded by on geomatics survey teams. The Ordnance Datum (OD) of the ground level was obtained from the site supervisor and the depths of the contacts between each sedimentary unit encountered were converted to OD levels.

The following procedures were carried out on each core sample as appropriate (see Specific Methodology for Geoarchaeological Evaluation MoLAS 2000). As the bulk of the description of the samples was undertaken in the field only a small amount of further annotation took place off-site. Finds from stratigraphic units in the auger holes were retained for further study and those units were given context numbers.

6.8.2 Results of the Evaluation

For the auger hole locations see Fig 3.

6.8.2.1.1 THE SEDIMENTS (LITHOSTRATIGRAPHY)

Auger hole 1 (AH1) was situated at the southern end of Trench 6. It was drilled to a depth of 3m, from a ground-level of 1.03m OD. The results of the litho-stratgraphic analysis are tabulated as follows (from the basal sediments upward):

elevation and thickness of unit	***AH1 sedimentary description*** ***(Trench 6 south; ground level at 1.03mOD)***

-1.47mOD to unknown depth	Very coarse SAND and GRAVEL
–0.75mOD to –1.47mOD	Mid to light tan brown slightly clayey fine SAND coarsening with depth with occasional rounded gravel clasts. Contact with below diffuse.
–0.44mOD to –0.75mOD contexts [16,17]	Coarse orangey brown SAND with frequent coarse angular gravel and occasional wood, shell, charcoal and pot fragments. Contact with below diffuse.
–0.39mOD to –0.44mOD	Slightly humic mid greyish brown SILTY CLAY with occasional wood fragments. Contact with unit below clear and horizontal.
–0.36mOD to –0.39mOD	Firm black coarse SANDY CLAY. Contact with unit below clear and horizontal.
–0.31mOD to –0.36mOD	Firm black CLAY. Contact with unit below clear and horizontal.
–0.28mOD to –0.31mOD	Mid greyish brown firm CLAY. Contact with unit below clear and horizontal.
+0.05mOD to –0.28mOD [15]	Mid orangey-brown moderately COARSE SAND with iron staining; contains occasional CBM and pot fragments and charcoal flecks. Contact with unit below clear and horizontal.
+0.38mOD to +0.05mOD	MADE GROUND: Loose mid-brown slightly sandy silty clay with frequent mortar and rounded to subrounded gravel Contact with below graded.
+1.03mOD to +0.38mOD	MADE GROUND: Mid grey silty clay with building rubble + mortar + charcoal; element of cess near base. Contact with below graded.

Table 1: The sedimentary sequence of AH1 at RXW05.

Auger hole 2 (AH2) situated at the northern end of Trench 6. It was drilled to a depth of 3m, from a ground-level of 1.53m OD. The results of the litho-stratgraphic analysis are tabulated as follows (from the basal sediments upward):

elevation and thickness of unit	***AH2 sedimentary description*** ***(Trench 6 north, ground level at 1.53mOD)***
-1.22mOD to depth unknown	Very coarse SAND and GRAVEL
-0.53mOD to -1.22mOD	Coarse orangey brown SAND. Contact with below diffuse.
–0.27mOD to -0.53mOD	Slightly humic mid greyish brown soft SILTY CLAY. Contact with unit below clear and horizontal.
+0.18mOD to –0.27mOD [19]	Mid orangey-brown moderately SILTY CLAY; contains occasional CBM and pot fragments, shell and charcoal flecks. Contact with unit below clear and horizontal.

+1.08mOD to +0.18mOD [18]	MADE GROUND: Loose mid-brown slightly sandy silty clay with moderately frequent charcoal flecks, occasional shell, pot and BM fragments; element of cess near base. Contact with below graded.
+1.53mOD to +1.08mOD	MADE GROUND: Mid grey silty clay with building rubble and shell fragments. Contact with below graded.

Table 2: The sedimentary sequence of AH2 at RXW05.

Auger hole 3 (AH3) was situated at the southern end of Trench 7&8. It was drilled to a depth of 2m, from a ground level of 1.05m OD. The results of the litho-stratigraphic analysis are tabulated as follows (from the basal sediments upward):

elevation and thickness of unit	***AH3 sedimentary description*** ***(Trench 7&8; ground level at 1.05mOD)***
-0.26mOD to depth unknown	Light greenish brown coarse SAND with fine organic laminations circa -0.4m.
-0.15mOD to -0.26mOD	Moderately coarse SAND and GRAVEL
–0.04mOD to –0.15mOD	Fine to Coarse (down profile) orangey brown SAND. Contact with below diffuse.
+0.48mOD to –0.04mOD	Mottled mid-grey brown CLAY with occasional charcoal flecking and iron concretions around root lines; moderately frequent mid-reddish brown humified organic lenses increasing toward base with occasional snail and wood fragments present. Contact with below clear and horizontal.
+0.84mOD to +0.48mOD	Loose mid-brown slightly SANDY SILTY CLAY with occasional snail shell; element of cess near base. Contact with below graded.
+1.05mOD to +0.84mOD	MADE GROUND: Mid grey silty clay with building rubble. Contact with below graded.

Table 3: The sedimentary sequence of AH3 at RXW 05.

6.8.3 Discussion

6.8.3.1.1 TRENCH 6

Both augerhole sequences bottom upon sands and gravels considered to be river terrace deposits. The levels of the gravel at between -1.47mOD (AH1) and -1.22mOD (AH2) could be indicative of AH1 being within a deeper part of a channel scour than AH2 although undulations in the surface height of gravel terraces to this degree are commonplace. The sand over the gravels, again present in both augerholes, represent natural fluvial deposits but of lesser energy than those that laid down the gravels. Notably the sands, though coarse, fine upward indicating a continued slackening off of the fluvial energy over time.

The deposits over the sands are the first that indicate anthropogenic disturbance locally. In AH1 there is a layer of coarse sands with shell, charcoal and pot evident. In AH2 soft organic clays giving way to silty clays with shell, building material, charcoal and pot are present. The coarse sands in AH1 could be a dumped deposit used to stabilise or infill the ground or could be an in channel deposit mixing with material dumped upon the foreshore as, in terms of levels, this deposit is contemporaneous with the undisturbed/unmixed natural sands of AH2. The clays in AH2 however, represent not only the presence of people but a complete change in the fluvial regime. Indeed, the clays in AH2 should be seen as contemporaneous with the sequence of clays over the sands in AH1. The silty clays are alluvial and represent quiet fluvial depositional environments. Typically the silty clay sediments and their inclusions in AH1 for example, would represent an anaerobic marginal deposit, stagnant and marshy. Similar sediments were found in AH2 over the sands.

The sediments over the clays – sands in AH1 and clays with sand in AH2 – are again mixed with pot, charcoal, building material and the like, are interpreted as flood deposits or possibly consolidation deposits. The low-lying nature of the area as a whole would have exposed it to periodic flooding and consolidation would be appropriate given the nature of the marginal, marshy environment. Certainly the sediments that come after these sands or clays seem to be purposely put there to consolidate the ground although periodic flooding cannot be ruled out in this environment, especially during the early historical period.

6.8.3.1.2 TRENCH 7&8

The augerhole results from Trench 7 & 8 show this area of the site to be vary only a little to the profile of Trench 6 but in a number of significant ways. At the base of the profile are sands which are capped by sands and gravels to around –0.15mOD. These gravels are lower than the average for the site by over a metre and therefore are probably more toward the edge of the channel but not at its margins. The sands immediately over the gravels as in the other augerholes represent natural deposits. Again the sands fine up sequence from a coarse base, which is indicative of decreasing fluvial energy.

The clay over the sands however does not seem to be mixed with any dumped materials as in the other augerholes although their existence is probably due to anthropogenic disturbance. Notably these clays differ from the other similar deposits in the previous augerholes by occurring at a much higher height (around OD). The snail fragments and laminations indicate this to be a slow moving water deposit or pool initially. These deposits could tie in with the upper clays of Trench 6. The iron concretions around root lines however indicate a vegetated land surface and possibly generally higher and dryer land than around trench 6. These clays, therefore, were probably deposited as edge of channel or marginal deposits at first, which became increasingly inundated with overbank flood deposits over time.

The sandy clay sediments over the lower clays are interpreted as flood deposits as no mixing of building material or pot is seen here. However, the sediments that come after these sandy clays seem to be purposely put there to consolidate the ground although, again, periodic flooding cannot be ruled out.

6.8.4 Archaeological Potential

The aim of the geoarchaeological investigation on RXW05 was to locate and elucidate any information relating to the Southwark Street Channel thought to run through the site from east to west. Channel deposits were found and were seen to fine upward from terrace gravels through sands to clays. The gravels and sands over the gravels were seen as natural deposits accumulating in a channel from the early Holocene onward. Through some of the sand however and in the clays over them, there was evidence of occupation locally with fragments of pot, BM, and charcoal noted. The clays were seen as deposits representing a much quieter fluvial environment and it was suggested that the change in the nature of the channel flow could be due to anthropological disturbance of some kind, for example, revetting. However, although marginal deposits were found the actual margins of the natural channel remain elusive, as management of the channel from the Roman period onward has changed the whole picture of the natural environment at the site. Certainly however, the deposits encountered were typical of a stream channel which over time became increasingly redundant.

Furthermore, archaeological deposits were seen in all of the boreholes sometimes extending from, as mentioned above, the sands through to the uppermost layers. The archaeological material in the lower deposits was considered to have mixed with the sediment in a semi-natural environment for example, mixing with the clays and sands when dumped in the proximity of the channel, whereas the upper deposits were seen as consolidation deposits, purposely spread to stabilise the ground.

6.8.4.1.1 TRENCH 3

Jane Corcoran

6.8.5 Introduction

These notes follow a site visit to examine a sequence of sand ([38]), 'peat' ([37]) and clay ([36]) deposits recorded below Roman dumps and dark earth, at the base of Trench 3. The sequence of deposits seen, its significance for past landscape reconstruction and relationship to the 'Southwark Channel' is discussed below and compared to that recorded in three augerholes, which were drilled in Trench 6 (AH1&2) and Trench 7&8 (AH3) (see above).

6.8.6 Discussion

Fluvial sand (context [38])

In its lowest levels observed in the section (below about 0m OD), the sand ([38]) was well-bedded and little disturbed by post-depositional processes. Here, sandy and more clayey lenses interleaved and these beds/lenses provide (or could potentially provide) information about the river regime in which the sand was deposited. The depositional environment and date of deposition of the sand deposits that form the eyots of Southwark and Lambeth are as yet poorly understood, but have important implications for reconstructing past environments and especially for understanding the prehistoric archaeology of this area. In particular, the date of deposition of the

sand will indicate whether the pattern of eyots and channels remained broadly the same from the Mesolithic onwards, or whether the various sandy islands were formed at some time during the prehistoric period and do not reflect the Mesolithic or even Early Neolithic topography.

Current evidence appears to support both options. The sand may have been deposited during the Late Glacial (ie: Late Upper Palaeolithic / Early Mesolithic – the very end of the last cold stage), as it is sometimes seen to form part of a generally 'fining-up' sequence of Pleistocene gravel to sand and clayey sand, indicating a gradual slackening of water flow and decrease in the sediment load transported by the river following the last ice age. Trees of Mesolithic date were recently recorded growing in such clayey sand at St Christopher House, within the Bankside Channel and Mesolithic finds are often associated with soils formed at the surface of the sand. A recent optically stimulated luminescence (OSL) date from Butler's Wharf on Horselydown Eyot suggested the sand was deposited prior to 18,500 years ago, just prior to the 'Last Glacial Maximum'. In contrast, other dating evidence suggests the sand that forms the sandy eyots may be of mid Holocene date and was deposited by the Neolithic river, as a date of about 3000 BC was obtained from a twig embedded within the sand of Thorney Island, Westminster. If of mid Holocene date, however, sand deposition must have ceased by the Later Neolithic or Early Bronze Age, as cultivation was taking place on the surface of the sandy islands at Hopton Street, Lafone Street and Wolseley Street at this time.

Little is yet known about the nature of the river and characteristics of the valley floor when the sand deposits were laid down, the climatic / environmental causes of the sand deposition or whether the sand of the eyots (often rising to 1m OD and not particularly clayey) is contemporary with the more clayey sand found at lower elevations. Crucially such information will tell us about the Mesolithic and Early Neolithic topography and landscape, which may have been very different from the pattern of eyots and channels reconstructed for the later prehistoric and Roman period. A better understanding of the sand would also be of great value in understanding the distribution of Mesolithic and Early Neolithic archaeology of central and east London and in providing a landscape setting for the interpretation of archaeological remains from this period. For example, did cultivation on the eyots represent exploitation of relatively newly formed landscape features that may have been thinly vegetated and easy to clear, especially as much of the valley floor appears to have been heavily forested in this period. Or did it continue a much earlier tradition of exploitation established during the Mesolithic?

No samples were taken from the sand during the present evaluation. But should further work be undertaken on the site it is suggested that:

- the gravel / sand interface and characteristics of the sand is examined in section if possible;
- material suitable for radiocarbon dating is looked for;
- samples from the sand are taken for OSL dating;
- bulk samples are taken to look for evidence from molluscs, ostracods and small mammals
- evidence for (Mesolithic/Neolithic) activity below/within the sand is looked for.

Soil / dry landsurface (contexts [38] and [37])
No bedding was visible in the overlying 0.15m of orange-brown iron-stained clayey sand (the middle part of context [38]), which had been disturbed by bioturbation. Many vertical root channels, some iron-concreted, others containing the humic remnants of roots were observed within this part of the context. In contrast, the upper *c* 0.15m of sand was pale greyish brown and less clayey, with a distinct and very irregular interface to the overlying humic sand (the 'peat' [37]). The grey sand is likely to represent the 'eluvial' 'E' horizon of a sandy soil profile. Good drainage in sandy soils leads to rapid downwards percolation of water and with it iron and clay compounds are leached out of upper levels (the eluvial horizon) and translocated down the profile, to accumulate as iron-pans and clay-rich 'illuvial' horizons at lower levels. The humic sand ([37]) may represent the uppermost (A) horizon of the buried soil, with the irregular interface between contexts [37] and [38] likely to reflect root penetration into the subsoil.

This soil is likely to have formed a dry landsurface in the early Roman period. Burnt flint and charcoal within it suggest a low level, at least, of contemporary local human activity. A sample for radiocarbon dating {2} was taken from the soil, which could provide a date for when it became sufficiently waterlogged to preserve its organic matrix and will thus be of its final stages, prior to burial by the overlying clays. It will almost certainly have existed as a dry landsurface for sometime prior to this, but oxidation and weathering in dry conditions will have led to poor organic preservation and little environmental evidence is likely to be preserved from this time. However, artefacts within the soil and worked down through the soil profile may attest to human activity associated with the earlier stages of the landsurface.

The level of the soil and its date of waterlogging will provide information about the impact of rising river levels in this part of Southwark on the changing configuration of the later prehistoric/early historic landscape, which will have a bearing on the extent of land available for cultivation, occupation and/or wetland activities. The general pattern of eyots and channels in the Borough area is well known and has been reconstructed from previous excavations in the area. New information should build on this basic topographic data and provide more detail about landscape evolution.

It is recommended that the soil is dated as part of the evaluation, or following further work on the site, when a bulk sample from the soil and a series of samples for pollen should be taken through it, to provide information about the local landscape and human activity at the time the soil became waterlogged.

Seasonally flooded grassland (context [36])
A sequence of clay deposits (context [36]) was recorded above the soil. About 0.05m of humic clay was overlain by 0.10m of smooth grey clay with frequent iron-stained fine hair-root channels and subsequently by *c* 0.20m of gritty clay with much CBM, pot and charcoal inclusions and frequent *c* 0.01m diameter root channels with greenish 'cessy' (possibly phosphate-rich) fills. As these deposits contained very little organic material (which would be preserved if the clays accumulated in a body of permanent standing water, such as a creek or pool) it is considered that they represent

seasonal/short-term flooding, such as exists on seasonally flooded meadowland on valley floors today. Pottery suggests this formed during the early 2nd century.

The date of the initial flooding may be obtained by dating radiocarbon sample {1}, taken from the humic clay at the base of the context. The clays imply fine-grained mineral sediments settling out of standing water and suggest that flooding was by murky estuarine water or silt-laden river water. The humic clay at the base of [36], however, represents initial low inputs of mineral sediment. The flooding was probably caused by rising river levels and the encroachment of estuarine water upstream and may have been seasonal or more regular. It may be linked to impeded drainage, tidal processes or even to human activity, disturbing the landscape and causing increased erosion and run-off into the river or manipulating the natural drainage pattern. Pollen and diatom examination of the clays, as part of any future work on the site would provide information that could contribute to addressing these questions.

'Cessy' root channels in the upper part of the clay, as well as an increase of fragments of CBM and other anthropogenic material in this level suggest an increase in human activity in the vicinity of the site. It is likely therefore that the wet grassy episodically flooded meadow-like environment, represented by the clay ([36]) was in existence prior to and immediately following the period that this area was first impacted on by Roman activity. This contrasts with the evidence for flowing and subsequently stagnant water dating to the Roman period (if pot inclusions were Roman?) from AH1, at the southern end of Trench 6.

The Southwark Street Channel

No direct evidence for the Southwark Street Channel was observed in Trench 3 and it is considered that, perhaps from the later prehistoric period if not earlier, this part of the site would have been dry land, later becoming subject to seasonal flooding. Possible evidence for a shallow rill was seen in the section (identified by sand lenses within the soil [37] and no overlying humic clay at the base of [36]). As this appeared to drain southwards it suggests the presence of a stream or similar feature to the south of the trench. It is quite likely that this rill was caused by a single erosion event (eg: during a storm or similar, or perhaps resulting from human activity upslope).

The augerhole logs, drilled in Trenches 6 and 7/8 suggest a stream may have crossed the southern part of Trench. Interdigitating sand (representing flowing water) and black clay (representing stagnant water) suggest water flow may have been erratic. This may be the result of a migrating channel across the stream-bed or could imply flow was associated with intermittent run-off events (seasonal storms, activity on the eyot upslope etc). Fine organic laminations within the sand of AH3 (Trench 7/8) at around –0.4m OD are likely to be channel marginal deposits and may relate to an earlier period of stream flow. They could potentially be radiocarbon dated, although no samples were taken. This evidence ties in fairly well with the London GIS mapping which, based on previous work in the area, shows the channel, or area of lowest topography, to pass through Trenches 6 and 7/8, with Trenches 3, 4 and 9 on the rising ground of the eyots to the north and south.

For the most part, however, the deposits recorded in AH3 (Trench 7/8) and AH2 (north part of Trench 6) appear to represent the clays of seasonal overbank flooding,

as discussed above for Trench 3 and it is suggested that most of the valley presently mapped as the Southwark Street Channel was, at least by the Roman period, an episodically inundated grassy hollow, which was followed by a narrow stream and may have contained a narrow expanse of shallow stagnant water, with flowing water following episodes of heavy rain etc.

There is very good potential for further work on the site to provide evidence about the characteristics of the 'Southwark Street Channel', which would build on and refine the present understanding of the buried topography and landscape of the area in the prehistoric and early Roman period. As discussed above, the sand that lies above Pleistocene gravel is likely to have been deposited by the Thames in the Neolithic or (quite probably) earlier and its topography is likely to have influenced the pattern of channels and islands in later prehistoric and historic times. A soil is likely to have developed in the upper part of this sand across much of the landscape hollow, mapped as the Southwark Street Channel in later prehistory, although (undated) channel marginal deposits in AH3 at *c* –0.4m OD suggest a stream may have existed, at least in that area, in the prehistoric period. Revetments and bridge abutments to the west and east of the site imply that parts of the Southwark Street Channel must have formed a watery feature in the Early Roman period, but there is no evidence in Trench 3 or the augerhole logs for a significant channel, tidal inlet or creek. However, its deepest part does appear to have been exploited by a very narrow expanse of flowing and standing/stagnant water. These results do conflict to some extent with the present understanding of the Southwark Street Channel, as a significant channel or tidal creek in the later prehistoric and Early Roman period.

It is recommended that a topographic plot of the surface of sand and of the underlying gravel should be prepared from the results of the present and previous excavation and geotechnical works on the site and its surroundings, to refine the current mapping of the buried topography of the Southwark Street Channel. This landscape feature is essentially a valley (rather than a channel), which was exploited by streams or other watercourses in the past. In order to reconstruct its characteristics during the prehistoric and Early Roman period and depending on the impact of the proposed development, it is recommended that a trench is excavated across the channel, from the base of Roman dumped deposits into the top of Pleistocene gravel, specifically to record the characteristics of the channel fills, as part of further archaeological work on the site. Examination of the deposits in section will provide a much better understanding of the past characteristics of the channel than can be gleaned from augerholes and would provide the opportunity to sample the deposits (as suggested in the sections above).

6.9 Assessment of the animal bones

Alan Pipe

Table 1: Finds and environmental archive general summary

	Weight (kg)	Fragments	Boxes
Hand-collected bone	0.185	19	Two archive quality 'shoeboxes' containing bone from contexts [1], [6], [34], [36] and [37]

6.9.1 The animal bone

6.9.1.1 Introduction/methodology

This report quantifies, summarises and interprets the animal bone remains recovered by hand-collection from RXW05 [1], [6], [34], [36], [37]. It then assesses the potential for further post-assessment work, and estimates the time and resources required to carry out such work. Each context/sample group was described directly onto the MoLAS/MoLSS animal bone assessment database in terms of weight (kg), estimated fragment count, preservation, fragment size, species-composition, carcase-part representation, modification and the recovery of epiphyses, mandibular tooth rows, measurable bones, complete longbones, and sub-adult age-groups. All identifications of species and skeletal element were made using the MoLSS Environmental Archaeology Section animal bone reference collection. When accurate identification to species or genus level was impossible, fragments were assigned to the approximate categories 'ox-sized' and 'sheep-sized' mammal as appropriate.

*6.9.1.2 Su**m**mary*

A total of 0.185 kg, 19 fragments, of animal bone were recovered by hand-collection from contexts [1], [6], [34], [36] and [37] (Table 2).

Table 2: Recovery of hand-collected animal bone from RXW05/summary

CONTEXT	WT (kg)	FRAGS.	PRES	NOS.	LMAM	SMAM	FISH	BIRD	AMPH	MANDIBLES	MEASURABLE	EPIPHYSES	LONG BONES
1	0.050	>75mm	good	5	5	0	0	0	0	0	0	1	0
6	0.030	25-75mm	good	5	5	0	0	0	0	0	0	0	0
34	0.050	>75mm	medium	7	7	0	0	0	0	0	0	0	0
36	0.005	25-75mm	good	1	1	0	0	0	0	0	0	0	0
37	0.050	>75mm	good	1	1	0	0	0	0	0	0	0	0
TOTAL	**0.185**			**19**	**19**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

As a whole, the bones were in a 'good' state of preservation with insufficient surface damage to prevent identification of taxon, skeletal element or modification. Maximum fragment length was generally greater than >75mm. The assessed bone assemblage included ox *Bos taurus*, including fragments of 'ox-sized' vertebra and rib, 'sheep-sized' vertebra and rib and pig *Sus scrofa*. In terms of carcase-part representation; ox produced fragments of the upper limb and forefoot from [1], rib and upper limb from [6], vertebra and rib from [34] and upper limb from [37]. There were fragments of 'sheep-sized' rib from [34]. Pig produced fragments of lower limb from [1]. The bones derived from adults with no recovery of foetal, neonate, infant or juvenile examples. Clear evidence of butchery was seen on ox upper limb from [1] and vertebra/rib from [6]; and on pig lower limb from [1]. There was no evidence for bone or horn working, gnawing, burning or pathological change (Table 3).

Table 3: Recovery of hand-collected animal bone from RXW05/detailed summary

CONTEXT	SPECIES	PART	AGE	STATE
1	ox	foot	mature	
1	ox	upper limb	mature	butchered
1	pig	lower limb	mature	butchered
6	ox	upper limb	mature	
6	ox-sized	vertebra/rib	mature	butchered
34	ox-sized	vertebra/rib	mature	
34	sheep-sized	vertebra/rib	mature	
34	pig	lower limb	mature	
36	pig	head	mature	
37	ox	upper limb	mature	

For the major domesticates, evidence for age at death was provided by one epiphysis with no mandibular tooth rows. There were no measurable bones and no complete longbones (Table 2). There were no wild 'game' species, and no fish, amphibians or small mammals.

6.9.2 Assessment work outstanding

Nil

6.9.3 Analysis of potential

This tiny but well-preserved assemblage has only very limited potential for study of the use and disposal of ox and pig, mainly in terms of carcase-part selection and butchery. The lack of epiphyses and complete longbones prevents interpretation of age at death and stature. The lack of wild species including 'game', fish, amphibians and small mammals, prevents interpretation of local habitats.

6.9.4 Significance of the data

Local significance

Interpretation of the stratified animal bone assemblage will allow some limited comment on local consumption of beef, and pork or bacon. The assemblage has no wider significance.

6.9.5 Revised research aims

RRA01 What characteristics of the local meat diet may be interpreted from the animal bone evidence?

6.9.6 Method statements

The animal bone should be recorded as individual fragments directly onto the MoLAS/MoLSS Oracle 8 animal bone post-assessment database using MoLSS staff, reference literature and resources. The recorded assemblage would then be grouped and interpreted with respect to all available MoLAS and MoLSS stratigraphic and dating evidence.

The resource requirements for this work are:-

Recording/analysis of data/preparation of report	0.50pday
TOTAL	*0.50 pday*

7 Acknowledgements

MoLAS wishes to thank Transport for London for commissioning the archaeological evaluation and providing assistance throughout the fieldwork period and Pete Mills of Mills Whipp Partnership Limited and Sarah Gibson, Senior Archaeology Officer of Southwark Council for their advice during the project.

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9 NMR OASIS archaeological report form

Project details	
Project name	Redcross Way/15-23 Southwark Street, London SE1
Short description of the project	Natural deposits consisted of mid brown-orange sand at 1.30m OD in the north of the site, sloping gradually to the south where a channel crossed the site. Roman dumped deposits were found over the channel in which was cut a Roman burial. On the higher ground, the possible remains of Roman burnt timber-framed buildings were found as well as Roman pits and dumps. Parts of the 1st 4th century building complex first excavated in 15SKS80 were also found here in the form of opus signinum and tessellated floors and robber trenches. Pottery from material overlying one floor was dated AD 120 160. The building was cut by two more Roman burials. There was no evidence of medieval features on the site but medieval pottery dating to 1050 1150, was found in later post-medieval contexts. Of the post-medieval features, the floor of a stone-flagged cellar was recorded as well as some brick-lined cellars and wells. Several fragments of clay pipe kiln muffle were found in a 19th century dumped deposit. Part of a kiln was found in 15SKS80 and it may be that this debris came from that kiln. A stoneware spirit flask is of interest as is has a local trade stamp from RED CROSS STREET, BORO . The evaluation defined the limits of the Cross Bones burial ground in operation 1665 1853, but the burials were left in situ.
Project dates	Start: 21-03-2005 End: 20-07-2005
Previous/future work	Yes / Yes
Any associated project reference codes	RXW05 - Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Transport and Utilities 2 - Other transport infrastructure
Monument type	RESIDENTIAL BUILDING Roman
Monument type	INHUMATION CEMETERY Post Medieval
Monument type	WATERCOURSE Roman

Significant Finds	POTTERY Roman
Methods & techniques	'Targeted Trenches'
Development type	Urban residential (e.g. flats, houses, etc.)
Prompt	Direction from Local Planning Authority - PPG16
Position in the planning process	After full determination (eg. As a condition)

Project location

Country	England
Site location	GREATER LONDON SOUTHWARK SOUTHWARK Redcross Way/15-23 Southwark Street
Postcode	SE1
Study area	2.00 Hectares
National grid reference	TQ 32450 80050 Point
Height OD	Min: 0.74m Max: 1.30m

Project creators

Name of Organisation	MoLAS
Project brief originator	Local Authority Archaeologist and/or Planning Authority/advisory body
Project design originator	MoLAS
Project director/manager	Derek Seeley
Project supervisor	Carrie Cowan
Sponsor or funding body	TFL

Project archives

Physical Archive recipient	LAARC

Physical Archive ID	RXW05
Digital Archive recipient	LAARC
Digital Archive ID	RXW05
Paper Archive recipient	LAARC
Paper Archive ID	RXW05

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Redcross Way/15-23 SOuthwark Street, London SE1: Archaeological Evaluation report
Author(s)/Editor(s)	Cowan, C
Date	2005
Issuer or publisher	MoLAS
Place of issue or publication	London

Entered by	carrie cowan (molas.archive@museumoflondon.org.uk)
Entered on	29 July 2005

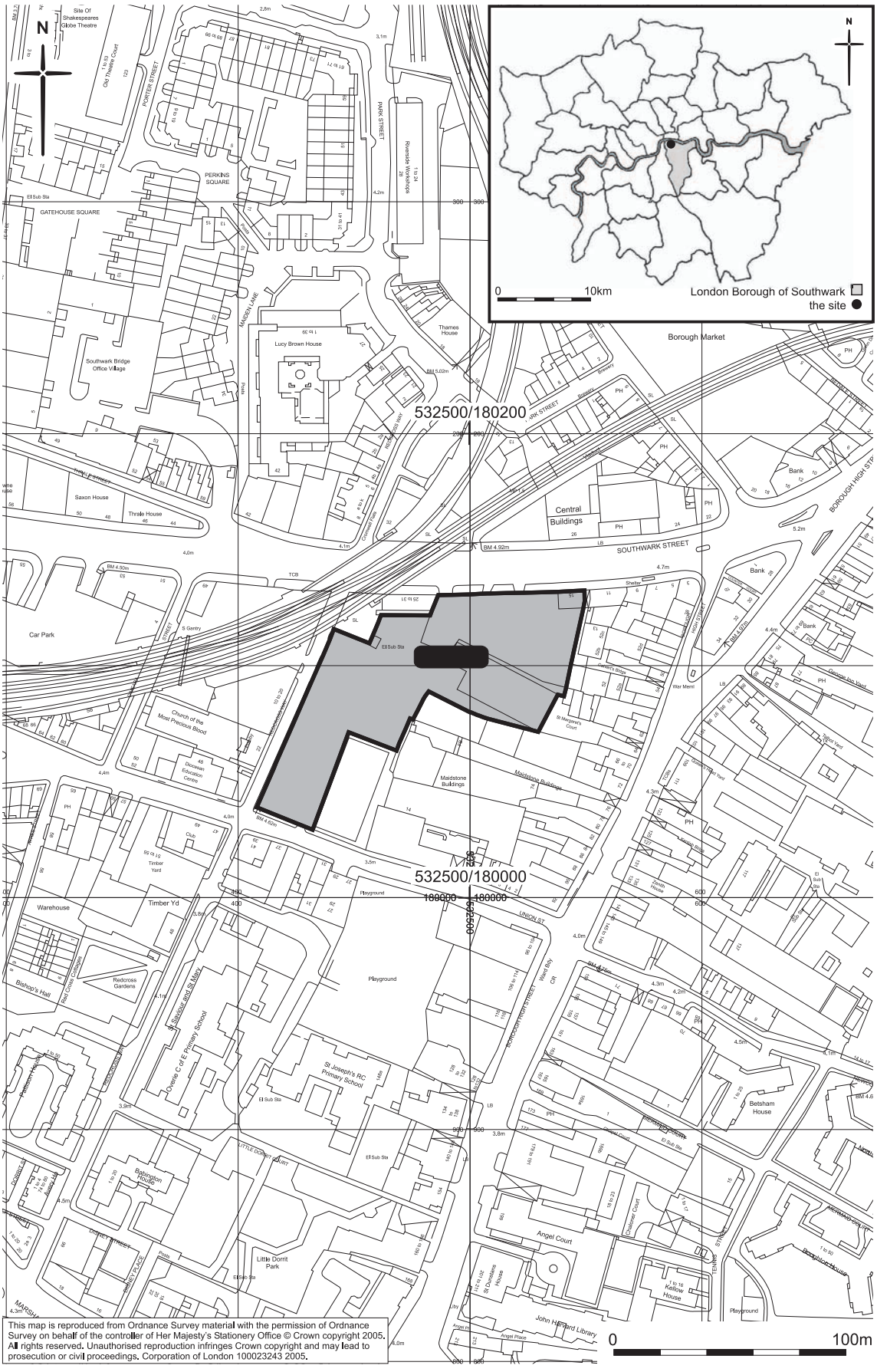

Fig 1 Site location

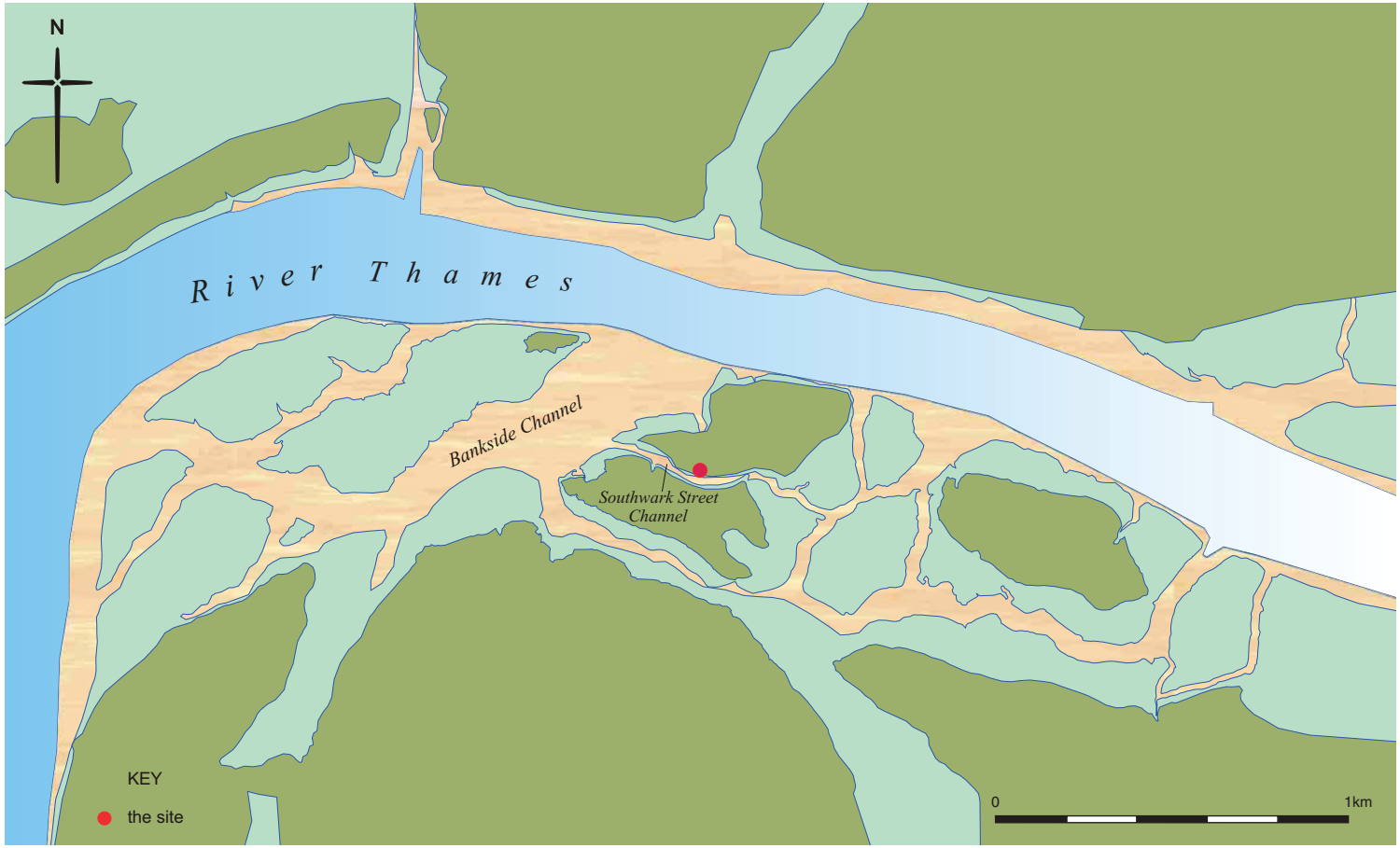

Fig 2 Topography of the Southwark area *c.* AD 50

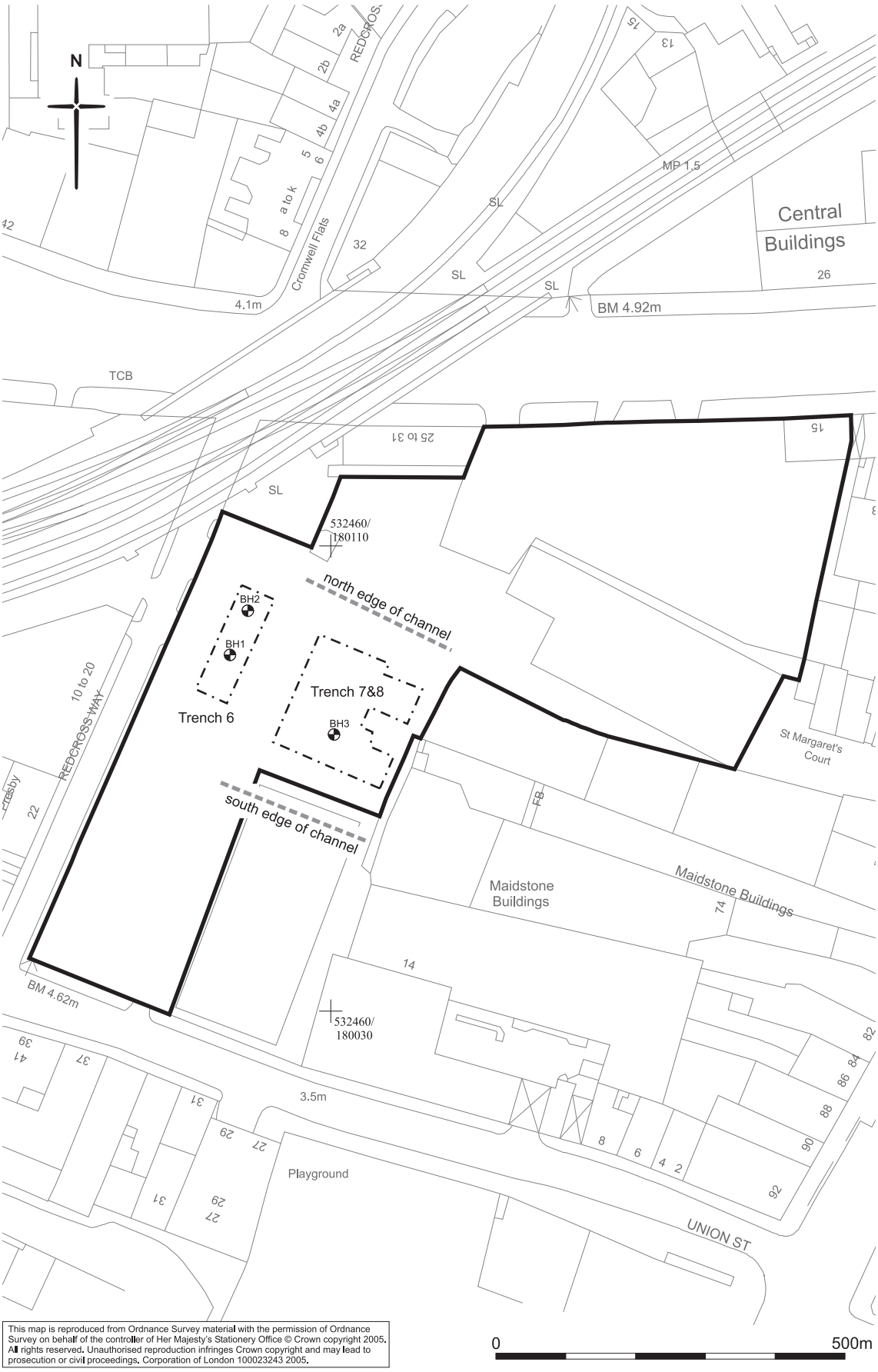

Fig 3 Augerhole locations

Fig 4 Plan of the site showing location of trenches

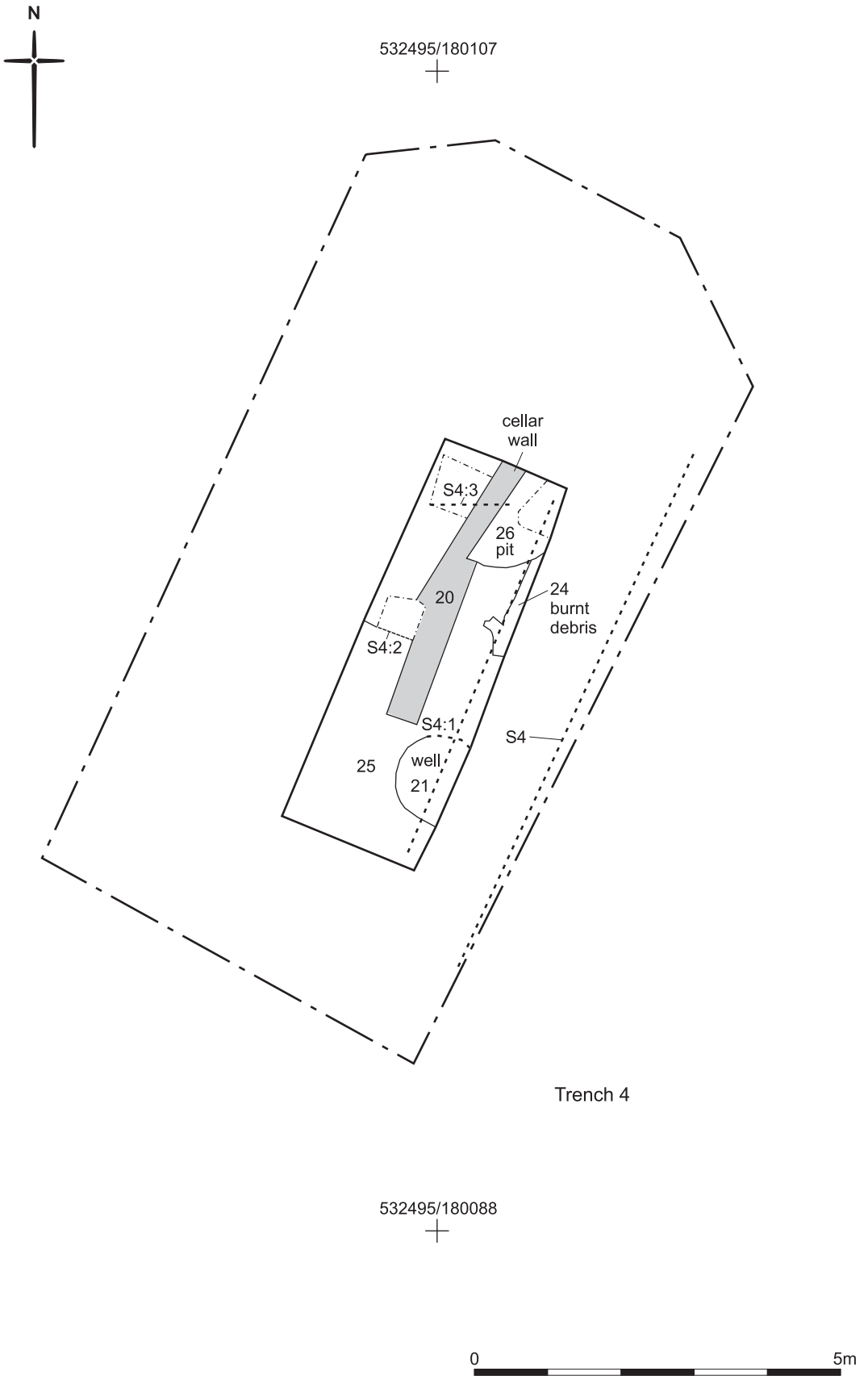

Fig 5 Plan of Trench 4 features

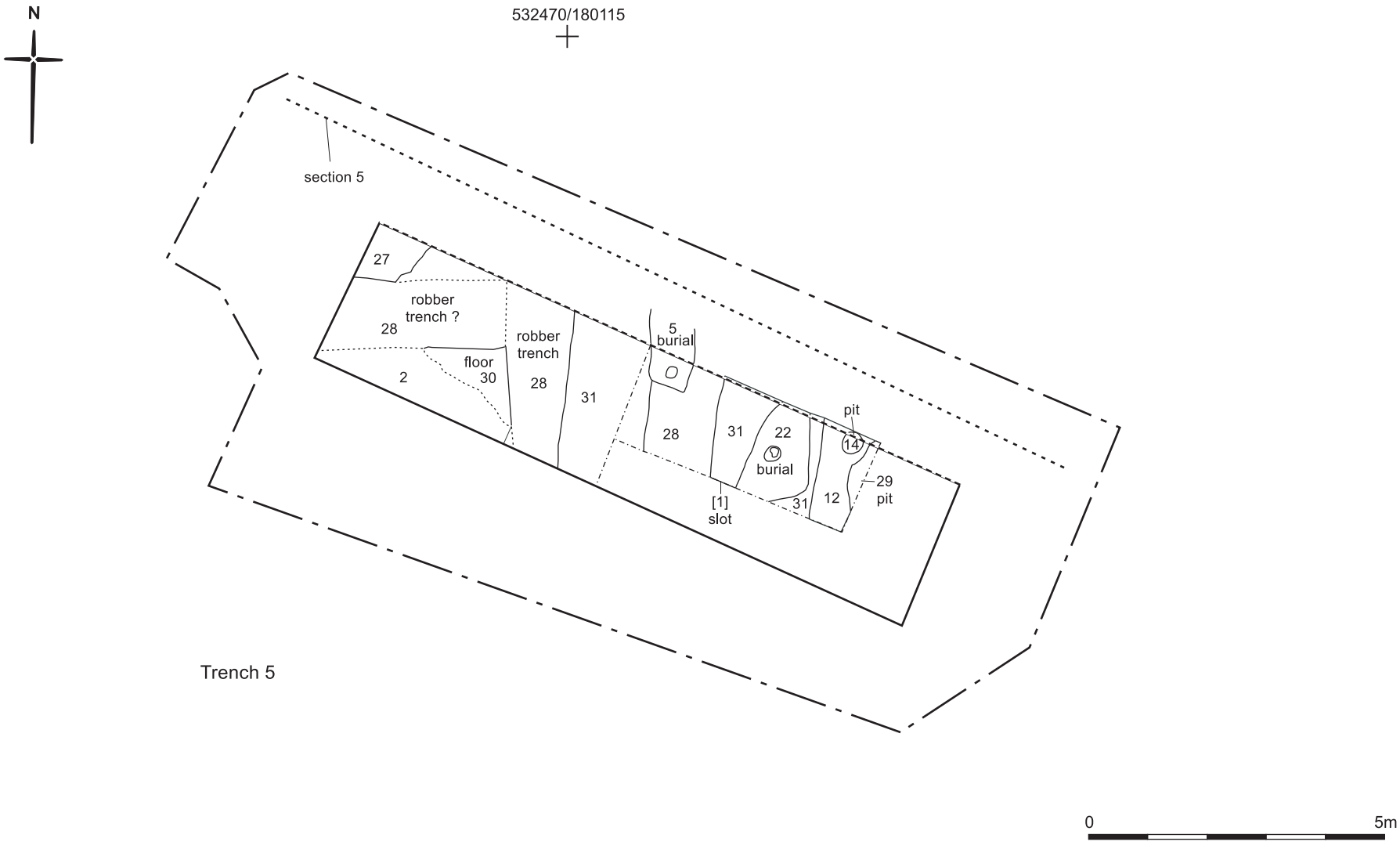

Fig 6 Plan of trench 5 features

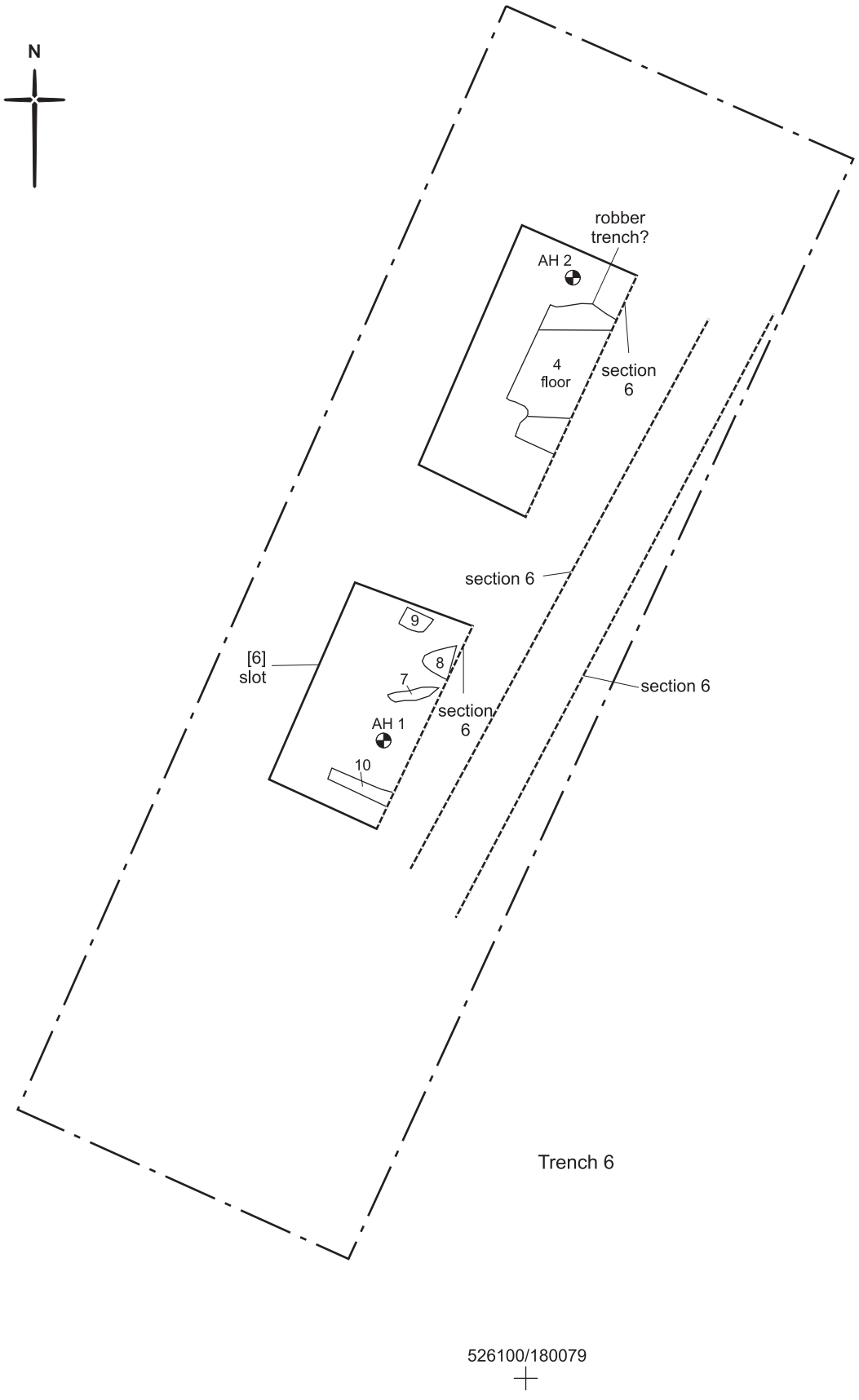

Fig 7 Plan of trench 6 features

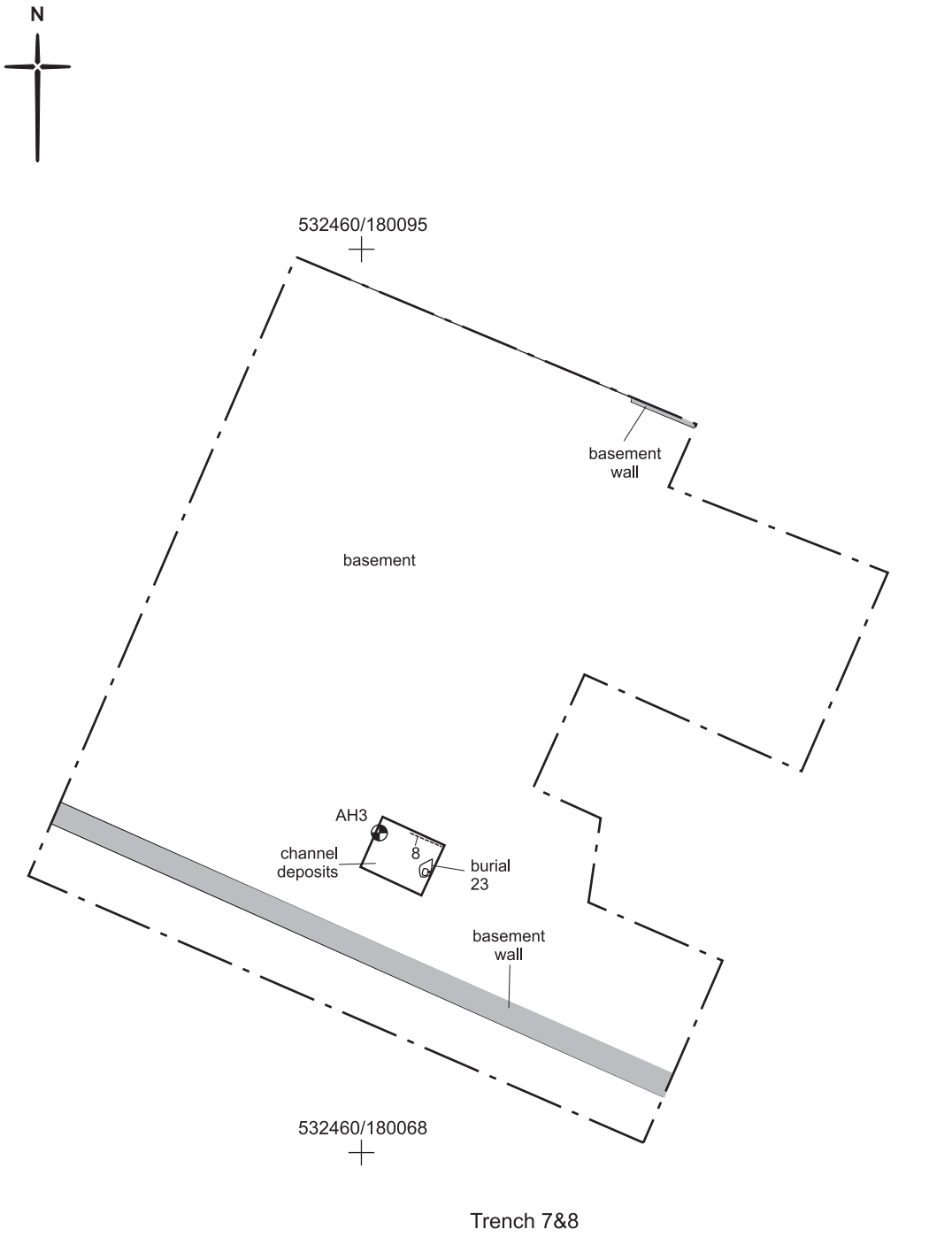

Fig 8 Plan of trench 7&8 features

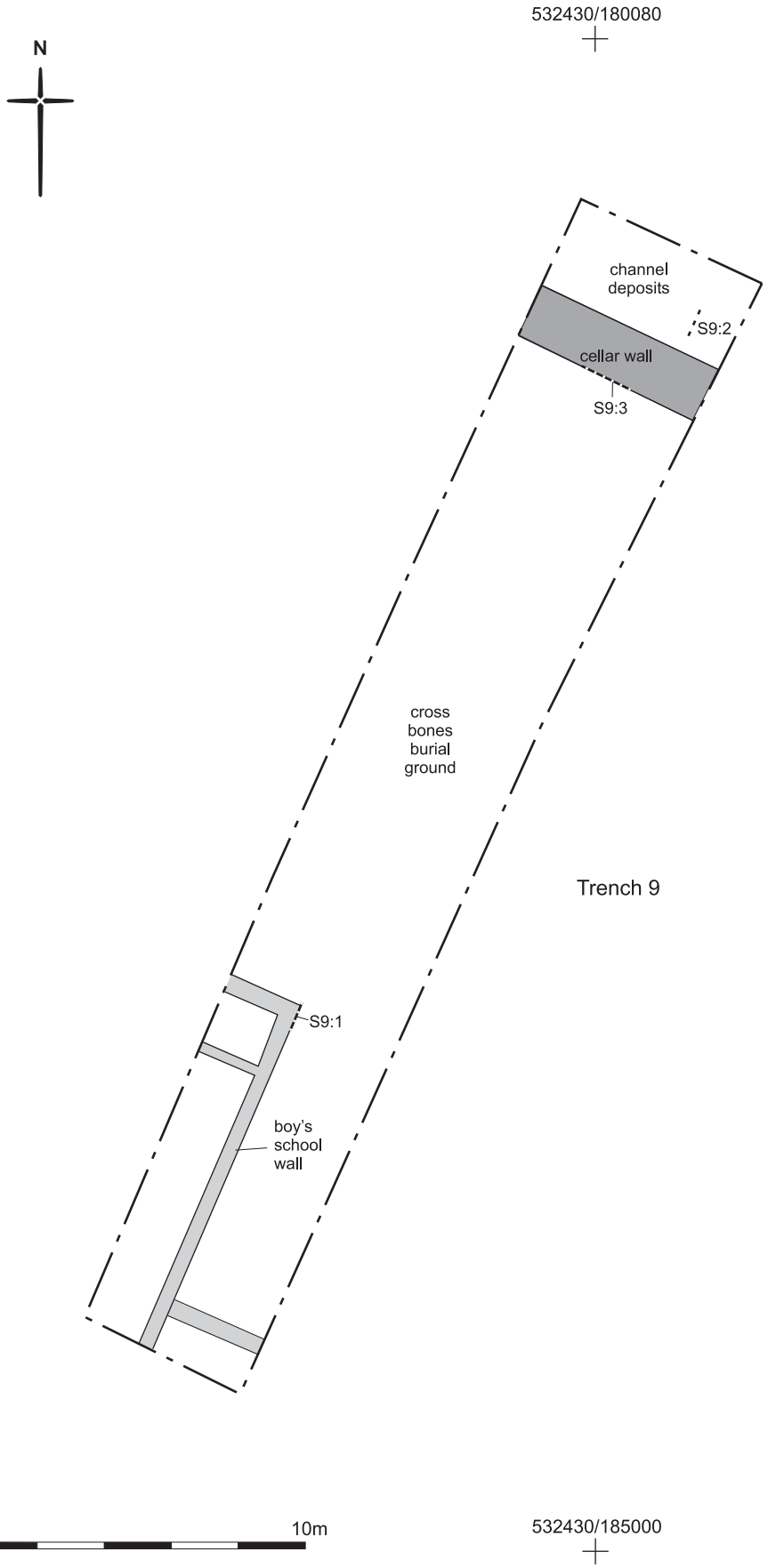

Fig 9 Plan of trench 9 features