



EMPIRE WAREHOUSE, BEAR GARDENS
London
SE1

London Borough of Southwark

An archaeological evaluation report

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MUSEUM OF LONDON

Archaeology Service

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Summary

This report presents the results of an archaeological evaluation carried out by the Museum of London Archaeology Service on the site at Empire Warehouse, Bear Gardens, London Borough of Southwark. The report was commissioned from MoLAS by RPS Planning on behalf of the client Macro Investments Ltd.

Following discussions, and in co-ordination with the London Borough of Southwark seven evaluation trenches were excavated on the site with their approval.

The results of the field evaluation have helped to refine the initial assessment of the archaeological potential of the site. There are no structural remains that can be identified as relating to the Hope Theatre. Across the site a sequence of waterlain deposits were recorded with concentrations of animal bones within a number of apparently truncated cut features. Animal bones recovered included the remains of horses, 10 large dogs, and several bear bones presumed to have derived from bear baiting taking place on Bankside. The largest group of animal bones (Context Number [38]) was associated with pottery dated to the last quarter of the seventeenth century, with the suggestion that this material was deposited over a relatively short period of time. Other archaeological features included a pit filled with building debris, a possible timber drain and a brick tank that probably belongs to the 18th century iron foundry.

In addition three geo-technical boreholes sunk between minus 1.51m and minus 1.87m OD revealed a series of organic alluvial clays, with one (BH2), revealing a dark brown fibrous organic clay located at minus 0.98m OD.

In the light of revised understanding of the archaeological potential of the site, the report concludes that previous development activity on the site has removed archaeological remains of the Hope Theatre and truncated archaeological deposits containing animal bone presumed to have derived from nearby animal baiting arenas.

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1 Introduction

1.1 Site background

A watching brief on geo-technical boreholes (on 16/06/08) and archaeological evaluation took place at Empire Warehouse, Bear Gardens between 07/07/08 and 23/07/08 hereafter called 'the site'. The current site comprises the disused Empire Warehouse, and is bounded by Bear Gardens to the west, Rose Alley to the east, the Riverside House development to the north and the Bear Gardens Museum building to the south. The latter; No 1 Bear Gardens/No 2 Rose Alley, is also a part of the same development site and will be the subject of evaluation at a later date.

The site is located at NGR 532250 180460. The evaluation took place within the basement of the standing building; a warehouse that has been empty for over 40 years.

The floor of the basement varies in level between 1.64m OD and 1.92m OD (HB Surveys Dwg 08011-02-B-B). Modern ground level immediately adjacent to the site is *c* 3.40m OD.

The three geo-technical boreholes (BH1–BH3) were drilled to a depth of around 3.30m, between -1.51m and -1.87m OD. Each borehole revealed a series of organic alluvial clays, with one (BH2) revealing a dark brown fibrous organic clay located at -0.98m OD. This organic clay may represent the fill of a palaeo-channel leading to the Thames.

A Written Scheme of Investigation (WSI) was prepared by RPS Planning, which covers the whole area of the site (RPS 2008). This document should be referred to for information on the natural geology, archaeological and historical background of the site, and the initial interpretation of its archaeological potential.

An archaeological field evaluation was subsequently carried out on a series of trenches within the existing building between 07/07/08 and 23/07/08. The site code is EWH08.

1.2 Planning and legislative framework

The legislative and planning framework in which the archaeological exercise took place is summarised in the *WSI* which formed the project design for the evaluation (see Section 2, RPS Planning, 2008).

The site lies within the Borough/Bermondsey/Riverside Archaeological Priority Zone (APZ) as defined in the Southwark Plan (adopted 2007)

1.3 Planning background

This archaeological evaluation was carried out in advance of a proposed development at Empire Warehouse and No 1 Bear Gardens/No 2 Rose Alley, Southwark.

1.4 Origin and scope of the report

This report was commissioned by RPS Planning on behalf of Macro Investments Ltd and produced by the Museum of London Archaeology Service (MoLAS). The report has been prepared within the terms of the relevant Standard specified by the Institute of Field Archaeologists (IFA, 2001).

Field evaluation, and the Evaluation report which comments on the results of that exercise, are defined in English Heritage guidance (English Heritage, 1998) as intended to provide information about the archaeological resource in order to contribute to the:

- formulation of a strategy for the preservation or management of those remains; and/or
- formulation of an appropriate response or mitigation strategy to planning applications or other proposals which may adversely affect such archaeological remains, or enhance them; and/or
- formulation of a proposal for further archaeological investigations within a programme of research

1.5 Aims and objectives

All research is undertaken within the priorities established in the Museum of London's *A research framework for London Archaeology, 2002*

The following research aims and objectives were established in the Written Scheme of Investigation (WSI) (RPS 2008, Section 6.3):

- is there potential for geo-archaeological deposits which may provide data on the palaeo-topography of north Southwark?
- is there any evidence for medieval properties?
- is there any evidence for late medieval/early post-medieval properties and boundary ditches?
- is there any evidence of Hope Theatre on the site?
- is there any evidence of structures associated with the Hope?
- what is the nature of the industrial archaeological remains of the post-medieval period located on the site? Is there any evidence for the 17th century pottery and glassworks?
- is there any evidence for the 18th century tenements on the site?
- in general, what is the level of truncation across the site?
- are there specific areas where truncation is more extensive than the established general level of truncation?

2 Topographical and historical background

2.1 Topography

The site is located on the south bank of the Thames and the underlying geology of the area is that of alluvially deposited clays. This part of North Southwark comprises several areas of higher natural sand and gravel islands (eyots) interspersed with large glacially formed channels filled with alluvial clays. The site is located in an area of varying topography, nearby at Skinmarket Place, 50m to the west sands and gravels were observed at a height of 0.66m OD.

2.2 Medieval

There is little evidence of occupation on Bankside before the 13th century; a causeway is mentioned in 1218-19 (Carlin 1996, 40) so there may have been a causeway on top of a riverside embankment. The bishops of Winchester were undertaking land reclamation with draining and embanking in the twelfth and thirteenth centuries (Carlin 1996, 40). In the later medieval period the Bankside area became infamous for its inns and brothels.

2.3 Post-medieval

The Agas map dated 1560-90 of the Bankside area shows fishponds, two animal baiting arenas and dog kennels. Later the area became the site of theatres such as the Rose and the Globe. Philip Henslowe acquired the lease of land in the late-sixteenth or early-seventeenth century, on which the Hope Theatre was built in 1614. This new playhouse had a movable stage so that the building could also be used for animal baiting.

The Hope was pulled down in 1656 but a final arena, the Davies Bear Garden was built to the south of the site *c* 1660/62. With the demise of the theatres and the final animal baiting being demolished in 1682, there was a pottery, glasshouses and several foundry or ironworks in the area. The 1792-99 Horwood map shows a 'Mr Bradley's foundry' on the site.

By the 19th century industry was replaced by storage and warehousing. Empire Warehouse (constructed in the late-nineteenth or early-twentieth century) was occupied by Appleton, Machin and Smiles, wholesale distributors of tea, by 1937.

Immediately to the north of the site, at Riverside House (BAK99) remains of the Hope Theatre, the Bear Gardens glassworks and iron foundry were uncovered. The remains of the Hope, a red brick foundation, were recorded between 1.08m OD and 1.70m OD and were truncated by the northern wall foundations of Empire Warehouse.

3 The evaluation

3.1 Methodology

All archaeological excavation and monitoring during the evaluation was carried out in accordance with the preceding *Method Statement* (MoLAS, 2008), and the MoLAS *Archaeological Site Manual* (MoLAS, 1994).

Seven evaluation trenches were set out by MoLAS geomatics. Two of the trenches (Trench 1 and 2) were located on the anticipated alignment of remains of the Hope (based on the archaeological information from excavations at Riverside House to the immediate north). Trenches 4 and 6 were located to evaluate the presence of boundary ditches related to the Hope (the potential location of ditches was based on an understanding of the documentary evidence) with the remaining trenches designed to assess the “background” archaeological potential. The basement slab was then broken out and cleared by the contractors (KPM Construction Ltd) under MoLAS supervision. The contractors assisted with the hand dig under MoLAS supervision and when archaeological deposits were reached the trenches were excavated by MoLAS.

A written and drawn record of all archaeological deposits encountered was made in accordance with the principles set out in the MoLAS site recording manual (MoLAS, 1994). Levels were calculated using the nearest OS benchmark of 4.65m OD that is located on Cardinal Cap Alley/Bankside.

The site has produced: 1 trench location plan; 40 context records; 7 section drawings at 1:20; and 20 photographs. In addition 42 boxes of animal bones were recovered from the site. In writing this report, archaeological contexts that are referred to are briefly described and numbered – e.g. “The lowest deposit was a waterlain clay [4] at 1.40m OD.”

The site finds and records can be found under the site code EWH08 in the MoL archive.

3.2 Results of the evaluation

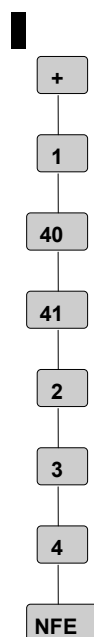
For trench locations see Fig 2

3.2.1 Evaluation Trench 1

See Fig 3 and Fig 4

Trench 1	
Dimensions	6m x 2m
Depth of trench	0.90-1.20m
Top of slab	1.72- 1.76m OD
Thickness of slab and make-up	0.20m
Natural	Not applicable

Trench matrix:



This trench was positioned to pick up any remains of the Hope theatre that may continue from those seen on the Riverside House site (BAK99) to the north.

The lowest deposit was a waterlain clay [4] at 1.40m OD. As this contained some small tile and pot fragments this deposit was either redeposited or had been disturbed. A small amount of pottery dated this deposit to 1270-1400. The only archaeological feature in this trench was a semi-circular brick feature [2]. The highest survival was at 1.50m OD and a timber floor was observed at *c* 0.0m OD. This feature was probably originally circular and may be associated with either the glass or iron works. At a later date a timber structure comprising several posts and planks ([11] to [14]) had been added to create a storage area for a sandy deposit [40]. The final deposit was a black silt [1] that partially backfilled the brick tank. This deposit was industrial in origin; a similar deposit was seen on the Riverside House site (BAK99) to the north.

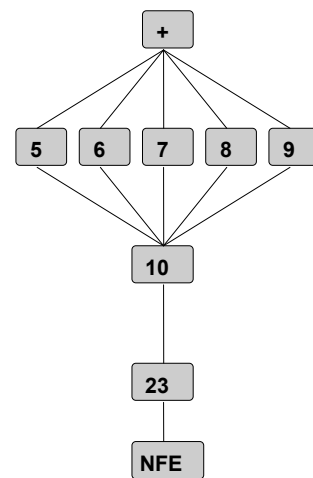
There were no remains in this trench that could be related to the Hope theatre.

3.2.2 Evaluation Trench 2

See Fig 3 and Fig 5

Trench 2	
Dimensions	6m x 2m
Depth of trench	0.90m
Top of slab	1.75m OD
Thickness of slab and make-up	0.25m
Natural	Not applicable

Trench matrix:



This trench was positioned to pick up any remains of the Hope theatre that may continue from those seen on the Riverside House site (BAK99) to the north.

The lowest deposit was a waterlain clay [23] at 1.26m OD. Above this was another waterlain clay [10] at 1.44m OD. A small amount of pottery dated this deposit to 1350-1500, other finds include a horse shoe and a lead cloth seal, (see Accessioned Finds, Appendix 2). Above this deposit was a horizontal plank [9] roughly aligned north-south, there were also several posts ([6] to [8]) and another fragment of horizontally laid plank [5].

These timbers are probably the remains of a timber drain that post-dated the demolition of the Hope Theatre. Evidence from the records of the Surrey & Kent Sewer Commission indicates that the sewers on Bankside were still open ditches in the 19th century¹. There were no remains in this trench that could be related to the Hope Theatre.

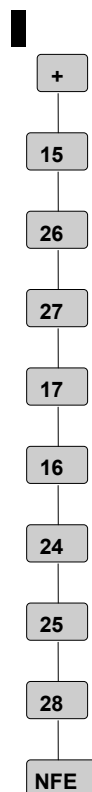
¹ The records of the Clink Court Leet for 1814 to 1824 (Guildhall Library MS 1513A) include the information that on October 5th, 1815 the Sewer Commissioners were fined £5.00 by the Clink Court for “not arching or covering over nor making good the Embankment of the Common Sewer on the West side of Rose Alley being One hundred and fifty feet in length likewise the Adjoining Sewer on the North side of Maid Lane being forty nine feet in length”. Four years later (on October 7th 1819) the Sewer Commissioners were fined again by the Clink Court “for not putting up a Fence to the Sewer at the end

3.2.3 Evaluation Trench 3

See Fig 3 and Fig 6

Trench 3	
Dimensions	5m x 1m
Depth of trench	0.80m
Top of slab	1.72-1.69m OD
Thickness of slab and make-up	0.25m
Natural	Not applicable

Trench matrix



The lowest deposit was a waterlain clay [28] at 0.87m OD. At the western end of the trench there was a cut feature [25] that contained a fill [16] and a large timber post [24]. The fill appears to be demolition material with fragments of plaster and decorated floor tile fragments; these may be packing around the timber post that was located to the side of the pit. As the whole feature was not seen nor was it bottomed it is difficult to interpret this feature; it could be a post pit but the timber post is located towards the side of the cut. This pit was sealed by a 0.20m thick waterlain clay deposit [17] at 1.07m OD. A small linear cut [27] running north-south and only identified in section may be a small ditch; this was sealed by a final waterlain clay [15] at 1.47m OD. A small amount of pottery dated this deposit to 1480-1550, other

of Rose Alley Maid Lane” (Guildhall Library MS 1513A. Clink Court Leet. 1814/24). Information from Simon Blatherwick.

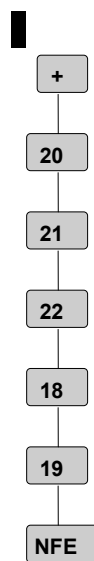
finds include a horse shoe, a spur, and a lead spoon bowl (see Accessioned Finds, Appendix 2).

3.2.4 Evaluation Trench 4

See Fig 3 and Fig 7

Trench 4	
Dimensions	5m x 1m
Depth of trench	0.80m
Top of slab	1.73-1.76m OD
Thickness of slab and make-up	0.25m
Natural	Not applicable

Trench matrix



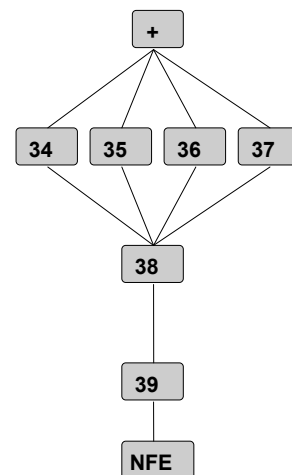
The lowest deposit was a waterlain clay [19] at 1.24m OD, above this was a clayey silt [18] at 1.50m OD. A small amount of pottery dated [18] to 1550-1600, other finds include a saw, a possible scraper and a net sinker. At the northern end of the trench there was a cut [22] that may be the edge of a pit and contained two fills [21] and [20]. A small amount of pottery dated both these deposits to 1580-1600. Other finds from [20] include a plane, a punch, and a large fragment of glass waste (see Accessioned Finds, Appendix 2).

3.2.5 Evaluation Trench 5

See Fig 8

Trench 5	
Dimensions	2m x 2m
Depth of trench	0.90m
Top of slab	1.65m OD
Thickness of slab and make-up	0.20m
Natural	Not applicable

Trench matrix:



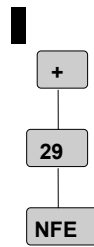
The lowest deposit was a waterlain clay [39] at 1.04m OD that contained some animal bones. Above this was a more clayey silt [38] at 1.44m OD, and this deposit, especially towards the west contained a large amount of dog and horses bones. A moderate amount of pottery dated [38] to 1670-1700, other finds were a drupe ring, a buckle and a jews harp (see Accessioned Finds, Appendix 2). Four small posts were driven into to the top of [38], but can only be dated to post- 1700.

3.2.6 Evaluation Trench 6

See Fig 9

Trench 6	
Dimensions	5m x 1m
Depth of trench	0.80m
Top of slab	1.67m OD
Thickness of slab and make-up	0.20m
Natural	Not applicable

Trench matrix:



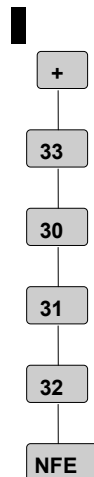
This trench contained a waterlain clay deposit [29] at 1.47m OD; a small amount of pottery dated this deposit to 1240-1350. Other finds include animal bones, a possible mount, a tool and a mount/escutcheon (see Accessioned Finds, Appendix 2).

3.2.7 Evaluation Trench 7

See Fig 10

Trench 7	
Dimensions	2m x 2m
Depth of trench	0.90m
Top of slab	1.62m OD
Thickness of slab and make-up	0.20m
Natural	Not applicable

Trench matrix:



The lowest deposit was a waterlain clay [32] at 1.40m OD, and was cut by a pit [31] that became deeper towards the west. The fill [30] contained some animal bones and was dated by a small amount of pottery to 1300-1500. There was also a small timber post [33] driven into clay [32], this was probably post-medieval in date.

3.2.8 Other observations

Following the evaluation the following observations were noted;

- the concrete foundations to the north wall of Empire warehouse extended down to 0.0m OD.
- the concrete base to an internal column adjacent to Trench 1 extended to at least 0.40m OD.

4 Archaeological potential

4.1 Realisation of original research aims

The evaluation allows the following research aims to be answered;

- *is there potential for geo-archaeological deposits which may provide data on the palaeo-topography of north Southwark?*

There are waterlain clays and silt deposits across the whole site. Geo-technical boreholes show these extended to at least minus 1.87m OD (and probably deeper). An organic clay was also found in one borehole at minus 0.98m OD.

- *is there any evidence for medieval properties?*

There is no evidence of medieval properties, though several of the finds suggest a medieval presence in the area.

- *is there any evidence for late medieval/early post-medieval properties and boundary ditches?*

There is no evidence of late medieval/early post-medieval properties and boundary ditches.

- *is there any evidence of Hope Theatre on the site?*

There is no structural evidence of the Hope Theatre on the site. However, there is evidence of dog, horse and bear bones presumably derived from animal baiting on Bankside

- *is there any evidence of structures associated with the Hope?*

There is no evidence of structures such as kennels or stables associated with the Hope.

- *what is the nature of the industrial archaeological remains of the post-medieval period located on the site? Is there any evidence for the 17th century pottery and glassworks?*

The only evidence of post-medieval industry is the brick tank in Trench 1 and a large fragment of glass slag from Trench 4.

- *is there any evidence for the 18th century tenements on the site?*

There is no evidence of the 18th century tenements.

- *in general, what is the level of truncation across the site?*

The Empire Warehouse basement has removed all archaeological deposits down to a level of *c* 1.50m OD.

- *are there specific areas where truncation is more extensive than the established general level of truncation?*

There appear to be no areas where the truncation is more extensive.

4.2 General discussion of potential

The evaluation has shown that the potential for survival of ground surfaces (horizontal archaeological stratification) on the site is limited. However, there is clearly the potential for the survival of truncated cut features, and such survival appears to be limited to certain areas of the site. The average depth of archaeological deposits where they do survive is likely to be *c* 1.50m deep.

5 Proposed development impact and recommendations

Design Proposals for the development of Empire Warehouse are at an early stage, with a number of studies currently being completed to help inform that process. Preliminary discussions have taken place, on site, with the Planning Archaeologist at the London Borough of Southwark and these will continue as Design Proposals progress.

The assessment above (Section 4) does not suggest that preservation *in situ* would be the only appropriate mitigation strategy. MoLAS considers that any archaeological deposits could be excavated archaeologically in advance of any ground reduction (i.e. preservation by record).

6 Conclusions

6.1 Assessment of the evaluation

GLAAS guidelines (English Heritage, 1998) require an assessment of the success of the evaluation ‘in order to illustrate what level of confidence can be placed on the information which will provide the basis of the mitigation strategy’. In the case of this site two of the trenches were specifically positioned to pick up any remains of the Hope Theatre and others to find any ditches that could relate to the property boundaries. The evaluation has found no remains that can be related to the Hope but has identified areas of the site where animal remains derived from the Bankside bear baiting arenas were disposed of.

By implementing the GLAAS guidelines combined with the careful attention given to the design and execution of the evaluation works, the objectives of the evaluation have been achieved. These objectives have resulted in the required level of confidence in the results which now enables the Design Team to develop its concepts and proposals for the site.

6.2 Overall Conclusions

All the deposits encountered were either waterlain clays or silts that contained varying amounts of animal bone. There were also particular areas of the site where these bones were concentrated; within truncated cut features - at the northern end of Trench 4, in Trench 5 (especially to the west) and Trench 7. This suggests there is either a large feature or several smaller ones located around these three trenches where bones were being deliberately deposited. There are references to ponds in the area, and these may be the remains of fish ponds illustrated on the earliest maps of the Bankside area.

A large amount (115.800 kg) of animal bone was recovered. This includes fragments of ox, sheep/goat, pig and rabbit which probably represent waste derived from primary processing, butchery, consumption and working. The bone assemblage is dominated by bones of at least 10 large, robust adult dogs and the gnawed limb bones of horses. This composition, together with recovery of some bones from at least one juvenile and one adult bear, strongly suggests a link with the known history of the locality as a bear-baiting area.

Only a small amount of pottery was recovered making close dating very difficult. At present the deposits with dated animal bone have slightly different dates. In Trench 4 deposits [20] and [21] have a pre-Hope theatre date of 1550-1600 and deposit [38] in Trench 5 is perhaps more securely dated to 1670-1700. Deposit [30] in Trench 7 has a date of 1300 to 1500.

The only other archaeological features found were the industrial brick tank in Trench 1, the bottom of a timber drain in Trench 2, and in Trench 3 a small ditch and a pit with building debris appear to be pre-1480 in date.

There were no structural remains in Trenches 1 and 2 that could belong to the Hope Theatre.

7 Acknowledgements

The author would like to thank Simon Blatherwick (RPS Planning) who commissioned the evaluation on behalf of the client Macro Investments Ltd, and the workers of KPM Construction Ltd for on site assistance during the works. The project was monitored by Chris Constable archaeology officer at the London Borough of Southwark.

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9 NMR OASIS archaeological report form

9.1 OASIS ID: molas1-46918

Project details

Project name Empire warehouse, Bear Gardens, Southwark

Short description of the project Seven evaluation trenches were excavated on the site. There were waterlain deposits across the whole site and in certain areas there were concentrations of animal bones. These included the remains of 10 large dogs, horses and several bear bones, all are indicative of bear baiting taking place on Bankside. There were no remains that could be identified as the Hope theatre. The only other features were a pit filled with building debris, a possible timber drain and a brick tank that probably belongs to the 18th century iron foundry.

Project dates Start: 07-07-2008 End: 23-07-2008

Previous/future work No / Yes

Any project codes associated reference EWH08 - Sitecode

Type of project Field evaluation

Site status Local Authority Designated Archaeological Area

Current Land use Industry and Commerce 1 - Industrial

Monument type ALLUVIUM Medieval

Monument type PITS Post Medieval

Significant Finds SHERDS Medieval

Significant Finds	SHERDS Post Medieval
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	Not known / Not recorded

Project location

Country	England
Site location	GREATER LONDON SOUTHWARK SOUTHWARK Empire Warehouse, Bear Gardens
Postcode	SE1
Study area	1020.00 Square metres
Site coordinates	TQ 32250 80460 51.5070764524 -0.09417205030980 51 30 25 N 000 05 39 W Point
Height OD / Depth	Min: 1.00m Max: 1.50m

Project creators

Name Organisation	of MoLAS
Project originator	brief Southwark Archaeologist
Project originator	design RPS Planning
Project director/manager	Derek Seeley
Project supervisor	Tony Mackinder

Type of Developer
sponsor/funding
body

Name of Macro Investments Ltd
sponsor/funding
body

Project archives

Physical Archive LAARC
recipient

Digital Archive LAARC
recipient

Paper Archive LAARC
recipient

Project bibliography

1

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Entered on 13 August 2008

10 Appendix 1: Animal Bone

The animal bone from Empire Warehouse, Bear Gardens, Bankside, London SE1

Alan Pipe

Contents of animal bone archive

	Weight (g)	No. fragments	No. boxes
Animal bone (hand-collected)	115 800	1266	32 standard archive boxes and 9 large archive boxes
Animal bone (wet-sieved)	55	25	1 standard archive box

10.1.1 Introduction/methodology

This report identifies, quantifies and interprets the hand-collected animal bone from contexts [4], [10], [15], [18], [19], [20], [21], 29], [30] and [38]; and the wet-sieved animal bone from samples [21] {1} and [38] {2}. Hand-collected context groups and wet-sieved sample groups was recorded directly onto Excel spreadsheets in terms of weight (kg), estimated fragment count, species, carcass-part, fragmentation, preservation, modification, and the recovery of epiphyses, mandibular tooth rows, measurable bones, complete long bones, and sub-adult age groups. The assemblage was not recorded as individual fragments or identified to skeletal element. All identifications referred to the MoLAS reference collection and Schmid (1972). Fragments not identifiable to species or genus level were generally allocated to an approximate category; sheep/goat, ‘ox-sized’ and ‘sheep-sized’, as appropriate.

10.1.2 Summary, post-medieval

The hand-collected assemblage provided 115.800 kg, estimated 1266 fragments, of animal bone in excellent preservation with a minimum fragment size greater than 75mm. The wet-sieved samples produced 0.055 kg, estimated 25 fragments, of animal bone, again in excellent preservation but with a fragment size generally in the 25-75 mm range. Context groups ranged between 0.400 kg/one fragment from [4] and 75.050 kg/estimated 770 fragments from [38].

The bulk of the hand-collected bone derived from adult dog *Canis familiaris* and adult horse *Equus caballus* with relatively minor contributions of adult ox *Bos taurus*, adult sheep/goat, including sheep *Ovis aries*, and adult and juvenile pig *Sus scrofa*. There were also single finds of adult rabbit *Oryctolagus cuniculus* from [21] and juvenile cat *Felis catus* from [15]. Contexts [10] and [30] produced bones of bear, probably brown bear *Ursus arctos*; juvenile upper limb from [10] and juvenile lower limb and adult upper limb from [30]. This species is widely distributed across northern Eurasia and North America and was native to the British Isles until extinction perhaps as early as Roman times in southern Britain (Yalden 1999, 112).

Wet-sieved sample [21] {1} produced only a small group of unidentifiable ‘sheep-sized’ fragments with two worn sheep/goat incisor teeth; sample [38] {2} produced small numbers of ‘ox-sized’ and ‘sheep-sized’ longbone fragments, ox upper limb, sheep/goat head and pig upper limb. The pig upper limb derived from a foetal or neonate piglet, the only recovery of such a young animal from the whole assemblage.

With the exceptions of, infant calf from [18]; juvenile ox from [10]; juvenile sheep/goat from [15], [20] and [30]; foetal/neonate piglet from [38] {2}; juvenile pig from [10] and [15]; and juvenile dog from [15] and [38], all the bones derived from adults, indeed horse dental eruption and wear from [10], [20] and [38] indicated elderly animals.

Wild, 'game', species were represented only by rabbit from [21]; there was no recovery of fish, amphibians, wild 'game' birds, scavengers, commensals or human bones.

Horse, dog and the other major domesticates were represented by all carcass areas. Clear evidence of butchery was shown on ox [10], [15], [19], [21] and [30]; horse [18], [20] and [30]; pig [19] and [21]; sheep [20]; sheep/goat [21]; and rabbit [21]. Definite evidence of severe canine gnawing was shown on ox [18]; bear [10]; dog [10] and [29]; and, particularly, horse [10], [19], [20] and [21]. Context [21] produced evidence of bone working on ox foot [18]; contexts [21] and [38] produced tool marks indicative of preliminary preparation and removal of sheep/goat horn.

Extensive evidence of osteo-arthritic pathological change was shown by horse bones from [18], [19], [20] and [38]; with a single example from dog in [21].

There was no evidence of burning or any other modification.

The group produced a large data set of evidence for age at death of the major domesticates with 39 mandibular tooth rows and 662 epiphyses; metrical evidence is also considerable with 284 measurable bones including 112 complete longbones.

Although the animal bone groups include fragments of ox, sheep/goat, pig and rabbit which probably represent waste derived from a combination of primary processing, butchery, consumption and working, the assemblage is dominated quantitatively by bones of at least 10 large, robust adult dogs and gnawed limb bones of even more adult, often elderly and lame infirm horses. This composition, together with recovery of at least two bears, a juvenile and an adult, strongly suggests a link with the known history of the locality as a bear-baiting area with disposal of dead dogs, imported bears and the gnawed remains of joints of horse meat presumably fed to the dogs and the bears themselves. Further study of the bones will allow detailed interpretation of the dogs and horses in terms of stature, build and age at death; and of the horses in terms of joint damage associated with osteo-arthritis, perhaps at the end of long working lives. The excellence of the bone preservation will allow for accurate measurement, stature calculation and interpretation of toolmarks.

11 Appendix 2: Accessioned Finds

The accessioned finds and bulk glass from Empire Warehouse, Bear Gardens, Bankside, London SE1
Lyn Blackmore

11.1 Introduction

Twenty one non-ceramic accessioned artefacts were recovered from six deposits in five different trenches. The finds are described by material and trench, and then briefly discussed as groups. In addition there is a piece of bulk glass, which is discussed together with the accessioned piece.

11.2 Description of the finds

11.2.1 Iron

Trench 2 [10] <9>. Horseshoe. Approximately half a Clark Type 4 horseshoe (Clark 1995, 88–91), represented by the heel, quarter and part of the toe of the left side (as worn on the hoof). The web is broad (max 30mm), tapering in to a narrow heel while the three rectangular nail holes are not countersunk, and taper in (ie are small on the inner surface than on the outer); the heel appears to be plain with slightly bevelled edge (no calkin). This is the standard late medieval form, possibly in use in the period 1270–1350, increasingly common thereafter and dominant in the 15th century. It is possible that rectangular nail holes were introduced after square holes (after *c* 1350; *ibid*, 88, 96–7).

Trench 3 [15] <11>. Horseshoe. Heel with broad web (max extant width 35mm); the end appears to be damaged and it is possible that there was originally right-angled calkin. Form of nail hole uncertain

Trench 3 [15] <10>. Clench bolt. Complete, with square shank and rounded heads at each end (total length 76mm, diameter of head *c* 15mm). The complete lozenge-shaped rove (parallelogram, *c* 50 x 27mm) in situ indicates that the thickness of the wood was 60mm.

Trench 3 [15] <12>. Spur. Half a rowel spur with angled arms, or sides and rectangular rivet terminals (cf examples from Baynards Castle and Swan Lane (Ellis 1995, 133–6, fig 95, nos 322, 324). Rowel spurs became common after *c* 1325 and are the normal late medieval form (*ibid*, 129). X-ray will help to determine the nature of the terminals and whether the spur was originally tinned.

Trench 4, [18] <13>. Saw. Squared end of a narrow single-sided blade with perforation for attachment to a handle; teeth on one side only (extant length 40mm, width at end 19mm; width across blade 16mm). Probably of late medieval or early post-medieval date; an early example of a similar long narrow blade is held in the Museum of London collections (Egan 2005, 145, fig 145a).

Trench 4, [18] <14>. Scraper? Broad strip of sheet metal with tapering side, possibly part of a blade or scraper (extant length 150mm, original width 43mm) with short L-shaped return on the wider side, probably for insertion into a handle. The function of this item needs to be checked.

Trench 4, [18] <15>. Strip. Long narrow strip bent back on itself twice; corrosion obscures the unbent end but it appears to be broken rather than finished. Width 11mm, thickness 1.5mm, extant length as folded 158mm.

Trench 4, [20] <16>. Plane. Large rectangular piece of sheet metal with straight sides and oblique wider end, with remains of curved narrow end; partly burnt and now bent (original length *c* 147mm, width 55mm, thickness *c* 1.5mm). A close parallel, although thicker, has been found at Abbots Lane (Egan 2005, 152, fig 146, no.801).

Trench 4, [20] <17>. Punch? Heavy object with square section (*c* 14–15mm) and slightly curved profile, the ends obscured in corrosion but apparently burred (length *c* 100mm). Other possible interpretations, based on similar objects from elsewhere in Southwark, are that this is part of an auger or crowbar.

Trench 5, [38] <20>. Ring. Larger than the usual drape rings (Egan 1995, 62–4), this complete ring (diameter *c* 35mm, thickness *c* 5mm) is the same size as a pendent ring from Billingsgate that was held by a split pin (Egan and Pritchard 1991, 60, 62, fig 38, no.114; Egan 1995, 58, fig 41, no.82).

Trench 5, [38] <21>. Buckle. Complete buckle with trapezoidal frame (length 39mm, max width 35mm), looped pin and sheet roller at the narrow end (width 32mm). Probable date 1350–1550, and possibly from a harness or similar equipment (but cf Egan and Pritchard 1991, 101, fig 64). A larger example from a context dated to *c* 1500–50 was found at the Rosary site, Southwark (Egan 2005, 36, fig 19, no.109).

Trench 6, [29] <18>. Mount? Strip with arched profile (present length 87mm), widest at the centre (13mm) and tapering towards the squared end (9mm) and the other end, which was probably originally point (extant width 7mm).

Trench 6, [29] <19>. Tool? Rod with oval section, slightly bent, possibly part of a metal or leather working tool (cf Egan and Pritchard 1991, fig 3.13, no.23; Egan 2005, 149, fig 143, no.792; extant length *c* 108mm, diameter *c* 3x4mm).

11.2.2 Copper alloy

Trench 5, [38] <4>. Jew's harp. Tongue missing but otherwise near complete (missing part of one of the arms). The large rounded bow has a flat section, the upper side of which is decorated with a series of punched dots (eight on one side, nine on the other); the arms have a lozenge section. The form is more elaborate than those of the illustrated finds from the City (Wardle 1998, 284–5) and could be of post-medieval date.

Trench 6, [29] <3>. Mount/escutcheon. Large disc-shaped mount with large perforation slightly off centre (external diameter 49mm; diameter of perforation *c* 10mm, larger where damaged).

11.2.3 Lead

Trench 2 [10] <5>. Cloth seal. Near complete (diameter of back 20mm, front slightly damaged). The die is applied asymmetrically to the front face but is clear and legible

with half of a pair of initials; in time it can probably be identified and assigned to a maker and/or town.

Trench 3 [15] <6>. Spoon. Complete shallow fig-shaped bowl (length 70mm, max width 50mm). At the narrow end near the junction with the handle is a possible maker's stamp, a raised circle inside which is a fleur-de-lis (base towards the handle). This form of spoon is typical of the later medieval and early post-medieval periods. Only one 15th-century find from the City with a stamped mark has been published (Egan 1998, 246, 249), but others are known from late 15th- to 16th-century contexts in Southwark (Egan 2005, 110–17). The closest parallel, also with an inverted fleur-de-lis stamp is from a context dated to 1580–1600 at the Anchor Butter Factory South (BFS88; *ibid*, fig 103, no.545).

Trench 4, [18] <7>. Netsinker. Half only (length 30mm). These are commonly found in medieval and later deposits along the London waterfront, especially on the north bank. A close parallel has been found at Abbots Lane (Egan 2005, 158, fig 154, no.819a).

Trench 6, [29] <8>. Waste. Small fragment with rounded edge, apparently burnt.

11.2.4 Glass

Trench 4, [20] <2>. Waste. Fragment of blowing waste with pincer end, in clear glass with a smokey grey-blue tinge; length 45mm, diameter of tube 7mm. A similar fragment with a slightly larger tube was found at Benbow House (Egan 2000, fig 29, <G54>); Tyler and Wilmott (2005, 49, figs 50, 51) illustrate similar pieces identified as glass pulls. Probably of late 17th-century date.

Trench 5, [38]. Bulk glass. Complete neck and rim of a green glass bottle with thick rounded string; rather short for a full size shaft and globe form (neck length 90mm) and so either from a small bottle or a later example of the type; date range *c* 1660–1690.

11.2.5 Leather

Trench 4, [21]. Shoe. Part of a composite sole (right foot?), with straight edge at the junction with the heel and oblique cut at the wider end for a separate toe piece or for repair. Perforations around edges for sewing and with two deeply scored lines inside this on the inner side. Date currently uncertain, but probably late medieval.

11.2.6 Discussion

The finds range from later medieval to 17th-century in date and fall into five main groups: dress accessories, personal possessions, equestrian equipment, tools and industrial waste, the latter fittings well with the known industries that were being carried out in the medieval and post-medieval periods. The glass includes production waste from one of the nearby factories, probably the Bear Garden (Mackinder and Blatherwick 2000, 34–5; Egan 2000, 43–51). It may represent testing of the viscosity of the glass metal, or be waste from the application of decorative trails (Tyler and Wilmott 2005, 49).

12 Appendix 3: Pottery

Pottery from an evaluation at Empire Warehouse, Bear Gardens SE1

Jacqui Pearce

Pottery summary

Medieval pottery	22 sherds	21 ENV	665g
Post-medieval pottery	92 sherds	50 ENV	3395g

The medieval and later pottery from EWH08 was spot-dated and recorded in accordance with current MoLAS procedure, using established Museum of London codes for fabric, form and decoration. The data were entered onto the Oracle database, along with quantification by sherd count (SC), estimated number of vessels (ENV) and weight in grammes. A summary of the spot dates assigned to each context is given below.

Date range of assemblage

Context	TPQ	TAQ	Period	Size
4	1270	1400	M	S
10	1350	1500	M	S
15	1480	1550	PM	S
18	1550	1600	PM	S
20	1580	1600	PM	S
21	1580	1600	PM	S
29	1240	1350	M	S
30	1300	1500	M	S
38	1670	1700	PM	M

12.1.1 Medieval pottery (c 400–1500)

A total of 22 sherds of medieval pottery spanning the 11th to 15th centuries was recovered from six contexts, in two of which ([15] and [18]) it was residual alongside later material. In no context were there more than eight sherds, which makes close dating very difficult. A wide date range was also recorded for fabrics found in contexts [4] and [29], including sherds of handmade early medieval wares together with later, 13th- to early 14th-century pottery.

The earliest pottery recorded consists of two sherds of early medieval flint-tempered ware (EMFL), dated to c 970–1100 and found in context [29], in which it is clearly residual with later medieval material. There is also a sherd of early Surrey ware (ESUR), dated to c 1050–1150, in the same context, and part of a ladle or handled, round-bottomed cooking pot in blue-grey ware (BLGR), imported c 1000–1200 from the Rhineland, also residual in context [4]. There is too little of this early medieval pottery to allow any suggestions to be made concerning the nature and extent of occupation in the vicinity before the 13th century.

Pottery dating between c 1240 and 1500 was found in contexts [4], [10], [29] and [30], and was residual in contexts [15] and [18]. The main fabrics are London-type ware (LOND) and Surrey whitewares in the form of Kingston-type ware (KING) and coarse Surrey-Hampshire border ware (CBW). Together these wares dominated London's pottery supply and usage from the 13th to 15th centuries, occurring on the site mainly as jugs of various kinds, none of them obviously decorated. Part of a flared baluster jug in LOND, with overall white slip and clear glaze, was identified in context [10] and sherds from two LOND jugs, possibly in the north French style, with white slip and green glaze in [29]. The base of a lobed cup in KING was found in context [4], probably dating to the 14th century rather than earlier, and the rim of a lid in KING in context [29], together with a sherd from a cooking pot in south Hertfordshire-type greyware (SHER), which was used in London for plain, unglazed, utilitarian kitchen pottery throughout the 13th and early 14th centuries. Part of a flared bowl in SHER was also found in context [10]. Imported pottery is represented by sherds of Dutch red earthenware (DUTR) in [10] and [30], dating to the 14th or 15th centuries; part of a drinking jug in Siegburg stoneware (SIEG), residual in [15]; and the handle of a jug in Langerwehe stoneware (LANG) found in context [10]. These are among the more common imported wares found in later medieval London, especially on sites close to the Thames.

The medieval pottery from EWH08 is entirely typical of fabrics and forms used across the London area, as well as of domestic usage, with no evidence for industrial activities.

12.1.2 Post-medieval (c 1500–1900)

The post-medieval pottery from EWH08 is dated mostly to the 16th century. Only one context is dated noticeably later: the medium-sized context [38] (49 sherds), c 1670–1700. Apart from this one group, all other post-medieval contexts include fabrics and forms typical of the period c 1480–1600, with no evidence for wares introduced after c 1600 (such as Southwark-produced tin-glazed wares). The main fabrics are London-area early post-medieval redware (PMRE) and the slip-coated variants PMSRG and PMSRY (with green and clear glaze respectively). These occur mostly in the form of jugs, bowls and dishes and cooking vessels such as cauldrons and tripod pipkins. At the end of the 16th century developments in the London redware industry gave rise to a more evenly fired fabric and freer use of glaze (PMR). Examples of these redwares are found in a number of contexts that have been dated accordingly to c 1580 or later. The complete profile of a rounded jar (16 sherds), which was probably handled originally, was found in context [38]. It is an unusual form, glazed inside and resembling a chamber pot in shape but with an everted collar rim more usually associated with cauldrons.

Alongside PMRE and related London-area redwares sherds of fine redwares made in the Harlow area of Essex were found in a number of contexts. These first enter London c 1580 as black-glazed wares (PMBL), used primarily for drinking vessels, and plain, clear-glazed redwares (PMFR). Part of a chamber pot in PMFR was found in context [38], as well as several sherds from a flared bowl in Surrey-Hampshire border redware (RBOR) which was first used in London alongside the more popular whitewares from the same sources in the area to the north of Farnham. In addition to the RBOR bowl, the same context yielded part of a chamber pot in the same fabric, with glaze inside and out, a form typical of the later 17th century. The base of a

caudle cup or mug in brown-glazed RBOR was also found in this group, as well as sherds from four different vessels in tin-glazed ware with plain white glaze (TGW C), which was produced in the Southwark and Lambeth delftware industry after c 1630. These include the rim of a plate and part of a bottle, probably used for wine.

There is comparatively little Surrey-Hampshire border whiteware, a reflection probably of the small size of most post-medieval contexts. Both green- and clear-glazed vessels are represented but mostly as small sherds that cannot always be related to a particular form. The base of a cup in the early 16th-century fineware made at the border kilns was found in context [15], with bowls, dishes and a tripod pipkin as the only other identifiable vessels. Imported pottery is restricted to Rhenish stonewares in the form of jugs and *Bartmänner* from Cologne and Frechen (KOLS and FREC). The base and a number of body sherds from a rounded jug in mid 16th-century KOLS, decorated with applied, moulded acanthus leaves and small portrait medallions, was spread between contexts [20] and [21].

As with the medieval pottery recovered from the site, the fabrics and forms identified are those in common use throughout the London area in the early post-medieval period. While there is an emphasis in the excavated material on 16th-century pottery, the largest group dates to the last quarter of the 17th century and includes a number of complete profiles and partially reconstructable vessels, suggesting deposition over a relatively short period.

13 Appendix 4: Botanical Remains

John Giorgi

13.1.1 Introduction/methodology

During excavations at the site, two environmental bulk soil samples were taken for the recovery of biological remains including plant material. The aim of this evaluation is to establish the level of preservation, the item frequency and species diversity of any plant material and the potential for further work.

The two samples were collected from a post-medieval pit fill [21] (Evaluation Trench 4) and a post medieval clay silt [38] (overlying a waterlain clay) within Evaluation trench 5. The two samples were processed on a modified Siraf flotation tank with sieve sizes of 0.25mm and 1mm for the recovery of the flot and residue respectively. Both samples produced flots which were kept wet. The flots were scanned using a binocular microscope and the item frequency and species diversity of all biological remains was recorded onto paper records using the following rating system of 1 to 3. The data has yet to be entered onto the MoLAS Oracle database.

Frequency: 1 = 1-10 items; 2 = 11-50 items; 3 = 50+ items

Diversity: 1 = 1-4 species; 2 = 5-7 species; 3 = 7+ species

13.1.2 Plant remains

A fairly high seed frequency (with a moderate to high species diversity) of mainly wild plants preserved by waterlogging was noted in both samples; the only potential food remains were fruits of plum/bullace (*Prunus domestica*), elder (*Sambucus nigra*) and blackberry/ raspberry (*Rubus fruticosus/idaeus*) seeds. There was a high species diversity of wild plants, with both disturbed (including cultivated) ground and waste places eg. oraches/goosefoots etc (*Atriplex/Chenopodium* spp.), chickweeds/stitchworts (*Stellaria* spp.), docks (*Rumex* spp.), nettles (*Urtica* spp.), dyer's rocket (*Reseda luteola*), a few wetland plants, eg. sedges (*Carex* spp.), spike-rush (*Eleocharis* spp.), and possible grassland species, eg. buttercups (*Ranunculus* spp.). There were also large amounts of very fragmented wood and stem fragments (in [21]) plus some fragmented charcoal.

13.1.3 Invertebrate remains

There were moderate numbers of beetle remains in both samples.

13.1.4 Artefactual remains

There was very fragmented clinker in both samples.

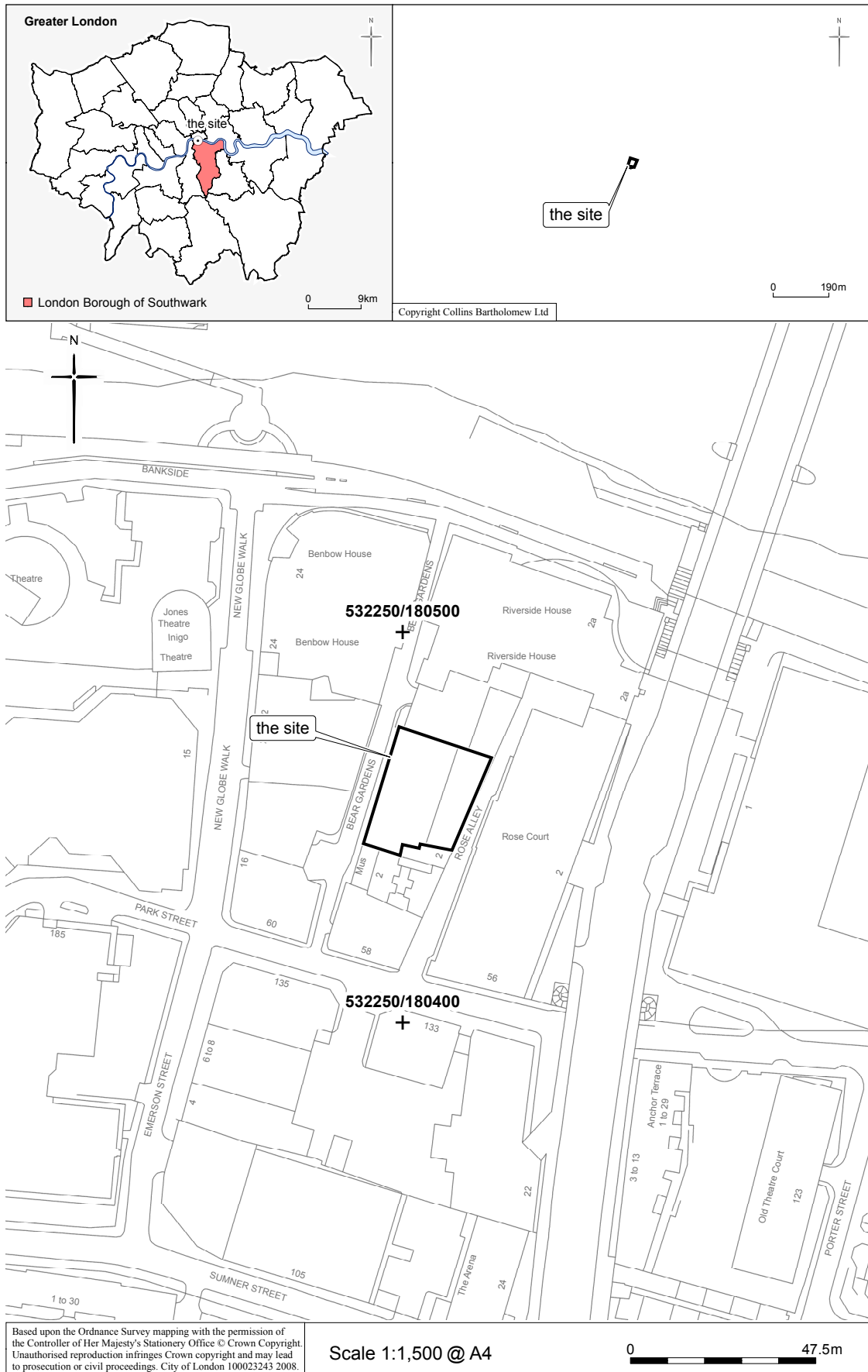


Fig 1 Location map



Fig 2 Trench location

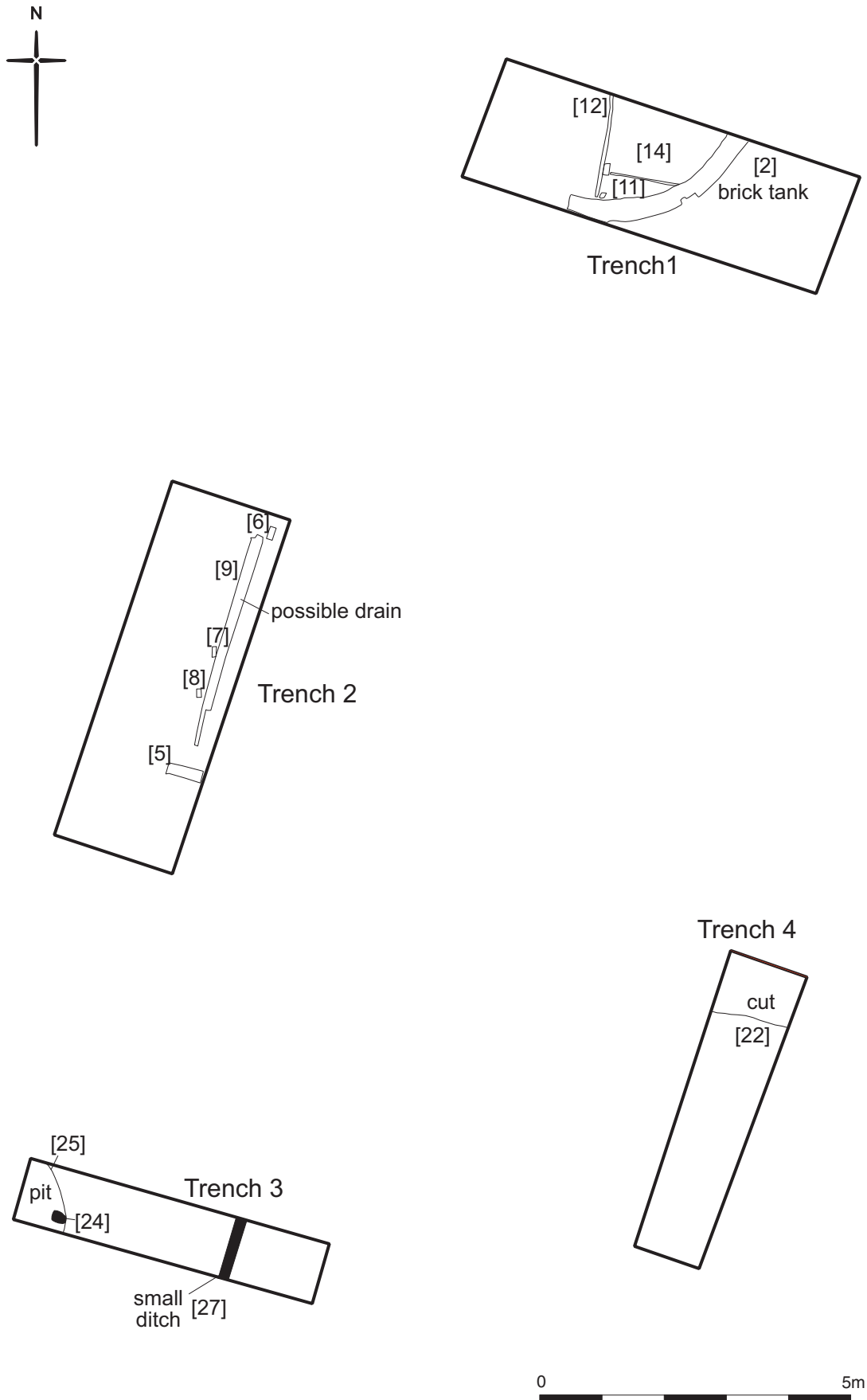


Fig 3 Archaeological features in Trenches 1 to 4

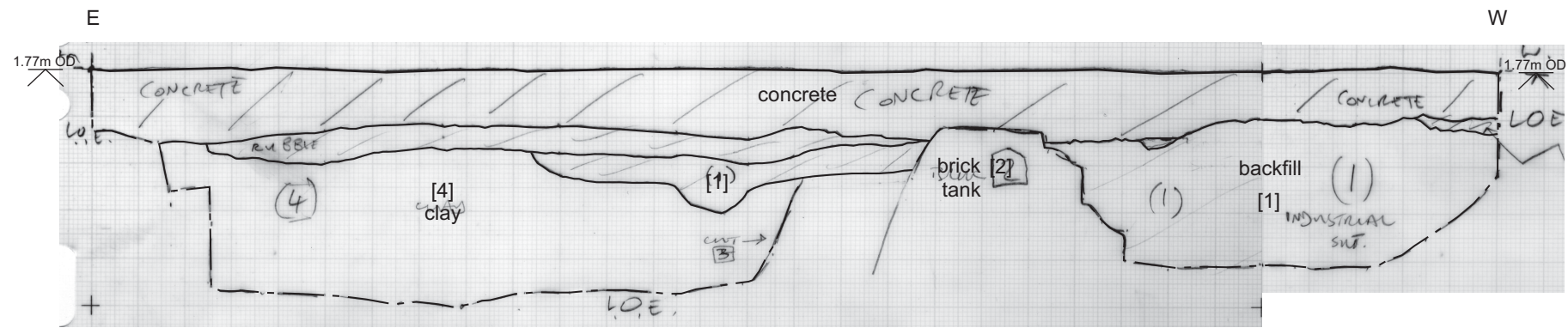


Fig 4 Trench 1 section

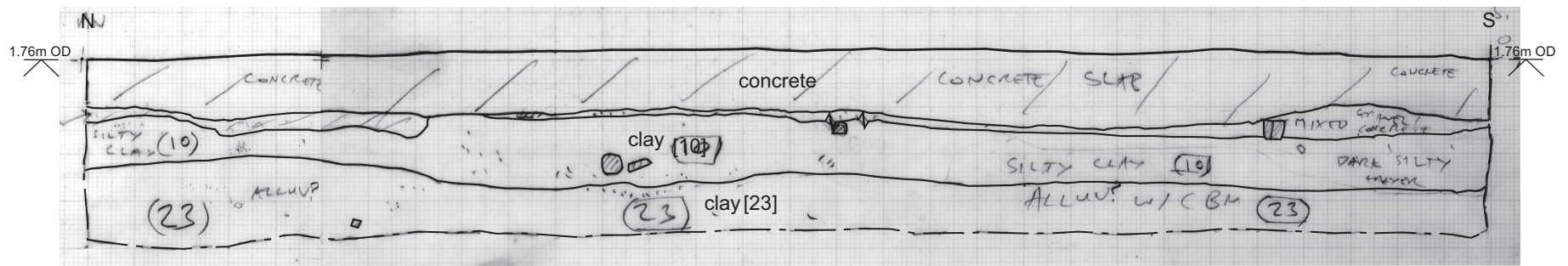


Fig 5 Trench 2 section

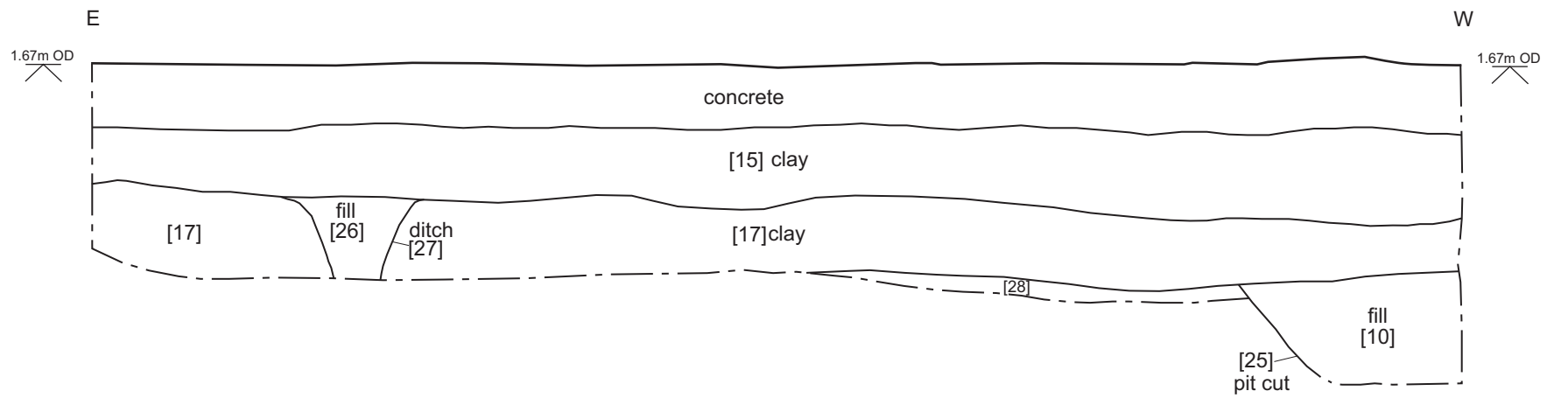


Fig 6 Trench 3 section

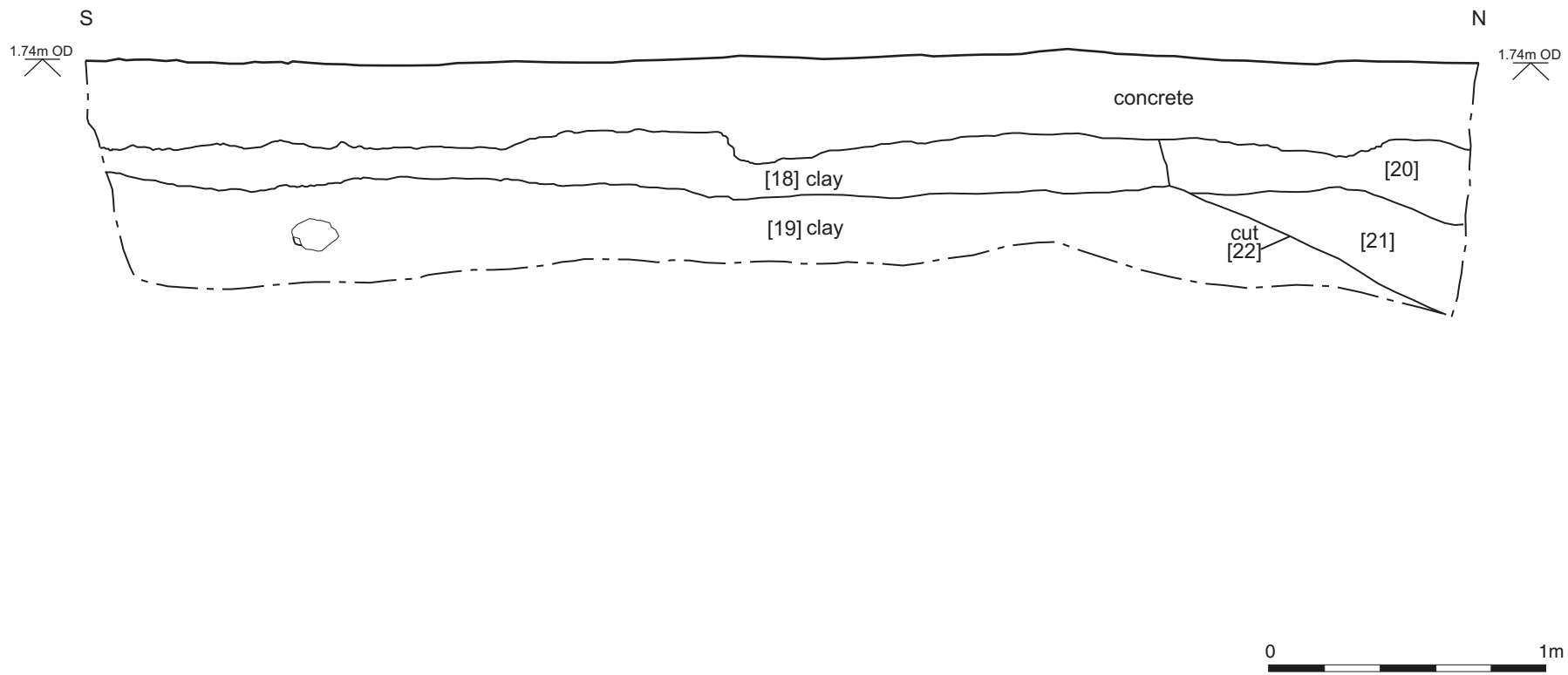


Fig 7 Trench 4 section

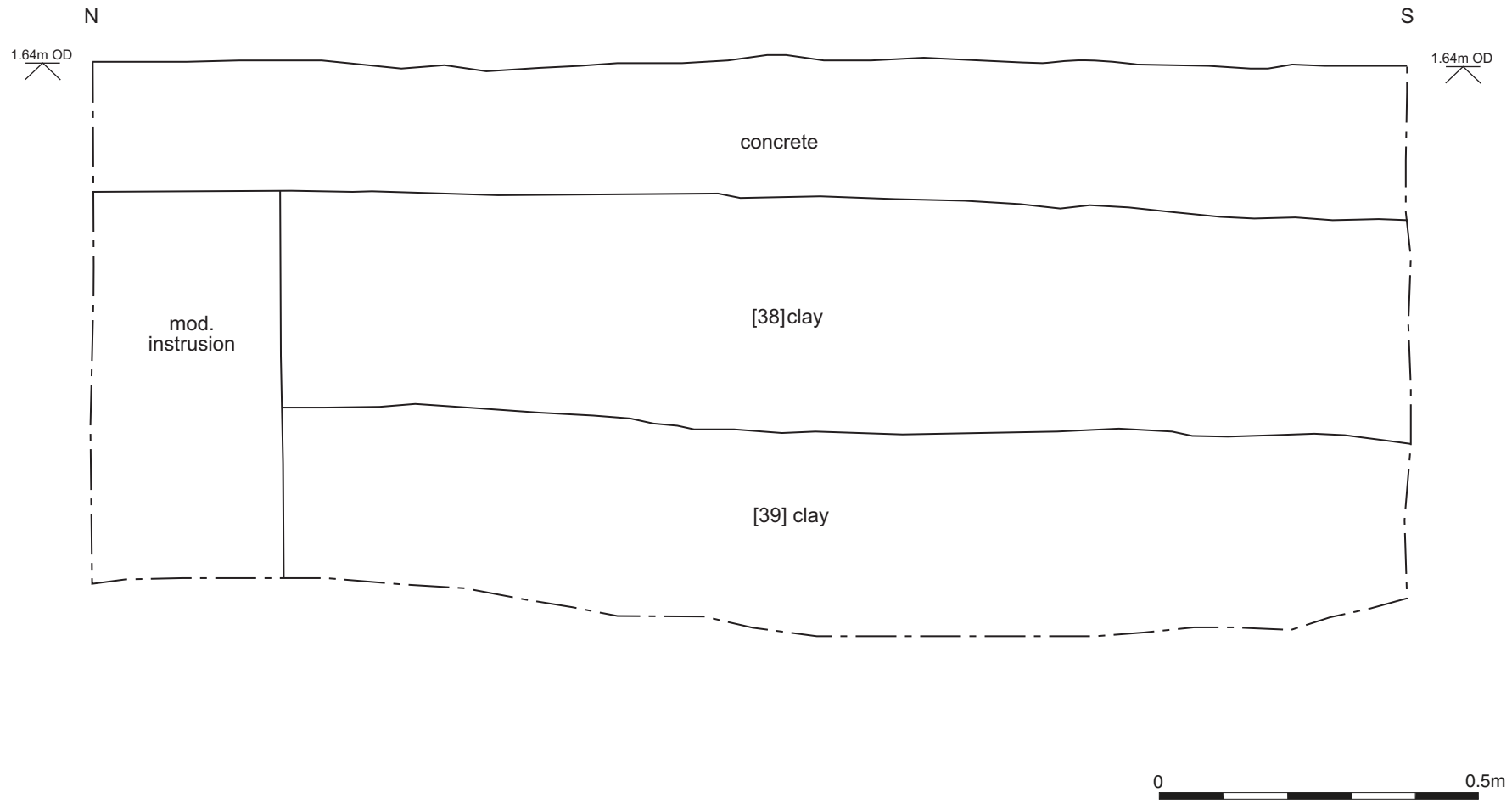


Fig 8 Trench 5 section

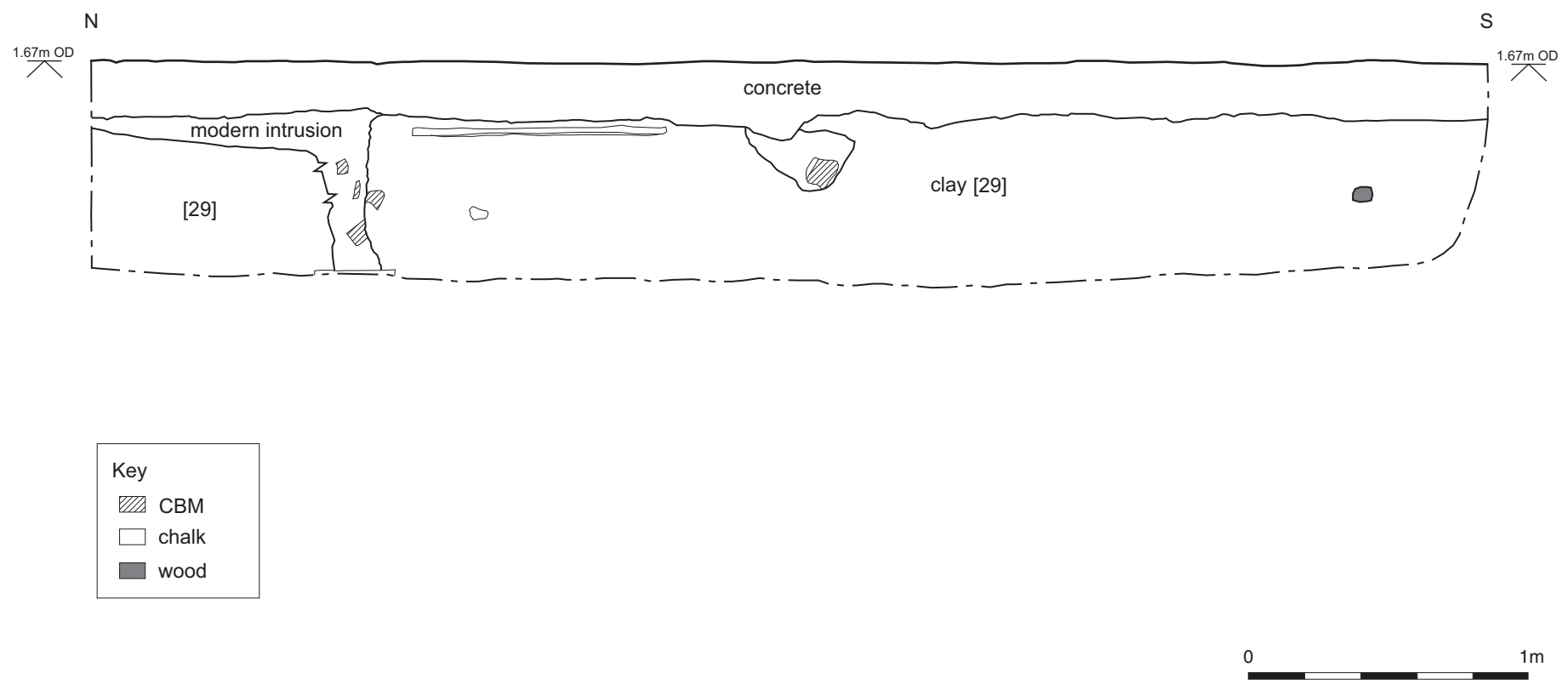


Fig 9 Trench 6 section

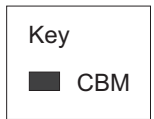
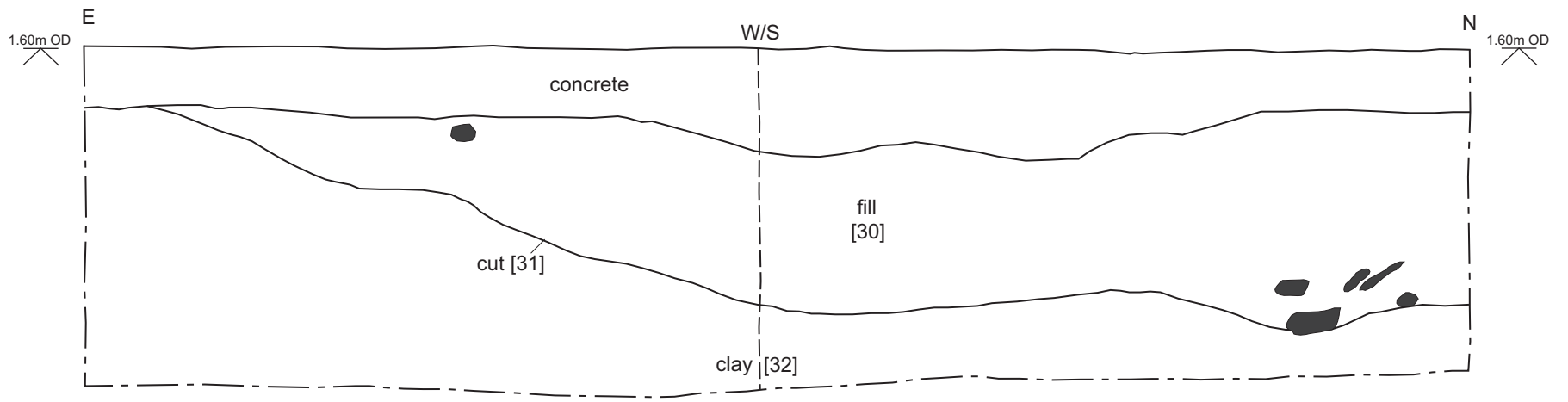


Fig 10 Trench 7 composite section