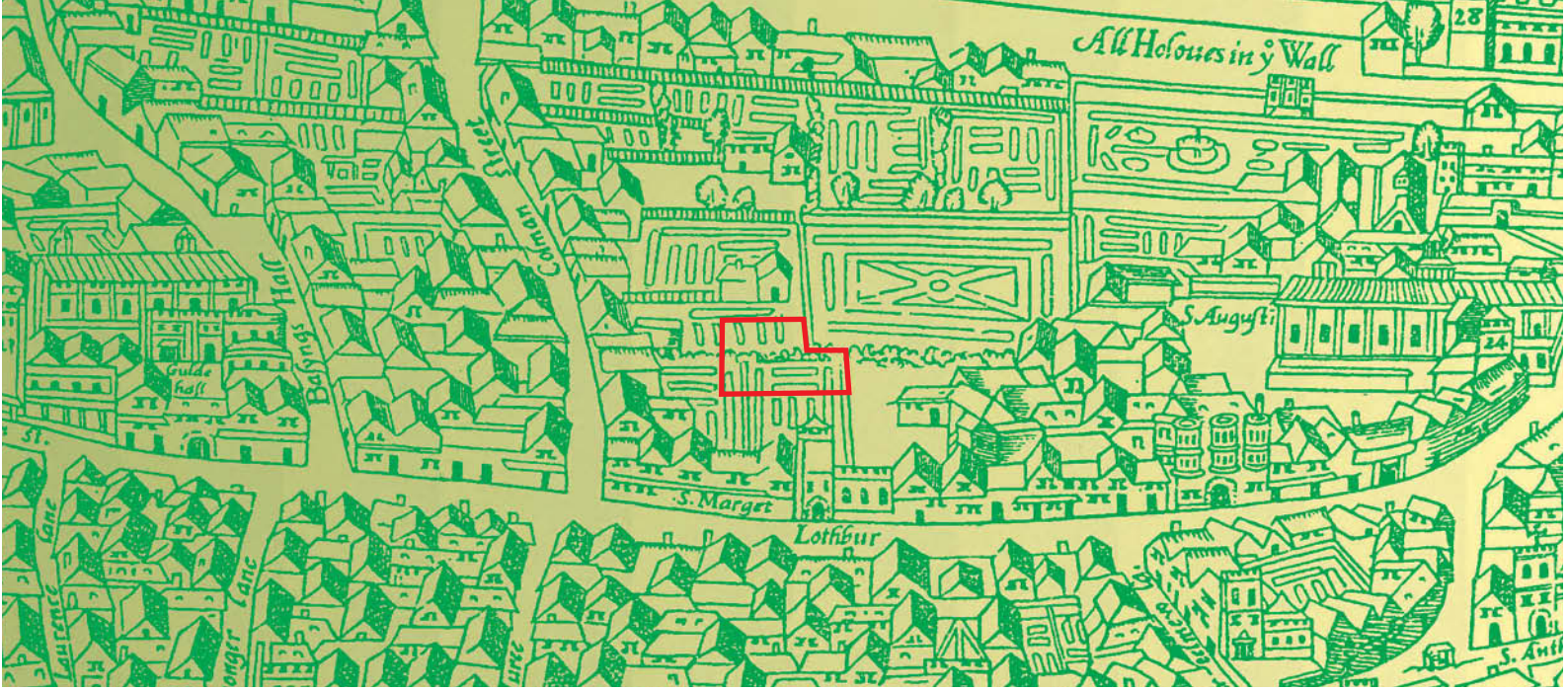


8–10 MOORGATE, 3–4 KING'S ARM YARD, 8–10 TELEGRAPH STREET, 16–17 TOKENHOUSE YARD
London
EC2

City of London

An archaeological evaluation report

April 2006

REGISTERED IFA ORGANISATION

MUSEUM OF LONDON
Archaeology Service

8–10 MOORGATE, 3–4 KING'S ARM YARD, 8–10 TELEGRAPH STREET, 16–17 TOKENHOUSE YARD
London
EC2

City of London

An archaeological evaluation report

Site Code: MGX06
National Grid Reference: 532708 181346

Project Manager	Sophie Jackson
Author	Peter Cardiff
Graphics	Jane Dunn

Museum of London Archaeology Service

Mortimer Wheeler House, 46 Eagle Wharf Road, London N1 7ED
tel 020 7410 2200 fax 020 7410 2201
email molas@molas.org.uk
web www.molas.org.uk

Summary (non-technical)

This report presents the results of an archaeological evaluation carried out by the Museum of London Archaeology Service on the site of 8-10 Moorgate, 3-4 Kings Arms Yard, 8-10 Telegraph Street, 16 & 17 Tokenhouse Yard, London, EC2. The report was commissioned from MoLAS by Hemingway Properties.

Following the recommendations of the previous impact assessment report (MoLAS 2006) four evaluation pits and five cores were excavated on the site. The aim of the evaluation was to confirm the extent of surviving archaeology on the site, and in particular the depth and significance of deposits associated with the Walbrook stream.

The results indicate that most archaeological deposits will have been removed on the western side of the site beneath Nos. 8 and 10 Moorgate. This is an area where relatively shallow Roman deposits were anticipated, including remains of a Roman road.

Further to the east the results of the test pits and auger holes matched the predictions in the archaeological assessment report. Deep deposits associated with the Walbrook channel and land reclamation were encountered. In TP3 mediaeval dumps and garden soils were observed overlying earlier reclamation deposits and fills of the Walbrook Channel. The base of eroded London Clay at the bottom of the channel was recorded 6.60m below the current slab level. In TP4 Roman features and reclamation dumps were recorded overlying waterlain Walbrook deposits. No major structural features from any period were encountered.

Two levels of basement are proposed in the current planning application. The construction of the lower ground floor in the centre of the site will have an impact on predominantly medieval garden soils, dump deposits and structures and upper levels of Roman dumping and land reclamation. In the 1983 investigation at 8 Telegraph Street Roman structures were recorded at levels that would be affected by the lower ground floor construction.

The deposits affected by the deeper basement level would consist mainly of Roman reclamation dumps and structures together with waterlain deposits associated with the Walbrook stream.

If the scheme is granted planning permission with the two level basements it is recommended that a programme of archaeological work is agreed which allows for the excavation of features at the top of the archaeological sequence (mainly the lower ground floor), with a combination of sampling and excavation of the deeper Walbrook Channel deposits.

Contents

List Of Illustrations

Illustrations at rear of report

1 Introduction

1.1 Site background

The evaluation took place at 8-10 Moorgate, 3-4 King's Arms Yard, 8-10 Telegraph Street, 16-17 Tokenhouse Yard, hereafter called 'the site'. The site lies on Moorgate, and is bounded on the east by Tokenhouse Yard, the south by King's Arms Yard and the north by Telegraph Street. The OS National Grid Ref. for centre of site is 532708 181346. The level of the basement slab varied between 11.65m and 9.20m OD. Modern ground level immediately adjacent to the site is 13.4m OD. The Museum of London site code is MGX06.

A desk-top *Archaeological impact assessment* was previously prepared, which covers the whole area of the site (MoLAS, 2006) The *assessment* 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.

The archaeological field evaluation was carried out in during February and March 2006 in those parts of the property that were accessible for evaluation. The work consisted of the opening of four trial pits and five archaeological cores, in line with the archaeological Method Statement (MoLAS, 2006).

1.2 Planning and legislative framework

The legislative and planning framework in which the archaeological exercise took place was summarised in Section 2 of the *Archaeological impact assessment* (see MoLAS, 2006).

1.3 Origin and scope of the report

The evaluation and report was commissioned by Hemingway Properties 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) and the Corporation of London Department of Planning, 2004 Planning Advice Note 3: Archaeology in the City of London, Archaeology Guidance.

Field evaluation, and the Evaluation report which comments on the results of that exercise, are defined in the most recent English Heritage guidelines (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

1.4 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 *Method Statement* for the evaluation (Section 2.2). The evaluation involved excavating four archaeological trial pits and three boreholes. The pits and cores were positioned to provide a profile through the Walbrook valley, from the higher ground beneath 8 and 10 Moorgate, through Roman reclamation deposits and into the main channel itself. It was hoped that the information from the pits and cores, together with existing information from the 1983 excavation in 8 Telegraph Street and recent excavations to the north, would provide sufficient information to allow decisions to be made about the proposed development and archaeological strategy.

1.4.1 Trial Pits

TP 1 (8 Moorgate): 1m x 1.5m and 1.2m deep
The aim of the pit was to provide information on:

- the extent of modern disturbance,
- the level of the natural brickearth and/or gravel subsoil,
- the presence of the late 1st/early 2nd century Roman Road and any associated dating evidence.

TP 2 (10 Moorgate): 2m x 2m and 1.2m deep
The aim of the pit was to provide information on:

- the extent of modern disturbance and thickness of the slab,
- the level of the natural brickearth and/or gravel subsoil,
- the presence of the late 1st/early 2nd century Roman Road and any associated dating evidence.

TP3 (3 King's Arms Yard): 2.5m x 2.5m and up to 3.5m deep
The aim of the pit was to provide information on:

- the extent of modern disturbance,
- the level of the side of the Walbrook Channel (natural deposits),
- environmental evidence relating to the pre-Roman silting of the channel,
- evidence of early Roman reclamation and management of the channel,
- evidence of Roman buildings,
- medieval land use.

TP4 (16 Tokenhouse Yard): 2.5m x 2.0 m and up to 3.5m deep
The aim of the pit was to provide information on:

- the extent of modern disturbance,

- the level of the base of the Walbrook Channel (natural deposits),
- environmental evidence relating to the silting of the channel both before and during the Roman period,
- evidence of Roman reclamation and management of the channel,
- medieval reclamation,
- medieval land use.

1.4.2 Cores

Three archaeological cores were proposed in the parts of the site that were not accessible for pits, or where the slab may be particularly thick.

- Core 1 (10 Moorgate)
- Core 2 (8 Telegraph Street)
- Core 3 (4 King's Arms Yard)

2 Topographical and historical background

A detailed description of the geology, archaeology and history of the site was provided in the earlier *Archaeological Assessment* (MoLAS 2005). A brief resume is provided below.

2.1 Pre-Roman topography

The site sits on the edge of the western Walbrook channel and consequently will have varying levels of natural subsoil. Natural brickearth may survive beneath 8-10 Moorgate at between 8.90m to 9.40m OD. Further to the east, the ground level will drop away, with truncated gravel appearing between approximately 6-8m OD. Truncated London clay may be found at the base of the channel at a depth of 3.40m OD beneath the properties at the east end of the site.

The earliest deposits that might be encountered on the site are likely to be alluvial silts, clays and gravel laid down during the prehistoric period. These deposits might contain organic material (seeds, pollen etc) that could provide information on the pre-Roman environment and climate.

(See geoarchaeological report in appendix for further detail)

2.2 Roman

The first phase of activity in the area consisted of an extensive programme of reclamation and drainage, accompanied by the canalisation of the Walbrook and its tributary streams.

By *c* AD 120 the water regime is likely to have been sufficiently under control for building to take place. Building remains on 8 Telegraph Street consisted of part of a substantial stone building, possibly with a portico facing towards the Walbrook to the east. This building was reconstructed in *c.* AD 150, and its walls robbed out in *c.* AD 240-300.

The Walbrook continued to be a factor in the development of the area; this is reflected not only by the presence of numerous drains and drainage channels, but also by the high number of wells, some of which cut the reclamation dumps within stream channels. The availability of water is likely to have influenced the concentration of industrial activity in the area, where a variety of processes clearly took place. These included metalworking, glassmaking, potting and tanning or the production of leather goods.

An early (*c.* AD 90-120) north-east to south-west road, Road 1, was observed to the north of the site during the excavations at 12 Moorgate. It is likely to have clipped 8-10 Moorgate. It is probable that this road continued in use until the 4th century AD. The existence of a parallel road, Road 2, was indicated by excavation to the north east of the site.

Towards the later period of Roman occupation in the 3rd century it appears that flooding may have caused further problems, with the ground level again being raised by dumping, before apparent abandonment.

2.3 Saxon

After the abandonment of the Walbrook valley, the drainage and water regulation systems appear to have collapsed contributing to the formation of a marsh within the city wall. Potential Saxon deposits in the area of the site might therefore include marsh deposits.

2.4 Medieval

The first signs of re-occupation in the study area are from the 11th -12th centuries with evidence of drainage and reclamation.

The Walbrook stream became increasingly polluted in the medieval period and by the end of the 16th century it had been largely bridged over.

Though there was considerable development in the proximity of Coleman Street, it seems likely that the areas away from the street remained open as gardens until at least the end of the 16th century.

Evidence of industrial activity during this period, particularly for bronze and leather-working is common, and may be reflected in the establishment of the Founders' guild hall (livery company ordinances dating back to 1365) to the south-west of the study area in the early 16th century, and the presence of the first Leathersellers' Hall to the north-east on London Wall.

2.5 Post-medieval

The site was on the limit of the area destroyed by the Great Fire of 1666. Following reconstruction, the basic street pattern in the area remained unchanged during the 18th and early 19th centuries.

During the 1840s Moorgate (initially Moorgate Street) was created to give easier access to the new London Bridge, which had been opened in 1831. The new road cut through the alleys leading off Coleman Street to the east, and would have involved the demolition of several properties directly to the west of the site.

The present buildings on the site vary in date. The Goad Insurance plan dated to 1886-7 indicates that most of the structures on the site had single basements.

2.6 Extent of archaeological survival

An estimate of the potential depth of archaeological survival was made in the Archaeological Assessment and is copied below. Over the line of the deeper

Walbrook channel most of the deposits will consist of alluvial silts and clays at a lower level, with reclamation deposits above.

Table 1: Estimate of archaeological survival before field evaluation

Property	**Estimated base of truncation**	**Estimated top of natural subsoil**	**Estimated depth of archaeological deposit**
8 Moorgate	8.91-9.58m OD	8.90m – 9.40m OD	Up to 0.68m
10 Moorgate	8.55-9.9.58m OD	8.90m – 9.40m OD	Up to 0.68m
3 King's Arms Yard	9.76-11.02m OD	6.50m – 8.50m OD	1.26m to 4.52m
4 King's Arms Yard	11.02m - 10.76m OD	4.0m OD – 7.0m OD	4.02m to 7.02m
8-10 Telegraph Street	11.04m -11.18m OD	5m OD - 8.5m OD	2.54m to 6.18m
16 Tokenhouse Yard	8.70m -9.28m OD	3.4m OD – 5m OD	3.70m to 5.88m
17 Tokenhouse Yard	9.86-10.32m OD	3.4m OD	5.78m to 6.42m

3 The evaluation

3.1 Methodology

All archaeological excavation and monitoring during the evaluation was carried out in accordance with the preceding Method Statement for Archaeological Evaluation (MoLAS, 2006), and the MoLAS Archaeological Site Manual (MoLAS, 1994).

A total of 4 evaluation trenches and 3 boreholes had been proposed in the basements of the different properties, the purpose of which was to provide information on the extent of modern disturbance and the nature and depth of surviving archaeological deposits. In the event, the two westernmost trenches (TP1 and TP2b) were excavated through modern concrete and backfill to below the level of the natural subsoil and a core was subsequently excavated through the base of TP2b (AH5). An additional pit was opened in 10 Moorgate (TP2a) to try to confirm the presence of absence of archaeology in this area.

The other pits (TP3 and TP4) and cores proceeded as planned in the Method Statement, although several attempts were needed to core AH2 in a former IT room, due to the presence of very thick concrete slabs and foundations.

The slab/ground was broken out and cleared by the contractors Fugro Engineering Ltd under MoLAS supervision. Trenches were excavated by hand by either MoLAS staff or the contractors depending on the contents of the trench.

The locations of evaluation trenches were recorded by MoLAS staff by off-setting from adjacent standing walls and plotted on to a Basement Survey (Gordon Tomalin Partnership, Dwg. No. 7602.01, Jan 02). This information was then plotted onto the OS grid.

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).

The site has produced: 1 trench location plan; 19 context records; 3 section drawings at 1: 20; and 2 photographs. In addition several bags of finds were recovered from the site.

The site finds and records can be found under the site code MGX06 in the Museum of London archive.

In the text below describing the results of the evaluation the numbers in brackets ( ) are ‘context numbers’, an archaeological unit of recording representing an event or process, such as a dumped soil layer or the cut of a drainage trench.

3.2 Results of the evaluation

For trench locations see Figure 2.

Evaluation Trench 1	
Location	Basement in 8 Moorgate
Dimensions	0.80m x 1.20m
Modern ground level/top of slab	10.05 OD
Base of modern fill/slab	8.75m OD
Depth of archaeological deposits seen	N/A
Level of base of deposits observed	8.75m OD (concrete slab)
Natural observed	N/A

TP1 was located in the vaults beneath the pavement on the east side of Moorgate, at the extreme south west of the site, where it was hoped to observe the projected eastern edge of the Roman road (see fig. 3 in the Archaeological impact assessment). The basement slab was at 10.05m OD and the test pit measured 0.80m x 1.20m at the surface. The slab was 0.20m thick and overlay brick rubble made ground. At 8.95m OD another concrete slab was observed. As the natural brickearth deposits were predicted to lie between 8.90m to 9.40m OD in this area, it was decided not to break out the second slab as this was already below the level of horizontal archaeological stratigraphy.

Evaluation Trench 2a	
Location	Basement in 10 Moorgate
Dimensions	80m x 1.20m
Modern ground level/top of slab	10.08m OD
Base of modern fill/slab	8.98m OD
Depth of archaeological deposits seen	N/A
Level of base of deposits observed	8.98m OD (concrete slab)
Natural observed	N/A

TP2a was an additional pit opened in the vault of 10 Moorgate, 4.5m south of the Telegraph Street frontage and 5.5m east of the Moorgate frontage. The reason for the pit was to try to confirm the presence or absence of archaeology in the western part of the site, following the discovery of extensive concrete and rubble in TPs 1 and 2b. The basement slab was at 10.08m OD, and the test pit measured 0.80m x 1.20m at the surface. The slab was 0.20m thick and overlay brick rubble. At 8.98m OD another slab was revealed and the pit was halted at this level.

Evaluation Trench 2b	
Location	Basement in 10 Moorgate
Dimensions	80m x 1.20m
Modern ground level/top of slab	10.08m OD
Base of modern fill/slab	8.08m OD
Depth of archaeological deposits seen	0.20m
Level of base of deposits observed	7.88m OD
Natural observed	7.88m OD

TP2b was located in the basement of 10 Moorgate, 1.00m east of the Moorgate frontage and 6.00m south of the Telegraph Street frontage. The basement slab was at 10.08m OD and the test pit measured 0.80m x 1.20m at the surface. The slab was 0.20m thick and overlay brick and concrete rubble. At 8.98m OD another concrete slab was revealed. This was cored to ascertain the slab thickness and augered to assess the potential for any archaeological survival. The slab proved to be 0.90m thick. At 8.08m OD a 0.20m thick deposit of grey silty clay appeared that may have been the base of a cut feature. Beneath this at 7.88m OD, Pleistocene gravels were recorded.

Evaluation Trench 3	
Location	Basement in 3 King's Arms Yard
Dimensions	2.50m x 2.50m
Modern ground level/top of slab	11.52m OD
Base of modern fill/slab	10.84m OD
Depth of archaeological deposits seen	5.92m
Level of base of deposits observed	9.43m OD
Natural observed	4.92m OD

TP3 was located in the south of the site, 3.50m north of the King's Arms Yard frontage and 30m east of the Moorgate frontage. In the medieval period this area was likely to have been open ground (see fig 4 and section 3.2.5 of the Archaeological impact assessment Jan 2006).

The basement floor surface was at 11.52m OD, and the test pit measured 2.50 x 2.50m at the surface. The trench was hand excavated to a depth of 9.92m OD and was then augered to a depth of 4.92m OD. A 0.60m wide trial slot or 'sondage' was excavated to a depth of 9.43m OD to provide more information on the sequence of deposits.

The floor slab was 0.20m deep, and the remaining 0.68m consisted of brick rubble and mortar make up. Beneath this make up was a steel reinforced concrete base, 0.30m thick, that had supported a staircase (now demolished). The concrete base truncated a trench built 19th century brick foundation (18). The bricks were fragmented, of rough English bond, and the wall survived to a length of 0.80m within the trench. Because of the wall and the concrete base, the southern 0.90m of the trench was not excavated.

At 10.82m OD, the highest of two surviving medieval dumped/garden soil deposits (7&8) of dark grey silt clay was revealed. Both contained fragments of Roman and

Medieval ceramic building material (CBM) and animal bone, as well as considerable amounts of 11th to 12th century pottery fragments amounting to 8 large sized vessels. There was a marked declivity towards the south suggesting the presence of a pit (or pitting) at some lower level into which all these deposits had slumped. The dumped/soil deposits sealed a 0.10m to 0.15m thick layer (6) of cessy material consisting mainly of wetland plants such as various sedges and rushes which lay across the entire area. Beneath the cessy layer were two shallow free standing pits or vats (cuts 9&11) that were probably originally timber lined and robbed of their timber when the pits fell into disuse. These pits were probably associated with some industrial process at present unknown.

The pits were separated in the north by the remains of a chalk rubble wall foundation or possibly a walkway (13). To the south of these features were four distinct layers of compact off white mortar (12), each separated by a thin layer of silt (tread), presumably laid as surfaces over a brickearth slab (14). These mortar floors varied in thickness but were 0.20m thick in total at their northern limit and slumping considerably to the south beyond the southern limit of excavation. At 10.03m OD in the north of the trench and 9.90m OD in the south, a further sequence of dark grey silt clay dumped material and garden soil (15 & 16) was observed that was similar to deposits (7) & (8), with similar inclusions of CBM and animal bone, as well as 13th to 14th century pottery fragments. A 0.60m wide trial slot was excavated at this point to a depth of 9.43m OD.

An auger hole was drilled from the top of (15). This revealed dumped material to a depth of 7.27m OD. Some of these deposits represent Roman period reclamation and consolidation over marshland on the margins of a channel of the Walbrook River. At 5.24m OD coarse sandy gravels appeared representing early Holocene deposits in a fast moving channel. London clay was seen at 4.92m OD. (See the geoarchaeological report in the appendix for more information on the sequence of deposits in the Walbrook channel).

Evaluation Trench 4	
Location	Basement in 16 Tokenhouse Yard
Dimensions	2.00m x 2.50m
Modern ground level/top of slab	9.25m OD
Base of modern fill/slab	8.71m OD
Depth of archaeological deposits seen	4.66m
Level of base of deposits observed	4.05m OD
Natural observed	4.05m OD

TP4 was located in the north eastern part of the site, 7m south of the Telegraph St. frontage and 7m west of the Tokenhouse Yard frontage. The test pit was positioned over the projected western edge of the western channel of the Walbrook River. The basement floor surface was at 9.25m OD, and the test pit measured 2.00m x 2.50m at the surface. The trench was hand excavated to a depth of 7.90m OD and was then augered to a depth of 4.05m OD.

The floor slab was 0.25m deep with three horizontal 20mm bands of bitumen within it. Beneath the slab was 0.21m of hogging, then 40mm of brick crush over 40mm of screed.

The highest surviving deposit was a 0.40m thick layer (1) of typically anthropogenic mixed clayey silt dumping containing fragments of Roman ceramic building material (CBM), animal bone, oyster shells and Roman pottery. This deposit also contained a horse bone skate that was almost certainly medieval and residual. A north south ditch (3) was observed in the south east of the trench that was on the same alignment as the Roman roads in the vicinity[1]. The infill of the ditch (2) was virtually indistinguishable from (1) and contained Roman pottery. Beneath (1) and also cut by (3) was a spread (4) of fragments of Roman tiles (tegulae) presumably laid down to consolidate the marshy ground. In places, it was possible to see 4 layers of tiles, and there was a distinct western edge along which there were occasional vertically pitched tiles. This tile layer seemed to share the same alignment as the ditch (3), and would probably have been associated with consolidation and reclamation along the westernmost bank of the projected western channel of the Walbrook (see fig 03 of the Archaeological impact assessment). The tile layer was sitting on a dumped deposit (5), again similar to (1), but mixed with waterlain silts suggesting that this was the upper margin of the alluvial floodplain. The pottery evidence dates these deposits to the second half of the 4th century A.D.

An auger was drilled from 7.90m OD to 4.05m OD revealing Roman dumps overlying marginal (edge of channel) deposits and infill of the channel. (See the geoarchaeological report in the appendix for more information on the sequence of deposits in the Walbrook channel).

3.3 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, the evaluation has provided valuable and reliable information which can be used to inform decisions about the archaeological mitigation strategy for the proposed development.

3.4 Realisation of original research aims

The realisation of the research aims identified for each of the pits is considered below.

<u>TP1, TP2a and TP2b – 8 and 10 Moorgate</u>
The modern disturbance in this area was much greater than anticipated. All three pits appeared to overlie earlier and deeper basement slabs at approximately 8.98m OD. This slab was cored in TP2b and was shown to be 0.90m thick, taking the general truncation level down to 8.08m OD. This level is significantly below the predicted level of natural brickearth of between 8.90m and 9.40m. If the lower slab or general disturbance is of this thickness over the entire area of 8 and 10 Moorgate, then it is

[1] The road projected along the east side of Moorgate and the road that ran through Tokenhouse Yard and Copthall Avenue.

very unlikely that features associated with the Roman Road will survive in this area, or any associated structures and ground surfaces. The bases of deep cut features such as quarry or rubbish pits may survive in localised areas.

The truncated natural Pleistocene gravels were recorded at 7.88m OD in TP2b.

TP3 – 3 King's Arms Yard
The disturbance from the existing floor slab was approximately 0.70m. There was evidence of 19th century foundations in the south of the pit and additional modern disturbance from a foundation for a stair. The highest survival of archaeological deposits was at 10.84m OD.

The deposits excavated in plan were medieval in date. Excavation ceased at 10.10m OD when a structural feature was discovered. Augering was initiated at this level and medieval and Roman dumps were shown to continue to 7.27m OD, at which point the latest in the sequence of marshy deposits appeared. At 5.24m OD early Holocene channel deposits representing a fast flowing channel appeared. London clay was recorded at 4.92m OD.

Therefore in this part of the site there it appears that medieval garden soils and dumps will overlie earlier medieval and Roman reclamation deposits, marshy ground and waterlain deposits associated with the Walbrook Channel.

TP4 – 16 Tokenhouse Yard
The disturbance from the existing floor slab was approximately 0.55m. The pit was positioned away from foundations and there was no other evidence for modern disturbance. The highest level of archaeological survival was at 8.71m OD.

The deposits recorded in TP4 consisted of Roman dump and reclamation deposits overlying Walbrook channel deposits to 4.05m OD.

3.5 General discussion of potential

The results of the evaluation suggest that most archaeological deposits will have been removed in at least the western side of Nos. 8 and 10 Moorgate by modern construction. This is the area where relatively shallow Roman deposits were anticipated, including remains of a Roman road.

Further to the east the results of the test pits matched the predictions in the archaeological assessment report. Deep deposits associated with the Walbrook channel and land reclamation were encountered. No significant structures or deposits were encountered during the evaluation, although the excavation in 1983 in 8 Telegraph Street indicated the presence of Roman and Saxon buildings.

The table below sets out the revised estimate of depths of truncation and survival in the areas where the evaluation took place. These levels do not necessarily apply to all areas of the individual properties as the basement levels vary.

Table 2: Revised estimate of archaeological survival (after field evaluation)

Property	Estimated base of truncation	Estimated top of natural subsoil	Estimated depth of archaeological deposit
8 Moorgate	8.08m OD	8.90m – 9.40m OD	Cut features only
10 Moorgate	8.08m OD	8.90m – 9.40m OD	Cut features only
3 King's Arms Yard	10.84m OD (in TP3)	4.92m OD	5.92m
16 Tokenhouse Yard	8.71m OD	4.05m OD	4.66m

3.6 Significance

The deposits seen in the evaluation were considered to be of local significance consisting of Roman and medieval dump deposits, with evidence of small scale land management and industry. The results of the excavation in 1983 in 8 Telegraph Street indicated the presence of Roman and Saxon buildings on the reclaimed edge of the Walbrook channel. These deposits are or more interest, but again are fall into the category of local significance, providing valuable information on the development and plan of this part of London.

The lower levels of the Walbrook channel may contain environmental deposits and finds of local or regional significance, but are difficult to predict.

4 Proposed development impact and recommendations

The proposed development involves the demolition of the current buildings and construction of a new ten-storey office block to be known as 8-10 Moorgate[2].

The new building will have a lower ground floor at a general level of 8.80m OD, with extensions west under Moorgate at 10.09m OD and east under Tokenhouse Yard at 9.684m OD. A double basement is also proposed for part of the site footprint with a floor level of 5.05m OD. Allowing 0.50m for the thickness of the proposed basement slabs and disturbance from their construction it can be assumed that the excavation of the double basement will remove material down to 4.55m OD. The single basement excavation will remove material to 8.30m OD with the exceptions of the strips beneath Moorgate at 9.59m OD and the Tokenhouse Yard basement at 9.18m OD. There will be additional deeper areas of excavation for piled foundations.

The evaluation has shown that most archaeological deposits have been removed along the Moorgate frontage (8 and 10 Moorgate) and the impact of the new lower ground floor here is likely to be minimal.

Further west as deposits dip down in the Walbrook Channel, the potential for archaeological survival is much greater (recorded up to 5.92m depth in 3 King's Arms Yard. The construction of the lower ground floor in the centre of the site will have an impact on predominantly medieval garden soils, dump deposits and any structures and upper levels of Roman dumping and land reclamation. In the 1983 investigation at 8 Telegraph Street Roman structures were recorded at levels that would be affected by the lower ground floor construction.

The deposits affected by the deeper basement level would consist mainly of reclamation dumps and structures over naturally waterlain deposits associated with the Walbrook stream.

If the scheme is granted planning permission with the two level basements it is recommended that a programme of archaeological work is agreed which allows for the excavation of structural and anthropogenic features at the top of the archaeological sequence (mainly the lower ground floor), with a combination of sampling and excavation of the deeper Walbrook Channel deposits.

[2] (GMW Architects drawings 3290/TP08, 3290/TP09, 3290/TP10, 3290/TP25 and 3290/TP27 dated 17/6/05 reproduced as Figures 15-18 in the archaeological impact assessment)

5 Acknowledgements

MoLAS would like to thank Hemingway Properties for funding the archaeological work. The author would like to thank Richard, Neil and Jim from Diacore for opening up the test pits, Mick, Patrick and Sam from Fugro for digging the pits down to archaeological deposits, and Gary and Vic from Cazenove for all their help and enthusiasm.

6 Bibliography

Corporation of London, 1994 *Unitary Development Plan*

Corporation of London Department of Planning, 2004 *Planning Advice Note 3: Archaeology in the City of London, Archaeology Guidance*, London.

Corporation of London, 1998 Department of Planning, *A Directory of Conservation Areas, Listed Buildings & Scheduled Monuments in the City of London;*

Department of the Environment, 1990 *Planning Policy Guidance 16, Archaeology and Planning*

English Heritage, 1991 *Management of Archaeological Projects (MAP2)*

Institute of Field Archaeologists (IFA), rev. 1999 *By-Laws, Standards and Policy Statements of the Institute of Field Archaeologists, Standard and guidance: Desk Based Assessment*

MoLAS, 2000, *Northgate House and Kent House A Post-Excavation Assessment and Updated Project Design*

MoLAS, 2006, 8-10 Moorgate, 3-4 Kings Arms Yard, 8-10 Telegraph Street, 16 & 17 Tokenhouse Yard – An Archaeological impact assessment

MoLAS, 2006, 8-10 Moorgate, 3-4 Kings Arms Yard, 8-10 Telegraph Street, 16 & 17 Tokenhouse Yard – Method Statement for an archaeological evaluation

Museum of London, 1994 *Archaeological Site Manual 3rd edition*

7 NMR OASIS archaeological report form

7.1 OASIS ID: molas1-13875

Project details

Project name	8-10 Moorgate, 3-4 Kings Arms Yard, 8-10 Telegraph St., 16 and 17 tokenhouse Yard
Short description of the project	This report presents the results of an archaeological evaluation carried out by the Museum of London Archaeology Service on the site of 8-10 Moorgate, 3-4 Kings Arms Yard, 8-10 Telegraph Street, 16 and 17 Tokenhouse Yard, London, EC2. The report was commissioned from MoLAS by Hemingway Properties. Following the recommendations of the previous impact assessment report (MoLAS 2006) a number of evaluation pits were excavated on the site. The results of the field evaluation have helped to refine the initial assessment of the archaeological potential of the site. The west of the site (TP1,TP2a ,TP2b) has been truncated almost down to natural deposits. The central (TP3 and AH3) areas of the site have the greatest depth of archaeology with evidence of survival of late medieval deposits overlying Roman dumps and Walbrook Channel infill. The test pit (TP4) in the east of the site revealed survival of a Roman reclamation deposits and Walbrook channel infill.
Project dates	Start: 13-02-2006 End: 10-03-2006
Previous/future work	Yes / Not known
Any associated project reference codes	MGX06 - Sitecode
Type of project	Field evaluation
Site status	Area of Archaeological Importance (AAI)
Current Land use	Industry and Commerce 2 - Offices
Monument type	WATERCOURSE Roman
Monument type	BUILDING Medieval

Methods & techniques	'Test Pits'
Development type	Redevelopment
Prompt	Direction from Local Planning Authority - PPG16
Position in the planning process	Between deposition of an application and determination

Project location

Country	England
Site location	GREATER LONDON CITY OF LONDON CITY OF LONDON 8-10 Moorgate, 3-4 Kings Arms Yard, 8-10 Telegraph Street, 16 and 17 Tokenhouse Yard, London,EC2
Postcode	EC2
Study area	2520.00 Square metres
National grid reference	TQ 32708 81346 Point

Project creators

Name of Organisation	MoLAS
Project brief originator	Corporation of London
Project design originator	MoLAS
Project director/manager	Sophie Jackson
Project supervisor	P. Cardiff

8 Geoarchaeological report

8.1 Introduction

This section of the report sets out the detailed results of a geoarchaeological borehole survey, carried out by the Museum of London Archaeology Service (MoLAS) on the site of 8-10 Moorgate, 3-4 Kings Arms Yard, 8-10 Telegraph Street and 16 and 17 Tokenhouse Yard. The augerhole survey was carried out to assess the depth of the archaeological deposits, and the depth of the alluvial deposits associated with the Walbrook stream channel. A total of five boreholes were drilled from the base of archaeological test pits, and areas where the concrete slab had been previously removed specifically for coring purposes.

8.2 Geoarchaeological Background

London occupies part of the Thames Basin, a broad syncline of chalk filled in the centre with Tertiary sands and clays. In the City, and in most of London, this Tertiary series of bedrock consists of London Clay. Above the bedrock lie the Pleistocene (Quaternary) fluvial deposits of the River Thames arranged in flights or gravel terraces. These terraces represent the remains of former floodplains of the river, the highest being the oldest with each terrace becoming progressively younger down the valley side.

The Walbrook channel cuts through one of these earlier terraces and forms a tributary channel of the River Thames, which flowed from the Islington area to meet a confluence with the Thames just to the west of Cannon Street station. The Walbrook valley was probably formed sometime during the Pleistocene period when high energy glacial melt waters scoured out the terrace gravels down to the level of the London Clay.

The upper part of the Walbrook valley (in the vicinity of the site) consisted of a wide broad valley through which a number of channels have been identified from previous excavations (Sygrave, 2001). Channels occurring within this area have generally been referred to by the generic term ‘Walbrook Channel’ (Wilmott, 1991), although these channels are likely to have consisted of various channels flowing within the valley at different times, and as possible tributary channels flowing off the valley sides from the east and west. Previous archaeological excavations have identified at least two main channels, an east and west channel within this area, which merged into a single channel just north of Lothbury.

The western channel was recorded during excavations at Northgate House and Kent House\ Copthall Close, where the results of these excavations suggested that the channel ran almost north-south. Work at 6-8 Tokenhouse Yard revealed evidence of a deep channel apparently running southeast-northwest. It is not clear whether this is part of the western or eastern channel.

These excavations to the north of the site suggest that the western channel should flow through the eastern part of the site. Excavations on the site itself (8 Telegraph Street) identified dump deposits, which were dumped into the Walbrook valley to consolidate the marshy ground, although an active channel contemporary with Roman activity on the site itself was not present.

8.3 Augerhole Methodology

The auger holes were drilled by Geodrive Ltd with a hand held, electric driven, pneumatic power auger fitted with various diameter window sampling bits. The coring was monitored onsite by the MoLAS geoarchaeologist.

All the core samples were cleaned and described, using standard sedimentary criteria, as outlined in Jones *et al* (1999). This attempts to characterise the visible properties of each deposit, in particular relating to its colour, compaction, texture, structure, bedding, inclusions, clast-size and dip. For each profile, every distinct unit was given a separate number (e.g.: for AH1: 1.1, 1.2 etc from the top down).

The level at the top of the Auger holes (AH's) was calculated from the site plan provided by the site engineers, which noted the OD level of the concrete slab.

Auger Hole 1 (AH 1) was drilled from the base of the excavated archaeological deposits within TP4. AH 3 was drilled from the base of the archaeological deposits within TP 3 and AH 5 at the base of TP 2B. AH 2 and 4 were drilled through pre-cored areas (Cores 1 and 3), where the concrete slab had been removed with the use of a diamond drill cutter. All the auger holes were drilled to reach the Pleistocene gravels or the Tertiary London Clay bedrock, except AH 4 where it was not possible to reach the base of the channel deposits due to the enclosed space and the difficulties of coring below a depth of 6m.

8.4 Analysis of the Augerhole Data

The geotechnical logs recorded onsite by the MoLAS geoarchaeologist were entered into a digital (TerraStation II) database. Each deposit component (gravel, sand silt etc) was given a colour and a pattern and, as a result, the two major variables of any deposit were stored in the TSII database and used to construct the deposit model.

A cross-section (transect) was drawn through the augerholes and correlations were made between key deposits (see Figure 4). Interpretation of the data is based to a large extent on examining this transect. Individual lithostratigraphic units with related characteristics within a borehole were grouped together and then linked with similar deposits, which may be made up of a number of individual contexts (lithostratigraphic units) in adjacent augerholes. Linking deposits between augerholes produced a series of site-wide deposits (facies), which are representative of certain environments. Thus a sequence of environments both laterally and through time has been reconstructed for the site.

The transect drawn through the augerhole profile forms a major means of illustrating the buried stratigraphy in this report. A key to the lithostratigraphy and its facies interpretation is provided in Figure 4.

8.5 The Results

Table 1: Deposits recorded within TP4 (AH 1), drilled from the base of the excavated deposits.

Ground surface at c. 8.45m OD

Units	**Depth below surface (m)**	**Characteristics**	**Interpretation**
1.1	0-1.3	Soft very dark brownish grey clay silt, with occasional shell and bone fragments. Contains occasional small angular and sub-angular gravel clasts.	Anthropogenic layer consisting of disturbed dumped material or garden soil.
7.15m OD			
1.2	1.3-1.35	Soft black slightly peaty organic clay with occasional shell fragments	Marshy channel marginal area adjacent to active channel. Representative of a waterlogged vegetated soil horizon, inundated by seasonal overbank flooding depositing minerogenic clays in pools of still standing water.
1.3	1.35-2.38	Soft dark brown organic clay with frequent fibrous plant fragments, and occasional bone and shell fragments	
1.4	2.38-2.70	Mixed deposit consisting of thin lenses of pale brown clay interleaved with slightly peaty dark brown organic clay. Contains occasional brick and tile fragments	
5.75m OD			
1.5	2.70-3.40	Firm pale brown clay silt with occasional small angular and sub-angular gravel clasts. Contains thin lenses (<0.02m in thickness) of compacted mid brown reedy and plant stem organic material in upper 0.3m of the unit.	In-channel sediments indicating a fairly slow flowing channel, with fluctuating water levels, or periodic channel migration. Clay silts indicate the active flowing episodes of the channel. The occurrence of thin bands of organic

1.6	3.40-4.25	Firm pale brown\grey clay silt with occasional sand and moderately coarse angular, sub-angular and rounded gravel clasts. Matrix generally becomes grittier down through the profile with an increase in the sand content. Contains very occasional thin (<0.02m in thickness) mid brown organic lenses	material suggest periods where channel flow has ceased, allowing vegetation to colonise the margins of the channel. This may have occurred when the water levels within the main part of the channel had dropped due to ponding back further upstream, or due to short periods of channel abandonment.
1.7	4.25-4.40	Firm pale grey slightly sandy clay silt	
1.8	4.40-4.90	Moderately firm pale brown clay silt with moderate quantities of moderately coarse sand and occasional small angular, sub-angular and rounded gravel clasts.	
3.55m OD			
1.9	4.90-5.20	Moderately compact mid greenish grey coarse angular, sub-angular and rounded gravel in a gritty sandy silt matrix.	Early Holocene channel deposits representing fairly fast flowing channel.
3.25m OD			
1.10	5.20-5.40	Stiff mid brown clay	Tertiary bedrock. London Clay

Table 2: Deposits recorded within Core 2 (AH2), drilled from the concrete slab level.

Ground surface at c. 11.56m OD

Units	**Depth below surface (m)**	**Characteristics**	**Interpretation**
2.1	0-2.30	Concrete slab (upper 0.3m of the unit) and made ground comprised of brick rubble.	Modern deposits
9.26m OD			

2.2	2.30-3.20	Moderately firm very dark grey slightly gritty silty clay with occasional brick/tile and shell fragments. Contains occasional moderately coarse angular, sub-angular and rounded gravel clasts	Anthropogenic layer consisting of disturbed dumped material or garden soil.
8.36m OD			
2.3	3.20-3.45	Moderately firm mid to light orangey brown silty clay. Contains occasional brick/tile fragments.	Dumped material and redeposited brick earth. Possibly dumped to consolidate wet ground at the margins of the active channel
2.4	3.45-3.70	Moderately firm mid brown silty clay with moderate quantities of small angular, sub-angular and rounded gravel clasts	
7.86m OD			
2.5	3.70-3.80	Firm dark brown organic clay silt with moderate quantities of small plant fragments	In-channel sediments indicating a fairly slow flowing channel, with fluctuating water levels, or periodic channel migration. Clay silts indicate the active flowing episodes of the channel. The occurrence of bands of organic material suggest periods where channel flow has ceased, allowing vegetation to colonise the margins of the channel. This may have occurred when the water levels within the main part of the channel had dropped due to ponding back further upstream, or due to short periods of channel abandonment.
2.6	3.80-4.45	Soft mid greyish brown clay silt with occasional thin lenses of mid brown organic material (<0.02m in thickness). Contains occasional small angular, sub-angular and rounded gravel clasts	
2.7	4.45-4.50	Compressed dark grey/black laminated plant stems and reed fragments	
7.06m OD			
2.8	4.50-4.65	Mid to light brown clay silt with moderate quantities of fine sand and occasional small angular, sub-angular and rounded gravel clasts	Early Holocene channel deposits, representing fast flowing channel.
2.9	4.65-5.40	Compact mid orangey brown coarse sandy gravels.	Pleistocene gravels.

Table 3: Deposits recorded within TP3 (AH3), drilled from the base of the excavated deposits.

Ground level at c. 9.52m OD

Units	**Depth below surface (m)**	**Characteristics**	**Interpretation**
3.1	0-0.55	Firm mid brown gritty silty clay with occasional small angular and sub-angular gravel clasts	Anthropogenic layers consisting of disturbed or dumped material or garden soil horizons
3.2	0.55-2.25	Firm dark grey gritty silty clay with frequent brick and tile, shell, mortar and charcoal fragments. Contains thin lenses of organic material in lower 0.2m of the unit.	
7.27m OD			
3.3	2.25-2.48	Soft mid brown gritty clay silt with occasional shell fragments	Marshy channel marginal area adjacent to active channel. Representative of a waterlogged vegetated soil horizons, inundated by seasonal overbank flooding depositing minerogenic clays in pools of still standing water. The distinct units of clay silt suggest that channel flow may have been reactivated across this part of the site intermittently.
3.4	2.48-2.68	Soft dark greyish brown clay silt with lenses of organic plant remains.	
3.5	2.68-3.18	Moderately firm mid brown organic clay silt, with occasional small angular and sub-angular gravel clasts	
3.6	3.18-3.58	Mixed deposit of soft mid tan brown clay silt, with lenses of dark brown organic material containing plant stems and reed fragments	
3.7	3.58-3.65	Soft black organic clay with frequent plant stems and reed fragments	
3.8	3.65-3.75	Soft pale to mid brown clay silt	
3.9	3.75-3.83	Compressed black peaty clay with frequent plant stems and reed fragments	
5.69m OD			

3.10	3.83-4.28	Mid to pale brown slightly gritty clay silt with occasional small angular, sub-angular and rounded gravel clasts. Contains occasional thin lenses of organic peaty clays containing frequent plant and reed stems	In-channel sediments indicating a fairly slow flowing channel, with fluctuating water levels, or periodic channel migration. Clay silts indicate the active flowing episodes of the channel. The occurrence of bands of organic material suggest periods where channel flow has ceased, allowing vegetation to colonise the margins of the channel. This may have occurred when the water levels within the main part of the channel had dropped due to ponding back further upstream, or due to short periods of channel abandonment.
5.24m OD			
3.11	4.28-4.60	Loose mid greenish brown coarse sandy gravels with moderate quantities of angular, sub-angular and rounded gravel clasts.	Early Holocene channel deposits, representing fast flowing channel.
4.92m OD			
3.12	4.60-5.00	Stiff mid brown clay	Tertiary bedrock, London clay.

Table 4: Deposits recorded within Core 3 (AH4), drilled from the concrete slab level.

Ground surface at c. 11.52m OD

Units	**Depth below surface (m)**	**Characteristics**	**Interpretation**
4.1	0-2.20	Concrete slab (upper 0.3m of the unit) and made ground comprised of brick and mortar rubble in a loose mid greyish brown silty clay matrix	Modern deposits
9.32m OD			

4.2	2.20-5.00	Firm dark grey silty clay with occasional charcoal flecks, occasional small angular and sub-angular gravel clasts and occasional brick and tile and mortar fragments	Anthropogenic layer consisting of disturbed dumped material or garden soil.
6.52m OD			
4.3	5.00-5.30	Firm very dark brown slightly [peaty clay, containing frequent small plant fragments	Marshy channel marginal area adjacent to active channel. Representative of a waterlogged vegetated soil horizons, inundated by seasonal overbank flooding depositing minerogenic clays in pools of still standing water. The distinct units of clay silt suggest that channel flow may have been reactivated across this part of the site intermittently.
4.4	5.30-5.45	Firm mid grey clay silt with occasional sand and occasional small angular and sub-angular gravel clasts. Contains occasional wood and plant fragments	
4.5	5.45-5.50	Dark grey/brown peaty clay, with frequent small plant fragments.	
4.6	5.50-5.75	Mid grey/brown clay silt with occasional sand and occasional small angular and sub-angular gravel clasts.	
4.7	5.75-6	Dark brown organic clay with frequent small plant remains	

Table 5: Deposits recorded within TP2B (AH5), drilled from the concrete slab level.

Ground surface at c. 10.08m OD

Units	**Depth below surface (m)**	**Characteristics**	**Interpretation**
5.1	0-2.00	Concrete slab and made ground comprised of brick and mortar rubble.	Modern deposits
8.08m OD			
5.2	2.00-2.20	Loose dark grey silty clay with occasional sand and small gravel clasts	Anthropogenic layer consisting of disturbed or dumped material
7.88m OD			
5.3	2.20-2.30	Loose tan brown gritty sandy clay with frequent small angular and sub-angular gravel clasts	Pleistocene deposits
5.4	2.30-3.00	Compact mid orangey brown coarse sandy gravel	

8.6 Discussion of the Site Stratigraphy

The deposits that are of archaeological and geoarchaeological interest on the site are discussed in this section in stratigraphic order, from the oldest to the most recent. The stratigraphic sequence is illustrated in the cross-section drawn across the site between the boreholes (See Figure 4). Geoarchaeological terms are highlighted and explained in the Geoarchaeological Glossary.

8.6.1 Tertiary deposits: Facies 1

The earliest deposits consist of the London Clay, characterised by a stiff mid brown clay. This deposit was only recorded within AHs 1 and 3 (units 1.10, and 3.12). In AH 1 the deposit occurred at 3.25m OD, while in AH 3 the deposit occurred at 4.92m OD.

The London Clay is usually found beneath the **Pleistocene** gravels, but within the augerholes where it occurs the overlying deposits consist of gravels more characteristic of **Holocene** gravels (see facies 3). This suggests that the overlying Pleistocene gravels where eroded by fast flowing melt water that carved out the Walbrook valley during the **Late Devensian** period (c. 18 000 to 15 000 BP). During this period the tundral conditions of the **Late Glacial** period were beginning to change to the warmer climate represented by the Holocene period. An influx of high-energy melt water, with a low sediment load would have resulted in erosional processes rather than depositional processes. This area of truncated London Clay marks the deepest point to the Walbrook channel. The London Clay was deposited during the Eocene epoch, and therefore holds no importance to human activity as it pre-dates the advent of modern humans.

8.7 Pleistocene Gravels: Facies 2

Pleistocene gravels were recorded towards the western part of the site within AH 5 and 2. The gravels consisted of a predominately compact mid orangey brown coarse sandy gravel, but within AH 5 finer gravely sandy clay associated with the Pleistocene gravels was also recorded.

In AH 2 the Pleistocene deposits occurred at 6.91m OD, while in AH 5 they occurred at 7.88m OD (units 2.9 and 5.3, 5.4). The height of the gravels indicates a gradual drop towards the eastern part of the site into the main channel area where the truncated London Clay deposits (Facies 1) occur. The BGS solid and drift geology map (no. 256) records the gravels in this area as belonging to the Taplow terrace formation. These gravels were deposited during the Wolstonian (or Salian) glacial period between 128 to 280 000 BP. The gravel terrace represents an older riverbed to the River Thames prior to downcutting events during subsequent glacial periods.

8.7.1 Early Holocene Gravels: Facies 3

These deposits were recorded with AHs 1, 2 and 3. The deposit consisted of a moderately compact mid greenish grey moderately coarse gravel within a gritty sandy silt matrix (units 1.9, 2.8, and 3.11), although within AH 2 the deposit was predominately a sandy silt with less gravel inclusions. This gravely unit appears to

slope downwards towards the eastern part of the site. Within AH 2, on the western side it occurs at 7.06m OD and measures 0.15m in thickness. In AH 3 the unit occurs at 5.24m OD and measures 0.32m. Within AH 1 towards the eastern part of the site, the unit occurs at its lowest elevation at 3.55m OD and measures 0.3m in thickness.

The greenish grey gravels are noticeably different to the orangey brown gravels associated with the Pleistocene river terraces (Facies 2). This suggests that they were probably deposited sometime during the early Holocene period after the initial scouring out of the Walbrook valley during the Late Devensian period. It is probable that the gravels were deposited sometime during the Late Glacial\Early Holocene interface (c.15 000 to 10 000 BP).

Prior to the warming of the Holocene period, a short interstadial episode occurred (The **Loch Lomond** interglacial, c. 13 000 to 11 000 BP) when the climate reverted to tundral conditions. With the melting of the ice tied up in the frozen landscape at the start of the Holocene, increased flow rate and a high sediment load would have resulted in the deposition of these gravels. The gravels within facies 3 are, however, unlikely to have been deposited at the same time or by the same channel, and may represent multiple channels, which flowed through the valley from the Holocene period onwards. This is evident from the noticeable difference in the levels at which the gravels occur.

The higher gravels that occur within AH2 may have been deposited by a tributary channel flowing off the higher ground towards the west, or as a result of gradual channel migration. The lower lying gravels which occur above the truncated London Clay, certainly appear to infill the main area of the channel, and it is possible that these sediments may be prehistoric in date. As this main channel began to infill with the fine clay silt sediments, the channel may have migrated towards the west. For this to occur the flow rate into the channel must have increased substantially to deposit the sandy gravely silts, rather than the finer clay silts (facies 4). This rejuvenation in the flow rate may have been a result of human influence on the channel system. Dredging or canalisation of parts of the Walbrook stream during the Roman period may have channelled the water into a single channel, which resulted in a faster flow rate and therefore deposition of coarser sediments.

8.7.2 In-Channel deposits: Facies 4

Above the Holocene gravels fine mid to pale brown clay silts were recorded within AH 1 and 3 (units 1.5 to 1.8 and 3.7 to 3.10). Within AH 1 the deposit occurs at 5.75m OD and measures 2.2m in thickness, while in AH 3 the deposit occurs at 5.69m OD and measured 0.7m in thickness.

The clay silts generally appear to fine upwards with small quantities of sand and gravel in the lower parts of the units. The deposit is characteristic of a fairly slow flowing channel, which becomes progressively less energetic as the channel begins to infill.

Towards the top of the unit thin bands of peaty material were recorded. This suggests that the channel flow became intermittent, due to a drop in the water level or because of short-lived episodes of channel migration. This would have allowed vegetation to

colonise the exposed banks of the channel, which were then subsequently buried by more clay silts once the water levels had risen or channel flow was once again reactivated.

As discussed in the previous section, these clay silts are unlikely to be contemporary, and may represent multiple channels flowing across the lowest part of the Walbrook valley at different times.

8.7.3 Channel marginal deposits: Facies 5

Within AHs 1 to 4 a series of deposits characterised by soft mid to dark brown organic clays, black and dark brown peats and intermixed soft mid brown clay silts and peaty lenses was recorded. Some bone and leather fragments were also present within these deposits. Within AHs 3 and 1 these units overlaid the in-channel clay silt deposits (facies 4). Within AH 4, which lies in-between AHs 1 and 3 the base of these deposits was not reached, but it is probably that these deposits also lie above the in-channel clay silts. Within AH 2 the unit occurred above the Holocene sandy clays (facies 3).

Within AH 1 the deposits occurred at 7.15m OD and measured 1.4m in thickness (units 1.2 to 1.4). In AH 2 they occurred at 7.86m OD and measured 0.8m in thickness (units 2.5 to 2.7). Within AH 3 the deposits occurred at 7.27m OD and measured 1.33m in thickness (units 3.3 to 3.6). In AH 4 the deposits occurred at 6.52m OD and measured 1m in thickness (units 4.3 to 4.7).

In general this facies is comprised of alternating deposits of peats and organic clays that are fairly thin in thickness and predominately occur as intermixed lenses. The facies becomes more organic and less minerogenic up through the profile. This mixing of organic and minerogenic units suggests that the deposits characterise a channel marginal area with unstable conditions which change rapidly from waterlogged vegetated soil horizons at the edge of a channel, to short flood events depositing minerogenic clays in still standing water. The slightly more silty component of some of the minerogenic deposits also suggest that slow flowing, shallow ephemeral channels may have been active across the area for short periods of time.

It is uncertain whether these marginal channel deposits are associated with the western channel of the Walbrook or the eastern channel. It is possible that as this part of the Walbrook valley infilled with sediments the main channel flowed occurred more towards the eastern part, with the area of the site itself existing as a marshy environment adjacent to this channel. The occurrence of the mixed minerogenic and organic deposits suggest that rather than the channel on the site becoming suddenly abandoned, a gradual migration of the channel occurred.

The fluctuating water levels and the short episodes of fluvial deposition may also have been as a result of water management further upstream. The dredging and recutting of the stream channel deposits would have increased and improved the flow rate, while episodes of dumping into the channel may have restricted the flow resulting in ponding back. Such activity would have resulted in drier episodes,

associated with the peat formation, and restricted channel flow, fluctuating to wetter episodes associated with clay deposition and improved channel flow.

Within AH2 the deposits occur above the sandy clays and gravels (facies 3). There appears to be no gradual transition from in-channel deposits, to a slower flow rate depositing the finer clay silts (facies 4). This suggests that rather than gradual channel migration occurring this possible tributary channel became suddenly abandoned and existed as a marshy hollow which infilled with predominately organic deposits.

8.7.4 Re-deposited Brick Earth: Facies 6

This deposit only occurred with AH 2 (unit 2.3, 2.4), which is positioned on the higher part of the valley towards the west of the site. The deposits consisted of light orangey brown silty clays and a lower unit of a mid brown silty clay with occasional gravel. The unit occurs at 8.36m OD and measures 0.5m in thickness.

The characteristics of this deposit suggest it derives form redeposited brick earth, which was probably placed on the higher ground over the marshy deposits (Facies 5) to consolidate the boggy ground. The presence of brick and tile fragments within the deposit suggests this probably occurred during the Roman period.

8.7.5 Anthropogenic deposits: Facies 7

Across all the AHs deposits associated with human activity were recorded. These deposits generally consisted of a dark grey gritty silty clay, which contained bone, pot and brick and tile fragments. In AH 1 the unit occurred at 8.45m OD and measured 1.3m in thickness. In AH 2 the deposit occurred at 9.26m OD and measured 0.9m in thickness. In AH 3 the deposit occurred 2.52m OD and measured 2.25m in thickness. In AH 4 the deposit occurred at 9.32m OD and measured 2.8m in thickness, while in AH 5 the deposit occurred at 8.08m OD and measured 0.20m in thickness.

The deposits display no evidence of fluvial deposition and are all likely to be the result of dumping, or the formation of garden soils. Within TP 4 (AH1) the upper archaeological layers were dated to the Roman period from the pottery evidence, and so it is likely that the anthropogenic layers are likely to be the result of dumping or pit fills. Within TP 3 (AH 3), the upper archaeological horizons were dated to the Medieval period, and therefore the upper part of this deposit may relate to garden soils. From the historic maps open garden areas are known to have existed on the site during this period. The lower part of the unit is likely to contain Roman deposits relating to dumped ground or pit fills, although this is difficult to distinguish from within the cores.

8.7.6 Modern Deposits: Facies 8

The upper most unit consists of the modern concrete slab and made ground. These units were only recorded where the AHs were measured and taken from the top of the current modern ground level (i.e. AH 2, 4 and 5), and where not recorded from where the augerholes here taken from the base of the test pits which contained archaeological horizons (i.e. AHs 1 and 3).

In AH 2 the unit occurred at 11.56m OD and consisted of 2m of concrete slab and 0.3m of brick, and concrete rubble. In AH 3 the unit occurred at 11.52m OD and

consisted of c. 0.3m of concrete slab and 1.90m of mortar and brick rubble in a loose silty clay matrix. In AH 3 the unit consisted of 0.3m of concrete slab, and 1.70m of brick and mortar rubble.

8.8 Conclusion

The evidence from the augerholes suggests that a large part of the site (between AH 2 and 1) is likely to contain deposits associated with the Walbrook channel. Higher ground exists towards the western part of the site where the Pleistocene gravels exist below redeposited brick earth probably associated with ground consolidation. The main part of the channel occurs between AH 3 and AH 1 where fluvial activity scoured out the Pleistocene gravels and truncated the London Clay. A possible tributary channel flowing from the west into the valley is also likely to exist.

The deposits which infill the scour are representative of flowing water, initially depositing gravels under high energy conditions, and then with a reduction in the flow rate which deposited finer clay silts. However it is unclear whether the deposits recorded in the augerholes represent a single wide channel, or where deposited at different times by a channel that migrated gradual across a wide valley basin.

The presence of the Holocene gravels at the base of the sequence, suggests that the deposits which have accumulated within the channel area have done so since the Prehistoric period. Therefore, these active channels may have infilled with sediment and become abandoned prior to the Roman period. The lower units within the augerholes (facies 4) contained little evidence of dumping and no artefactual evidence that would suggest a Roman date.

Walbrook deposits associated with Roman activity often display anthropogenic deposits mixed with naturally accumulating sediments. This has usually been interpreted as episodes of dumping into a stream channel or onto the adjacent marshy areas. The lower deposits recorded within the augerholes are more characteristic of slowly accumulating natural sediments uninfluenced by human activity. The deposits also show no sign of truncation or erosion that could be associated with the recutting, dredging and water management of an active channel.

The upper deposits (facies 4) which contained lenses of organic material and clays did contain occasional pieces of leather and bone fragments. This suggests that by the time the active channel had infilled and become abandoned or migrated, human activity was taking place in the area. During this time most of the eastern part of the site would have existed as a marshy vegetated zone, prone to episodes of overbank flooding, and possibly seasonally activated ephemeral channels. These deposits appear to extend onto the higher ground towards the west, where the Pleistocene gravels survive. The re-deposited brick earth, which exists on this part of the site probably relates to an attempt to consolidate the ground on the margins of this marshy area.

Whether the marshy ground is associated with an active channel on the site itself is difficult to ascertain without dating the deposits. In general it is clear from the augerholes that the site stratigraphy associated with the channel deposits is likely to be fairly complicated, and represent multiple episodes of channel flow and abandonment. Without dating these deposits the development of the natural stratigraphy and its association with human activity will remain unclear.

8.9 Geoarchaeological Potential

From the deposits recorded within the auger holes it is clear that a substantial area of the site contains deposits associated with the Walbrook channel. These deposits survive up to a depth of 3m at the deepest point (AH 1). The channel deposits are likely to date to the Early Holocene and therefore have potential in understanding the evolution of the Walbrook valley from the Prehistoric to Roman period.

The auger holes have suggested that the channel deposits may not be contemporary, but were deposited by different channels as the main course of the stream migrated across the valley floor. The presence of organic material throughout the channel deposits could be utilised to radiocarbon date the periods of channel activity and enable a better understanding of the natural stratigraphy and its development.

The organic deposits could also provide palaeoenvironmental evidence in the form of pollen, diatoms and plant macro remains. This would allow for the reconstruction of the environmental and landscape conditions prevalent on site and the surrounding area. This would be of particular relevance if the sequence was found to date from the Early Prehistoric to Roman period as this would provide a long chronological sequence.

8.10 Recommendations

Any further work, which impinges on the Walbrook deposits, should aim to date the accumulation of these sediments and clarify whether the deposits relate to more than one episode of channel activity and deposition. The dating of the deposits will help in understanding the development of the river regime in this part of the Walbrook valley, and have implications for understanding human impact on the river system.

If some of the deposits were found to date to the Prehistoric period, this would be of particular significance, as the nature of the Walbrook channel during is not fully understood or represented during this period. Any deposits found to date to the Prehistoric period should be subjected to further palaeoenvironmental work, such as sampling for pollen, diatom and plant macro remains. This would aid in understanding the development of the river, in terms of the change in the river regime, the upstream tidal influence of the Thames on the channel, and for reconstructing the surrounding environment.

8.11 Geoarchaeological Glossary

Alluvium. Sediment laid down by a river, and usually well-sorted. Can range from sands and gravels deposited by fast flowing water and clays that settle out of suspension during overbank flooding. Other deposits found on a valley floor are usually included in the term alluvium. Peat develops when there is little mineral sediment deposition and impeded drainage, which limits biological decay.

Holocene. The most recent epoch (part) of the Quaternary, covering the past 10,000 years during which time a warm interglacial climate has existed. Also referred to as the ‘Postglacial’ and (in Britain) as the ‘Flandrian’.

Late Glacial. The period following the Last Glacial Maximum and lasting until the climatic warming at the start of the Holocene. In Britain this period is subdivided into a warm 'interstadial' episode the **Windermere Interstadial**, followed by a renewed cold ('stadial') episode, in which local ice advances occurred (the **Loch Lomond Stadial**).

Last Glacial Maximum. The height of the glaciations that took place at the end of the last cold stage, around 18,000 years ago.

Loch Lomond Stadial. See **Late Glacial**.

Pleistocene. Used in this report to refer to the earliest part of the Quaternary, the period of time until the start of the Holocene, about 10,000 years ago. However, since the present Holocene epoch is almost certainly only a warm interglacial episode within the oscillating climate of the Quaternary, it is often seen as being part of the Pleistocene epoch, in which case the terms Pleistocene and Quaternary are interchangeable. As it is necessary, in this report, to differentiate between the events that took place at various times during the last cold stage and earlier in the Quaternary and those that took place during the Holocene, the Pleistocene is used to refer to the parts of the Quaternary pre-dating the climatic amelioration that took place at the start of the Holocene.

Quaternary. The most recent major sub-division (period) of the geological record, extending from around 2 million years ago to the present day and characterised by climatic oscillations from full glacial to warm episodes, when the temperate was as warm as if not warmer than today. To a large extent human evolution has taken place within the Quaternary period.

9 Roman Pottery Report

The assemblage consisted of 96 sherds from six contexts, five of which also contained post-Roman pottery. Four contexts were small in size (less than 30 sherds) and two were medium (31 and 39 sherds). The sherds were generally medium in size with an average weight-per-sherd of 31 grams. Five of the six contexts dated to the late Roman period with the sixth context dating AD 50–100, Table 1 below shows the date ranges of all contexts.

Context	Early Date	Late Date	Sherds
1	350	400	39
2	250	300	10
4	270	300	31
8	50	100	6
15	250	275	8
16	250	400	2

Table 1: Dating of Contexts

The fabrics identified within the contexts overwhelming date to the late Roman period and the range of fabrics and their dating is show in Table 2 below. There are no unusual fabrics or vessels within the assemblage but it stands out because of the high quantity of late Roman fabrics within it. However, because of its small size, little more can be said about this group.

Fabric	Expansion	Sherds	Early Date	Late Date
AHFA	Alice Holt/Farnham ware	24	250	400
AMPH	unsourced amphora fabric	1	50	400
BAETL	Baetican late Dressel 20 fabric	1	170	300
BB1	black-burnished ware 1	5	120	400
BBS	black-burnished-style ware	3	120	400
FINE	unsourced fine reduced ware	3	50	400
FMIC	fine micaceous reduced ware	2	50	120
GAUL	indistinguishable Gaulish amphora fabrics	2	50	250
GAUL1	Pélichet 47/Dressel 30 amphora fabric	2	50	250
GAUL3	Gaulish Dressel 2–4 amphora fabric	2	50	150
HWB	Highgate Wood ware	1	40	100
MHAD	Much Hadham oxidised ware	1	200	400
MICA	miscellaneous mica-dusted ware	1	50	400
MOSL	Moselkeramik	2	200	275
NAFR	North African amphora fabric	1	140	400
NAFR2	North African lime-poor amphora fabric	1	200	400
NVCC	Nene valley colour-coated ware	9	150	400
OXID	unsourced oxidised ware	8	50	400

OXRC	Oxfordshire red/brown colour-coated ware	1	270	400
OXWW	Oxfordshire white ware	1	180	400
PORD	Portchester ware D	1	350	400
RHWW	Rhineland white ware (other than Soller)	1	50	300
SAMCG	central Gaulish samian	3	120	250
SAMEG	east Gaulish samian	1	150	300
SAMLG	la Graufesenque samian	1	50	100
SAMTR	Trier samian (Trier I and Trier II)	3	125	300
SAND	unsourced sand-tempered ware	13	50	400
SPEC	Speicher ware	2	200	400

Table 2: Fabrics from MGX06

10 Post-Roman Pottery Report

Nigel Jeffries

10.1 Summary

The medieval pottery from the evaluation at MGX06 was recovered from eight contexts ([1], [6], [7], [8], [10], [14], [15], and [16]), which yielded 156 sherds from up to 87 vessels. Although seven of these contexts contained only small-sized pottery groups (yielding fewer than 30 sherds), one medium-sized group was found (from context [8], which contained 97 sherds). Providing a Saxo-Norman and later medieval chronology to the recorded landuse, much of this assemblage is in a good condition, with the larger sized, well preserved, fragments retrieved from [8] (in Trench 3).

10.2 Methodology

The numerical data comprises sherd count, estimated number of vessels (ENV) and weight in grammes (see Orton, Tyers and Vince, 1993, 167-181, with regard to these specific methods of quantification) and recorded onto the Oracle database. This assessment aims to evaluate the character and the date range of the assemblage, determine the research questions the pottery has the potential to address and identify any areas of further work.

10.3 Site archive and assessment: finds and environmental

medieval pottery	156 sherds. Total 3.6 kg

Table 1: Finds and Environmental Archive General Summary

10.4 Fabrics and forms

The hand built reduced coarseware jars and London-type ware jugs found in contexts [1] (Trench 4), [14] (Trench 3), [15] (Trench 3), and [16] (Trench 3) date these deposits to between 1050 and 1200. Discarded between 1400 and 1500, the most well preserved ceramic group was found in context [8], with many of the forms associated with either beverage serving and drinking. For example, the eight coarse border ware (CBW) large rounded jugs found (Pearce & Vince 1988, fig 110, nos 432-433) were principally used for serving drinks, with the sooting present on the base of one such jug probably the result of the heating of mulled wine. Contexts [6] (Trench 3), [7] (Trench 3) and [10] (Trench 3) also yielded similar, later medieval, ceramics.

10.5 Analysis of potential

10.5.1 The pottery

The pottery assemblage from Trenches 3 and 4 suggest a Saxo-Norman and medieval landuse for these parts of the site; however, the presence of small quantities of Roman pottery suggests some disturbance. Whilst the pottery groups are generally too small to apply further quantitative work and are of little use beyond establishing a chronology for individual trenches and their contexts, they provide some indication about the range of ceramics that could be found if further excavation work is undertaken in the immediate area.

Bibliography

Orton, C R, Tyers, P and Vince, A, 1993 *Pottery in Archaeology*

Pearce, J, and Vince, A G, 1988 A Dated Type-series of London Medieval Pottery Part 4: Surrey Whitewares, *London and Middlesex Archaeol Soc Spec Pap 10*

Vince, A G, and, Jenner, A, 1991 'The Saxon and Early Medieval Pottery of London' in A G Vince (ed) *Aspects of Saxon and Norman London 2: Finds and Environmental Evidence*. London and Middlesex Archaeol Soc Spec Pap 12, 19-119.

11 Botanical Report

John Giorgi

N.B. The information contained within this report is preliminary assessment data, and may be modified in the light of detailed analytical work.

11.1 Introduction/methodology

During evaluation at 3-4 Kings Arms, 8-10 Moorgate (MGX06), two environmental bulk soil samples were collected for the potential recovery of biological remains including botanical material. The aim of the evaluation was to establish the level of organic preservation and the range of environmental material present on the site and on the basis of the results, to make sampling recommendations in light of further excavation at the site.

The two samples were from the following contexts; a 30 litre sample <2> from a thick layer of cess material [6], dated to between 1300 and 1500, and a 20 litre sample <1> from a dumped deposit [7], dated to between 1270 and 1350. Both samples were processed using a modified Siraf flotation tank with flotation onto a 0.25mm mesh followed by wet-sieving of the residue through a 1mm mesh sieve. The residues were dried and sorted for botanical remains that had not floated and artefactual remains. The processing details are shown in Table 1.

The flots were scanned using a binocular microscope and the item frequency and species diversity of all biological remains was recorded using the following rating system of 1 to 3.

Frequency: 1 = 1-10 items; 2 = 11-50 items; 3 = 50+ items
Diversity: 1 = 1-4 species; 2 = 5-7 species; 3 = 7+ species

11.2 The results

Plant remains preserved by 'waterlogging' and charring were present in both samples with details by context shown in Tables 2 and 3. The charred plant remains consisted mainly of fragmentary charcoal, particularly in context [7], which included a number of identifiable fragments, both in the flot and residue. There were also a few charred grains of wheat (*Triticum* spp.), including free-threshing wheat and spelt wheat (*Triticum spelta*) in context [7]; the spelt wheat is probably residual. Occasional charred weed seeds including brome (*Bromus* sp.) were also identified in context [7].

Small assemblages of 'waterlogged' plant remains were present in the two samples but with a low species diversity. The dominant element in both samples was the presence of wetland plants, particularly seeds of sedges (*Carex* spp.), some of which may be mineralised, and rushes (*Juncus* spp.), especially in context [6]. These plants may represent residues of flooring materials rather than indicating damp conditions

within these features. There were also a few plants of disturbed ground and waste places including elder (*Sambucus nigra*) (a potential food plant), goosefoots/oraches (*Chenopodium/Atriplex* spp.) and fools parsley (*Aethusa cynapium*).

Other biological remains in the two samples are listed in Table 3. There were faunal remains in both samples including large and small mammal bone, fish and bird bone and molluscs (terrestrial or freshwater and marine). Particularly large amounts of animal (large mammal, fish, bird) and marine molluscs were recovered from context [7]. Finds sorted from the two samples (Table 4) consisted of a few fragments of CBM, pot, brick/tile, slag, copper and iron objects.

11.3 Summary and recommendations

The results from the evaluation of the two samples showed that a wide range of biological remains were preserved in the soil, which would provide information on both economic activities in the area as well as possibly local environmental conditions. The material that survived, however, tended to be the more robust environmental remains such as animal bone. Organic preservation of more fragile botanical remains and insects was not noted in either sample although the 'waterlogged' seeds and fruits and charred grains did provide some evidence on human activities at the site. It is recommended, on the basis of the survival of environmental remains in these two samples, particularly animal bone, that bulk soil samples (at least 20 litres) should be taken on a spatial and temporal basis in the event of further excavations at the site.

12 Animal Bone Report

Alan Pipe

12.1 Introduction

This report quantifies, summarises and interprets the animal bone recovered by hand-collection from contexts [1], [4], [8], [10] and [15]; and by wet-sieving from contexts [6] {2} and [7] {1} at MGX06. It then comments on the potential of this assemblage for further study.

12.2 The animal bones

Contexts [1], [4], [8], [10] and [15] produced 4.900 kg, estimated 161 fragments, of hand-collected animal bone; contexts [6] {2} and [7] {1} produced 0.31 kg, estimated 165 fragments, of wet-sieved animal bone. All the bone was well-preserved and in an excellent state of preservation and surface condition. Fragment size was large, generally greater than 75mm in greatest length in the hand-collected group, and there was little difficulty experienced in identification of species, skeletal element, epiphysial fusion, dental eruption and wear, and *ante-* and *post-mortem* modification. When fragmentation or time constraints prevented identification to species-level, fragments were assigned to one of the approximate categories 'herring family', 'carp family', 'cod family', 'ox-sized mammal' or 'sheep-sized mammal' as appropriate.

12.2.1 Contexts provisionally dated as Roman

Context [1] produced 1.000 kg, 17 fragments, of bone derived entirely from ox, sheep/goat and pig, with fragments of ox-sized and sheep-sized vertebra and rib. Ox was represented by upper limb, lower limb and foot; sheep/goat by lower limb and foot; pig by head and upper limb; all areas of moderate and good meat-bearing quality. There was no recovery of sub-adults. Clear evidence of butchery was seen from chop marks on ox upper limb, lower limb and foot.

Context [4] produced 0.200 kg, four fragments, of bone derived from chicken foot; and ox head and foot. There was no recovery of sub-adults. There was no evidence for butchery.

12.2.2 Contexts provisionally dated as medieval

Context [6] {2} produced 0.010 kg, approximately 15 fragments, of bone derived from juvenile pig upper limb and toe with unidentifiable sheep-sized fragments. There was no evidence for butchery.

This sample also produced a small group of shells from economically important marine/estuarine bivalve mollusc species; common/flat oyster, common cockle and common mussel.

Context [7] {1} produced a diverse assemblage of 0.300 kg, approximately 150 fragments, of bone including fish, poultry, small mammals and the major mammalian domesticates; ox, sheep/goat and pig. The fish assemblage included freshwater (carp family), migratory (eel) and marine/estuarine (herring, cod family, and plaice/flounder) taxa. Domestic poultry included chicken, goose and dove. Carcase-part representation of poultry and the major domesticates shows a bias towards areas of moderate and good meat-bearing quality, particularly the upper and lower limb, with comparatively minor recovery of primary processing waste, elements of the head, feet and toes. There were single finds of ubiquitous small, ground-living mammals; shrew, and mouse or vole. With the exception of juvenile chicken upper limb and foot, and calf head, the group derived from adult animals.

Clear evidence of butchery was seen from chop marks on ox upper and lower limb, and sheep-sized vertebra.

This sample also produced a small but diverse group of shells from economically important marine/estuarine mollusc species; common periwinkle, common whelk, common/flat oyster, common cockle and common mussel.

Context [8] produced 1.800 kg, approximately 40 fragments, of bone derived largely from ox and sheep/goat with smaller numbers of chicken and goose, and single finds of cod family, goose and pig. Carcase-part representation included recovery mainly of areas of moderate and good meat-bearing quality with some recovery of primary processing waste, elements of the head, feet and toes. The majority of the bones derived from adults, but with recovery of juvenile goose upper limb, and lamb upper and lower limb. Clear evidence of butchery was seen from chop marks on ox vertebra, upper limb and foot.

Context [10] produced 0.25 kg, approximately 20 fragments, of bone derived from cod family, ox and sheep/goat, with small numbers of ox-sized and sheep-sized vertebra and rib. All bones derived from mature animals. Carcase-part representation included areas of moderate and prime meat-bearing quality, together with primary processing waste, the feet and toes. Clear evidence of butchery was seen from chop marks on ox upper limb, lower limb and rib, and sheep-sized vertebra.

Context [15] produced 1.650 kg, approximately 80 fragments, of bone derived largely from ox and sheep/goat, with smaller numbers of chicken and pig and single fragments of goose, mallard or domestic duck, and wild duck, the only recovery of a ‘game’ species from the assemblage. Carcase-part representation mainly included areas of moderate and prime meat-bearing quality, together with some primary processing waste, the horncore, feet and toes. The majority of the bones derived from adults, but with recovery of calf upper limb; juvenile sheep/goat upper limb and foot; and juvenile pig lower limb.

Clear evidence of butchery was seen from chop marks on ox upper and lower limb; and sheep/goat vertebra and upper limb. A goat horncore had been chopped through at the base, presumably as a precursor to removal of the horn sheath for subsequent use as an industrial raw material.

A sheep/goat metacarpal (forefoot) showed a well-healed distal break close to the base of the toes.

12.3 Discussion

This small but very well-preserved and diverse hand-collected and wet-sieved assemblage included herring *Clupea harengus*, herring family Clupeidae, plaice/flounder Pleuronectidae, carp family Cyprinidae, eel *Anguilla anguilla*, cod family Gadidae, chicken *Gallus gallus*, goose *Anser anser*, mallard or domestic duck *Anas platyrhynchos*, dove *Columba sp*., wild duck, probably *Anas sp.*, ox *Bos taurus*, sheep/goat including goat *Capra hircus* and pig *Sus scrofa*. Sample [7] {1} also produced single fragments of small mammal bone including shrew *Sorex sp.*, and mouse or vole.

Although the assemblage is small in terms of fragment count, the high quality of preservation and the large fragment size contribute to its considerable potential for further study. Carcase-part representation and age-distribution indicate that the bone mainly represents butchery and post-consumption waste, but with a significant component of waste derived from primary carcase preparation. The meat diet is diverse including freshwater, migratory and marine/estuarine fish, domestic poultry (including both adult and juvenile chicken and goose), and adult and juvenile beef, mutton, lamb and pork. Samples {6} {2} and [7] {1} also provided definite evidence for consumption of marine/estuarine molluscs; common periwinkle *Littorina littorea*, common whelk *Buccinum undatum*, common/flat oyster *Ostrea edulis*, common cockle *Cerastoderma edule*, and common mussel *Mytilus edulis*, all of which could have been obtained from the outer Thames estuary or adjacent coasts of Essex and Kent.

Recovery of bone evidence suitable for study of age-at-death is considerable, with six mandibular tooth rows and 52 epiphyses; metrical evidence is less well-represented with 13 measurable bones, including two longbones suitable for stature calculation. There is insignificant evidence for local industrial activity, with just a single goat horncore from [15] showing preliminary preparation for horn-working. Further study of this assemblage, or of a more extensive sample of material of similar quality from this site, will provide a detailed insight into the Roman and medieval meat diets in terms of species-composition, carcase-part selection, age-at-slaughter, and butchery techniques, both as an *in-situ* assemblage, and in comparison with contemporary sites from the City of London.

Post-assessment study of this sample of hand-collected and wet-sieved bone would require two days, including recording and report production.

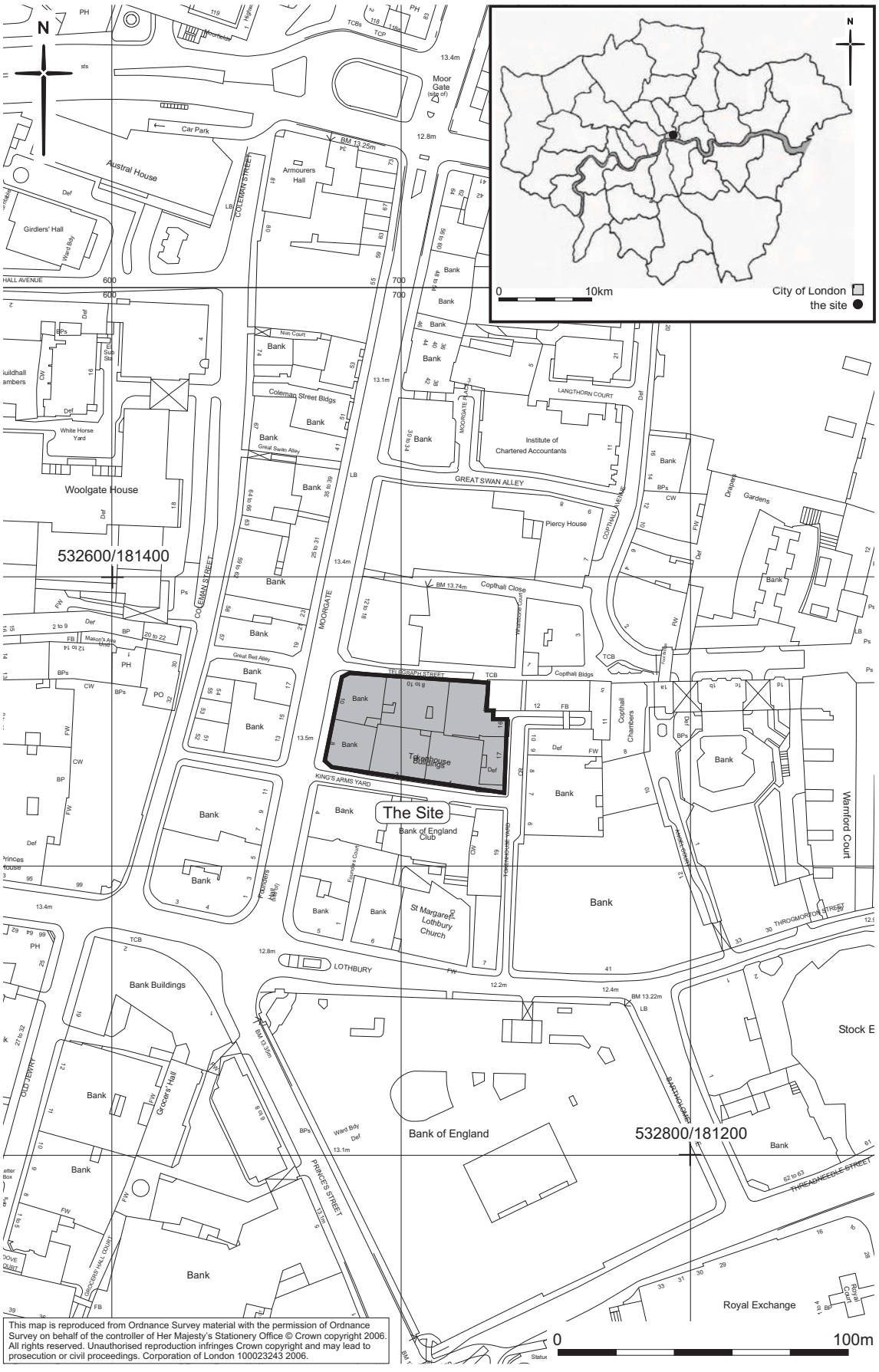
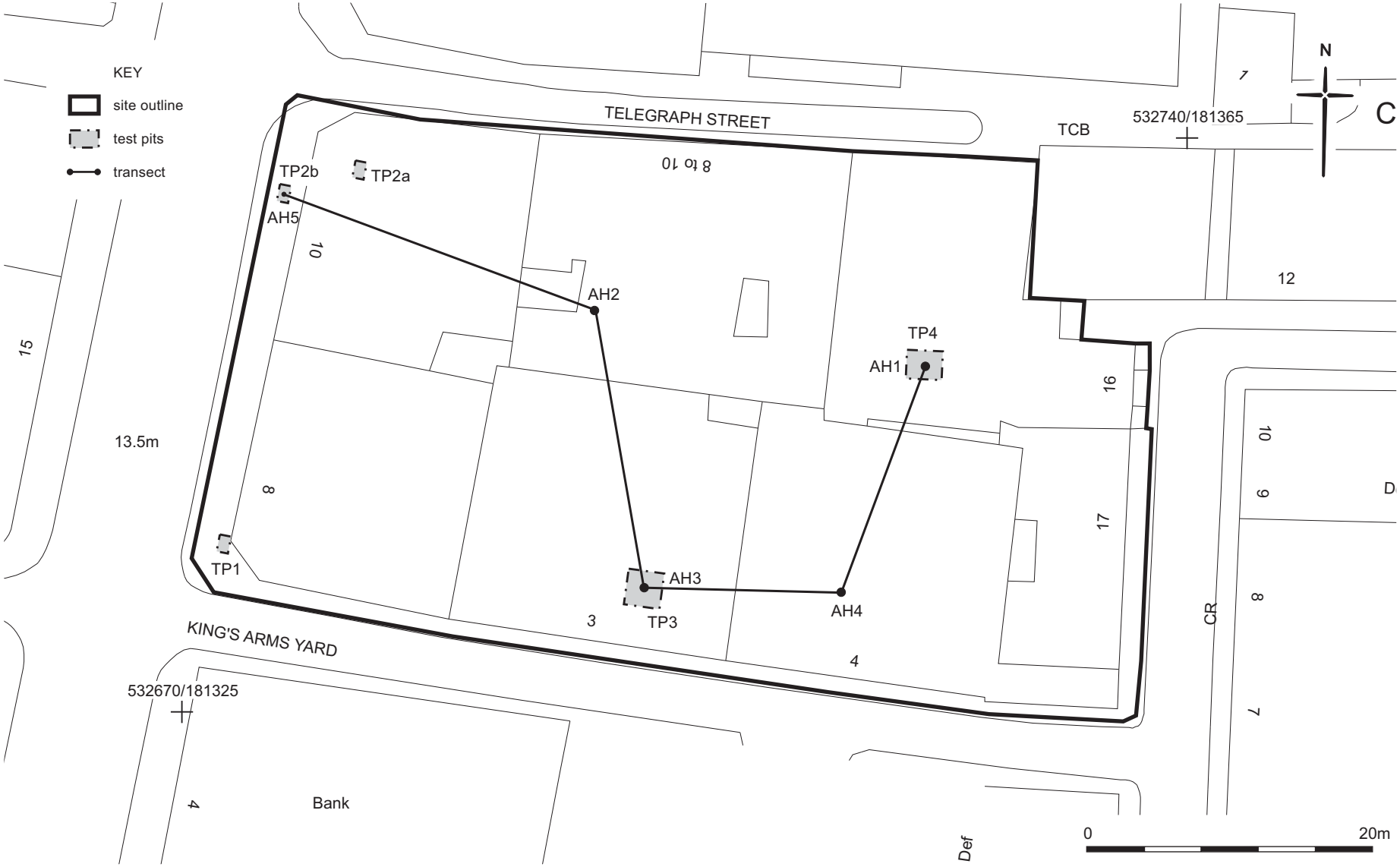


Fig 1 Site location



R:\Project\city\902\fig02

Fig 2 Location of Test Pits and Transect

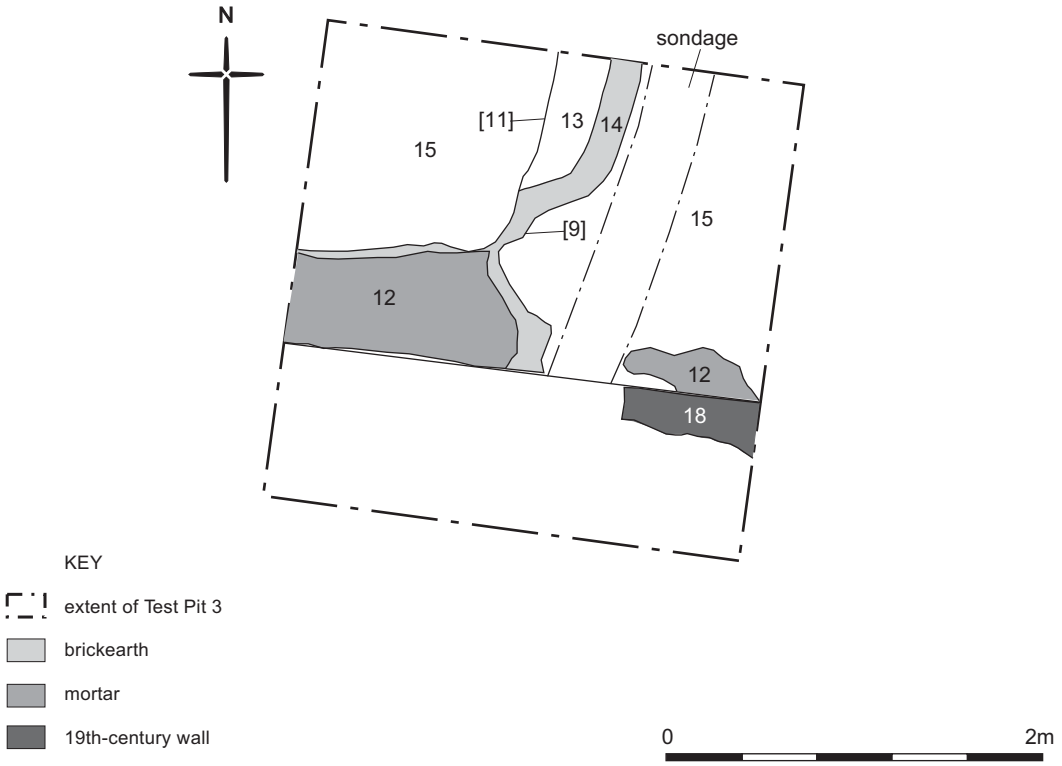


Fig 3 Plan of Test Pit 3

Fig 4 Photograph of Test Pit 3 (looking south – reverse view of plan)

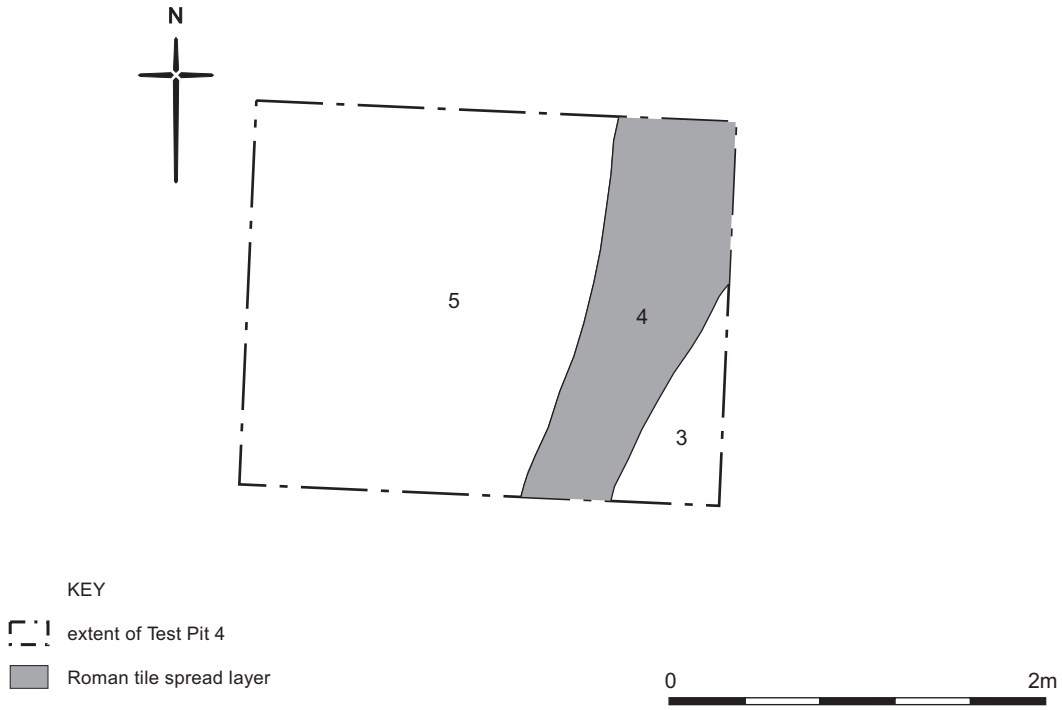


Fig 5 Plan of Test Pit 4

Fig 6 Photograph of Test Pit 4 (looking north-east)

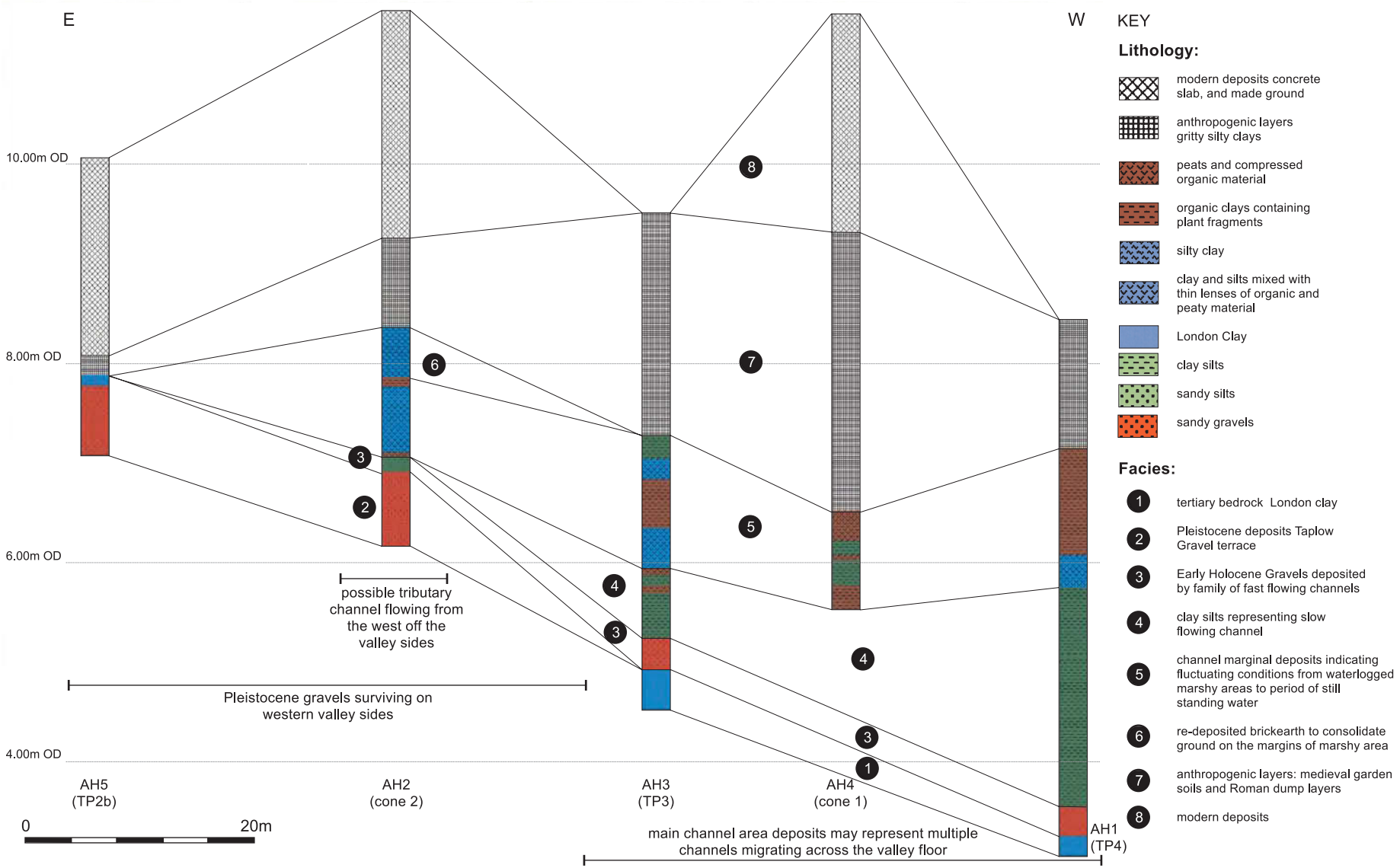


Fig 7 Transect