



C257 Archaeology Central
Fieldwork Report
Archaeological Evaluation at 11–12
Blomfield Street (XSL10)

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Non technical summary

This report presents the results of an evaluation carried out by the Museum of London Archaeology (MOLA) on the site of the future Crossrail Blomfield Box for the Liverpool Street Station, at 11–12 Blomfield Street, EC2, in the City of London. This report was commissioned from MOLA by Crossrail Ltd. This work is being undertaken as part of a wider programme to mitigate the archaeological implications of railway development proposals along the Crossrail route.

Three archaeological evaluation trenches were excavated in area of the now-demolished basement of 11 and 12 Blomfield Street and rearward extensions. Natural sands and gravels were exposed in two trenches, cut by the basal layers of a Roman or earlier water channel, and by a 19th/early 20th-century brick structure.

The channel was at its deepest in the westernmost trench, adjacent to Blomfield Street. It is likely that the deposits represent a section of the pre-Roman Walbrook River, as modern reconstructions indicate that the main channel ran approximately along the alignment of Blomfield Street. The bands of sterile alluvial clay were probably deposited in a fast flowing, relatively deep, section of the river. Further to the east the sequence was repeated, although here the deepest waterlain deposits had significant inclusions of wood and plants, suggesting its formation in a marsh like environment, possibly delineating the eastern edge of the Walbrook.

Finds retrieved from overlying dumped deposits, including ceramics, tegula (flat Roman roof tile) and glass tentatively suggest that land reclamation utilising general household waste had started during the Roman period, probably sometime between the 2nd–3rd centuries. The relatively wide spread of the admittedly limited selection of finds (it is possible that these finds are residual within later deposits, and date to the medieval period or later) and the variety in the horizontal deposits suggest that this was a gradual process, rather than a one-off concerted attempt at backfilling the Walbrook channel.

The basements and foundations of 19th and 20th-century buildings had removed all overlying archaeology, however, in the deepest sub-basement, located in 11 Blomfield Street, an as-yet unidentified yellow stock-brick structure was exposed, comprising a wall and possible floor (that sloped towards its centre). Given the depth of the structure and the proximity of the Metropolitan underground line immediately to the north, it may have been an earlier phase of the recently demolished 11 Blomfield Street, or a retaining wall for the Metropolitan Line underground railway built in 1875–6.

This archaeological fieldwork has demonstrated that during the Roman period or earlier part of the Walbrook stream ran north–south across the site, becoming more shallow and marsh-like to the east. Later Roman activity, not before the 2nd–3rd centuries AD, consisted of probable refuse disposal, possibly in a gradual attempt at land reclamation. Overlying deposits had been entirely removed by later truncation, and there was no evidence of the Moorfields Marsh or for the wider variety of human activity (from ditches to burials) seen on surrounding sites. Late 19th/early 20th-century brickwork, probably related to Metropolitan Line construction or an earlier phase of the recently demolished building, survived beneath the deepest basements that had removed all later deposits.



Contents

Non technical Summary

1	Introduction.....	1
2	Planning background	3
3	Origin and scope of the report	3
4	Previous work relevant to archaeology of site.....	4
5	Geology and topography of site.....	5
5.1	Archaeological and Historical Background	5
6	Research objectives and aims	6
6.1	Objectives of the fieldwork	6
6.2	Research Aims	6
7	Methodology of site-based and off-site work.....	8
8	Evaluation Methodology	9
9	Results and observations including stratigraphic report and quantitative report	10
	Trench 1	10
9.1	10	
9.2	Trench 3	12
9.3	Trench 6	14
10	Assessment of reliability of results and review of evaluation strategy	16
10.1	Reliability of results.....	16
10.2	Research aims.....	16
10.3	Additional research aims	17
11	Statement of potential archaeology	18
11.1	Known remains, demonstrated to be present on the site:.....	18
11.2	Potential for further remains:	18
11.3	Importance of Resources.....	18
12	Conclusions	19
12.1	Geology and prehistory.....	19
12.2	Roman remains	19
12.3	Post-medieval remains.....	20
13	Recommendations for appropriate mitigation strategy	20
14	Post-excavation assessment, analysis, publication and dissemination proposals.....	21
15	Archive deposition	21



16Bibliography	22
17Acknowledgements	23
18NMR OASIS archaeological report form	24
19Appendices:	27
19.1 Roman pottery	27
19.2 Roman Glass	27
19.3 Roman Building material	27

List of Figures

At end of document

Figure 1 Site Plan.

Figure 2 Plan of trench 6 showing 19th-century brick foundations.

Figure 3 Trench 1 south-facing section.

Figure 4 Trench 3 north-facing section.

List of Photos

Photo 1 Trench 1, Natural gravels [10] at the base, overlain by deposits [9], [8] and [7]. looking north. 11

Photo 2 - Trench 3, looking south. Natural gravels cut by the Walbrook channel deposits. Cut for 12 Blomfield Street basement visible to right of picture, (detail below). 13

Photo 3 Trench 6, brick structure [11], formed from 19th/early 20th-century red and yellow stock bricks, with a concave floor and a wall running east–west, looking east.15

Photo 4 Trench 6, brick structure [11], looking south. 15

List of Tables

Table 1 Site Details 2



1 Introduction

Crossrail is a new Cross-London Rail Link project which will provide transport routes across the south-east of England and London. The route will link Maidenhead and Heathrow in the west with Shenfield in the north-east and Abbey Wood in the south-east. In central London, from Royal Oak in the west to Pudding Mill Lane and Royal Victoria Dock in the east, Crossrail will consist of a tunnelled section with seven new stations linked to the existing transport network.

The Crossrail Liverpool Street Station is a new underground station proposed on the Crossrail network. The works on and around the site of the future Blomfield Box are part of this wider scheme of construction.

The Crossrail mitigation response to archaeology is described in the Crossrail Generic WSI (Crossrail 2009) and the detailed desk based assessment (DDBA; Crossrail 2008), and can be summarised as follows:

- In the event that intact and important archaeological remains are identified at Crossrail worksites through this process, it may be preferable, where practicable, to preserve these where they are found (ie preservation in situ).
- However, because of the nature of major works projects such as Crossrail, experience of other similar projects suggests that preservation by record is usually the most appropriate method of dealing with archaeological finds.
- Following an extensive Environmental Impact Assessment (EIA) supporting the Crossrail Bill, and the production of site-specific DDBAs, appropriate mitigation measures were scoped and specified in detail in individual project designs (site-specific WSIs – Written Schemes of Investigation) which were prepared in accordance with the principles set out in the Generic WSI, and developed in consultation with the relevant statutory authorities.
- Archaeological information that is gained from fieldwork will be followed by analysis and publication of the results and will be transferred to an approved public receiving body.

This fieldwork report describes the results of an archaeological evaluation carried out prior to the construction of the above-mentioned shaft at 11–12 Blomfield Street by Museum of London Archaeology (MOLA) under Crossrail contract C257 Archaeology Central.

The Blomfield Box site lies within the City of London. The site consists of the now-demolished 11 and 12 Blomfield Street and rearward extensions, bounded to the north by the underground railway, to the south by further buildings along Blomfield Street, and to the east by the western end of Broad Street Avenue.

The centre of the site is at Ordnance Survey National Grid Reference 532990 181570.

All levels in this document are quoted in metres Above Tunnel Datum (m ATD). To convert Tunnel Datum to Ordnance Datum subtract 100m, ie 1m OD = 101m ATD.

All fieldwork was conducted between 24th May and 26th July 2011, and supervised by Sam Pfizenmaier and Robert Hartle (MOLA Supervisors).



Table 1 Site Details

Task	Principal Contractor	Programme
<ul style="list-style-type: none">• Trial trench evaluation (3 trenches),	J F Hunt Demolition & JB Riney	24 May 2011–26 July 2011

The event code (sitecode) is XSL10.

2 Planning background

The overall framework within which archaeological work will be undertaken is set out in the Environmental Minimum Requirements (EMR) for Crossrail (<http://www.crossrail.co.uk/railway/getting-approval/environmental-minimum-requirements-including-crossrail-construction-code>). The requirements being progressed follow the principles of Planning Policy Guidance Note 16 (PPG16)(DoE, 1990), and its replacements Planning Policy Statement 5 (PPS5)(DCLG, 2010) and the National Policy Planning Framework (NPPF)(DCLG, 2012), on archaeology and planning. Accordingly the nominated undertaker or any contractors will be required to implement certain control measures in relation to archaeology before construction work begins.

Schedules 9, 10 and 15 of the Crossrail Bill (2008) concern matters relating to archaeology and the built heritage and allows the dis-application by Crossrail of various planning and legislative provisions including those related to listed building status, conservation areas and scheduled ancient monuments (Schedule 9). Schedule 10 allows certain rights of entry to English Heritage given that Schedule 9 effectively dis-applied their existing rights to the Crossrail project, and Schedule 15 allows Crossrail to bypass any ecclesiastical or other existing legislation relating to burial grounds.

Notwithstanding these disapplications, it is intended that agreements setting out the detail of the works and requiring relevant consultations and approvals of detail and of mitigation arrangements will be entered into by the nominated undertaker with the relevant local planning authorities and English Heritage in relation to listed buildings and with the Department of Culture, Media and Sport (DCMS) and English Heritage in relation to Scheduled Ancient Monuments (SAMs).

3 Origin and scope of the report

This report has been commissioned from Museum of London Archaeology (MOLA) by Crossrail Ltd. The report has been prepared within the terms of the relevant standard specified by the Institute for Archaeologists (IFA, 2001). It considers the significance of the fieldwork results (in local, regional or national terms) and makes appropriate recommendations for any further action, commensurate with the results.

4 Previous work relevant to archaeology of site

The principal previous Crossrail studies are as follows:

- Crossrail, February 2005a *Environmental Statement*
- Crossrail, February 2005b *Assessment of Archaeology Impacts, Technical Report. Part 2 of 6, Central Route Section, 1E0318-C1E00-00001, [Specialist Technical Report (STR)]*
- Crossrail [Mott MacDonald], 2008 *MDC – Work Package 3, Archaeology Detailed Desk Based Assessment, Liverpool Street Station*, Document Number: CR-SD-LIV-EN-SR-00001 v1 21.04.08 [DDBA]
- Crossrail, April 2010a *Liverpool Street Station, Site-specific Written Scheme of Investigation*, Doc. No. C138-MMD-T1-RST-C101-00001, Revision 4.0 [WSI]

All on-site archaeological work was carried out in accordance with the following documents:

- The WSI (see above)
- An Addendum to the WSI: *Liverpool Street Station, Addendum to WSI: Trial Trench Evaluation, watching brief and Detailed Excavation Blomfield Box (XSL10)*, Doc No. C138-MMD-T1-RST-C101-00005 Rev. 2, (Crossrail 2010b).
- *A Method statement for an Archaeological evaluation at Blomfield Box, 11–12 Blomfield street*, Doc. No. C257-MLA-X-GMS-CRG03-50001 Version 2 16.06.11, developed between MOLA and the principal contractors.

The above cited reports will all be available from the London Archaeological Archive and research Centre (LAARC).

5 Geology and topography of site

The site sits within the ancient flood plain of the River Thames; consequently the topography of the surrounding area is generally from north-south. Tributaries of the River Walbrook (little more than a stream, this tributary of the Thames formed a broad, shallow valley and its main channel originally flowed immediately to the west of the site) may effect surviving levels of natural strata in the area. Taplow Terrace gravels at the shaft site lie at c 108.6m ATD. They are one of the youngest and lowest of the Thames river terrace remnants, deposited between 130,000 to 190,000 years ago during ice-age conditions when the flow of the Thames was considerably stronger than it is today. Generally fine with mixed inclusions of sand and silt they are commonly overlaid by brickearth (Langley Silt complex – a fine loam, named from its former use in brick-making), as recorded nearby on 15–17 Eldon Street (ELD88). To the west at New Broad Street (NEB87) a distinct slope in the terrace gravel from E–W of 109.5m–107.5m ATD was recorded, the archaeological potential of which is considered to be very low.

5.1 Archaeological and Historical Background

Tributaries of the river Walbrook are known to have flowed immediately to the west of the site, as recorded at 46–47 New Broad Street (sitecode GM122) and Winchester House (GM193). Channels associated with its management and drainage have also been identified to the north, most recently at Crossrail Broadgate Ticket Hall site (MOLA 2012). Extensive Roman remains representing varied extra-mural activities have been recorded on surrounding sites, including an east–west aligned road (FIB88 & XSM10), inhumations at New Broad Street (NED87) to the east, as well as a variety of drainage ditches and pits.

The Moorfields Marsh formed sometime during, or after, the late 2nd or early 3rd centuries AD, possibly as a result of the silting-up of drainage channels in the area with rubbish, and the creation of a Roman road (BDC03) that would also have adversely affected drainage. The lowest brown fibrous organic deposit was probably formed sometime after the 2nd century AD. The copperplate map of 1553 shows that this area had been reclaimed from the marsh by the mid 16th century.

Historic mapping indicates the site of the Blomfield Box was open gardens up to the mid 17th century, but had been built over by the time of Ogilby and Morgan's survey of 1676. The tenements fronting onto Blomfield Street (previously Broken Row) changed little in the following centuries. An alleyway was created approximately in the south of the site leading to Bell Square (subsequently demolished and built over), sometime between the creation of Roques's map of 1764 and Horwood's of 1799.

The Metropolitan Line passes immediately to the north, and it is likely that construction of the railway cutting and retaining walls in 1875–6 has truncated archaeological remains in the northern extent of the Blomfield Box, the extent of such truncation is unknown.

6 Research objectives and aims

The overall aims of the evaluation were described in the Addendum to the WSI (Crossrail 2010b):

- *The overall aim is to identify the extent and survival of archaeological deposits, in particular those relating to the medieval and Roman periods and possibly earlier deposits ...*

And to:

- ... refine the extent and significance of the archaeological resource and inform further mitigation measures.

6.1 Objectives of the fieldwork

The following objectives were devised by MOLA to guide the fieldwork (MOLA, 2011):

- What is the nature, *and in particular the date*, of the Roman activity on the site, how does it compare with that in the surrounding area ? Is this related to any variations the levels of the natural geology ?
- Are any Roman burials present ?
- What evidence is there for activities in the area of the marsh, or in the surrounding area, represented by dumping of refuse in/on it ?
- How, and when, was the marsh reclaimed, eg by drainage (ditches etc) and dumping (land raising and consolidation) ?
- Is there any evidence for activities carried out in the Moorfields following reclamation of the marsh ?

6.2 Research Aims

The original overall aims and objectives were listed in the Liverpool Street WSI (Crossrail 2009). Evidence relating to the Walbrook, its tributaries and Moorfields Marsh deposits may provide data relevant to the following themes:

- Understanding London's hydrology, river systems and tributaries and the relationship between rivers and floodplains;
- Understanding how water supply and drainage provision were installed and managed;
- Refining our understanding of the chronology and function of the landward and riverside defences and extramural evidence of defensive or military structures in the Roman period;
- Understanding the relationships between urban settlements and royal villas or religious estates;



- Examining the proposal that there was an ideological polarity between town and anti-town systems: Roman towns did not so much fail as were discarded;
- The end of the Roman occupation: developing explanatory models to explain socio-political change and considering the influence of surviving Roman structures on Saxon development; and
- Examining the use in any one period of materials from an earlier period (eg Saxon use of surviving Roman fabric) and the influence on craftsmanship, manufacture and building techniques.
- Understanding the differences, if any, between burial practices in the city and outlying cemeteries;
- Understanding life expectancy, origins and belief, seen through studying health, diet and disease, and preparing models for future research;
- Considering the relationship between cemeteries and major or minor roads, in terms of symbolism, status, privacy and convenience; and
- Understanding the cultural and symbolic roles played by London's defences through the ages as reflections of power and political security or imposition and dominance.

Specifically, the archaeological investigations have the potential to recover:

- Artefacts of prehistoric date redeposited in later deposits.
- Remains of Roman extra-mural activity, potentially including burials.
- Waterlain deposits from the Roman to medieval Moorgate Marsh, with the potential for organic preservation and palaeoenvironmental evidence.
- Late medieval and post-medieval drainage ditches, rubbish dumps and remains associated with the reclamation of Moorgate Marsh.
- In areas not truncated by later activity: remains of a mid-17th-century or earlier building on the eastern side of Blomfield Street shown on Faithorne and Newcourt's map of 1658, and late 17th/early 18th-century or later buildings across the whole site from 1676 onwards.

New research aims derived from the evaluation results are presented in section 10.3.

7 Methodology of site-based and off-site work

All archaeological excavation and recording during the targeted watching brief was carried out in accordance with:

- Corporation of London Department of Planning and Transportation, 2004 Planning Advice Note 3: Archaeology in the City of London, Archaeology Guidance
- Crossrail WSI (Doc No. CR-SD-LIV-EN-SY-00001, 2010)
- Crossrail WSI Addendum (Doc No. C138-MMD-T1-RST-C101-00005, v2, 20th August 2010)
- Museum of London *Archaeological Site Manual* (MoL 1994)
- MOLA 2011 *A Method statement for an Archaeological evaluation at Blomfield Box, 11–12 Blomfield Street*, Doc. No. C257-MLA-X-GMS-CRG03-50001
- English Heritage Greater London Archaeology Advisory Service, June 1998 *Archaeological Guidance Papers 1–5*
- English Heritage Greater London Archaeology Advisory Service, May 1999 *Archaeological Guidance Papers 6*
- English Heritage Greater London Archaeology Advisory Service, 2009 *Archaeological Guidance Papers 1–5 (consultation draft)* [1. Desk-Based Assessments, 2. Written Schemes of Investigation, 3. Fieldwork, 4. Reporting, dissemination and publication, 5. Popular dissemination and communication of archaeology]

The site finds and records can be found under the site code XSF10 in the MOLA archive. They will be stored there pending a future decision over the longer-term archive deposition and public access process for the wider Crossrail scheme.

8 Evaluation Methodology

The basement slab and modern overburden were removed by the Principal Contractor or their groundworks contractor (Initially JF Hunt (C212), subsequently JB Riney) by machine using a mechanical excavator fitted with a flat-bladed ditching bucket (where practical), under archaeological supervision by the MOLA Archaeological Contractor (C257). Underlying deposits were removed by the Principal Contractor or their groundworks contractor by machine in spits of 200mm to 500mm (or as directed by MOLA) under archaeological supervision, to expose earlier archaeological horizons sealed by the marsh deposits. Where necessary, trenches were shored to allow for access and the recording of archaeological sections.

Three trenches (2, 3 and 5) were scoped out during initial breaking out. Trench 3 had been excavated to 1m beneath ground level prior to monitoring, however only modern made ground had been removed. This trench was subsequently relocated slightly to the north and realigned, perpendicular to Blomfield Street. Trench 6 in the lower sub basement of 11 Blomfield was only excavated to 0.72m beneath ground level prior to abandonment due to the obstructions encountered.

A written, drawn and photographic record of all archaeological deposits encountered was made in accordance with the principles set out in the Museum of London site recording manual (MoL 1994).

Archaeological features were planned off baselines along the trench edges, which were located by MOLA geomatics in conjunction with the Principal Contractor, utilising Crossrail London Survey Grid control stations.

9 Results and observations including stratigraphic report and quantitative report

See Figure 1 for trench locations

9.1 Trench 1

Trench 1 (Figure 3)	
Location	11 Blomfield Street
Dimensions	2.4m north to south and 3.8m east to west x 2.9m deep.
LSG coordinates	83360 / 36243
OS National grid coordinates	532997 181563
Modern Ground Level/top of the slab	109.59m ATD
Modern subsurface deposits	350mm of concrete floor slab. 200mm of rubble bedding
Level of base of archaeological deposits observed and/or base of trench	Base of trench: 106.69m ATD/2.9m bGL (beneath ground level – for these trenches: in basement after demolition).
Natural observed (partially truncated)	Terrace gravel at 106.89m ATD/2.7m bGL
Extent of modern truncation	Re-deposited reddish brown silt [6] truncated to 0.55m bGL
Archaeological remains	Dating Evidence, Finds, and Samples
[10] - Natural gravel: yellow green grey sandy gravel, exposed to a depth of 200mm. Surface: 106.89m ATD.	None
[9] - Purple grey friable silt containing wood and plant remains, frequent grit and small molluscs. Waterlain deposit with no anthropogenic signs or inclusions. 107.09m ATD	No finds
[8] - Grey yellow mixed sandy clay, containing charcoal flecks and fragments, oyster /mussel shells and pot. Roman pottery including black-burnished ware, fine reduced ware, and micaceous sandy ware. 107.75m ATD	Pot c AD 120 to AD 250 – 1 sherd (and ?residual 1st and 1st to mid 2nd century AD – single sherd each) Glass AD 43–410 (1 fragment)
[7] - Loose black grey sandy silt, containing, charcoal, and animal bone. 107.99m ATD	Provisionally Roman

Interpretation and summary

The limitations of the shoring (see Photo 1) restricted access to the trench. Subsequently all measurements were taken from ground level.

Natural sandy terrace gravels [10] were exposed and recorded between 106.89m ATD and 106.70m ATD. A naturally-formed alluvial silt layer overlay them, [9], which is probably the eastern edge of the Walbrook. Inclusions of wood and plant remains suggest the deposit was formed in a semi-terrestrial environment. The mixed sandy clay horizon [8] overlying this, tentatively dated to the Roman period, is a dump of domestic waste or a limited attempt at land reclamation. Likewise the sealing dump layer [7] appears to be consistent with domestic rubbish. See Photo 1. It should be noted that, although no later dating material was recorded within these deposits the limited Roman remains may be residual within a considerably later medieval (or possibly post-medieval) levelling layer.



Photo 1 Trench 1, Natural gravels [10] at the base, overlain by deposits [9], [8] and [7]. looking north.

9.2 Trench 3

Trench 3 (Figure 4)	
Location	12 Blomfield Street
Dimensions	2.3m north to south and 3.6m east to west x 2.90m deep.
LSG coordinates	83338/36256
OS National grid coordinates	532988 181576
Modern Ground Level/top of the slab	108.71m ATD
Modern subsurface deposits	Concrete slab and services to between 0.3–0.4m bGL.
Level of base of archaeological deposits observed and/or base of trench	Base of trench: 105.96m ATD (2.75m bGL)
Natural observed (partially truncated)	Terrace gravel at 106.45–106.19m ATD (2.52m bGL)
Extent of modern truncation	Construction cut for former 12 Blomfield Street basement truncated to 2.3m bGL on western boundary of trench. See Photo 2
Archaeological remains	Dating Evidence, Finds, and Samples
[15] - Moderately compact coarse mixed clayed gravel. Becoming more reddish brown with depth. Natural terrace gravels. 106.45–106.19m ATD.	Natural terrace gravel.
[14] - Firm-compact light grey silty clay. Channel [Walbrook] deposit. 106.55m ATD	No finds
[13] - Firm light grey sterile clay. Channel [Walbrook] deposit. 106.78m ATD	No finds
[12] - Firm purplish grey fine clay. Frequent charcoal & organic remains. Occasional small molluscs. Channel [Walbrook] deposit. 106.94m ATD.	No finds
[5] - Soft reddish yellow silty [10%] sand. Sterile. 107.71m ATD.	No finds
[4] - Firm sterile reddish grey fine clay. 107.83m ATD.	No finds

[3] - Loose mid reddish brown silty clay. Occasional small CBM flecks & large charcoal fragments. 107.93m ATD.	No finds
[2] Loose mottled grey sandy silt. Occasional charcoal and iron panning. 108.01m ATD.	No finds
[1] - Loose purplish brown fine silty clay. Occasional charcoal, small gastropod, sub rounded pebbles. 108.47m ATD.	Tegula AD 50–160 (1 fragment)
Interpretation and summary	
<p>Natural terrace gravels [15] were recorded between 106.45 and 106.19m ATD (see Photo 2). It is likely that at this depth they have been truncated, scoured out by the river channel, and gradually filled by a series of waterlain naturally formed alluvial clay layers [12, 13 & 14]. The composition of these suggests that they were deposited in a section of a fast flowing stream, previously identified as the Walbrook or a tributary. The basal layers were fairly sterile, and they may represent pre-Roman deposition (see 12.1).</p> <p>The overlying deposits may be attempts at land reclamation (or less probably general dumping), with possible intervals of inundation. Only one piece of tegula was retrieved from the latest horizon, giving a <i>terminus post quem</i> of AD 50–160 for the end of the surviving sequence.</p>	



Photo 2 - Trench 3, looking south. Natural gravels cut by the Walbrook channel deposits. Cut for 12 Blomfield Street basement visible to right of picture, (detail below).

9.3 Trench 6

Trench 6 (Figure 2)	
Location	Lower basement, 11 Blomfield Street
Dimensions	1.7m north to south and 3m east to west x 0.72m deep.
LSG coordinates	83370/36252
OS National grid coordinates	533011 181658
Modern Ground Level/top of the slab	107.00m ATD
Modern subsurface deposits	Concrete basement slab 160mm thick/deep
Level of base of archaeological deposits observed and/or base of trench	106.28m ATD (0.72m bGL)
Natural observed (partially truncated)	Not exposed
Extent of modern truncation	Possible 19/20th-century brick foundations filled the entire trench.
Archaeological remains	Dating Evidence, Finds, and Samples
[11] Brick structure formed from red and yellow stock bricks. Concave floor with a wall running east–west along the southern edge of the trench (see Photo 3 and Photo 4). The brick wall found at the south edge of the trench lay at 106.71m ATD. Below this, the sloping floor was at 106.4m ATD in the west, and then dropped to 106.28m ATD before rising to 106.65m ATD in the east.	19th or early 20th-century stock bricks (left <i>in situ</i>)
Interpretation and summary	
This structure (see Photo 3 and Photo 4) appears to have been constructed from similar stock bricks to the surviving standing wall approximately 15m to the east. The exact relationship here is uncertain. It may also be associated with the nearby Metropolitan Line underground built in 1875–6.	



Photo 3 Trench 6, brick structure [11], formed from 19th/early 20th-century red and yellow stock bricks, with a concave floor and a wall running east-west, looking east.



Photo 4 Trench 6, brick structure [11], looking south.

10 Assessment of reliability of results and review of evaluation strategy

The draft revised GLAAS guidelines (English Heritage, 2009) require an Assessment of results against original expectations (these no longer mention the criteria for assessing national importance).

Corporation of London guidelines (CoL 2004) also require an 'Assessment of results against original expectations (using criteria for assessing national importance of; period, relative completeness, condition, rarity, and group value) and review of evaluation strategy.

10.1 Reliability of results

The results of the evaluation trenches are generally consistent. The Blomfield Box site has an area of approximately 900m². This includes approximately 70m² situated at the rear of 11 Blomfield Street.

Three trenches (2, 3 and 5) were scoped out after agreement between Crossrail and the Principal Contractor. The total area covered by the three remaining evaluation trenches was 22.5m² equating to nearly 2.5% of the site area.

Of that total area, a significant proportion has been truncated by previous buildings and foundations, as well as that removed by the double basement at the rear of 11 Blomfield Street.

These results can therefore be seen as a representative sample of the Blomfield Box site, except that it was not possible to evaluate the western end of 11 Blomfield Street (which might lie outside the Walbrook channel) or the eastern end of 12 Blomfield Street (where if there is less truncation than elsewhere on the site, 17th/18th-century remains might be present).

10.2 Research aims

The original research objectives (see section 6.1) were met as follows:

- *What is the nature, **and in particular the date**, of the Roman activity on the site, how does it compare with that in the surrounding area ? Is this related to any variations the levels of the natural geology ?*

The sterile basal fills of the Walbrook channel are undated, and may be prehistoric or Roman. These were sealed by levelling/reclamation layers tentatively interpreted as Roman, provisionally dated by only a few sherds to AD 50 to 160 (or later) at the eastern edge, but to AD 120 to 250 (or later) in the deeper channel to the west.

There is no evidence for other activity, in particular, that which must have taken place on the levelled/reclaimed land.

- *Are any Roman burials present ?*

No, see above.

- *What evidence is there for activities in the area of the marsh, or in the surrounding area, represented by dumping of refuse in/on it ?*
- *How, and when, was the marsh reclaimed, eg by drainage (ditches etc) and dumping (land raising and consolidation) ?*
- *Is there any evidence for activities carried out in the Moorfields following reclamation of the marsh ?*

Post-Roman horizons had been truncated in the areas of the evaluation trenches, with the exception of the 19th/20th-century structure from either the recently demolished building or the Metropolitan Line.

10.3 Additional research aims

Future fieldwork on this site has the potential for the following:

- *What is the course of the Walbrook across this site ? How does this compare with other sites in the area, including existing and future results from Liverpool Street ?*
- *What is the date, sequence, and character of the Walbrook fills ?*
- *Are the earliest Walbrook fills pre-Roman ?*
- *What can geoarchaeological/environmental sampling tell us about both the Walbrook and the surrounding area ?*
- *Is there any evidence for a brickearth embankment of the Walbrook, as interpreted at Broadgate (LSS85) ?*
- *At what date or dates was the Walbrook deliberately levelled or reclaimed ? Was this in more than one episode ?*
- *What activities took place on the reclaimed area, and when ? (this may be limited to cut features ?)*
- *Is there any evidence for 17th to 18th-century buildings and occupation in areas of higher survival than the evaluation trenches ? (eg the western half of 11 Blomfield Street).*
- *Are the 19th/20th-century foundations associated with Metropolitan Line construction, or earlier phases of the recently-demolished building (11 Blomfield Street) ?*

11 Statement of potential archaeology

The evaluation has demonstrated the following:

11.1 Known remains, demonstrated to be present on the site:

- The channel of the Walbrook, with waterlain deposits currently undated, but potentially Roman or prehistoric.
- Levelling/reclamation dumps in the Walbrook channel, possibly Roman or later.
- 19th/early 20th-century masonry structure(s) possibly associated with the Metropolitan Line underground or an earlier phase of the recently-demolished building on site.

11.2 Potential for further remains:

- Some potential for Roman remains outside the Walbrook channel at the eastern end of the site (outside the deeper basement area).
- There currently appears to be a Low Potential for later Roman activity on the levelled/reclaimed areas of the Walbrook.
- Some potential for 17th/18th-century remains (perhaps limited to deeper foundations etc) in any areas of higher survival, eg the western end of 11 Blomfield Street.

11.3 Importance of Resources

The importance of the excavated remains has been assessed using professional judgement, informed, where applicable, by the criteria for assessing the national importance of monuments (DCMS 2010, Annex 1).

These remains have limited rarity and diversity. However, they have moderate supporting documentation and therefore group value with results from the surrounding area, resulting in potential to contribute to study of the Walbrook stream and Roman extra-mural activities.

The 19th/early 20th-century brick structure, either associated with a previous building on site or the Metropolitan Line underground railway construction, is of limited significance, although it confirms the expected high levels of truncation in the north-eastern area of the site.

They are therefore assessed as being of **low to moderate importance**.

12 Conclusions

12.1 Geology and prehistory

The drift geology consists of Pleistocene river terrace gravels of the third (Taplow) Thames terrace which was exposed at a maximum depth of 105.96m ATD at the base of Trench 3 at the western side of 12 Blomfield Street. The channel sequence truncated the natural strata, sloping down from east to west between 106.55m ATD and 106.19m ATD (see Photo 2). To the east in Trench 1, natural gravels were recorded between 106.89m ATD and 106.70m ATD.

These depths of truncated natural gravels follow the expected profile of the Walbrook in this area, that locate the deepest region to the west, approximately aligned with Blomfield Street eg GM122 (46–47 New Broad Street), and higher ground to the east where potential Roman terraces were recorded sloping down from east to west between 109.70 and 107.50m ATD (NEB87: 33–45 New Broad Street).

This gradient may also be reflected in the sterile lower alluvial clays in Trench 3 that appear to have been deposited in a high energy/fast flowing environment. Similar sterile clay deposits excavated to the south at Winchester House (GM193 and GM74) were interpreted as pre-Roman, and these may well be of similar date. In contrast, the semi-terrestrial wood and plant rich basal layer, to the east in Trench 1, is likely to have been deposited during periods of slack or slow flowing water.

12.2 Roman remains

As mentioned above, the undated lower channel deposits may well be pre-Roman, but could be Roman. Otherwise, Roman remains were limited to banded deposits possibly signifying attempts at levelling the channel to facilitate later activity, which had been subsequently truncated. In Trench 3 at the westernmost edge of the site, the Walbrook sloped down to the west, filled with waterlain clays, and a sequence of horizontal dump deposits, the latest of which is dated only by one small fragment of tegula to AD 50–160.

In Trench 1 further to the east, a similar sequence had a basal layer of alluvium and inclusions of wood and plant, suggesting its formation in a semi-terrestrial environment, possibly representing the eastern edge of the main channel of the Walbrook. Pottery from overlying levelling/reclamation layers (see 19.1), possibly deposited at a similar or later date, with inclusions of possible domestic rubbish, suggests that this part of the Walbrook may have been backfilled or become disused after AD 120–250. Previous work to the west of the site (NEB87) also identified an extensive channel margin that had been reclaimed from the stream during the 2nd century. Any later Roman activity, particularly in the form of quarry pitting (also NEB87) has been entirely removed by later truncation.

The remains identified were entirely in keeping with results from surround sites on New Broad Street (GM122, GM74 and NEB87). There was no evidence for the variety of burials and cremations found at FIB88 or ditches at RIV87. This may be a result of land reclamation, although more likely caused by considerable later truncation.

Recent Crossrail evaluations to the north at Broadgate Ticket Hall (XSM10) identified the edge of a cut, potentially the Walbrook channel, at 108.68mATD, filled with alluvial material and tentatively dated by Roman pottery to the second century AD. This feature continued beyond the trench base and may potentially be the same channel seen in Trenches 1 and 3 at Blomfield Street, albeit exposed in a higher surviving section (the marsh-like deposit in Trench 1 was at 107.09m ATD). The higher levels of truncation in the basements of 11 and 12 Blomfield Street would have entirely removed any corresponding channel deposits at a similar depth.

12.3 Post-medieval remains

Post-medieval remains (other than 19th/20th-century basement foundations) were limited to a wall and concave floor surface formed of yellow stock bricks exposed in the sub-basement in the north of the site. The exact function of this masonry was difficult to ascertain within such a limited exposure. However, it may have been an earlier phase of the recently-demolished 11 Blomfield Street, or more likely a retaining wall for the Metropolitan Line underground built in 1875–6. All deposits were truncated by basements and foundations of the former 19th and 20th-century buildings.

13 Recommendations for appropriate mitigation strategy

All of the features discovered so far have yet to be fully exposed and thereby fully understood. Further archaeological investigation, including geoarchaeological/environmental sampling, is required to define the nature of these features, and land use here potentially before, during, and possibly after Roman occupation. See the additional research aims in section 10.3.

In particular, much more extensive dating of the channel fills and subsequent reclamation dumps is required to reliably date them. If the basal fills are sterile, scientific dating methods may be required, eg OSL or radiocarbon. Further excavation may also allow for the more accurate location of the Walbrook, in particular its eastern channel edge.

Ideally, such fieldwork should seek to produce a profile across the Walbrook channel and its fills and reclamation dumps, as well as investigating the area to the east of Trench 1.

Further excavation in any areas of greater survival than the locations of the evaluation trenches, eg the western half of 11 Blomfield Street (occupied by a substation and site access at the time of evaluation) may reveal the foundations of 17th to 18th-century buildings and associated structures.

The Crossrail design archaeologist will produce recommendations for further work and refine the mitigation strategy for Crossrail works at Liverpool Street.

14 Post-excavation assessment, analysis, publication and dissemination proposals

The evaluation results will initially be disseminated via this report. The supporting site archive of finds and records (including digital data), post-excavation assessment, analysis and publication proposals will be considered in relation to later fieldwork on the site in the wider context of archaeological potential and results across the Crossrail scheme.

A summary report will be published in the London Archaeologist excavation round up and also deposited with the LAARC.

15 Archive deposition

The site archive containing original records and finds will be stored temporarily with MOLA pending a future decision over the longer-term archive deposition and public access process for the wider Crossrail project.

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17 Acknowledgements

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The evaluation was supervised by the author and Robert Hartle (Senior Archaeologist). Other MOLA staff involved included Catherine Drew and Neville Constantine (geomatics), Ian M Betts (building material), Fiona Seeley (Roman pottery) and Michael Marshall (Roman Glass). The fieldwork was managed by MOLA Assistant Contracts Manager Nicholas Elsdon and Contracts Manager Elaine Eastbury.



18 NMR OASIS archaeological report form

OASIS ID: molas1-125861

Project name	Crossrail Blomfield Box Evaluation
Short description of the project	Three trenches were excavated in the basement of the now-demolished 11 and 12 Blomfield Street and rearward extensions. Natural gravels were exposed in two trenches. In the E of the site, natural deposits were cut by a series of sterile waterlain clays sloping from W-E, probably from a relatively fast flowing section of the Roman Walbrook (or a tributary of it) whose ancient alignment is echoed in the current N-S orientation of Blomfield Street. A small fragment of Roman tegula roofing tile dated AD 50-160 was recovered from within a sandy dump deposit sealing this sequence, mortar on the broken edge suggesting reuse. To the west the sequence was repeated, with a naturally formed alluvial layer and inclusions of wood and plant suggesting formation in a semi-terrestrial environment, possibly delineating the eastern edge of the Walbrook. Again Roman pottery was recovered from overlying dump and/or reclamation layers. The earliest tentatively identified as a Roman round-bodied jar likely to be 1st century in date. A sherd of Roman natural blue-green glass was also recovered along with pottery common in London assemblages dated to the 1st-3rd centuries. This suggests that this part of the Walbrook may have been backfilled or become disused in the 2nd-3rd centuries, with dumped domestic rubbish utilised as landfill. In the lower double basement at the back of 11 Blomfield, 19-c brickwork was exposed immediately below the foundation slab. A floor surface and wall formed of yellow stock bricks were of similar construction and probably contemporary appearing to relate to an earlier phase of construction, and may an be a retaining wall for the metropolitan line underground built in the 1870s. The basements and foundations of 19th and 20th-c buildings completed the archaeological sequence in all areas of the site.
Project dates	Start: 24-05-2011 End: 26-07-2011
Previous/future work	No / Yes
Type of project	Field evaluation
Site status	None
Current Land use	Other 2 - In use as a building
Monument type	WATERCOURSE Roman
Monument type	DUMP Roman
Monument type	BUILDING Post Medieval
Significant Finds	POTTERY Roman
Significant Finds	TEGULA Roman
Significant Finds	GLASS Roman
Methods & techniques	'Annotated Sketch','Targeted Trenches'



Development type	Rail links/railway-related infrastructure (including Channel Tunnel)
Prompt	Crossrail Act
Position in the planning process	After full determination (eg. As a condition)
Site location	GREATER LONDON CITY OF LONDON CITY OF LONDON Crossrail Blomfield Box
Postcode	EC2
Study area	20.00 Square metres
Site coordinates	LL - 32960 81545 (decimal) LL - 32960 00 00 N 81545 00 00 E (degrees) Point
Lat/Long Datum (other)	113.51
Height OD / Depth	Min: 106.19m Max: 106.86m
Name of Organisation	MOLA
Project brief originator	Crossrail
Project design originator	Crossrail
Project director/manager	Elaine Eastbury
Project supervisor	Sam Pfizenmaier
Type of sponsor/funding body	Crossrail Ltd
Name of sponsor/funding body	Crossrail
Physical Archive recipient	LAARC
Physical Contents	'Ceramics','Glass'
Digital Archive recipient	LAARC
Digital Contents	'Ceramics','Glass'
Digital Media available	'Images raster / digital photography'
Paper Archive recipient	LAARC
Paper Contents	'Ceramics'



Paper Media available	'Context sheet', 'Matrices', 'Photograph', 'Plan', 'Report', 'Section'
Title	Crossrail Blomfield Box Evaluation report
Author(s)/Editor(s)	Pfizenmaier, S.
Date	2012
Issuer or publisher	MOLA
Place of issue or publication	London
Description	A4 ringbound report

19 Appendices:

19.1 Roman pottery

Fiona Seeley

Introduction

The pottery from XSL10 was spot-dated and recorded in accordance with current MOL Archaeology procedure, using standard fabric, form and decoration codes. The data was entered onto the Oracle database, including quantification by sherd count, estimated number of vessels and weight in grams. A total of three sherds of Roman pottery (weight 45 g) were recovered from a single context (context [8]).

There are three sherds of Roman pottery from context [8]. The latest dated sherd is a black-burnished ware 2 round-rimmed bowl with acute lattice decoration (BB2 4H AL). These occur in London assemblages from c AD 120 to AD 250. There is a sherd from a jar or beaker in unsourced fine reduced ware (FINE 2/3) which dates to the late 1st to mid 2nd centuries AD. The third sherd has been tentatively identified as an early Roman micaceous sandy ware round-bodied jar with thickened or out-turned rim (ERMS? 2B?). If this identification is correct then this sherd is likely to be 1st century in date.

19.2 Roman Glass

Michael Marshall

One single accessioned find was retrieved. A sherd of Roman natural blue-green glass <1>, [8] was recovered. This could date to any point within the Roman period (AD 43–410) and its original form cannot be identified. It may have come from the shoulder of a necked vessel such as a flask, jug or jar but the surface is not convincing and it could be a chip of a more robust object.

19.3 Roman Building material

Ian M. Betts

The only building material recovered from the site was a small fragment of Roman tegula roofing tile from context [1] (fabric group 2815). This is of AD 50–160 date but could have come from a later Roman structure as there is mortar on the broken edge suggesting reuse.

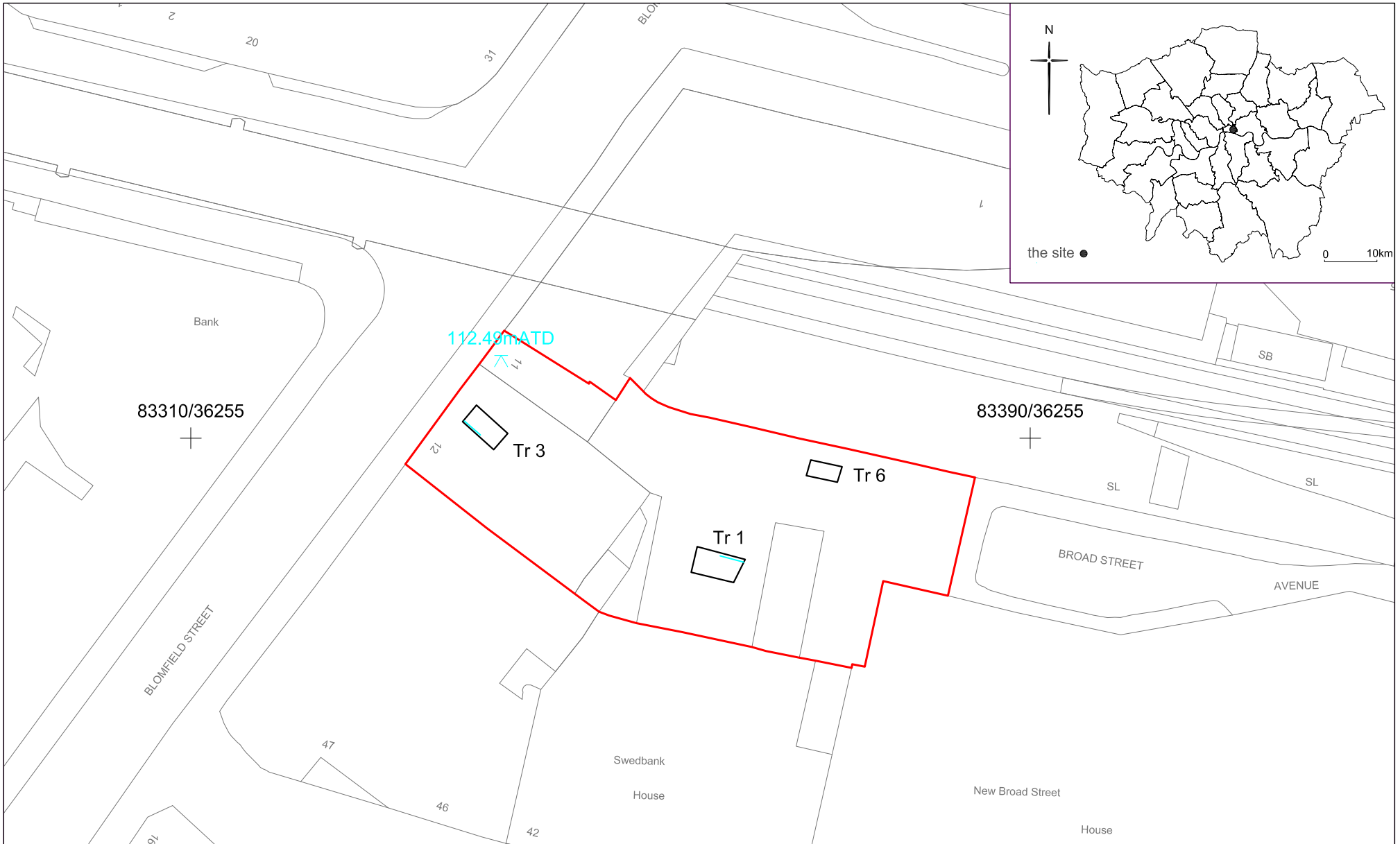
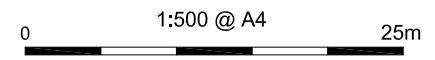


Fig 1 Plan of site

- Site outline
- Trench edge
- 110mATD
^ TBM in mATD (for mOD, subtract 100m)
- Section locations



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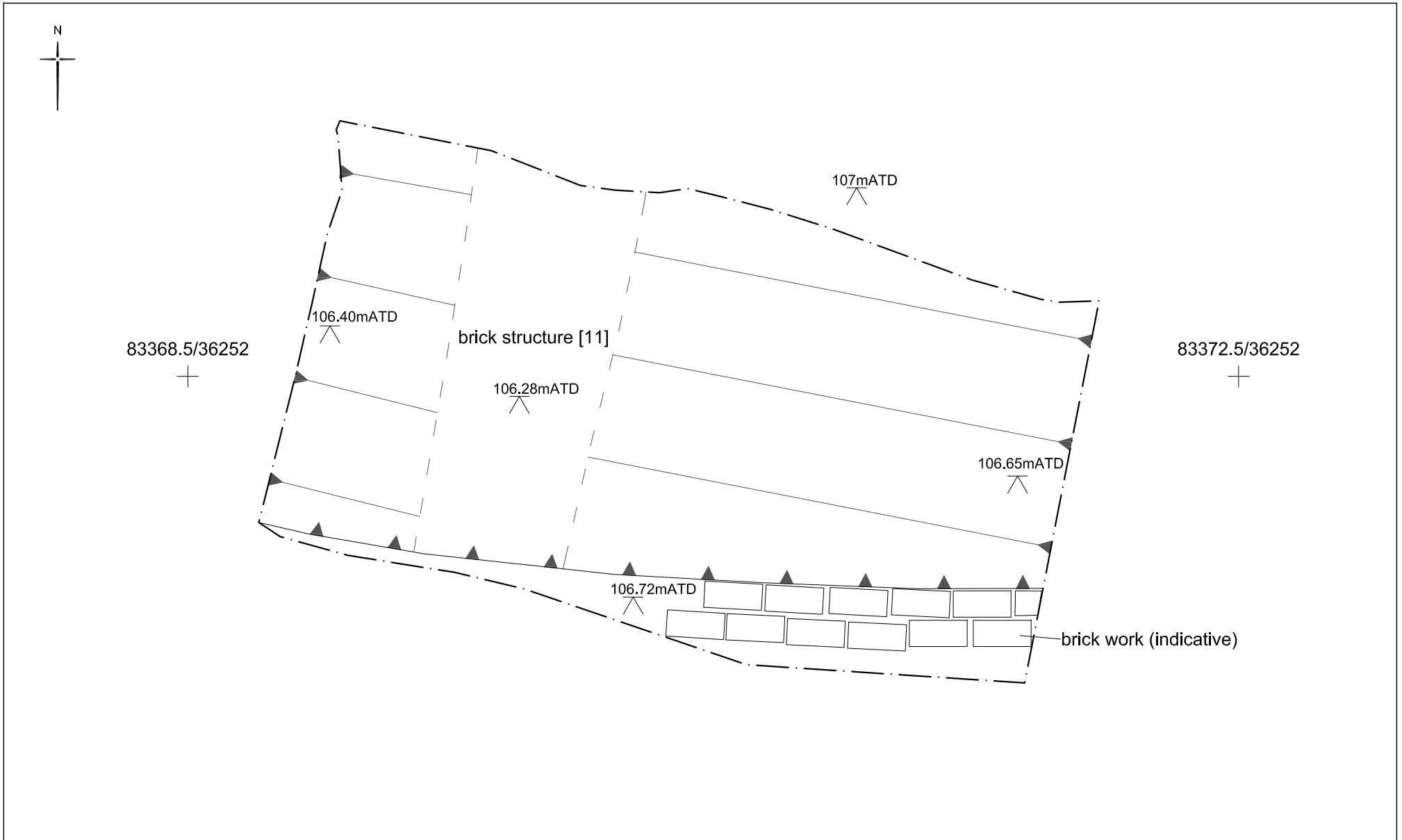




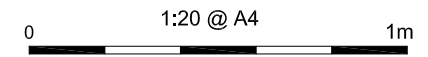


Fig 2 Plan of Trench 6 showing 19th-century brick feature

-  Trench edge
-  Archeological features
-  Hachures to indicate slope
-  Spot heights



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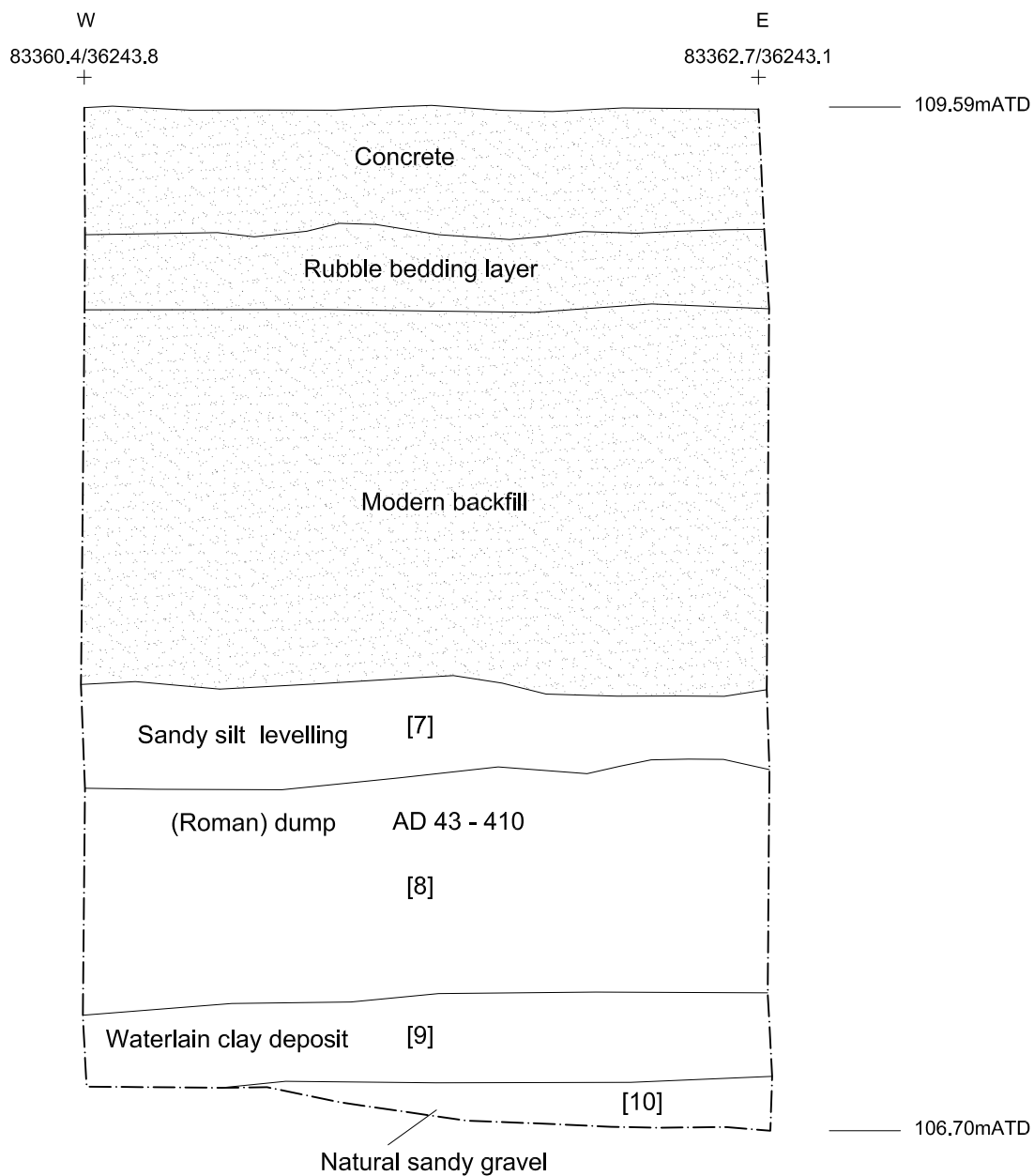


Fig 3 Trench 1, south-facing section

- Limit of excavation
- [11] Archeological features
- Concrete / modern backfill

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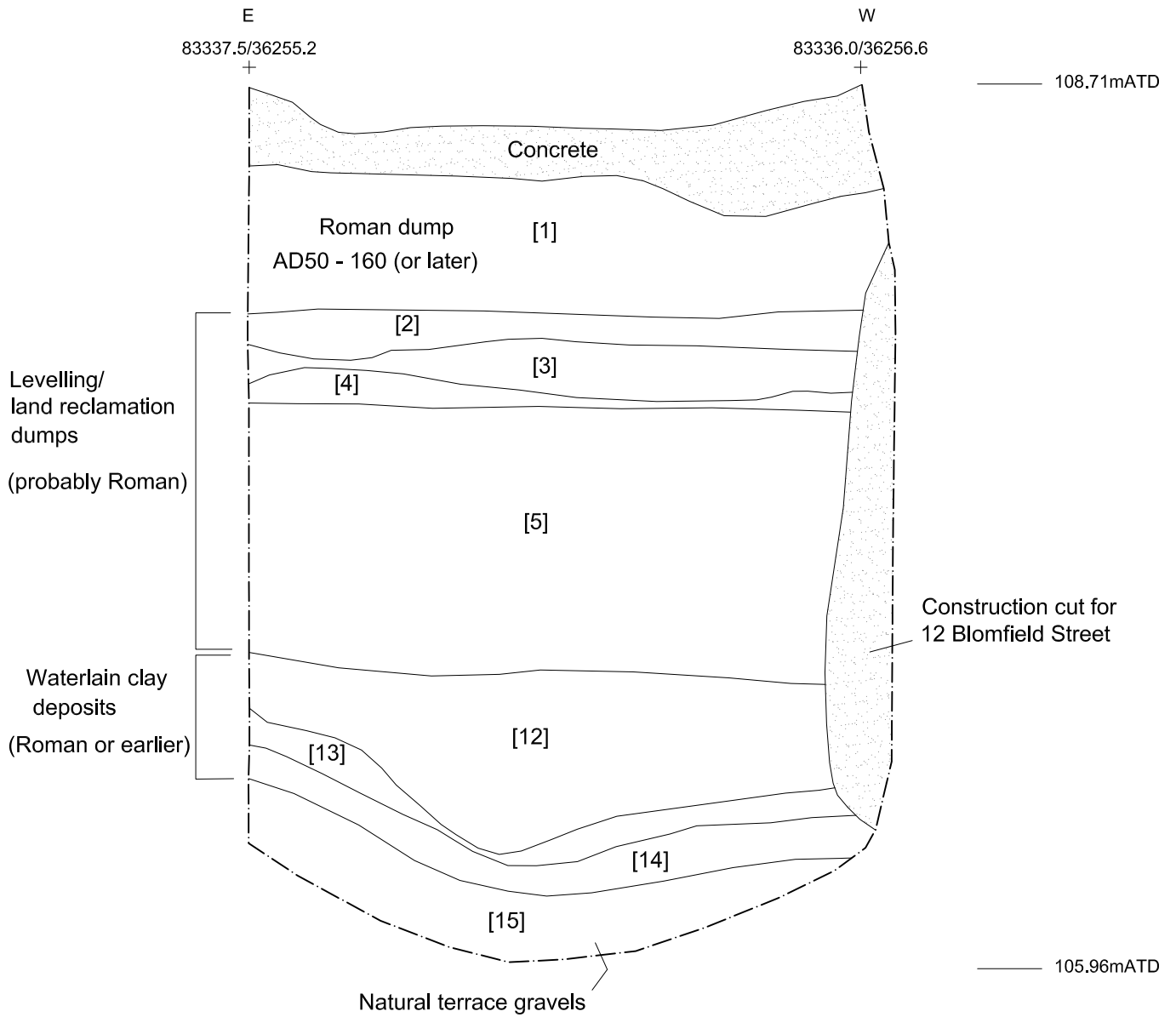





Fig 4 Trench 3, north facing section

-  Limit of excavation
-  Archeological features
-  Concrete / modern backfill

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