

# C263 ARCHAEOLOGY LATE EAST

# Interim Statement Evaluation and Watching Brief Plumstead Portal (XSW11)

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# 1 Introduction

This Interim Report covers the archaeological evaluation comprising 6 geoarchaeological boreholes (BHs 1-6), two trenches (Tr 1 and 2) and both targeted and general watching briefs at the location of the future Plumstead Portal, by C263 Museum of London Archaeology (MOLA).

The work was carried out between 11/04/12 and 17/10/12 and supervised by MOLA Senior Archaeologist Portia Askew. It was recorded under event code (site code) XSW11.

This document is an interim statement on the results of the fieldwork issued one week after the end of the fieldwork. More extensive background, results, and conclusions will be included in the Fieldwork Report which will be submitted at the end of the fieldwork.

The fieldwork was carried out in accordance with:

- A Site-specific Archaeological Written Scheme of Investigation (SS-WSI C156 Plumstead Portal, Crossrail, Doc. No. C156-CSY-T-RGN-CR148\_PT005-00028 Version 4, Dec 2010 and the WSI Addendum C122-OVE-T1-RGN-CR148\_PT005-50001
- C263 Archaeology Late East, *Method Statement*, Archaeological Evaluation, Non Listed Building Recording Assessment and General Watching Brief, Plumstead Portal, Version 4, 10-07-12 Doc. No. C263-MLA-X-RGN-CRG07-50042



# 2 Aims and Objectives

## 2.1 Research Aims

The original aims and objectives were listed in the Method Statement, (*Doc. No. C263-MLA-X-RGN-CRG07-50042;* see section 3.3.1) and stated that:

"The overall objectives of the evaluations and watching brief is to establish the nature, extent and state of preservation of any surviving archaeological remains that will be impacted upon by the development and to define the level of watching brief required at a later stage".

A number of site specific research aims were stated in the Written Scheme of Investigation. These are:

- What is the development of the local landscape and topography of the Thames floodplain from prehistory to the medieval period? At what level are any peat deposits present and at what date did they form? Is there any evidence for stream channels, lakes, etc in the floodplain gravel surface?
- Is there any evidence for prehistoric activity? If prehistoric remains are present, what is their character and what can be learned about the exploitation of the floodplain by prehistoric groups? In particular, is there any evidence for Mesolithic activity at the base of the alluvium/surface of the gravels? Is there any evidence for timber trackways or other structures of later prehistoric date?
- What can be learned about the process of medieval land reclamation and management? Can any evidence for medieval activity be associated with the village of Plumstead to the south?
- What is the nature of any evidence for post-medieval activity? Is there any evidence for industrial activities, such as quarry pits?
- Are there any remains of early railway infrastructure present, associated with the construction of the NKL in the 1840s?

## 2.2 Fieldwork Objectives

The overall objectives of the evaluations were to establish the nature, extent and state of preservation of any surviving archaeological remains, such as prehistoric timber structures, that will be impacted upon by the development. The evaluation also aimed to examine, sample and record the floodplain deposit sequence and assess its level of potential for the reconstruction of past landscapes.



# 3 Evaluation methodology

The geoarchaeological boreholes (BH1-6) were located along an east/west transect across the site and monitored and recorded by a MOLA geoarchaeologist. Starter pits were hand excavated down to 1.2m bgl (below ground level) and then bored by a terrier rig to varying depths. The various sediments encountered in the boreholes were logged by a geoarchaeologist according to standard geoarchaeological criteria.

Trenches 1 and 2 were located by the Crossrail Project Archaeologist to form an adequate sample of the parts of the site where archaeology might survive, following the results from the geoarchaeological evaluation. They were initially located adjacent to the south side of the tunnel wall, but moved 3 metres northwards, due to necessary engineering constraints, specifically the construction of a steel support frame between the tunnel walls. The area of Trench 1 was, as a result, divided into four areas, designated 1A-1D. Trench 2, located some 75 metres to the east of the Trench 1 was excavated as a continuous strip and benched due to the greater depth of deposits surviving in this part of the site.

Modern overburden/piling mat was machine excavated and removed by the Principal Contactor (Hochtief/Murphy) to expose the peat horizon. The peat deposits were machine excavated, under MOLA supervision to expose surviving timbers. The peat deposits and timbers were then recorded by MOLA (C263) to identify their survival, extent and significance.

A MOLA Geoarchaeologist examined sections through the peat deposits. The trench sections were sampled with a continuous sequence of overlapping monolith tins, with adjacent bulk samples (c 20 litres) taken at regular intervals.

The location of the trenches were recorded by the JV (Hochtief/Murphy) and Museum of London Archaeology Geomatics team using GPS. These results will be tied into the Ordnance Survey (OS) and the London Survey Grid (LSG). A Survey Report will be produced by MOLA Geomatics. A professional photographic record of the site and significant finds will be produced by MOLA Photography.

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# 4 **Provisional Results**

# 4.1 Geoarchaeological boreholes

Six terrier rig boreholes were undertaken in a west (BH1) to east (BH6) transect across the site (see Fig 1). The surface of the basal Pleistocene gravels was encountered at 96.54m ATD in BH2 at its lowest and to the west. At its highest, the gravel was encountered at 98.71m ATD in BH4, to the east. The surface of the fluvial sands was encountered at 96.80m ATD in BH2 at its lowest and to the west. At its highest, the sand was encountered at 98.82m ATD in BH6, to the east. The surface of the peat was encountered between c. 98.5 and 99.5m ATD and undulates along the transect. The surface of the alluvial clays was encountered between c. 100 and 101m ATD and rises towards the east. Overall the transect roughly agrees with that present in the previous deposit model suggesting a large incised channel later filled by the complex deposits of smaller migrating channels or tidal creeks. The transect created by the geoarchaeological boreholes shows the eastern half of the incised channel feature only.

# 4.2 Trench 1

# Trench 1A



Photo 1 Sampling the peat [2] and underlying gravels [1] in Trench 1A (looking north) 7

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Trench 1A			
Dimensions	6.60m x 8m x 0.70m		
Modern Ground Level	103.45m ATD		
Modern subsurface deposits	99.78m ATD		
Level of base of archaeological deposits observed and base of trench	99.08-99.44m ATD		
Natural observed	99.08m ATD		
not truncated			
Extent of modern truncation	Truncation to peat and overlying alluvial deposits from engineering ground reduction, prior to laying of piling mat.		
Georchaeological sequence	Dating Evidence, Finds, and Samples		
Fluvial sand [1] at 98.08m ATD	Dating: Early Holocene/late Pleistocene Finds: none Samples: Monolith <1>, and bulk <2>		
Woodland peat [2], at 99.30-46m OD	Dating: prehistoric, ?Bronze Age Finds: none Samples: Monoliths <1>, and bulks <3> and <4>		
Interpretation and summary			

The area revealed a sequence of natural fluvial sand from 98.08m ATD in the base of the trench overlain by a 0.40m depth (truncated) of woody peat. The overlying alluvial deposits were removed during engineering works for the construction of the piling mat. No finds were recorded.

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# 4.3 Trench 1B



Photo 2, South section through the peat [7] and gravels [8], [9] and timber 10 in Trench 1B (looking south)

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Photo 2 Excavating timber 11 in the southeast corner of Trench 1B (looking northeast)

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Trench 1B	
Dimensions	5.45m x 10m x 0.60m
Modern Ground Level/top of the slab	103.35m ATD
Modern subsurface deposits	100.49m ATD
Level of base of archaeological deposits observed	97.64-97m ATD
Natural observed	99.64m ATD
not truncated	
Extent of modern truncation	Truncation to peat and overlying alluvial deposits from engineering ground reduction, prior to laying of piling mat.
Geoarchaeological remains	Dating Evidence, Finds, and Samples
Gravel [9] at 99.64m ATD	Dating: Early Holocene/late Pleistocene Finds: none Samples: Monoliths <13> and <14>
Fine gravel/sand	Dating: prehistoric Finds: none Samples: Monolith <13>, and <14> and bulk <15>
Woodland peat [7] at 100.09m ATD	Dating: prehistoric Finds: none Samples:<13>, <14> and bulk <16>; Timber species ID: <22>, <32>, <33>

The area revealed a sequence of natural fluvial deposits from 97.64-97m ATD in the base of the trench overlain by a 0.30m depth (truncated) of woody peat. Three timbers [10], [11] and [38] were recorded within the fluvial deposits and peat deposit are indicative of fallen and water sorted round wood and timber. The overlying alluvial deposits, seen in other areas of the trench were removed during engineering works for the construction of the piling mat, but the sequence recorded probably represents the seasonal flood deposits of the River Thames. No finds were recorded.

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#### 4.4 Trench 1C



Photo 4 Timbers [29] (left side) and [23] (right side) in Trench 1C with unexcavated postholes to the left of timber [23] (looking southwest)



Photo 5 Postholes [13] and [15] in Trench 1C (looking south)

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Trench 1C	
Dimensions	6.60m x 8m x 0.70m
Modern Ground Level/top of the slab	103.35m ATD
Modern subsurface deposits	100.00m ATD
Level of base of archaeological deposits observed and base of trench	99.08-44m ATD
Natural observed	99.08-44m ATD
not truncated	
Extent of modern truncation	Truncation to peat and overlying alluvial deposits (survives 0.25m depth by 0.60m length in southeast corner of the area) from engineering ground reduction, prior to laying of piling mat.
Geoarchaeological remains	Dating Evidence, Finds, and Samples
Gravelly sand [41] at 99.08-44m ATD	Dating: Early Holocene/late Pleistocene Finds: None Samples: None
Woodland peat [40] at 99.41-60m ATD	Dating: prehistoric Finds: none Samples: Timber species ID <18>, <19>, <21>, <23>, <25>, <31>
Silty clay [39] at 99.74-84m ATD	Dating: ?prehistoric Finds: none

#### Interpretation and summary

The area revealed fluvial deposits at the base varying between 99.08 and 99.44m ATD overlain by layers of woody peat, sealed beneath silty clays. Three postholes with peat fills [13], [15], and [25] in the southwest corner were recorded cutting the natural gravel and are likely to be anthropogenic in origin. Two shallow cut features, [17] and [19], were recorded in the same area, and are probably evidence for natural rooting. Elsewhere, timber "stakes" [20], [22], [26], [27] were found embedded within the gravelly sand and remains of trees [23], [28], [29] and [30] were recorded across the area within the peat deposits. These are likely to be indicative of fallen and water sorted round wood and timber. The sequence probably represents the seasonal flood deposits of the River Thames. No finds were recorded.



## 4.5 Trench 1D



Photo 6, Sampling the sequence through the upper alluvium [4], peat [5] and underlying gravels [6] in Trench 1D (looking northeast.

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Photo 7 timber 37 showing charred end in Trench 1D (looking southwest)



Photo 8 Cleft half log [36] (see arrow) in Trench 1D (looking east)

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Trench 1D	
Dimensions	6.50m x 7.60m x 1.00m
Modern Ground Level/top of the slab	103.35m ATD
Modern subsurface deposits	100.11m ATD
Level of base of archaeological deposits observed	99.46-86m ATD
Natural observed not truncated	99.46-86m ATD
Extent of modern truncation	Truncation to peat and overlying alluvial deposits (survives 0.4m depth on the east of the area) from engineering ground reduction, prior to laying of piling mat.
Geoarchaeological remains	Dating Evidence, Finds, and Samples
Silty - gravelly sand [6] at 99.46-86m ATD	Dating: Early Holocene/late Pleistocene Finds: 1 piece of burnt debitage Samples: Monolith <7> and bulk <10>, <11>, <12> ,<17>
Woodland peats [5] at 99.61-99.81m ATD	Dating: prehistoric ?Bronze Age Finds: Burnt ovoid "hammer stone" Samples: Monolith <7>, and bulk <10>, <11> and <12>
Silty clay [4] at 99.80-93m ATD	Dating:?prehistoric Finds: none Samples: Monolith <5>, <6>, and bulk <8> and <9>

#### Interpretation and summary

The fluvial deposits at the base of this area varied between 99.46 and 99.86m ATD overlain by layers of woody peat, sealed beneath silty clays. A number of timbers [31], [32], [33], [34] and [35] were recorded across the area are likely to be indicative of fallen and water sorted round wood and timber. However, timber [36] was not naturally broken but had one neatly bevelled end left from either cross cutting or felling with a metal axe. Similarly timber [37] was also found to have traces of working. The tip may have been roughly cross cut with an axe and was charred leaving a blunt point. At the interface between timber [32] and the underlying fluvial deposit, a fragment of debitage was found. Within the damaged cleft of fallen timber [31], an ovoid burnt stone, thought to be a prehistoric tool (hammer stone) was present, though this has been disproved following analysis by a flint tool specialist The sequence probably represents the seasonal flood deposits of the Thames with evidence for human interaction within the area.

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Photo 9 Oak timber 31 with burnt "hammer stone" in Trench 1 D (looking northwest)



Photo 10 Location of debitage fragment at interface of gravels [6] and the overlying timber [32] and peat [5] (looking northwest)

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#### 4.6 Trench 2

Trench 2	
Dimensions	22m x 3.30 x 3.68m deep
Modern Ground Level	103.45m ATD
Modern subsurface deposits	101.80m (W) – 102.34m (E) ATD
Level of base of archaeological deposits observed and base of trench	98.66 (W) - 98.52m (E) ATD
Natural observed	98.66 (W) - 98.52m (E) ATD
not truncated	
Extent of modern truncation	Regularly spaced piles, <i>c</i> 2m apart were located along the length of the trench
Georchaeological sequence	Dating Evidence, Finds, and Samples
Fluvial sand [42] at 98.96-99.22m ATD	Dating: Early Holocene/late Pleistocene Finds: none Samples: Monolith <34>, and bulk <38>
Woodland peat [43], at 99.30-55m OD	Dating: prehistoric, ?Bronze Age Finds: none Samples: Monoliths <34>, <35> and bulks <39> , <40> Timber ID & dendro <49>to <53>
Prehistoric to historical alluvial silts [44] at 100.59-83m ATD	Dating: Lat Prehistoric to historic Finds: none Samples: Monoliths <34>,to<37>; bulks <41>, to, <45>
Alluvial soil [45] at 100.87m ATD	Dating: Historic Finds: none

#### Interpretation and summary

The area revealed a sequence of natural fluvial sand between 98.96 and 99.2mm ATD in the base of the trench overlain by a 0.30-0.60m m depth of woody peat. Within the peat deposits a series of naturally deposited timbers, [48], [49], [50], [51], and [52], and one [53], of anthropogenic in origin were recorded. The overlying alluvial deposits were 1.30m thick. The sequence probably represents the seasonal flood deposits of the Thames with evidence for human interaction within the area. during the prehistoric to early historic period. A series of late 19th century/ early 20th rubbish dumps sealed the sequence. Contained within these were glass and metal fragments, including two ex-situ railway rails.



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Photo 11 View through the archaeological sequence in Trench 2 with timber [48] (west end) looking south



Photo 12 Timber [53] in Trench 2 (looking north)

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# 4.7 Watching brief

A targeted watching brief was conducted during the engineering works and ground reduction at the western end of the Plumstead Portal in order to determine the nature of the deposit sequence. Natural orange terrace gravels were observed overlain by grey/green fine sandy fluvial gravels, in turn overlain by peat, truncated during the piling activity. Roots and occasional fragments of trees were noted penetrating the fluvial deposits (see Photo 12). As the watching brief continued in an easterly direction, the same sequence of deposits was observed (see Photo 13). Following completion of the second evaluation trench, further ground reduction to the east was monitored under a general watching brief. The deposit sequence to the east reflected that found during the targeted evaluation work in Trench 2; the natural sands and gravels overlain by peat, but the overlying alluvial silt had survived to a greater depth ( $c \, 1m$ ) and was sealed by  $c \, 1.20m$  depth of post-medieval dump deposits.



Photo 13 View through the deposits during ground reduction at the west end of the site (looking north east)

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Photo 14 View through the deposits during ground reduction at the east end of the site (looking southeast)

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# 5 Significance of Results (*provisional*)

## 5.1 Summary of Fieldwork Results

The deposit sequence is represented by sands grading up from the underlying gravels, overlain by peats and sealed by alluvial clays and later post medieval dump deposits. This sequence had only survived intact at the eastern end of the site in Trench 2, with a maximum depth of peat seen in section (0.60m), overlain by (1.0m) alluvial silt, deposited between the late prehistoric through to the historic period. The overlying post-medieval deposits were up to 1.20m thick.

Survey data suggests that the surface of the Pleistocene / Early Holocene sands/gravels lie at c. 99.08m ATD to the west (1D) and 98.52m ATD to the east (Trench 2). The intervening areas indicate a slight undulation in the surface with heights varying between these values. A slight slope down to the south and west is indicated from the overall values of the levels data.

Within the peat and also at the interface with the underlying gravels tree fragments and vertical "stakes" were predominantly towards the east end of Trench 1. Parallel sites have indicated that these deposits contain a similar range of worked roundwood and timber, mostly of the Bronze Age period. These structures occur mainly in peat and estuarine clay silt deposits and are well documented; however natural deposits of fallen and water sorted round wood and timber have also been recorded. Typically wetland woodland seems to have colonised areas of the flood plain when the water levels were low enough only to be drowned and killed by rising water levels. Large trees fell apart slowly and sometimes whole groups of trees were blown over together into the increasingly soft and saturated bog or estuary shores growing up around them. The upper faces of lying logs are effected by extra decay, not being continually waterlogged which, combined with compression often gives the appearance of having been flattened somewhat by human action. When trees or boughs fall they may split or cause adjacent trees to split creating cleft surfaces resembling those made by deliberate human splitting, such as that needed for half logs for trackways etc. Finally, structures were also created by beavers where the tributary channels reached the main flood plane which have been mistaken for human constructions. These various natural events frequently create an impression of human activities and can operate along side true human workmanship creating a confusing picture which is the case with the assemblage of woodwork retrieved here.

There is some evidence of humanly worked material; a lifted half log end [36] had one neatly bevelled end left from either cross cutting or felling with a metal axe. It was found set on its bark face with the flatter cleft side uppermost. The timber was 0.21m long by 175 mm wide and compressed down to c. 90mm thick. The smooth 'gob' cut was on the underside as found and had been heavily compressed by the overburden weight but very faint axe stop marks could be seen and traces of the uncut 'hinge' left at the end of

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cutting two opposed 'V's. The timber appeared to have been the end of a log deliberately spit in half after being axe cut to length. Initially it seemed to bear faint traces of charring on the upper face but that has proved uncertain after washing. Such a cleft and trimmed log could have had many uses, with use in a trackway or platform being the most likely.

A section of partially decayed oak roundwood item [37], which was found in near vertical position apparently used as a stake, was also found to have traces of working. The tip may have been roughly cross cut with an axe and was certainly charred leaving a blunt point (see photo 7). Although decayed it would appear that the impromtu stake had been made from a roughly cleft section of a small oak log where just over half the log was used. It survived 0.25m long by 80mm by 60mm. Timber [53], from Trench 2 (and the only timber from that area appearing to be worked) measured 0.38m long by 170mm by 90mm also suggested that it may have been cleft.

This woodworking evidence indicates that there was clearly some human activity on the site but it appears to have been low key perhaps the remains of something like a temporary platform used during hunting or foraging trips into the wet carr type woodland and bog. A small possibility for tighter dating lies in the existence of a sample of slow grown oak with full sapwood timber [31].

## 5.2 Importance of Resources

The deposit sequences of the type recorded in the geoarchaeological boreholes and in Trenches 1 and 2 will provide valuable palaeoenvironmental and geomorphological information. This will both enhance the understanding of the environmental background to the transient activities indicated by the worked wood and finds in Trench 1D and also put this period of activity into a wider framework of environmental change. The stratigraphic records and samples recovered, will inform future work that will be able to infer differing environmental configurations across the landscape and investigate how such environmental variables would have influenced past populations utilising the Thames River and the adjacent floodplain.

Such work will yield a greater understanding on the development of the floodplain environment. Evidence for past human activity can be placed in a context of changing landscape conditions, and how the evolution of the floodplain landscape influenced human behaviour, settlement patterns and the exploitation of this landscape.

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### 5.3 **Provisional conclusions for future work**

- The evaluation and targeted watching brief has demonstrated the survival of an overall similar deposit sequence across the eastern part of the site.
- The sequences represent the alder carr floodplain woodland of the Bronze Age, (peat) through to the Late Iron Age intertidal mudflats and medieval water meadows (alluvial silts).
- Although limited, the work has provided evidence of human activity the nature of which may be better understood following post-excavation assessment and analysis of the samples recovered during fieldwork.
- The palaeoenvironmental evidence preserved within the deposit sequences can be utilised to investigate the relationship between human activity and landscape change.
- The evidence for localised changes in environment, hydrology and geomorphology can used to revise and update currently accepted models for the Holocene evolution of the Thames floodplain.
- A programme of radiocarbon dating would refine the chronology and understanding of the deposit sequence.
- The peat and alluvial deposits will preserve a range of palaeoenvironmental proxy indicators such as pollen, ostracods, diatoms, foraminifera, molluscs and plant macro fossils that can be utilised to refine the interpretation of the mode of deposition

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# 6 Future Deliverables

The remaining deliverables for the watching brief are listed below; their delivery dates being specified by the C263 Archaeology Late East, *Method Statement, Archaeological Evaluation, Non Listed Building Recording Assessment and General Watching Brief, Plumstead Portal, Doc. No. C263-MLA-X-RGN-CRG07-50042.* 

•	Survey Report	31/10/12
•	Fieldwork Report (including HER Summary Sheet)	28/11/12
•	Summary Report	12/12/12

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Fig 1 Location plan

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Fig 2 Trench 1 plan

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Fig 3 Trench 2 plan

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