C263 ARCHAEOLOGY LATE EAST

Fieldwork Report

Archaeological Evaluation and Targeted Watching Brief

North Woolwich Portal XSV11

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Non-technical summary

This report covers four evaluation trenches and a targeted watching brief carried out by the Museum of London Archaeology (MOLA) on the eastern half of the portal at North Woolwich, London Borough of Newham. The report was commissioned from MOLA by Crossrail Ltd.

Four trial trenches and a targeted watching brief afforded the opportunity to record and sample the alluvial sequence above the Pleistocene Thames gravels. The sequence consisted of evidence for a meandering river of potentially early Holocene date, interspersed with higher sand and gravel floodplain on which Mesolithic activity took place. Flint scatters were recorded in three of the four trenches, providing evidence for the way in which the shoreline environment was used by those people from the Mesolithic onwards. By the time of the Mesolithic/Neolithic transition, wood peat formed over the sand/gravel before rising sea level in the Roman or later periods inundated the area to deposit alluvial deposits in an estuarine floodplain.

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1 Introduction

This Report details the archaeological evaluation and a targeted watching brief carried out in the North Woolwich Portal site by the MOLA. The North Woolwich Portal is located within the existing railway corridor of the former North London Line (NLL), between Factory Road and Albert Road in the London Borough of Newham, National Grid Reference 542700 180000.

The works were undertaken in three stages (Table 1): Stage 1 involved the targeted watching brief during bulk reduction within the portal to enable construction of capping beams and the insertion of propping. Stage 2 involved a sample excavation of four trenches within the footprint of the portal. The trenches were undertaken after the installation of the diaphragm wall. Stage 3 involved carrying out targeted watching brief during the ground reduction located between the areas of the sample excavation.

The western half of the portal site comprised a ramp from the surface track alignment, the impact of which was limited to recent made ground and historic alluvial deposits of limited archaeological potential. Excavation of the western half of the portal was therefore not subject to archaeological monitoring.

Task	Principal Contractor	Dates
Stage 1: Targeted Watching brief (carried out during bulk reduction for construction of capping beams and insertion of propping)	Hochtief Murphy Joint Venture (C310)	Completed
Stage 2: Evaluation trenches (four sample trenches within the portal footprint)	Hochtief Murphy Joint Venture (C310)	Completed
Stage 3: Targeted Watching brief (carried out during the ground reduction located between the areas of sample excavation)	Hochtief Murphy Joint Venture (C310)	Completed

Table 1: Fieldwork conducted between 08/05/13 to 19/02/14.

The fieldwork was carried out between 08/05/13 and 22/01/14 in accordance with:

- The Crossrail **Generic Written Scheme of Investigation**: *Archaeology Generic Written Scheme of Investigation*, Doc No. **CR-PN-LWS-EN-SY-00001**, 2009.
- A Crossrail **North Woolwich Portal Archaeological Written Scheme of Investigation** (SS-WSI): **C122-OVE-T1-GMS-CR146-50003**.

- Crossrail, Archaeology, **Specification for Evaluation & Mitigation (including Watching Brief**), Doc. No. **CR-PN-LWS-EN-SP-00001, v. 0.3**, 26.06.09
- An **Archaeological method Statement** MOLA, C263 Archaeology Late East, Method Statement for North Woolwich Portal, (XSV11) Document Number: **C263-MLA-X-GMS-CR146_PT004-50001.**

Archaeological investigations were directed by MOLA Senior Archaeologists Serena Ranieri, Daniel Harrison, Michael Tunnicliffe and Geoarchaeologist Jason Stewart.

All grid coordinates in this report are cited as both the National Ordinance Survey and London Survey Grid, and all levels cited as Above Tunnel Datum (m ATD)(ATD = OD +100m).

The event code (site code) is **XSV11**.

1.1 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#.T979khdfFXs). 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 (2005) 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).

1.2 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 2008). 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.

This report will be made available from The London Archaeological Archive and Research Centre (LAARC) in due course.

1.3 Previous work relevant to archaeology of site

The principal previous Crossrail studies are as follows:

- Crossrail, Assessment of Archaeological Impacts, Technical Report, Part 2 of 6, Central Section, Report Number 1E0318-C1E00-00001, 2005.
- Crossrail, Archaeological Programming Assessment, Report Number 1E0318-G0E00-00006 (Rev B), 2006.
- MOLA, C263 ARCHAEOLOGY LATE EAST, Interim Report, Geoarchaeological North Woolwich Portal,C263-MLA-X-RGN-CRG07-50012, 2011.
- Crossrail, Archaeological Watching Brief on Utility Diversions at North Woolwich Portal – XSV11. Fieldwork Report. Document No. C263-MLA-X-RGN-CRG07-50093, 2012.
- Crossrail. Geoarchaeological Borehole Evaluation. Interim Statement North Woolwich Portal – XSV11. Document No. C263-MLA-X-RGN-CRG07-50012, 2013.

The fieldwork was carried out in accordance with:

- Crossrail, Archaeology Generic Written Scheme of Investigation, Document Number CR-PN-LWS-EN-SY-00001, 2009.
- Crossrail Site-specific Written Scheme of Investigation (SS-WSI): C122-OVE-T1-GMS-CR146-50003, 2012.
- An **Archaeological Method Statement**: MOLA, C263 Archaeology Late East, Method Statement Archaeological evaluation and watching briefs, Document Number: C263-MLA-X-GMS-CR07-50001, 2013 [The MOLA method statement prepared in line with the Principal Contractor's method statement].

The Written Scheme of Investigation (WSI) and Method Statements will be available from the LAARC.

1.4 Geology and topography of site

The North Woolwich portal site lies within the wider floodplain of the River Thames. Overlying the chalk bedrock are the floodplain sands and gravels deposited during the Pleistocene, *c* 2,000,000 to 10,000 BP, during which the Thames was a fast flowing braided river, formed of interconnected channels interspersed with higher sand and gravel bars. These floodplain gravels form the 'Holocene Template' on which Mesolithic activity would have taken place, the areas around channels and lakes providing resources attracting a hunter-gatherer population.

During the early Holocene sea levels rose and lower lying areas were inundated. By the time of the Mesolithic/Neolithic transition at approximately 4000 BC the level of the Thames is likely to have risen to approximately 97m ATD. From the Later Neolithic the braided channels gradually silted up, and combined with the rising sea levels the conditions were conducive to peat formation. The landscape became predominantly marshland, which was crossed by the Thames as a single meandering channel.

Geoarchaeological deposit modelling based on borehole data was been carried out for the North Woolwich portal site in 2008 (DDBA Appendix 2, Crossrail 2008b), and has identified four landscape zones (LZs) to enable analysis of underlying geology and the archaeological and paleoenviromental potential. This was updated in 2011 with three extra boreholes (Crossrail 2011).

In the western portion of the tunnel portal, approximately to the east of Tate Road, gravel has been recorded at levels between 94 and 96m ATD. It is likely that in this area deeper channels existed which were active during the early Mesolithic (LZ1). The areas LZ1, LZ2 and LZ3 are shown on Fig 1 of the geoarchaeology report. River levels continued to rise and as the channels gradually silted up, probably from the later Neolithic onwards, peat formed and the area became marshland. The peat is overlain by later Holocene alluvial deposits to a height of approximately 100 to 101m ATD. Some of these later Holocene deposits may relate to a former small tributary of the Thames known as Ham Creek, which is shown on maps of 18th to 19th century date. Further to the east, between just west of Fernhill Street and the eastern end of the portal, a higher area of gravel has been recorded at between 96 and 98m ATD (LZ2). Following production of the deposit model, GI Package 19 was monitored archaeologically in 2009. Assessment of the results of the 2011 boreholes concluded that the western side of the higher area (LZ2) probably lies at least *c*50m further west than was previously thought.

A similar island was located at the eastern end of the portal. Much of this area would have been inundated by the end of the Mesolithic, but LZ2 may have remained an island of higher, drier ground within the low-lying marsh into the Neolithic. The TBM reception chamber itself may lie in a marginal zone between deeper channels located to the east of the portal and the higher island to the west (LZ3). In this area well-developed peat deposits suggest an area of dense moisture-tolerant vegetation at the margins of the main channel network.

Average modern ground levels in the area surrounding the North Woolwich portal site lie between approximately 101.5 and approximately 102.5m ATD. Levels rise to a height of approximately 105 to 105.5m ATD at the very southern edge of the eastern end of the portal, probably as a result of the construction of embankments and consolidation of the banks of the river. The existing railway lies between approximately 0.4 and 0.9m higher than the surrounding land.

2 Archaeological and Historic Background

This section provides a brief overview of the archaeological and historical background of the site to enable the site to be seen within its wider context. Further detail on the historic and archaeological development of the site can be found within the DBA (CR-XRL-T1-RGN-CR001-50006) and SS-WSI (C122-OVE-T1-GMS-CR146-50003). The North Woolwich Portal lies within an Archaeological Priority Zone (APZ) as defined by the LB of Newham. There are no scheduled ancient monuments within the study area. Listed buildings do not fall within the remit of this report.

2.1 Prehistoric Period (c 500 000 BP to AD50)

The Thames floodplain would have been targeted during earlier prehistoric periods by hunter-gatherer-fisher groups as an important resource. Occupation such as makeshift camps may have existed on the higher areas of sand and gravel across the wider Thames floodplain (e.g. LZ2), with fishing and other activities being carried out adjacent to the surrounding river channels (LZ1). Remains such as fish traps, weirs and boats may survive within the deposits in relict river channels of LZ1.

By or during the Neolithic, the area became marshland (including the islands of LZ2 at the portal and eastern worksite), and preserved timber trackways linking areas of drier ground have been recorded on sites located 1.5 to 2km from the North Woolwich portal site.

2.2 Roman Period (AD50 to 450)

During the Roman period much of this area would still have been marshy open land, although occupation evidence suggests that sea levels were much lower than they are today, and that the marshes were drier, and were probably drained and extensively used. Potential Roman roads and trackways lie outside the site, highlighting Roman activity in proximity; these routes include a possible Roman road leading from the higher ground to the north down towards the ferry crossing at North Woolwich. At Milk Street, approximately 0.7km to the north-east of the site, postholes, dumped layers and a flood deposit of Roman date were recorded.

2.3 Medieval Period (AD 450 to 1540)

By the Early Medieval period much of the floodplain of East London was once again marshland due to the rising levels of the Thames. The medieval settlement of North Woolwich is located by the Historic Environment Record (HER) immediately to the west of North Woolwich station, in the vicinity of the eastern end of the portal. Most of Woolwich lay on the south bank of the Thames, but a small outpost existed on the other side of the river, probably located to control the strategically important river crossing. The settlement is mentioned in documentary sources from 1086, but was destroyed by flooding, probably during the Fourteenth and Fifteenth Centuries.

The location of the medieval manor of Hammarsh and its manor house may have been located in the vicinity of the North Woolwich portal site. The manor is known from documentary sources from 1086, and the HER locates the manor approximately 0.5km to the east of the site.

2.4 Post–Medieval (AD1540 to 1900)

Areas of marshland known as Trinity Marsh and New Marsh, located by the HER in the area immediately to the north of the portal, were reclaimed for pasture during the 16th century, and by the early 17th century much of the marsh had been drained and reclaimed, although in 1612 to 1613 severe flooding occurred in the area. The ditches that were dug to drain the levels developed into major drainage dykes, becoming open sewers feeding into the tributaries of the Thames. This process of land reclamation continued into the 19th Century.

By the middle of the 19th century the area had changed significantly, as London became an increasingly important international port and the associated area of docks, warehouses and industry expanded eastwards. The North Woolwich Railway line, opened in 1847, was constructed across what was previously undeveloped marshland, leading to the construction of large warehouses alongside the railway. The Ordnance Survey 25” map of 1867 shows the railway with part of the eastern worksite occupied by the Victoria Ale Stores, and the main worksite partially developed, occupied by buildings associated with the Electric Telegraph Works. Railway sidings are present at the northern end of the eastern construction compound. By the time of the Ordnance Survey 2nd edition 25” map of 1894 to 1896 the stores and works on both sites had expanded. The remnants of Ham Creek can be seen on these maps, and comparison with modern mapping indicates that the western edge of the creek and its floodplain (marked by dykes on those maps) lay on the approximate line of Tate Road, and its full width may have lain beneath the western *c* 40m of the portal. A late 19th-century footbridge crosses the railway in the vicinity of the portal. The bridge and track have now been removed. Railway sidings serving the factories cross Factory Road, and a few sections of track survive within Factory Road, some of which can be seen on modern Ordnance Survey mapping.

3 Research objectives and aims

3.1 Aim and Objectives of the fieldwork

The overall aims of the sample excavation were to investigate record and take environmental and geoarchaeological samples from a proportion of the 480m long portal. The trench locations were informed by and selected using the results of a digital deposit model and geoarchaeological borehole evaluation (Crossrail 2011).

The aim of the targeted watching brief was to investigate record and where appropriate sample any archaeological remains encountered by works where the extent of the impact is limited, and/or there is only low potential for the works to encounter archaeological remains. Watching brief was also used for areas of the portal not included in the sample excavations.

The following site specific research aims can be outlined for the proposed investigations at the North Woolwich Portal site:

- The peat and alluvial deposits will preserve a range of palaeoenviromental proxy indicators, such as pollen, ostracods, diatoms, foraminifera, molluscs and plant macro fossils. What can be inferred about the mode of deposition based on these proxy indicators? Is there evidence for stream channels, lakes, etc. in the flood plain gravel surface? What date can be attributed to these landscape changes?

- Can the evidence for localised changes in the environment, hydrology and geomorphology be used to revise and update currently accepted models for the Holocene evolution of the Thames floodplain?

- Does the palaeoenviromental evidence preserved within the deposit sequence provide new information which can be used to investigate the relationship between human activity and landscape change?

- 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 in at the base of the alluvium/surface of the gravel, or for occupation in the areas of higher ground, such as the eastern end of the portal? Is there evidence for timber structures, such as platforms or causeways?

- How can evidence of floodplain stabilisation and soil formation of a Roman to Medieval date within the upper minerogenic alluvium provide information on the timing of marine regressive and transgressive episodes? Is there robust evidence for earlier regressive and transgressive episodes? How does this compare with human interactions in the landscape?

- Can alluvial deposits in the western *c* 40m of the portal be related to the tributary of the Thames known as Ham Creek? If so, what can be learned about the processes by which the channel became infilled?

- What can be learned about the processes of Roman and later land reclamation, land management and flood defence?

4 Sample Excavation

4.1 Field and recording methodology

The sample excavation was carried out in accordance with the Crossrail Generic and Site Specific WSIs (Crossrail 2009 and 2011), the MOLA *Method Statement* (Crossrail 2013) and the *Archaeological Site Manual* (MoLa 1994).

The location of the four trenches was set out by the main contractor and subsequently located by one of the Crossrail surveyors. The trenches were all orientated east– west and positioned on the central line of the portal footprint. Using the geoarchaeological deposit model and results of the borehole analysis, the trenches were located in selected sample areas to investigate either areas of predicted higher archaeological potential or differing archaeological horizons.

Trenches 3 and 4 were located to the far eastern end of the portal over a higher area of sand and gravel. This area had the potential for activity and occupation from the Mesolithic and nearly Neolithic period, subsequently confirmed by the presence of two large flints assemblages dated between Early and Late Mesolithic.

Trench 4 was excavated under TWB conditions to *c* 97.8mATD, from which height a stepped in trench was excavated from 8 July under sample excavation conditions. At 97.80m ATD an area measuring 13.90m in length by 4.40m in width was marked out by Crossrail surveyors to form the edges of the sample excavation. A digger fitted with a toothless bucket was then used to reduce the ground in controlled spits. At the interface of the peat deposits and the underlying deposits, the surface was hand cleaned and investigated prior to removal in spits of 10-20mm by the machine of [18] and [17]. Subsequently [15] was hand cleaned and hand dug due to the presence of a large assemblage of flints. These were planned and logged into an Excel database with the according coordinate locations, so that subsequent spatial analysis could be undertaken. Where more than 1 flint was retrieved from an area with a radius from a shared central point of less than 5cm, the flints from within that radius were bagged together. This was to aid the flint specialist in more quickly identifying related flints if possible and to better show concentrations on future plots, simplifying the data. To indicate this (see Fig 7), weighted points have been employed to show the numbers of flints retrieved at each position. The larger is the point, the more flint pieces have been retrieved from the same radius.

Trench 3, measuring 25m in length by 4m in width, was marked out by Crossrail surveyors at a height of 100m ATD. The size of the trench was later reduced due to time constraints to 23.7m in length. Due to the proximity of overhead props, plant size was restricted to a 3 tonne machine fitted with a toothless bucket which reduced the ground in controlled spits of 0.2m, although even this machine was restricted by the props, slowing down progress. A short portion of the section was removed by machine without being recorded; however the deposits on either side continued on a horizontal alignment and can be extrapolated across the unrecorded baulk.

Trenches 1 and 2 were located towards the western end of the portal where deposits were expected to reach greater depths. Trench 1 was located within the marginal zone of marsh on the edge of a deeper channel. Trench 2 was located to investigate the western edge of a sandy island.

Trench 1 was originally intended to measure 25m in length. Due to the installation of propping and constraints on the construction programme it was only possible to fully excavate a trench measuring 5m by 4m at base, stepped to a depth of 2.60 metres to 98.00m ATD. As a result the remaining section of Trench 1 was recorded as part the targeted watching brief.

Trench 2, measuring 25m in length by 4m in width, was marked out by Crossrail surveyors at a height of *c* 100.60m ATD. The size of the trench was later reduced to 18m in length, due to the proximity of overhead props to the west and to crane lifting activity to the east. In order to achieve the completion of the trench within the time available in the programme it was agreed that the western 10m of the trench would be excavated under targeted watching brief conditions to its full depth of 2.5m below ground level, with the option to step the trench out fully in the event that significant archaeological remains were encountered. In the event, the trench was excavated to a depth of 3 metres to 97.8m ATD, slightly deeper than planned as underlying gravels previously identified as a sterile horizon had not been reached after the initial 2.5 metres of excavation. The gravels were not seen at 97.8m ATD and so a further sondage was dug in the eastern edge of the 10 metre trench to 96.8m ATD. However, the gravels were not seen and the work was halted as a maximum safe depth had been reached. The deposit sequence was recorded at intervals along the 10m section from the top of the trench. The sequence seen was identical to that seen in the east end of the trench, with sterile medium to course sand being the lowest deposit seen, below peat and organic silt deposits and with historic alluvium to the top of the excavation. The deposits are discussed in more depth in conjunction with other findings from the easternmost 10m of the trench below. The remaining eastern 8.80m was carried out as a stepped excavation.

In all trenches, modern overburden was removed by the Principal Contractor (HMJV) by machine under archaeological supervision by a MOLA Senior Archaeologist (no railway remains were observed). The overall area of the trenches was excavated to the base of modern overburden. Then the underlying alluvium to a depth of approximately 1m and stair access provided. The sections of each trench were cleaned manually and monolith samples taken through the deposit sequence along with 10l bulk soil samples taken at regular intervals.

Once the location of the trench was set out by the Surveyor, the trenches were excavated mechanically, under supervision, allowing for both sides to be stepped for safety. The process of recording and sampling was repeated. This overall method proceeded until natural gravel was encountered. There was no water ingress.

Samples were taken by a Geo-archaeologist and Senior Archaeologist according to standard sampling procedures for an alluvial sequence:

Sample	Sampled by	Material	Processing
Column bulk At intervals down deposit profiles	Archaeologist on advice of geoarchaeologist	Freshwater and terrestrial molluscs, ostracods,	Disaggregated and wet sieved
		Plant macrofossils	Flotation or wet sieving
		Insects	Paraffin flotation
Monolith	geoarchaeologist	Sediments	Laboratory cleaning
		Pollen and Diatoms	Sub-sampled for external Specialist

4.2 Results

Trench 1

Photo 1. Recording of the deposit sequence during sample excavation of Trench 1.

Evaluation Trench 1 (Fig 3**)**	
Location	Far western end side of the portal
Dimensions	5m x 7m x 2.6m
LSG coordinates	93014.814E 34437.591N 93020.838E 34436.723N 93022.238N 34442,743N 93016.625E 34444,670N
Modern Ground Level	101.60m ATD
Modern subsurface deposits	Former railway made ground 0.35m thick
Base of modern truncation	100.3m ATD
Level of base of archaeological deposits observed	98.60mATD
Natural deposits observed	98.60mATD
Level of base of trench	97mATD

Archaeological and Geoarchaeological remains	**Dating Evidence, Finds, and Samples**
[27] Light blue grey alluvium, 1.20m thick.	<53><54> Monoliths and <55> Bulk
[28] Humic silty clay layer, c. 0.10m maximum thickness	<51> - <52> Monoliths and <57> Bulk
[29] Dark brown organic silty clay, c. 0.80m maximum thickness	<50>- <51> - <52> Monoliths and <71> Bulk
[[30] Woody Peat	<49> - <50> Monoliths and <56> Bulk]

Interpretation and summary

The earliest deposit exposed in Trench 1 was a very organic and rooted woody peat deposit [30] with its upper surface at 98.60m ATD. The peat contained considerable amounts of well-preserved wood fragments, roots and larger timbers including logs, but all appeared naturally deposited and none formed any structures.

A dark brown silty clay [29] overlay layer [30]. It had a high organic content at its base becoming less so with height. The top of the layer was at 99.20m ATD. It was probably formed as a result of inundation generated by rising sea levels, the woody base representing primary inundation over wooded wetland.

A thin humic silty clay layer [28] overlay layer [29]. It marked a change in the depositional environment from a vegetative wetland to a flooded non vegetative one, showing a hiatus of inundation allowing for short period of soil formation and vegetation growth.

A layer of light blue grey alluvium [27] overlay layer [28]. Its upper surface survived to 100.3m ATD. The alluvium had been previously identified as being historic and of little archaeological significance. It comprised a fairly clean layer of slightly organic blue grey alluvial silt with evidence of moderate rooting activity and oxidation.

Covering the archaeological deposits was a slab of concrete *c* 0.10m thick, which truncated the top of the alluvium to a height of *c* 100.3m ATD.

Further investigations during the targeted watching brief demonstrated the presence of an early Holocene channel located to the east of trench 1 (see Fig 8 and Fig 2 for section location). Consistent fluctuations in depth of the deposits were seen from chainage 88.650 onwards showing progression of landforms resulting from changing environmental conditions.

Trench 2

Photo 2. Tree trunk within flinty sand horizon during sample excavation of Trench 2.

Evaluation Trench 2 (Fig 4**)**	
Location	Central section of western half of portal
Dimensions	18m x 5m x 2.6m
LSG coordinates	93075.613E 34429.182N 93093.996E 34425.917N 93074.400E 34424.331N 93093.160E 34419.135N
Modern Ground Level	101.60m ATD
Modern subsurface deposits	Former railway made ground *c* 0.35m thick
Base of modern truncation	100.60mATD
Level of base of archaeological deposits observed	99.10m ATD
Natural deposits observed	99.10m ATD
Level of base of trench	97.00m ATD

Archaeological and Geoarchaeological remains	Dating Evidence, Finds, and Samples
[31] Light blue grey alluvium, 0.80m thick.	<58> <59> Monoliths and <64> <65> Bulks
[32]Organic peaty layer, 0.60m maximum thickness	<59> <60> Monoliths and <66> <67> <68>Bulks
[35] Mid/light grey silty sand, fill of possible fire pit.	<63> Monoliths and <71> Bulk Burnt flint assemblage
[36]Light brown pink mottled grey silty sand, bottom fill of possible fire pit. Mesolithic Flints found within the layer	<63> Monolith
[37] Possible subcircular fire pit, 1mx0.60mx0.45m.	
[33] Light greyish white sandy Mesolithic land surface, 0.30-0.40m.	<60>, <61> Monoliths and <70> Bulk Burnt flint assemblage
[34] Natural sand.	<60> <61> <63> Monolith

Interpretation and summary

The earliest deposit exposed in Trench 2 was layer of natural yellow-beige sand [34] at 99.10m ATD. The sondage in the western end of the trench showed that this layer continued below the base of the sondage, which was recorded at 96.8m ATD. No underlying gravel deposits were exposed.

Layer [34] was overlain by a finer and whiter sandy horizon [33]. This has been interpreted as a bioturbated prehistoric land surface with the top of the layer at *c* 99.20m ATD. A number of burnt flints were found distributed within the layer, but interestingly, the concentration of burnt flints increased within the vicinity of a pit [37]. The subcircular pit was *c* 0.45m deep, filled with darker grey sand [35] containing horizontal lenses of burnt flint. The lenses most likely represent individual fires, with the shattered flints comprising the lenses perhaps discarded cooking stones, or heat conservers placed in the fire, or both. At the base of the pit was a large concentration of broken burnt flint [36], which had lightly baked the surrounding deposit [34] a pink colour.

There was no visible surviving charcoal within the pit. This may be due to poor preservation, however, there is the possibility that the flints were heated in fires nearby and then deposited within the pit rather than being fired in situ. If this is the case, then it may be that hot stones were placed into the pit to cook food, perhaps by steaming. This would likely only apply during the formation of [36], when the pit was an open feature and would suggest that the lenses in [35] were waste tips from other fires.

Sandy horizon [33] was overlain by an approximately 0.6m thick layer of peat [32]. This was laid down over time during conditions becoming increasingly wet prior to the inundation represented by the overlying alluvium [31].

Layer [31] has been previously been assessed as historic and of little archaeological value. Accordingly, it was removed under supervision in 0.3m spits down to a layer of grey alluvial silt containing woody matter at *c* 99.70m ATD. This silt/clay formed an interface between the alluvium, probably deposited as the result of inundation from the Thames and various tributaries, and the earlier underlying peat deposits. It

marks a change in the depositional environment from a vegetative wetland to a flooded non vegetative one.

Covering the archaeological deposits was a layer of made ground *c* 1m thick, which truncated the top of the alluvium to a height of *c* 100.6m ATD.

Trench 3

Photo 3*. Palaeochannel partially excavated in Trench 3.*

Trench 3 (Fig 5**)**	
Location	North Woolwich Portal
Dimensions	25m x 4m. Overall depth 2.60m.
LSG coordinates	E = 93158.913 N = 34413.506, E= 93158.004 N = 34409.610, E = 93183.259 N = 34407.823, E = 93182.350 N = 34403.928
Base of modern truncation	99.80mATD
Level of base of archaeological deposits observed and/or base of trench	97.10m ATD
Natural observed	97.10m ATD
Level of base of trench	97.10m ATD

Archaeological/ geoarchaeological remains	Dating Evidence, Finds, and Samples
[2] Historic alluvium	<9>-<10>Monoliths and <11> <12> Bulks
[3] Very organic clay silt layer	<3>-<4>Monoliths and <5>- <6> Bulks
[6] Clay slit filled paleochannel [6]	<2> Monoliths
[7] Peat filled hollow [7]	<9>-<10>Monoliths and <11> <12> Bulks
[8] Organic clay silt layer	<7> <8> <9>-<10>Monoliths and <13> <15> <17> <18> <23> Bulks
[9] Woody peat layer	<15>-<16>Monoliths and <19>-<20> - <21> <22> <23> <24> <25> <27>Bulks
[10] Organic clay silt inundation	<25> Monolith <28> Bulk
[11] Sand Channel wash	<14> Bulk Assemblage of Flints
[12] Reworked Pleistocene gravels	<26> Monolith
[13] Holocene gravel	<26> Monolith

Interpretation and summary

Natural gravel deposits, [12] and [13], were recorded at 97.10m ATD in the west of the trench and at 97.30m ATD in the east, Indicating that the gravel bank [island?] Is rising from west to east at this point. The gravels were overlain by a layer of yellowish/grey medium sand [11] which occupied the western portion of the trench.

Numerous worked flints were recovered from layer [11] during hand cleaning. The flints were concentrated in the easternmost portion of the exposed deposit, and appeared to be close to their original place of deposition, although there was evidence for some natural reorientation probably by water action and rooting. Several further randomly distributed flints were recovered to the west of the main scatter during the targeted watching brief. Despite the absence of cut features or structural remains, the flint scatter provides clear evidence of human activity on the gravel “island” which comprises LZ2 during the Mesolithic period. Bulk samples and monolith samples of the layer were also taken from the section.

A layer of organic clay silt [10] overlay layers [11] and [13]. It represents a period of inundation before stabilisation of the land surface and the formation by wetland vegetation of the peat deposits.

An approximately 0.7-0.8m thick layer of peaty very organic and rooted clay/ silt [8] over a similarly thick deposit of woody peat [9] overlay layer [10]. Both the organic clay/silt layer and peat contained considerable amounts of well-preserved wood fragments, roots and larger timbers including logs but all appeared naturally deposited and none formed any structures. Samples were taken from the northern section of the trench by MOLA geoarchaeologists.

The peaty layers are thought to have formed as the result of a wetland environment generated by rising sea levels. The sea level rise was not constant and there were drier and wetter periods. A lense of grey alluvium within layer [9] indicates that an

episode of inundation occurred. The increasingly siltier nature of the peat/ organic silt/clay layers towards the top suggests a general trend towards a wetter and probably saltier environment prior to the flooded salt marsh likely present during the alluvium deposition.

Following initial machine excavation of the piling mat, to a height of *c* 99.7m ATD in the eastern part of the trench and 99.80m ATD in the west, a fairly clean layer of slightly organic blue grey alluvial silt [2] containing waterlain wood fragments was exposed. This was removed to 99.50mATD in the eastern portion of the trench, exposing a paleochannel [6] measuring 16m in length, 1.20m in width and 0.59m in depth in the eastern half of the trench, orientated SW/NE and cutting a very organic clay/silt layer [3] *c* 0.3m thick which occupied the full extent of the trench below the alluvium. The fill of the channel was grey silt/clay alluvium. Monolith samples were taken from the section of a slot, hand dug through the paleochannel. A branch of the channel at the mid-point of the trench turned sharply towards the north where it appears in section. A small peat filled hollow [7], likely a peat filled pool or tree throw was also noted in the surface of [3].

Trench 4

Photo 4. Trench 4 with flint scatter in foreground at 97.2 - 97.4m ATD.

Trench 4 (Fig 6 and Fig 7)	
Location	North Woolwich Portal
Dimensions	16.64m x 4.40m. upper/ 13.90m x 4.40m lower. Depth 2m.
LSG coordinates	E = 93204.750 N = 34399.192, E = 93220.977 N = 34395.707, E = 93203.39 N = 34393.28, E = 93219.73 N = 34389.78
Level of base of modern truncation	98.80m ATD
Level of base of archaeological deposits observed	97.21m ATD
Natural observed	97.21m ATD
Level of base of trench	97m ATD
Archaeological/ geoarchaeological remains	**Dating Evidence, Finds, and Samples**
[15] Sand layer	Bulk samples from <32> to <43> Flint scatters

[16] Reworked Pleistocene gravels	Possible flint core [16]
[17] Organic sand	<45> Bulk
[18] Organic silty clay inundation	
[19] Woody peat layer	
[20] Peaty very organic clay silt layer	
[21] Historic alluvium filled paleochannel [22]	<46> <47> Bulks
[23] [24] [25] Deposits at base of channel [22]	<46> <47> Bulks
[26] later fill of [22] or subsequent paleochannel	<48> Bulk

Interpretation and summary

Natural gravel [16] was recorded at 97.07m ATD in the west of the trench and at 97.21m ATD in the east, indicating a slight rise in the gravel bank from west to east.

Above it, a layer of light yellowish/grey medium sand [15] was seen at a depth of 97.40m ATD. It was approximately 0.20m in depth and extended for 8m from the western side of the trench. This was very similar in character and composition to [11], the layer containing worked flint in Trench 3.

A large quantity of worked flints was recovered from [15] during the trowelling back of the top of the deposit. The flints were concentrated in one area of the trench, suggesting they may be fairly close to being in situ, though clearly reoriented by probable water action and rooting. The deposit was also bulk sampled in a grid pattern to enable the deposit to be processed for further information such as potential micro-debitage or any microliths which may have been present with the added potential for spatial analysis. This was then excavated to its full extent by hand and a small number (less than 10) of further flints recovered and plotted (see Fig 7).

An extension to the south-west end of the trench was undertaken under targeted watching brief conditions, with the top of [15] exposed by machine and excavated by hand. The aim was to look for any further flints, although only one flint was found in situ and plotted. The deposit seemed to extend on a similar orientation from north to south as it did in the area of the sample excavation. Ten more flints were subsequently recovered by sifting through the spoil and bagged together.

The sequence of the alluvium and underlying deposits overlying layer [15] was essentially similar in character to that seen in Trench 3. A layer of very organic slightly peaty sand [17] at 97.45m ATD, closely following the top of the underlying sand [15], may indicate incipient soil formation on the surface of the sands prior to inundation due to rising sea levels or local fluvial changes. This was not found in trench 3.

At *c* 97.55mATD was a deposit [18] of grey alluvial clay very similar to [10] in Trench 3, suggesting an inundation of the land surface prior to stabilisation of vegetation given rise to the peaty deposits. This was overlain by a woody peat layer [19] which was probably deposited over time during a wetland environment. Above it, a less woody peaty deposits [20] likely to have been deposited under wetter conditions than [19].

The east end of the layers had been eroded away by a channel [22], as had the top of the underlying gravel [16]. Peat [25] and sand [24] were likely translocated deposits, scoured by the channel and redeposited at its bed. Deposit [23] was an alluvial deposit containing a high concentration of small (less than 30mm) peat clasts probably laid down having being transported from elsewhere with the waterborne silts.

The bulk of the channel [22] was filled with two different types of alluvial deposit [21] and [26]. [26] could be interpreted as a later migration of the river channel to the east as it partially silted up (see Fig 6).

Sealing all of the above features and deposits was a layer of crushed concrete of *c* 0.2m thick, recorded from a starting height of 99.00m ATD.

5 Targeted Watching Brief

5.1 Field and recording methodology

A Targeted Watching brief (TWB) was undertaken where the density of archaeological features or deposits was not considered of sufficient significance to warrant further investigation (Crossrail 2009 Archaeology Specification for Evaluation & Mitigation (including Watching Brief) CR-PN-LWS-EN-SP-0001, version 3).

It was carried out during the bulk ground reduction within the portal to enable construction of capping beams and insertion of propping, and during the ground reduction in areas of the portal outside of the four sample excavation areas (see Table 1).

Records consisting of notes, drawings and photographs were compiled by the Senior Archaeologist on site and measurements were taken, whether by tape or estimated, from the top of capping beams and their location defined by the site chainage. As the portal narrowed to the west, access to the base of the excavation became restricted while plant was in operation. Due to health and safety reasonsthe bulk excavation was therefore monitored from a number of viewing platforms provided on the floodwalls.

The TWB ceased at the floodplain gravels (River Terrace Deposits). The surface of the gravels sloped down from 96–98m ATD at the eastern end of the portal, to 94–96m ATD at the western end. The aim was to identify any archaeological features cut into the surface of the gravels, including paleochannels (alluvium-filled former stream channels).

The records from the targeted watching brief are produced here as transcribed and abridged from site notes. Deposits levels are listed from the western end of the portal (see Fig 2).

Chainage 88.595(N)	
Deposits	**Levels**
Alluvial clay	100.20m ATD (top truncated by modern)
Organic silty clay	99.03m ATD
Woody peat	98.03m ATD

Natural Sand/Gravel	Not seen at 97.88m ATD
Chainage 88.595(S)	
Deposits	**Levels**
Alluvial clay	100.53m ATD (top truncated by modern)
Organic silty clay	98.93m ATD
Woody peat	97.98m ATD
Natural sand	Not seen at 97.93m ATD
Chainage 88.598(N)	
Deposits	**Levels**
Alluvial clay	100.20m ATD
Organic silty clay	99.13m ATD
Woody peat	98.30m ATD
Natural Sand/Gravel	Not seen at 97.70m ATD
Chainage 88.598 (S)	
Deposits	**Levels**
Alluvial clay	100.20m ATD
Organic silty clay	99.03m ATD
Woody peat	98.00m ATD
Gravel	Not seen at 97.70m ATD
Chainage 88.618(N)	
Deposits	**Levels**
Alluvial clay	100.30m ATD (top truncated by modern)
Organic silty clay	99.40m ATD
Woody peat	98.90m ATD
Natural Sand/Gravel	98.60m ATD
Chainage 88.618(S)	
Deposits	**Levels**
Alluvial clay	100.30m ATD (top truncated by modern)
Organic silty clay	99.00m ATD
Woody peat	97.8m ATD
Natural sand	Not seen at 96.00m ATD
Chainage 88.625(N)	
Deposits	**Levels (Estimated)**
Alluvial clay	100.30m ATD (top truncated by modern)
Organic silty clay	99.90m ATD
Woody peat	99.45m ATD
Natural sand	99.10m ATD
Chainage 88.625(S)	
Deposits	**Levels (Estimated)**
Alluvial clay	100.30m ATD (top truncated by modern)
Organic silty clay	99.60m ATD
Woody peat	98.30m ATD
Natural sand	97.50m ATD
Chainage 88.630(N)	

Deposits	**Levels (Estimated)**
Alluvial clay	100.30m ATD (top truncated by modern)
Organic silty clay	99.80m ATD
Woody peat	99.40m ATD
Natural Sand/Gravel	98.90m ATD
Chainage 88.640(N)	
Deposits	**Levels (Estimated)**
Alluvial clay	100.30m ATD
Organic silty clay	99.90m ATD
Woody peat	99.60m ATD
Gravel	99.00m ATD
Chainage 88.650(N)	
88.650(N)	
Deposits	**Levels (Estimated)**
Alluvial clay	100.30m ATD
Organic silty clay	99.70m ATD
Woody peat	99.50m ATD
Gravel	99.20m ATD
Chainage 88.710(S)	
Deposits	**Levels**
Alluvial clay	100.30m ATD (top truncated by modern)
Woody peat	98.60m ATD
Flinty sandy layer	97.60m ATD
Natural sand	96.60m ATD
Chainage 88.725	
Deposits	**Levels**
Alluvial clay	99.85m ATD (top truncated by modern)
Woody peat	99.10m ATD
Flinty sandy layer	97.60m ATD
Natural sand	97.05m ATD
88.732(N)	
Chainage 88.730 (N)	
Deposits	**Levels**
Alluvial clay	100.27m ATD
Woody peat	99.58m ATD
Flinty sandy layer	98.28m ATD
Gravel	97.40m ATD
Chainage 88.730 (S)	
Deposits	**Levels**
Alluvial clay	100.28m ATD
Woody peat	99.75m ATD
Flinty sandy layer	98.20m ATD
Gravel	97.20m ATD
Chainage 88.740 (N)	

Deposits	Levels
Alluvial clay	100.00m ATD
Woody peat	99.20m ATD
Flinty sandy layer	97.90m ATD
Gravel	97.40m ATD
Chainage 88.740 (S)	
Deposits	**Levels**
Alluvial clay	100.05m ATD
Woody peat	99.25m ATD
Flinty sandy layer	97.45m ATD
Gravel	97.05m ATD
Chainage 88.747 (N)	
Deposits	**Levels**
Alluvial clay	99.90m ATD
Woody peat	99.50m ATD
Flinty sandy layer	97.72m ATD
Gravel	96.90m ATD
Chainage 88.775(N)	
Deposits	**Levels**
Alluvial clay	99.25m ATD
Woody peat	98.65m ATD
Organic silty clay	97.55m ATD
Flinty sandy layer	97.40m ATD
Natural gravel	97.25m ATD
Chainage 88.780(N)	
Deposits	**Levels**
Alluvial clay	99.00m ATD
Woody peat	98.70m ATD
Organic silty clay	97.75m ATD
Flinty sandy layer	97.55m ATD

5.2 Results

The watching brief revealed a profile of river deposits on the fringes of the meandering river channel (Fig 8 and Fig 2 for section n14 location). The sandy floodplain was overlain by a woody peat and subsequently by silty clay deposits that were probably deposited in the bed of a river meander. Fluctuations in the depths of the deposits were noted from chainage 88.650 and they became more obvious as ground reduction continued in a westerly direction towards the end of the portal. At chainage 88.618 the natural sandy layer, still visible in section on the northern side at 98.6m ATD, sloped down towards the south extending below the portal ramp.

Above the sand, the brown, woody peat layer (top at 98.9m ATD to the north) followed the same slope and became thicker and very compact towards the south (top at 97.8m ATD). This deposit may have formed the bottom of a tributary or a small river channel, being the result of deposition from a vegetative wetland. In order to chase the profile of the sand floodplain a slot was dug along the southern side of the portal to a depth of 96.00m ATD. The peat continued below the base of the slot

and no sand was seen, leaving the edge of the river bed only partially exposed. Overlying the peat, a layer of brownish, grey, organic clay with an average thickness of 0.60-0.70m gently sloped from north to south from 99.4m ATD to 99.20m ATD. This appeared to represent a slow transition to an actively depositing river as the floodplain became repeatedly flooded. Above this, was a layer of sterile grey, alluvial clay, which had been previously reduced to a height of *c* 100.30m ATD before being covered with 0.3m of crushed conchrete.

Trenches 2, 3 and 4 and the watching brief revealed the existence of a sandy island in the proximity of the western side of the portal, gently sloping down to the east. The flint scatters demonstrate occupation of the exposed sand and gravel areas during the Mesolithic period. The finds confirm the existence of the land surfaces predicted by the archaeological modelling of the borehole data, demonstrating the value of the modelling process and further refining the model. The provisional appraisal of the flints has not only suggested the presence of humans during the Mesolithic period, but has gone so far as to begin to describe the way in which the shoreline environment was used by those people and also suggests the spatial complexity of their industry. The partially prepared flint would presumably have been removed to further locations in the chain of supply as required. Also, ground reduction revealed a deep sequence of naturally deposited silts and peats which, though for the most part archaeologically sterile, demonstrated a legible progression of landforms resulting from changing environmental conditions and from which extensive geoarchaeological and palaeoenviromental samples were taken. It is expected that further analysis of the samples will help us to deduce when significant events or stages took place, and also to reconstruct these past environments is detail.

5.3 Quantification

Seventy two samples were recovered, comprising 1 timber ID, 27 monoliths and 44 bulk samples, of which 12 included flints. There were 41 context records, 72 environmental sample records, 4 locational plans and 4 sections (on 12 permatrace sheets). There were also miscellaneous site notes from the watching briefs.

6 The Finds

6.1 Flints

Photo 5. A selection of the flint from trench 4.

The first assemblage from Trench 3 comprises twenty-five pieces of struck flint recovered from contexts [11a] and [11b]. The assemblage is dominated by debitage (flint waste) in the form of several partially worked flint cobbles, flakes/spalls, flake fragments and a number of blades and narrow flakes/blades. Diagnostic pieces are few but include part of a pyramidal blade core, and a single small basally-retouched obliquely-backed point of 'Horsham' type – possibly the flint armature from a wooden arrow. The latter hints at a late Early Mesolithic date for this stage (*c* 9000 – 8500 BP). A small number of pieces of burnt unworked flint also suggest the presence of a hearth somewhere close by.

The second, larger, assemblage from Trench 4 comprises of 122 pieces of struck flint recovered from an area of around 25 sq. m in area (context 15). This scatter too is dominated by debitage – principally waste flakes (some large and irregular) alongside a few parallel-sided blades and fragments. As with the first assemblage there are only a couple of diagnostic pieces, comprising a single opposed-platform core and a broken straight backed blade of possibly Later Mesolithic type (*c* 8500 – 6000 BP). The virtual absence of retouched pieces, and the size and irregularity of many of the flakes, suggests that this area was used primarily for the testing, quartering and initial dressing of river cobbles subsequently carried elsewhere for further reduction and the production of tools.

Both scatters are likely to represent the remains of short-stay stages on the part of mobile human groups exploiting the valley floor during the Mesolithic period. Other similar lithic assemblages may be anticipated.

Jon Cotton

7 Assessment of results against original expectations and review of evaluation strategy

The draft revised GLAAS guidelines (English Heritage, 2014) require an Assessment of results against original expectations (these no longer mention the criteria for assessing national importance).

7.1 Reliability of results

The results of these investigations are consistent between exposures – the alluvial sequence is clearly defined. Mesolithic flints scatters were found within the sand/gravel floodplain.

7.2 Research aims

The original research objectives (see 3) were met as follows:

- *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 in at the base of the alluvium/surface of the gravel, or for occupation in the areas of higher ground, such as the eastern end of the portal? Is there evidence for timber structures, such as platforms or causeways?*

  The evaluation trenches and targeted watching brief afforded the opportunity to record and sample the alluvial sequence above the Pleistocene Thames sand and gravel. The sequence consisted of evidence of interconnected channels interspersed with higher sand and gravel bars. This floodplain sand/gravel formed the “Holocene Template” on which Mesolithic activity took place. The provisional appraisal of the flints has not only suggested the presence of humans during the Mesolithic period, but has gone so far as to begin to describe the way in which the shoreline environment was used by those people and also suggests the spatial complexity of their industry. Unfortunately, no evidence of timber structures as platforms or causeways were found, and both scatters are likely to represent the remains of short-stay events by mobile human groups exploiting the valley floor.

- *What can be learned about the processes of Roman and later land reclamation, land management and flood defence?*

  There was no evidence for any activity dating to the Roman period.

  The remaining research objectives will be addressed as a part of the wider geo-archaeological investigations.

8 Publication and archiving

Detailed analysis of the excavated evidence, environmental sample and flint assemblage will be presented in a post-excavation assessment and updated project design. Those results are significant enough to warrant publication which will be included with the CRL12 East Area Geoarchaeology Report Publication as set out in the Crossrail Archaeology Post-excavation Strategy.

The site archive containing original records 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.

9 Acknowledgements

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All archaeological investigations were supervised by the author, Serena Ranieri, Daniel Harrison and Jason Stewart. The MOLA Project Managers were David Divers and Michael Smith.

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Fig 1 Site Location

Site code: XSV11

Site outline

Portal outline

1:5000 @ A4

0 250m

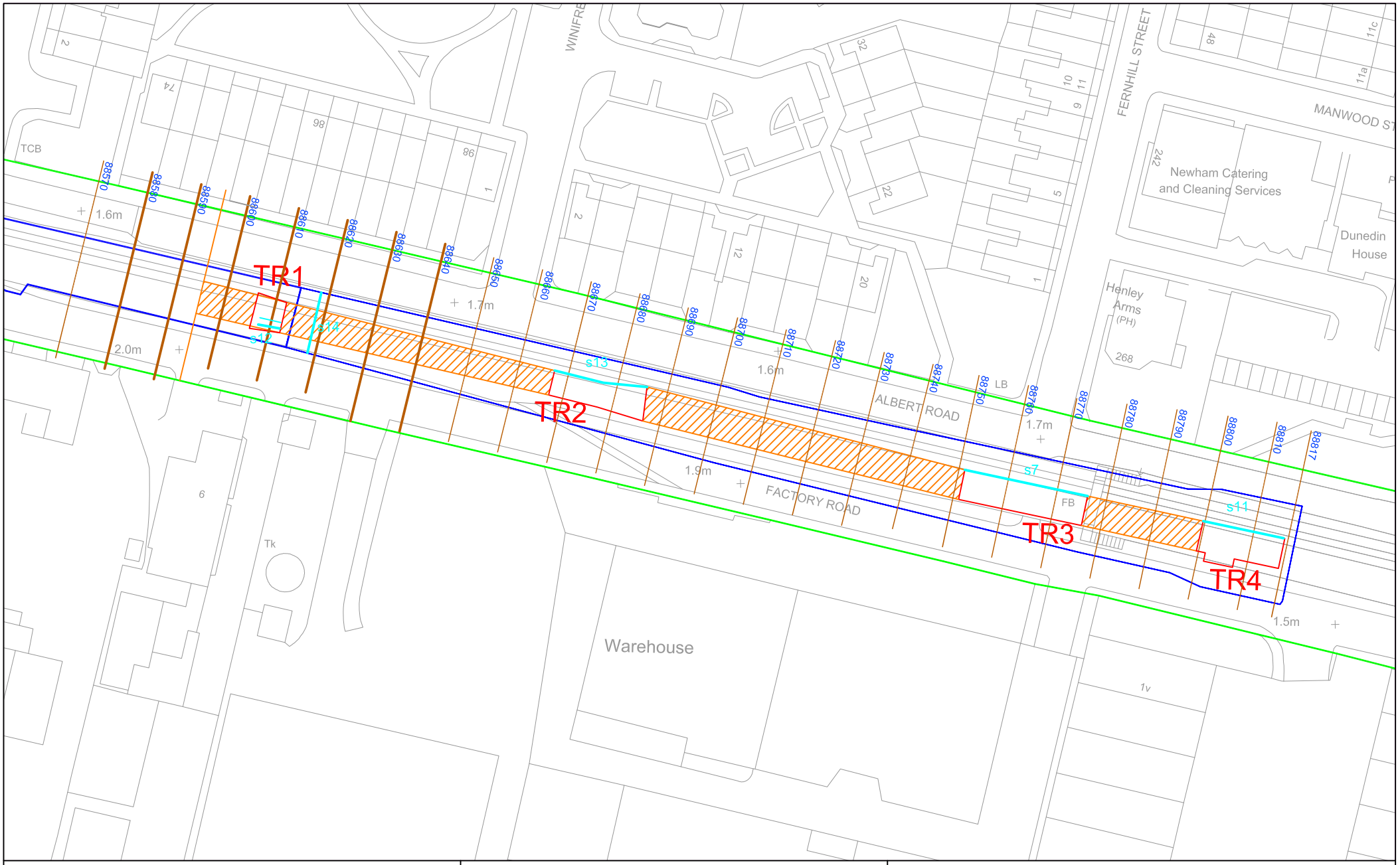

Fig 2 Trench and section location.

Site code: XSV11

Site outline
Sample excavation trench edge
2012 Archaeological interventions
Targeted watching brief
Section location

1:1000 @ A4

0 70m

North facing

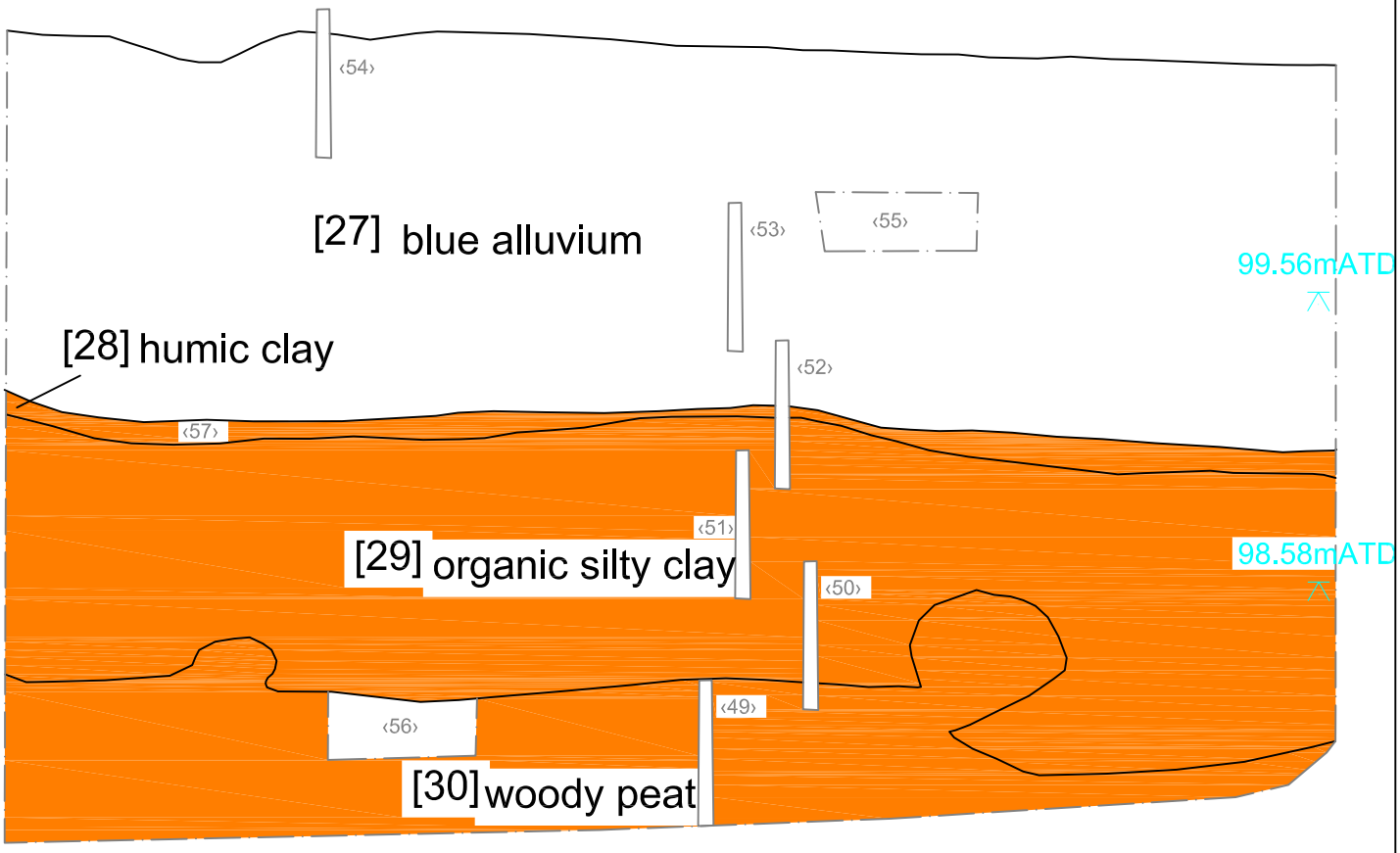

Fig 3 Trench 1: North facing section.

Site code: XSV11

L.O.E.
[29] Archaeological features
‹53› Samples
Peat
99.56mATD Height Above Tunnel Datum (m ATD)

1:25 @ A4
0 1.25 m

South facing

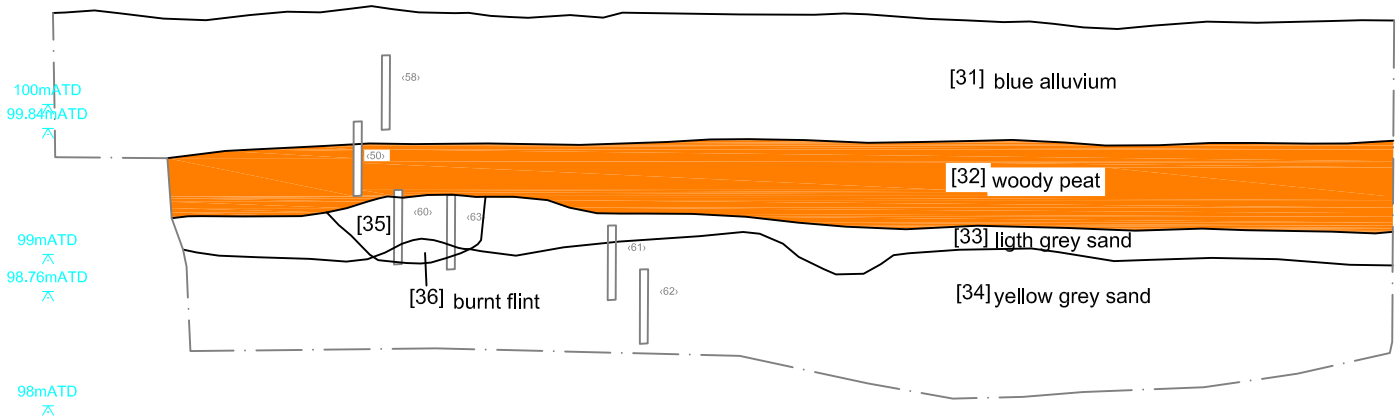

Fig 4 Trench 2: South facing section.

Site code: XSV11

L.O.E.
[29] Archaeological features
‹53› Samples
Peat
99.56mATD Height Above Tunnel Datum (m ATD)

0 1:50 @ A4 3.5m

South facing

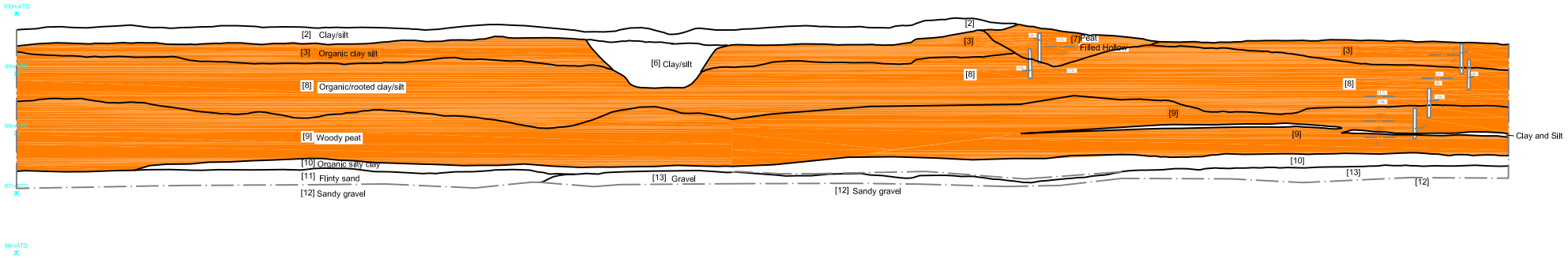

Fig 5 Trench 3: South facing section.

Site code: XSV11

L.O.E.
[1] Archaeological features
Peat
‹12› Samples
100.24mATD Height Above Tunnel Datum (m ATD)

0 1:100 @ A4 7m

South facing

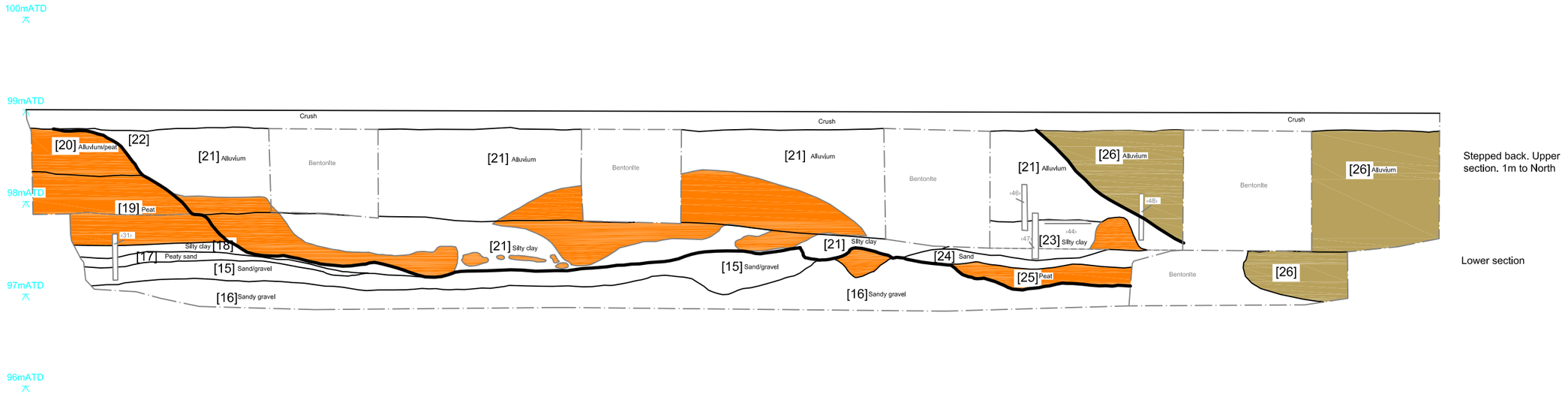

Fig 6 Trench 4: South facing section.

Site code: XSV11

L.O.E.
[1] Archaeological features
Peat
‹12› Samples
100.24mATD Height Above Tunnel Datum (m ATD)
Fill of later channel

1:50 @ A3

0 2.5m

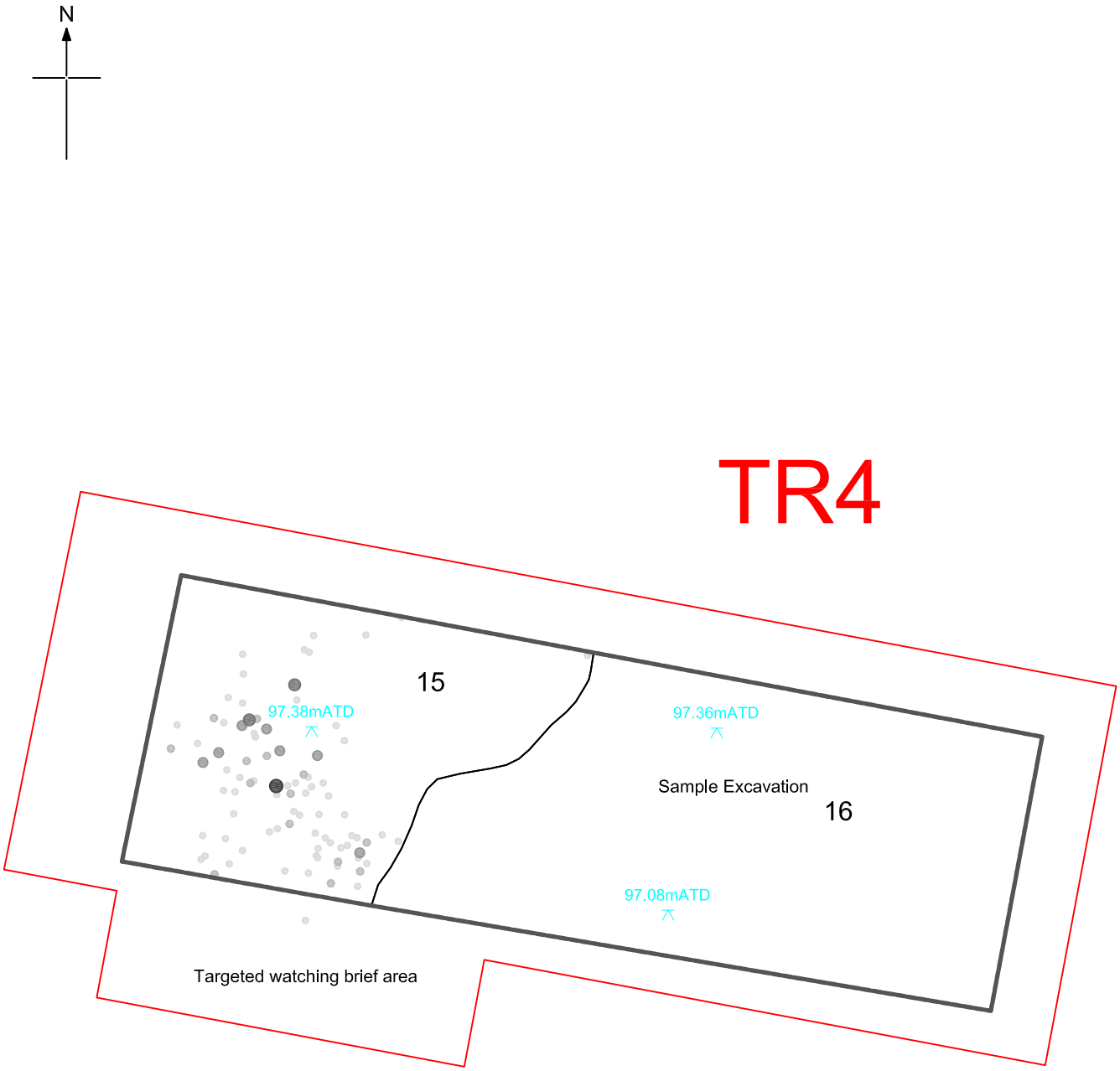

Fig 7 Location flint scatter. Trench 4

Site code: XSV11

Flint scatter
1
2
3
4
5

Trench edge
[1] Archaeological features
100.24mATD Height Above Tunnel Datum (m ATD)
Trench Base

1:100 @ A4

0 5m

East facing

Fig 8 Targeted watching brief: East facing section.

Site code: XSV11

L.O.E.
[40] Archaeological features
Peat
100.30mATD Height Above Tunnel Datum (m ATD)

0 1:50 @ A4 3.5m