1 FERRY LANE INDUSTRIAL ESTATE, WALTHAMSTOW, WALTHAM FOREST, E17 6HG: AN ARCHAEOLOGICAL EVALUATION

LOCAL PLANNING AUTHORITY: LONDON BOROUGH OF WALTHAM FOREST

SITE CODE: FYL16

OCTOBER 2016

PRE-CONSTRUCT ARCHAEOLOGY

Ferry Lane Industrial Estate, Walthamstow, Waltham Forest, E17 6HG: An Archaeological Evaluation

Central National Grid Reference: TQ 35637 89469

Written and Researched by Wayne Perkins

Pre-Construct Archaeology Limited, October 2016

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1 ABSTRACT

1.1 An archaeological evaluation was undertaken by Pre-Construct Archaeology Limited between 23rd May and 27th May, 30th May and 9th June and finally, between 12th to 22nd September 2016 at Ferry Lane Industrial Estate, Walthamstow, Waltham Forest E17 6HG. An evaluation report was produced after the first two trenches were carried out in May and June (Perkins 2016); this report incorporates the results of the third trench carried out in September.

1.2 Two archaeological evaluation trenches were excavated between the demolished units during the first two phases of work, both aligned east-west with a view to locate the top of the gravel terraces sloping down towards the River Lea at the west. The trenches were so arranged to maximise coverage within the area available whilst having to avoid live services that had not been deactivated on site. As a possible relict foreshore sequence had been identified in Trench 2, a third trench was excavated at its western end to open up an area around the discovery of a timber post and associated scatters of burnt flint and daub. The third trench was carried out at the request of the archaeological adviser to the London Borough of Waltham Forest.

1.3 A deposit model was constructed by Quest (Batchelor 2015), prior to the evaluation work starting, which illustrated alluvial clays laid down upon the river gravels, with peat formation occurring in a higher concentration towards the west, nearer the river. The river terrace gravels sloped down from east to west, towards the former river channel.

1.4 The archaeology encountered was late Prehistoric, putatively Middle to Late Bronze Age, located on a sand bank which may have represented an early foreshore deposit. There had been some truncation in the post-medieval to Modern periods during the construction of the site as an Industrial Estate in both the 19th and 20th centuries.

1.5 The underlying natural geology encountered comprised London Clay and deposits of sandy gravels described by the British Geological Survey as the Taplow Gravels. These were sealed by the Upper and Lower alluviums of the River Lea itself.

1.6 The aim of the trenching strategy was to evaluate the potential survival of archaeology on the site, with particular reference to the possibility of prehistoric activity on the river foreshore. This was motivated, in part, by the discovery of a 'crannog' (a wooden building on stilts or artificial island) during the construction of the Low Maynard Reservoir, in the 19th century. Therefore, Trenches 1 and 2 were located to the east of this known structure, placed to determine the presence (or absence) of any surviving archaeology and to understand how the proposed works would or would not affect those remains. Having made this assessment and identified archaeological layers the third trench extended the investigations to the west in the direction of the possible foreshore deposits.

1.7 At the eastern end of Trench 1 a possible paleo-channel or variation in the natural was recorded but it did not contain any anthropogenic material so it was therefore it was deemed to be a 'natural' geological feature. This was evidence of the geological development of the former braided river system.

1.8 At the western extremity of Trench 2 a short timber, implanted in the river gravels, was found in association with a number of fire-burnt daub fragments. Further, a fragment of a possible wooden writing tablet was also found but this may have been intrusive. These items were discovered in early foreshore deposits on the edge of the river, along with some possible early peat formation layers.

1.9 In Trench 3, slightly further west than the previous trenches, a linear sandbank was exposed, behind which a palaeochannel or body of standing water had encouraged early peat growth. A total of seven timbers were recovered, three of which had been driven through the sand layer and were present *in situ* and two further stake-holes (minus their stakes) were identified and excavated.

1.10 Early to mid-20th century developments on the site saw the establishment of a race track which was soon superseded by an Omnibus Depot on the site. By the late 1970s

this in turn had been replaced by smaller light industrial units and the Lee Flood Relief Channel had been constructed. Land use, as an industrial estate, has remained constant up until present day. All these later developments have impinged upon the archaeological resource in some way.

2 INTRODUCTION

2.1 An archaeological evaluation was undertaken by Pre-Construct Archaeology Limited between 23rd and 27th May, 30th May and 9th June and a third phase of work carried out between 12th and 22nd September 2016 at Ferry Lane Industrial Estate, Walthamstow, Waltham Forest E17 6HG (Figure 1). The project was designed and managed by Helen Hawkins of Pre-Construct Archaeology Ltd and was commissioned by WSP Parsons Brinkerhoff on behalf of Legal & General. The archaeological work was supervised by Wayne Perkins of Pre-Construct Archaeology Limited.

2.2 The evaluation was carried out during the demolition and clearance phase of Ferry Lane Industrial Estate, following which there will be a residential-led, mixed-use redevelopment of the site.

2.3 The site is centred at National Grid Reference TQ 35637 89469 and the site is located within the River Lea & Tributaries Archaeological Priority Zone (APZ1) as defined by the London Borough of Waltham Forest's Local Plan.

2.4 The site does not lie within the vicinity of a Scheduled Ancient Monument, Historic Battlefield, Registered Park or Historic Wreck site.

2.5 The site comprised a rectangular parcel of land, wider at the south, which was bounded to the north and east by existing warehouse units, to the west by the Lea Flood Relief Channel, and to the south by A503 Ferry Lane/ Forest Road which runs parallel to National Rail railway lines (Figure 2). The site measured c. 16,245.00 square metres (or 1.62 hectares) and was relatively flat at 7.94m OD north of Trench 1 and 8.29 south of Trench 2 and 8.66m OD north of Trench 3.

2.6 A previous planning permission for the site had an archaeological condition attached and therefore the Archaeology Advisor to the London Borough of Waltham Forest had recommended that the site should be subject to an archaeological trial trench evaluation in the first instance.

2.7 Three trenches were machine excavated under archaeological supervision to the surface of the first significant archaeological horizon (Figure 2). All trenches were stepped, due to extensive deposits of made ground on the site. The total area opened up in Trench 1 was 20m x 6.5m (resulting in an open area at the base of 17.30m x 4.m). Trench 2 measured 41m x 12m resulting in an exposed area of 33m x 7.3m. A total area of 226 square metres was opened and the natural gravels exposed at 6.28m OD at the east falling to 5.84m OD at the west end. Trench 3 measured 15m x 15m at the top, with an exposed area at the base as 11m x 9m and the gravels were located on the east side at 5.70m OD.

2.8 All trenches were located to avoid the Thames Water Transmission Tunnel easement (shown on Figure 2). The trenches were also located to avoid other known services, although several unmarked services were encountered during the evaluation. The evaluation was designed to be the first stage of archaeological site investigation and may be followed by further archaeological investigation / mitigation if required by the Archaeology Advisor to the Local Planning Authority, John Gould of the Greater London Archaeological Advisory Service (GLAAS).

2.9 John Gould of the Greater London Archaeology Service (GLAAS), monitored the project on behalf of the London Borough of Waltham Forest.

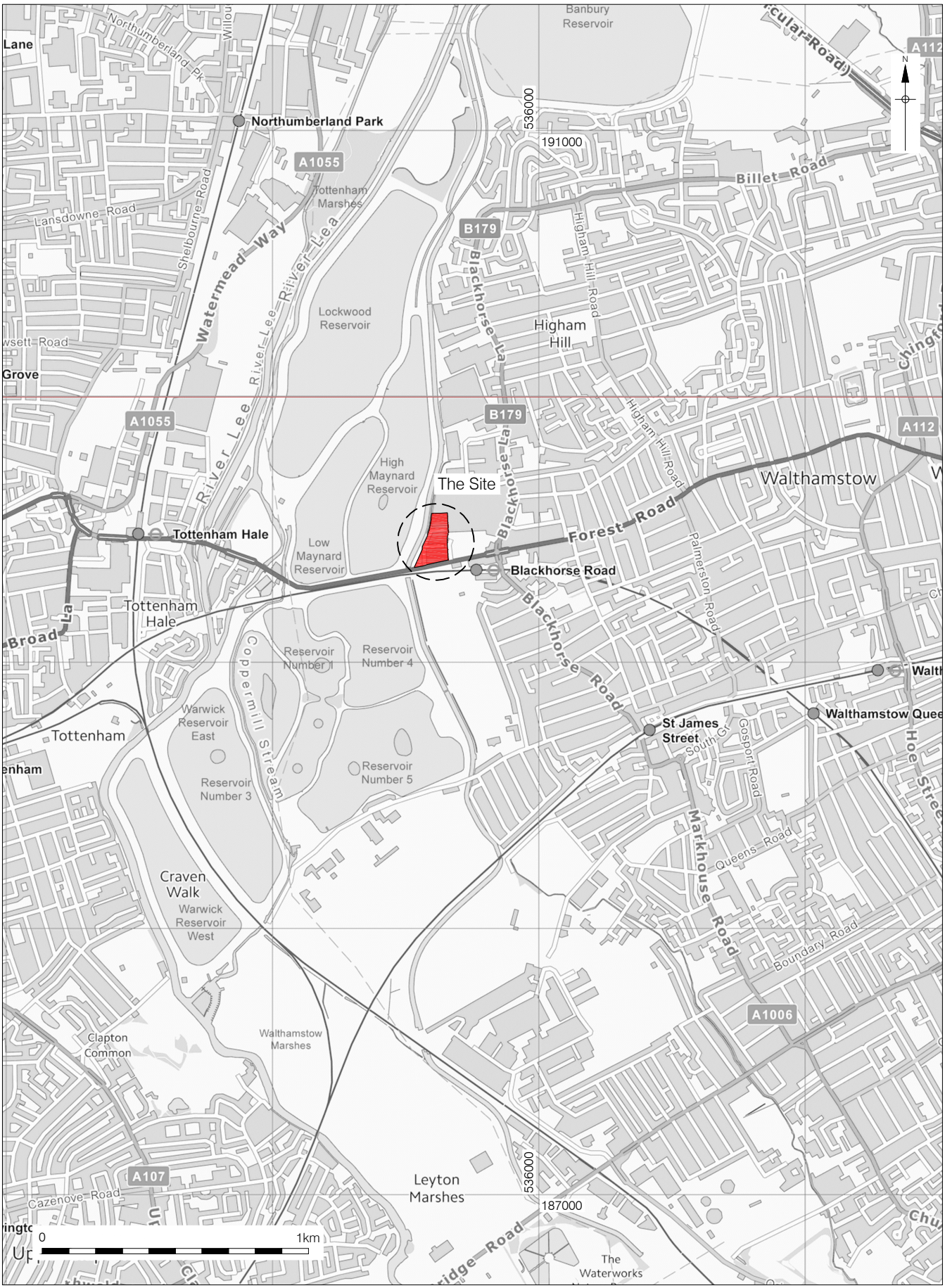
2.10 A geo-archaeological deposit model report was previously produced for the site (Batchelor 2015) which reviewed available geotechnical data for the area.

2.11 WSP Parsons Brinkerhoff had previously prepared a desk-based assessment for the site which researched the archaeological and historical potential (Rudge 2015).

2.12 PCA produced a Written Scheme of Investigation for the evaluation which was approved by John Gould, the archaeological adviser to the London Borough of Waltham Forest. The WSI design outlined the scope of the trial trench evaluation to assess the archaeological potential of the site and the methodology by which the evaluation would be undertaken (Hawkins 2016).

2.13 The primary objective of the evaluation was to establish the presence or absence of any archaeological remains, with particular attention to prehistoric activity on the gravel terraces of the River Lea located immediately to the west of the site. All works were undertaken in accordance with the following documents:

- The Written Scheme of Investigation
- Greater London Archaeology Advisory Service: Standards for Archaeological Work (GLAAS 2014)
- MoRPHE (English Heritage, 2006).



17/06/16 RM

Figure 1
Site Location
1:25,000 at A4

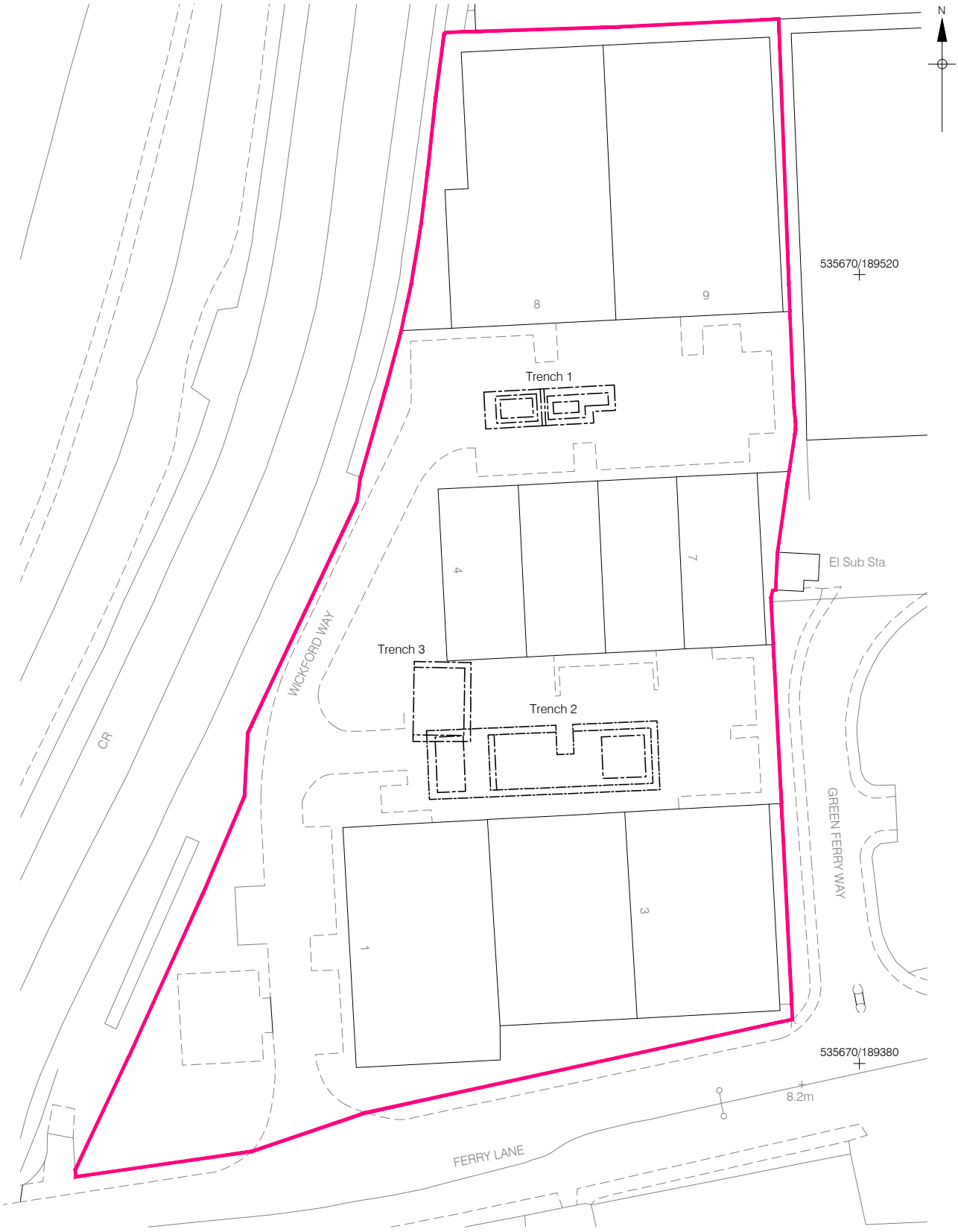


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Figure 2
Trench Location Plan
1:1,000 at A4

3 PLANNING BACKGROUND

3.1 The full planning background to the site, and the policies of relevance to it, is set out in the desk-based assessment (Rudge 2015).

3.2 WSP Parsons Brinkerhoff were appointed to prepare appropriate documentation and, in turn, commission a pre-application evaluation in accordance with best practise as set out in the NPPF (2012). The evaluation by PCA was therefore intended to be an informative investigation to advise relevant parties of the possible archaeological implications of the proposed strategy for the site.

3.3 The evaluation was designed to address the following objectives for the site, as outlined in the approved WSI (Hawkins 2016):

- To determine the natural topography and geology of the site, and the height at which it survives.
- To establish the presence or absence of prehistoric activity if present, its nature and (if possible) date.
- To establish the presence or absence of Roman activity if present, its nature and (if possible) date
- To establish the presence or absence of medieval activity if present, its nature and (if possible) date
- To establish the presence or absence of post-medieval activity at the site.
- To establish the nature, date and survival of activity relating to any archaeological periods at the site.
- To establish the extent of all past post-depositional impacts on the archaeological resource.

4 GEOLOGY AND TOPOGRAPHY

4.1 The site of Ferry Lane Industrial Estate, Walthamstow, Waltham Forest E17 6HG (TQ 35637 89469) is situated on the east of the River Lea Relief Channel that runs adjacent to the River Lea to the west and was bound to the north and east by existing warehouse units and to the south by Ferry Lane/ Forest Road.

4.2 The ground level on the former car parks between the demolished warehouse units was 7.94m OD north of Trench 1 rising to 8.29m OD to the south of Trench 2 and 8.66m OD north of Trench 3.

4.3 The British Geological Survey recorded the solid geology of the area to be London Clay deposits and the site was located close to the division between the Taplow Gravel Formation, (characterised by sand and gravel with lenses of silt, clay or peat laid down during the Wolstonian Stage) and the alluvium of the River Lea channel itself (BGS online 2016).

4.4 The borehole survey data revealed a great deal of information about the sequence and deposition of the archaeological and geological layers. The borehole survey concurred with the observations made through evaluation and detailed in the trench descriptions that follow. In particular, the boreholes picked up 'made ground' of mixed, re-deposited natural and building materials as being between 0.20m to 3m thick below the concrete (or tarmac) surfaces. The made ground was underlain by a sequence of fluvial deposits, comprising Alluvium and Taplow Gravels of interbedded units of cohesive silt and clay layers, organic material through to more granular sands and gravels. The London Clay was encountered underlying these fluvial deposits at depths between 4.5m to 6.10m below ground level. This final deposit was found to be 19.6m to 20.3m thick extending to depths beyond 25m (Batchelor 2015).

4.5 The geo-archaeological deposit model found that a sequence of River Terrace Gravels (the Lea Valley Gravel), overlain by floodplain deposits of Alluvium (sands, silts and clays) and Peat existed beneath the site (Batchelor 2015). However, the depth and thickness of these deposits changed from west (low gravel surface; thick floodplain deposits) to east (high gravel surface; thin floodplain deposits) suggesting that the site was located towards the interface of two different environments: the floodplain valley of the Lower Lea Valley (to the west) and dryland valley side (to the east). The surface of the gravel lay between 3.55 and 6.91m OD. The Gravel surface was recorded at its lowest elevation (3.55 to 4.3m OD) on the western margin of the site in boreholes WS101, BH201, BH202, BH204, BH205, WS109, WS115 and WS119). Towards the centre of the site, the surface of the Gravel rose to between 5 and 6m OD (BH101, WS110, BH206 and BH104), and to over 6m OD along the eastern margin of the site (Batchelor 2015:16).

4.6 In twelve of the boreholes, the Lower Alluvium or Lea Valley Gravel was overlain by a clayey or silty Peat, which in certain records included wood remains. The Peat was recorded along the western and central part of the site; the thickest horizons were recorded in BH201 (1.55m), BH204 (1.3m), BH205 (1.1m) and WS108A (0.9m), all of which were located towards the central western part of the site. In surrounding boreholes and to the south, the Peat varied between 0.05 and 0.75m in thickness (Batchelor 2015:16).

4.7 The evaluation revealed brownish mid-orange sandy gravel deposits at levels between 5.78m OD at the east end of Trench 1, sloping down to 4.94m OD at its western extremity. In Trench 2 the gravel was recorded at 6.28m at the eastern end sloping down to 5.84m OD at the west end. In Trench 3 the gravels were recorded at 5.70 OD. In all cases, the gravel was overlain by a series of alluvial layers and capped by made ground up to 1.10m thick and reinforced concrete slabs c.0.22m thick. The specifics of each layer are discussed in its relevant section below.

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 The archaeological and historical background to the site is covered in detail within the DBA (Rudge 2015).

5.2 The results of the depositional model produced by Quest (Batchelor 2015) identified areas of high gravel topography and Peat deposits that represented potential areas used by prehistoric and historic people. Therefore, evidence of their activity may be potentially preserved archaeologically (e.g. in features and structures). Such archaeological evidence was recorded during construction of the nearby Low Maynard reservoir, demonstrating that the site had potential to recover such remains (Rudge 2015). Even in the absence of direct archaeological remains, the sediments recorded had the potential to contain a wealth of further information on the past landscape and evidence of human activities, through the assessment/analysis of palaeo-environmental eco-fact remains (e.g. pollen, plant macrofossils and insects) and radiocarbon dating.

5.3 Prehistoric

5.3.1 There are no records of archaeological assets of the prehistoric period within the site.

5.3.2 The majority of records for prehistoric activity come from finds. These include finds recovered during the construction of the adjacent reservoirs in the late 19th Century. The finds date from the Palaeolithic to the Bronze Age and Iron Age.

5.3.3 Within the Study Area only two records representing evidence of Palaeolithic activity are recorded. These are a Palaeolithic flake and a collection of artefacts, including flint hand-axes and three flint axes discovered on Higham Hill in the 1880s.

5.3.4 Within the Study Area the Neolithic is represented through the recovery of a single find – a polished stone adze found during construction of Lockwood reservoir.

5.3.5 Evidence of Bronze Age activity has been identified through the recovery of a number of finds including a spearhead and socketed knife

5.3.6 Evidence of Iron Age activity has been identified through the recovery of a small number of finds, including a La Tene or variant sword and scabbard and Iron Socketed and Looped Axe. The series of timber piles, interpreted as a pile dwelling and referenced as of possible Bronze Age origin is also given a tentative Iron Age date. This structure comprised a possible building on stilts known as a ‘crannog’.

5.4 Roman

5.4.1 No known archaeological assets of Roman date are recorded within the Site boundary.

5.4.2 Evidence from the wider area is very limited. Only three records dating to the Roman period fall within the 1km study area, a residual Roman tile found in a Saxo-Norman quarry pit, parts of a Roman jug discovered during excavation of the Reservoir, and parts of a ceramic vessel again found in association with the ‘pile dwelling’.

5.5 Saxon & Early Medieval

5.5.1 No known archaeological assets of the Saxon or medieval periods are recorded within the Site boundary.

5.5.2 Within the wider study area Saxon evidence is limited to the recovery of two Saxon 10th or 11th century spearheads during the construction of the reservoir and an early Viking sword.

5.5.3 Evidence of medieval activity is largely identified from documentary sources. These include reference to the name of Coppermill Lane, Walthamstow and evidence that shows that Clay Street formed part of the main route from Epping and beyond to Tottenham. Claistrete road (1438) was renamed Priorstrete in 1532, and ‘Prioures Street (1577) together with Hagger Lane was renamed Forest Road in 1886. Evidence of the presence of water mills on Ferry Lane and Mill Mead Road is also recorded. A quay was also identified that served the village of Tottenham at Tottenham Hale.

5.6 Post Medieval

5.6.1 There are no records of archaeological assets of the post-medieval period within the Site.

5.6.2 The remains of a horticultural layer have been identified located at the British Rail Goods Yard during a watching brief. The Ferry Boat Inn represents the only designated heritage asset of post-medieval date.

5.6.3 The 1865 – 1880 Ordnance Survey map records the location of what appears to be a semi-detached property, and associated garden plots, located on the northern side of what is labelled as Ferry Lane (Forest Road). This appears to be the first development associated with the Site. The only other features recorded on the Site at this date are a sinuous field boundary extending north-south through the centre of the Site and a set of rectilinear field enclosures that run back from Blackhorse Lane to meet the north-south field boundary within the northern section of the Site. The first evidence of suburban expansion is recorded at the junction of Ferry Lane and Blackhorse Lane, and along the western side of Blackhorse Lane.

5.6.4 The 1896 Ordnance Survey map records that both the reservoir complex and Tottenham and Forest Gate Railway have been constructed with a drainage channel running along the western edge of the site. No further development is recorded on the site but Ferry Lane is now labelled as Forest Road.

5.7 Modern

5.7.1 No known archaeological assets of the Modern period are recorded within the Site boundary.

5.7.2 Within the wider study area only three records dated to the Modern Period are recorded. These include Second World War Trench Shelters located at the GLS Depot on Ferry Lane, the foundations of two early 20th century buildings located during an evaluation at 82-84 Forest Road, and Blackhorse Road underground station which was opened in 1968.

5.7.3 By the time of the 1914 Ordnance Survey map additional structures are recorded associated with the semidetached properties located on the south-western section of the Site. Adjacent to the east a race track is now recorded extending across the south-eastern section of the Site east over the adjacent land. To the north two large rectilinear buildings are recorded as part of the Motor Omnibus equipment works, with further works and factory buildings to the north of the Site.

5.7.4 The 1936 Ordnance Survey map records that the Site engineering works have expanded to occupy the south eastern section of the Site, and an Omnibus Depot is now located on what was the race track. By 1963 – 1970 the depot was removed and additional smaller units constructed within the south-western section of the Site. The Lee Flood Relief Channel has now also been constructed. The 1974 Ordnance Survey records that the semidetached house has now been demolished

6 ARCHAEOLOGICAL METHODOLOGY

6.1 The evaluation was conducted according to an approved Written Scheme of Investigation prepared by Pre-Construct Archaeology Ltd (Hawkins 2016). The fieldwork was designed to assess the presence or absence of archaeological remains.

6.2 Two trenches were proposed between the demolished units. However, due to a number of existing live services the trench sizes were modified according to these constraints although their general size, shape and location remained roughly the same. The trenches were opened by mechanical excavator following the breaking out of reinforced concrete (or exterior surfaces) as appropriate.

6.3 After breaking-out, the mechanical excavator switched to a flat-bladed ditching bucket 1.8m wide and continued under archaeological supervision to remove homogenous layers or made ground down to the highest archaeological horizon or natural level.

6.4 Following the opening of the trenches the vertical sections were cleaned and all features identified were investigated by hand. Investigation was intended to identify the extent and nature of the deposits and to recover dating evidence. The deposits, fills, and features were assigned individual context numbers.

6.5 All recording systems adopted during the investigations were fully compatible with those most widely used elsewhere in the area; that is those developed out of the Department of Urban Archaeology Site Manual and presented in PCA's Fieldwork Operations Manual 1 (Taylor 2009). Individual descriptions of all archaeological and geological strata and features excavated and exposed were entered onto pro-forma recording sheets. All plans and sections of archaeological deposits were recorded on polyester based drawing film, the plans generally being at scale of 1:100 and the sections at 1:20. The OD heights of all principle strata were calculated and indicated on the appropriate plans and sections.

6.6 A photographic record of the investigations was made using digital formats.

6.7 Two Temporary Bench Marks (TBMs) were installed on the site, one just north of Trench 1 recorded at 7.94m OD and a second just south of Trench 2 recorded at 8.29m OD.

6.8 The site archive was compiled using the site code FYL16.

7 PHASED ARCHAEOLOGICAL SEQUENCE

7.1 Phase 1: Natural Deposits

7.1.1 The superficial drift geology of the Taplow River Gravels [9] was uncovered at c.2.2m below the present ground surface (5.78m OD) at the east end of Trench 1 and at 3.04m below the present ground surface (c.4.84m OD) at its western end, which illustrated the downward slope of the gravel terrace westwards towards the River Lea. This gravel formation had been demonstrated to overlie the bedrock of London Clay (Batchelor 2015). The gravels were made up of well sorted, rounded river pebbles and gravels in a sandy matrix, layer [9]. The interface was cleaned to reveal a mid-brown orange gravel with pockets of blueish light grey clay and occasional areas of sand (Plates 1, 3).

7.1.2 In Trench 2 the gravels were located 2.06m below the present ground surface, at 6.42m OD at the east end of the trench sloping down to 2.47m below the present surface at 5.76m OD. Both trenches illustrate the gradual downward slope towards the west and the River Lea.

7.1.3 In Trench 3 the gravels were located at 2.4m below the present ground surface at 5.70m OD. This trench was located just north and west of Trench 2 so there was little variation in the level of the gravels between the two trenches.

7.1.4 In Trench 1 a curvilinear palaeochannel [8], was investigated to see if it contained anthropogenic material (Plate 2). The sandy gravel was cut (or, more correctly, eroded) by palaeochannel [8], which was 2m long, 0.74m wide and 0.17m deep. It had gradually sloping sides and was a flat' U' shape in profile. The paleochannel fill (7), was a greyish mid brown silty sand which contained numerous roots. This may have been a palaeochannel or root runnel and is likely to have been formed during a period when the gravels were exposed to the air and bioturbation had taken place. The feature was recorded at 5.54m OD.

7.1.5 The palaeochannel had been sealed by a series of alluvial layers which illustrated the dynamic nature of a riverine environment with alternating layers laid down in 'high' and 'low' energy environments. Layer [6] which sealed the palaeochannel and the gravels was a blueish dark grey clay with frequent inclusions of rolled gravel and pebbles indicative of a high energy event. The layer was 0.37m thick at 6.14m OD, feathering down to a wedged point over the channel. It was probably the same as the layer of 'lower' alluvium [6] described as 'inorganic and sterile' by Batchelor (2015:16) and recorded at 6.14m OD.

7.1.6 Above this, two thin layers, interpreted as foreshore deposits or early peat growth had been laid down in a low energy environment, the uppermost of the pair was recorded at 5.54m OD. Layer [5] consisted of a blueish dark grey silty sand no more than 0.09m thick. Layer [5] was overlaid by a mid-brown silty clay [4] which may have been a pocket of peat formation, 0.17m at its thickest, again lensing down to just a few centimetres in thickness. These two layers were in turn sealed by a band of gravel and pebbles layer [3] at 6.24m OD which fell away steeply from east to west, down towards the river. Layer [3] was 0.09m thick at the east, thickening to 0.92m thick at Section 2. The final layer was the upper alluvium of blueish dark grey clay which was up to 1.2m thick in some places and seems to represent the last phase of the river's development as it slowed and developed into a broad water course slowly becoming less fluvially dynamic.

7.1.7 In Trench 2, two pockets of peat formation [10] were recorded in Sections 5 and 6 but they were both small, isolated lenses and not continuous 'beds.' The first was recorded in Section 5 at 6.05m OD, and at 6.02m OD in Section 6 which illustrated how level the gravels were at this point. Unusually, they were sandwiched between the lower alluvium (or interface with the gravel) [6] and the upper alluvium [2] but are probably instances of localised, short term peat growth or plant decay

7.1.8 Further possible evidence for early peat formation or foreshore deposits was revealed in the western end of Trench 2 where layer [14], comprising shelly sand 0.18m thick, was sealed by a number of layers including a possible peat layer [13] which was 0.23m

thick, a possible relict channel fill [12] 0.32m thick and further peat formation layer [11], 0.31m thick, recorded at 5.88m OD (Plate 9). Layer [14] had frequent charcoal inclusions and contained burnt flint and abraded daub on its surface which suggested human activity had occurred on its surface.

7.1.9 The sandy layer [14] continued into Trench 3 where it was interpreted as a possible sandbank, slightly raised in the centre and oriented north-west to southeast (Plate 11). This was the largest area of this deposit exposed so far and burnt flint, abraded daub (containing a loom-weight fragment) and animal bone was recovered from its surface. As it spread to the east (and essentially uphill) it thinned to just a few centimetres over the gravel [9]. To the east of the sandbank, layer [18] was interpreted as either a palaeochannel or a body of standing water trapped between the sandbank [14] and the rising gravels to the east. This may in fact be the same as layer [12] identified in Section 7 of Trench 2, where it had also been interpreted as a relict water channel.

7.1.10 All putative foreshore deposits and/or possible peat formation layers were overlain and sealed by a blueish dark grey clay alluvium [2], described as the 'upper alluvium' (Batchelor 2015:16), which had occasional rolled pebble inclusions introduced by water action. The thickness of layer [2] (up to c. 1.4m thick) belied the long period of its formation and its upper (truncated) surface contained a mix of 'residual' finds dating from the prehistoric period to the Modern day, illustrating its long period of formation and the power of water action to erode material into the alluvium. In Trench 1 the layer was recorded at 7.28m OD at the east end and 7.40m OD at the west. A similar case existed in Trench 2 with the alluvial layer at 7.29m OD at the east end and 7.42m OD at the west. It was at 6.76m OD in Trench 3. The regularity of the height measurements illustrated the truncation of the layer by later construction work and therefore does not represent the layer's true 'highest' level.

7.2 Phase 2: Prehistoric

7.2.1 At the western end of Trench 2, a short timber post or length of wood [15], semi-circular in cross-section and measuring 0.16m in diameter and 0.19m long was discovered, apparently driven vertically into the gravels and through the shelly sand layer [14]. The top of the post was recorded at 5.61m OD (Plate 4).

7.2.2 In Trench 3 a further three stakes [22], [23] & [24] were found, also driven into the gravel but in this case each had been sharpened to a point and wood working facets were visible on each (Plates 7 & 8). Two more stake-holes, [28] and [30] were excavated but their wooden stakes no longer *in situ*. The top of the posts were recorded at 5.73m OD, 5.68m OD and 5.70m OD respectively - although these heights are misleading as they only represent the truncated top of each. None of the posts were observed during the reduction of the alluvial layer [2] and their height appeared to be limited to the top of the sand layer [14] or within the palaeochannel fill [18] so between c.5.90m and c.5.70m OD.

7.2.3 A number of pieces of wood were retrieved from the interface between the sandy layer [14] and the base of the palaeochannel fill [18]. Essentially, they appeared to be waterlogged driftwood, washed up on the sandbank (or water's edge) and then covered by the palaeochannel. Timbers [17], [20] and [31] were recorded at 5.90m OD, 5.68m OD and 5.72m OD respectively.

7.2.4 The posts were discovered driven through the shelly sand layer [14] and into the gravels below [9]. Layer [14] also contained burnt daub and a ceramic weight fragment, burnt flint and flecks of charcoal, suggesting an anthropogenic intrusion on and into the natural layer. Trench 3 allowed a closer examination of this layer by opening up a much larger area than had been revealed in the previous trenches as the deposit was restricted to the western extremity of the site, its edge running along a north-west, south-east alignment and travelling under the bulk to the west (Plates 5 & 6). With anthropological material both on its surface (burnt flint), within its matrix (animal bone) and with timber driven through it (stake holes [28] and [30]) it is clear that human activity was occurring on this area of the foreshore, possibly at the edge of the Lea River.

7.2.5 Layer [14] also produced a short section of a possible wooden writing tablet. The specialist report suggests that such wooden tablets date from the Roman into the

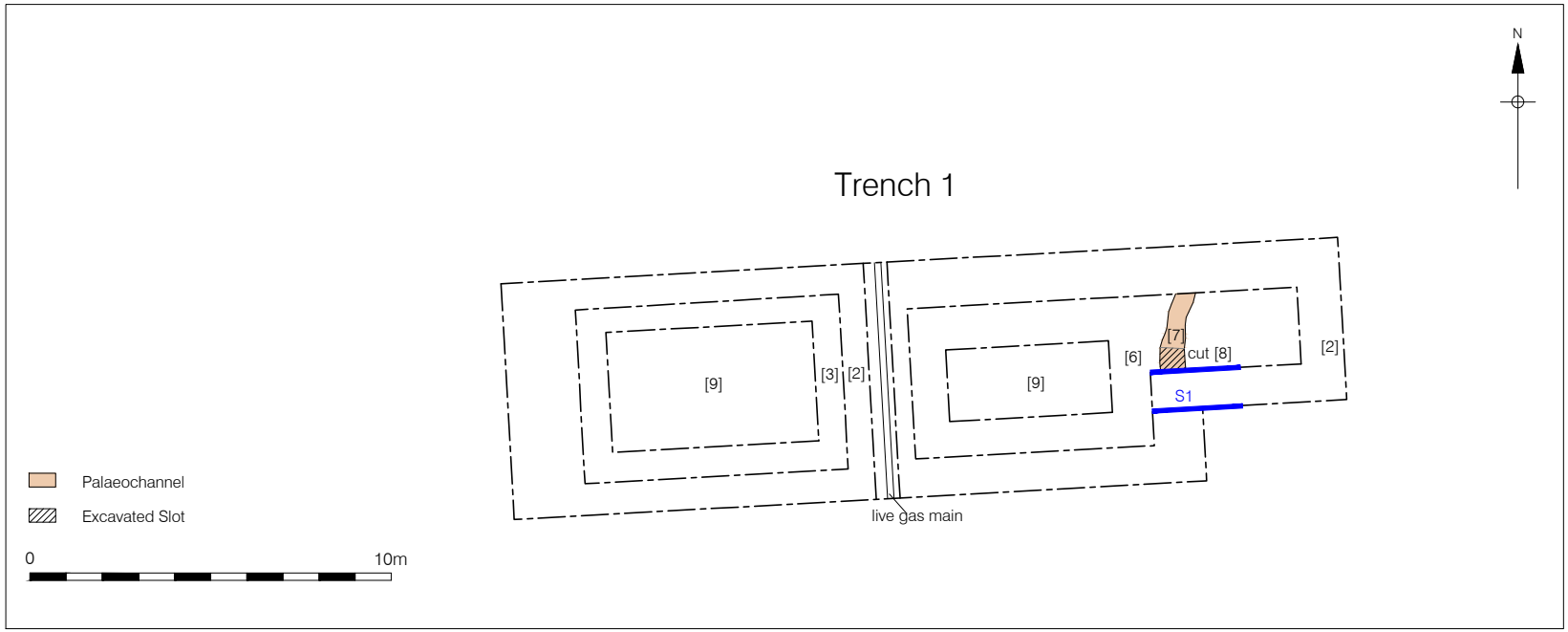
medieval period so the dating covers a broad range. The object appears to be at odds with the other finds in this layer and the depth of the alluvial sequence. It may have been introduced from the peat layer above [11] which may have formed over a long period of time and the wooden fragment washed in. However, the interface between the modern made ground [1] and the top of the alluvium [2] contained objects over a wide date range so it is possible that it is 'intrusive.' This object was not found in a secure context so its relevance to the current investigation is limited.

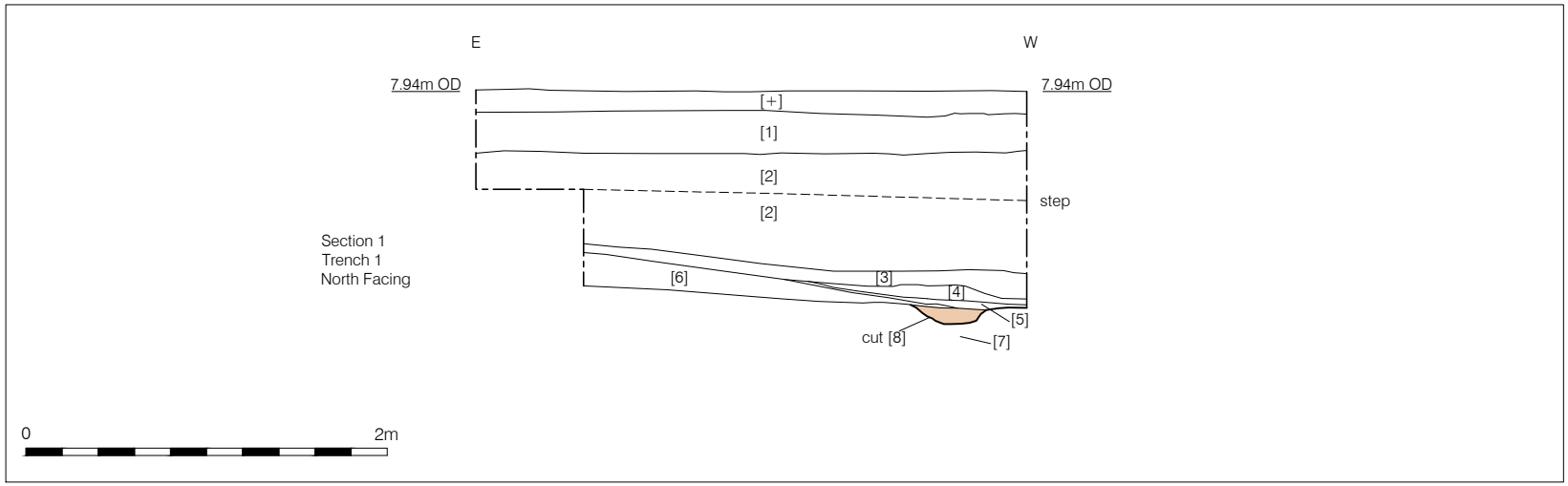
7.3 Phase 3: Post-Prehistoric Inundation

7.3.1 The possible human activity noted above had been subsequently sealed by a number of alluvial layers. In Trench 2, three interleaving layers of possible peat formation, [11], [13] and relict palaeochannel [12] sealed the sandy, shell-filled layer [14] through which the stakes (or timber) had been driven (Plates 9 & 10). These low energy clays and peats were found at the west end of the trench and thus nearer to the river. At the eastern end of Trench 1, palaeochannel [8] was sealed by a layer of clay [6] (laid down in a high energy environment) which in turn was overlain by a thin layer of sand [5] and another putative layer of early peat development [4]. These in turn were overlaid by the clay and gravel 'lower alluvium' [3] which illustrated the dynamic nature of the fluvial environment alternating between high and low energy states. Two small pockets of possible peat formation [10] were recorded above it before the ensemble was sealed by the thick blue-grey clay 'upper alluvium' [2] which was a sterile, homogenous layer. This had been subsequently truncated and terraced by the later 19th and 20th century construction work. Taken together, the layers are testament to the fluvial dynamics of an active water course constantly alternating between high and low energy environments.

7.4 Phase 4: Modern (20th Century)

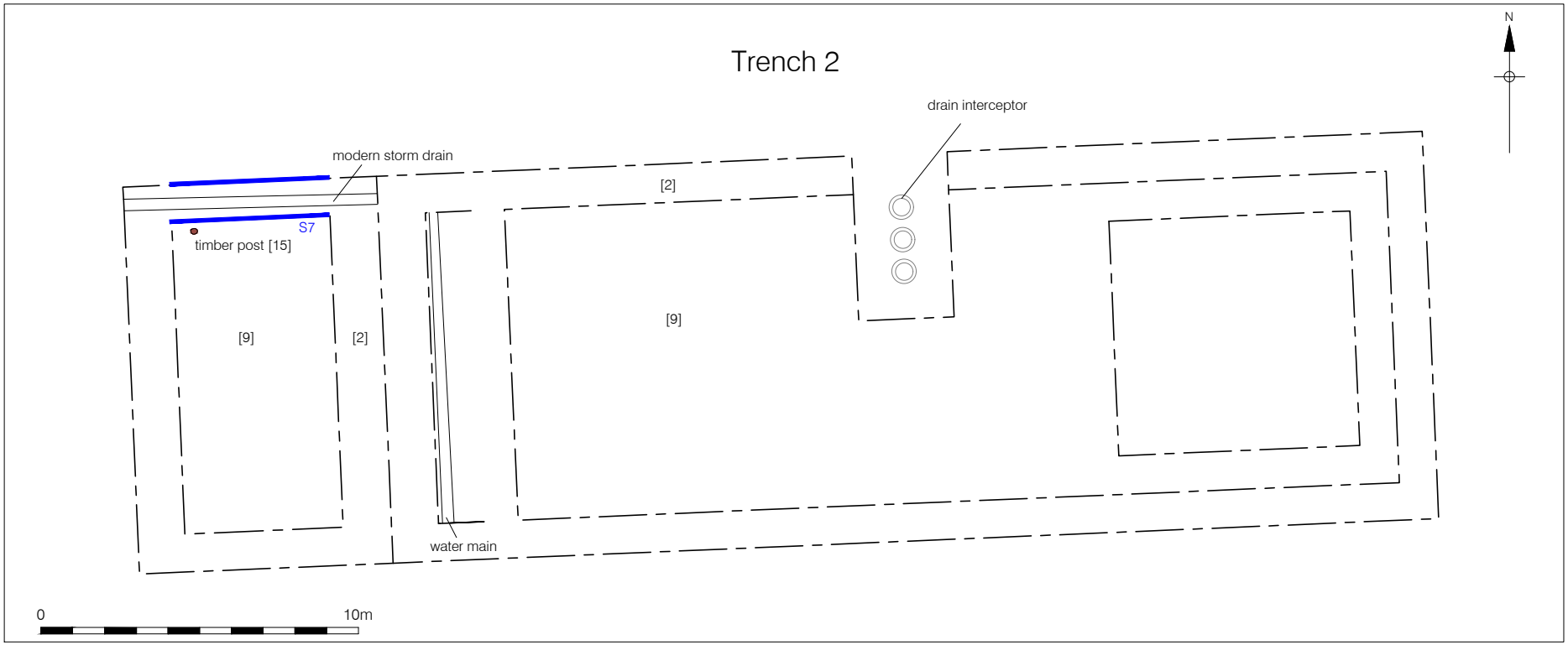
7.4.1 The phases of 19th and 20th construction (with the introduction of services) and their subsequent demolition have impacted upon and truncated the archaeological layers. The upper alluvium [2] had been shown to be truncated or terraced away to some degree. The made ground above it [1] contained modern demolition material mixed with detritus from the 19th to 20th century, most of which had been affected by light contamination.





29/09/16 RM

Figure 3
Plan and Section of Trench 1
Plan 1:200 and Section 1:40 at A4



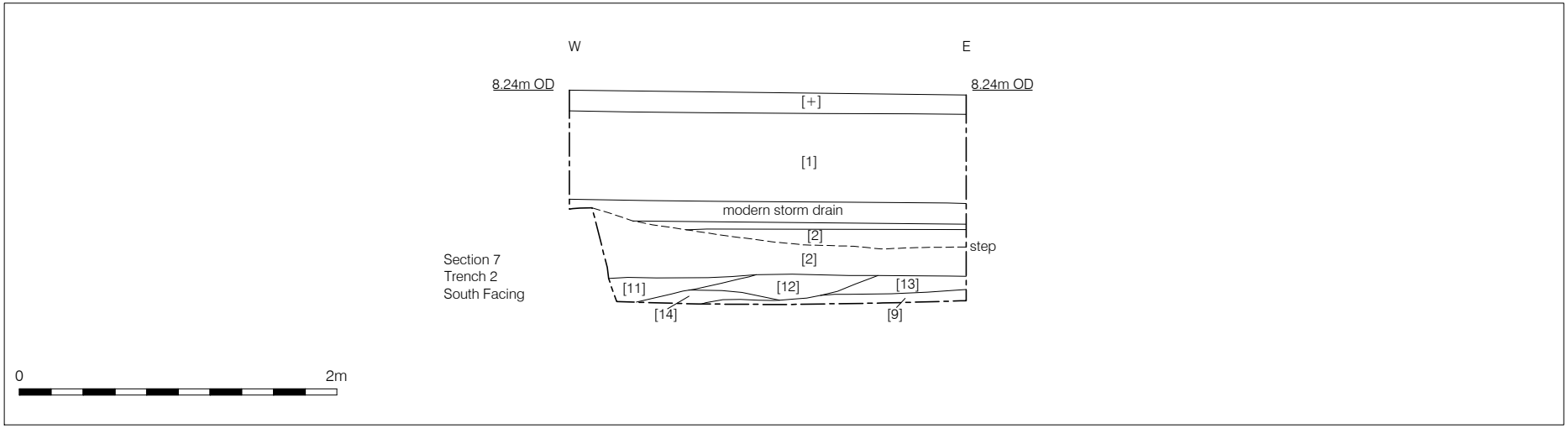


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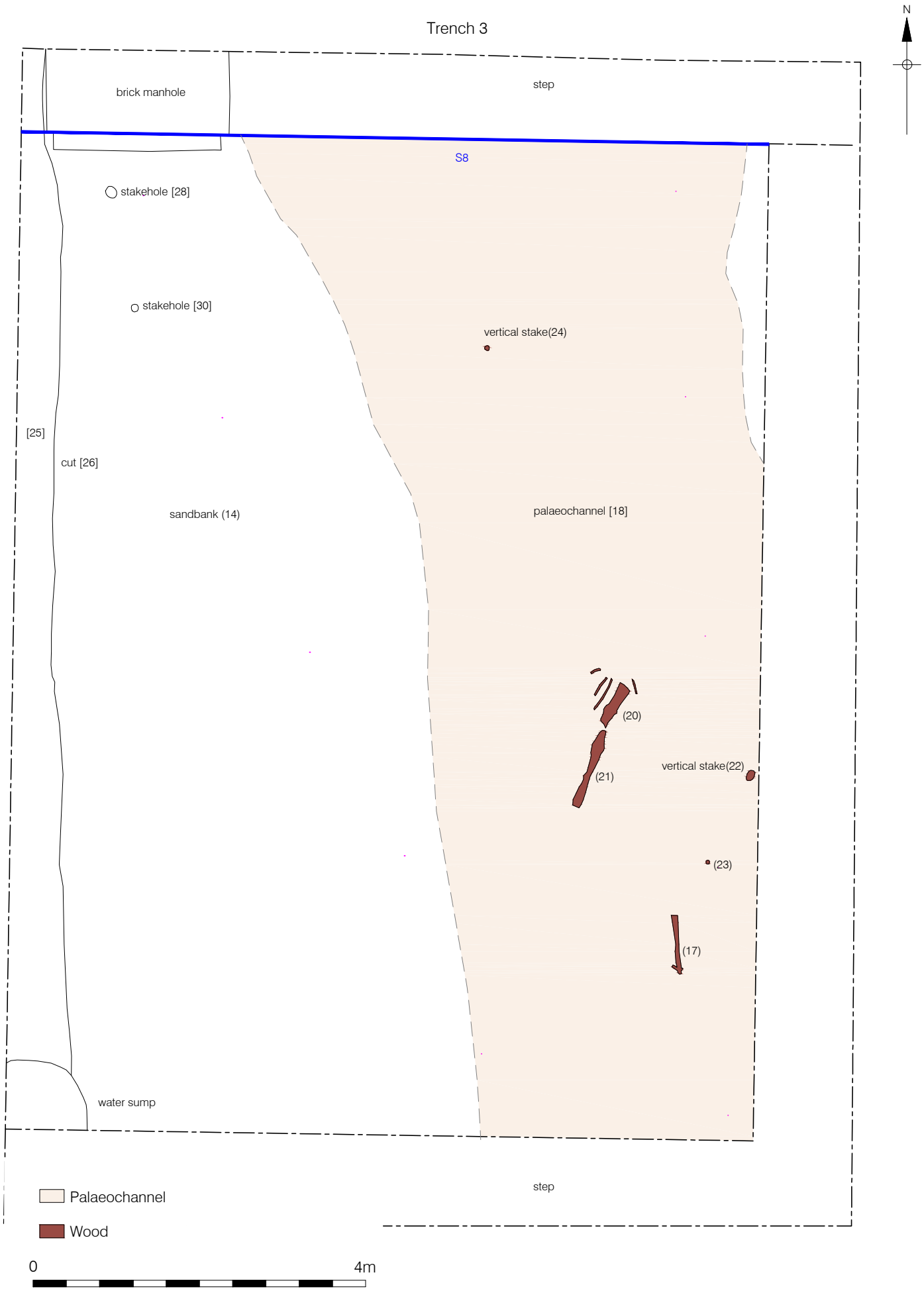
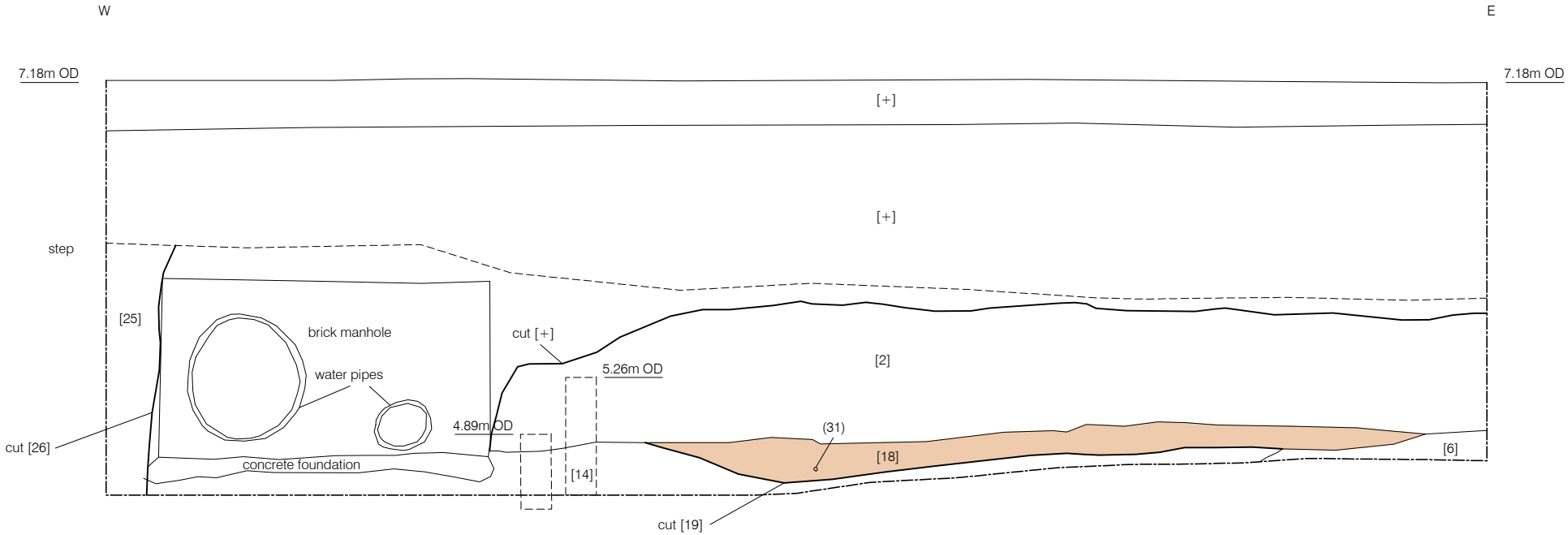
Figure 4
Plan and Section of Trench 2
Plan 1:200 and Section 1:40 at A4



29/09/16 RM

Figure 5
Plan of Trench 3
1:60 at A4



Section 8
Trench 3
South facing

Wood
Palaeochannel

0 2m

29/09/16 RM

Figure 6
Trench 3 Section
1:40 at A4

PLATES

Plate 1: Trench 1, Section 1: layers [1-6] and palaeochannel [8] looking south (scale 1m)

Plate 2: Trench 1: Excavated slot in palaeochannel [8] in foreground and sondage to reveal 'cleaner' gravels, looking west (scale 1m)

Plate 3: Trench 1 completed avoiding gas main. View to the north-east (scale 1m)

Plate 4: Trench 2, wooden timber or post [15] looking north-west (scale 0.30m)

Plate 5 : Trench 3, working shot, general view to the northeast showing sandbank to left of 1m Scale, palaeochannel [18] marked in dashed line

Plate 6: Trench 3, general view to the north-east, palaeochannel indicated by dashed line

Plate 7: Trench 3, Timber [22] carpentry facet on left hand side, view to south-east (Scale 0.2m)

Plate 8: Trench 3, Timber [23], carpentry marks visible at base, view to north-east (Scale 0.2m).

Plate 9: Trench 2, Section 7: Alluvial layers & peat formation. Timber post [15] bottom left of

photo in front of section. View to north. (Scale 1m)

Plate 10: Trench 2, Section 7 but with lines scoured in for clarity. View to north (Scale1m).

Plate 11: trench 3, Section 8, alluvial layers and palaeochannel [18]

8 ARCHAEOLOGICAL PHASE DISCUSSION

8.1 Phase 1 – Natural

8.1.1 The earliest deposits encountered during the archaeological investigations were the terrace gravels of the Taplow Formation. The borehole model had suggested a gentle, undulating slope from east, westwards toward the river which was borne out through excavation. In Trenches 1 & 2 the fall of the gravel was between 0.66m and 0.94m from east to west. Their profile showed a series of gently undulating gravel terraces falling in height towards the river. In Trench 1 a palaeochannel [8] was recorded cutting the gravels.

8.1.2 At the western extremity of Trench 2 and on the western portion of Trench 3 a layer of white-grey shelly sand [14] was uncovered which revealed traces of human activity upon its surface. It contained frequent flecks (and at times lumps) of charcoal along with burnt flint and abraded daub. This layer appears to be an early sand bank along the 'strand line' marking the high water mark or flood level of the river at that time.

8.1.3 Three wooden stakes [22], [23] & [24], were found driven into it and a collection of driftwood was made from its surface. It is likely the activity was associated with a nearby settlement, located on the alluvial floodplain or to an adjacent gravel terrace. The interpretation of layer [14] being a sandbank is supported by evidence from other sites along the Lea where 'over-bank' flooding had deposited alluvial material similar to that at Ferry Lane (Corcoran et al, 2011).

8.1.4 The human activity upon the sandbank appears to have been sealed by later riverine processes of early peat growth and by the presence of another palaeochannel [18] (or body of standing water) to the east of the sandbank and trapped between it and the higher gravel slopes to the east. Other, later peat formation layers were identified but they were interleaving lenses higher up in the sequence, none of which formed a consistent layer or 'bed' within the sequence.

8.2 Phase 2 – Prehistoric – Late Bronze Age c.1500 – 700 BC

8.2.1 In the west end of Trench 2 finds of burnt flint and fragmentary daub alongside a single timber post [15] suggested the possibility of human activity, although their presence could have been explained as material washed in from elsewhere. However, in Trench 3 the presence of three pointed stakes, all driven into the sandy layer [14] indicate that the finds may be, after all, *in situ* and therefore evidence of human activity along the foreshore at this spot.

8.2.2 Preliminary examination of the three roundwood stakes [22], [23] & [24] has revealed that they must have been relics of a much taller structure, the largest having a diameter of 150mm. The small, rounded axe-marks on the stake tips are considered to have the best parallels with Bronze Age axes (Goodburn 2016, Appendix 9). Timber [22] had been hewn from a fast-grown oak pole, possibly of coppice origin, whilst stake [23] bore marks of a small bladed metal axe. On the third of the stakes, [24], the axe facets were considered to be a little wider than is typical for the Late Bronze Age suggesting a Middle Bronze Age date. One of the pieces of collected as driftwood, [21] turned out to be a roughly cleft pole but was abraded, possibly displaced by water turbulence known to occur within the Lea river (Goodburn 2016, Appendix 9).

8.2.3 It is difficult to interpret what kind of structure the wood may have been due to low number of stakes and the fact that they fairly dispersed and lacked a coherent form. However, [22 – 24] were located within the palaeo-channel, only stake holes [28] and [30] pierced the sandbank itself. All that can be inferred if one draws a line between them is a shallow 'V' shape with its apex to the east. The two most likely interpretations would be either a fish trap or a hunting/fishing platform. The latter is known from excavations at the Tower Hamlets site where a timber platform was located on the edge of a stream channel (Powell 2012:62).

8.2.4 The fragment of ceramic weight which may represent a fish net weight, supports this to some degree as the object shows little evidence for 'rolling' or abrasion. The nature of the carpentry facets on the stakes, the collection of burnt flint, the presence of the

clay weight and the animal bone all point to a Middle to late Bronze Age date for the site. Similar assemblages have been recovered from excavations along the Lea, such as at Ruston Street, Old Ford (Powell 2012) and at Lefevre Walk (Corcoran et al 2011).

8.2.5 The Middle to Bronze Age in the Lea valley saw an intensification of land use and sites located higher on the terraces on drier ground following water level rises (Corcoran et al 2011:181). The notable increase in activity during this period shows population concentrations close to rivers where damp grasslands provide ample grazing for cattle (ibid 2011:181). The small animal bone assemblage was restricted to two types of animal, a donkey (or small pack animal) in the sand layer [14] and cattle bones from the palaeochannel [18].

8.2.6 The donkey bones, partially articulated, are of particular interest as very few have been recorded(Reilly 2016, Appendix 5). They were found within the sand [14] but were not in a discrete feature such as a pit so therefore may have been washed in and buried over time. The cattle bones were recovered from the palaeochannel but showed no signs of butchery marks - although the absence of such marks in this period is not uncommon (Reilly 2016, Appendix 5). However, the presence of cattle tallies with faunal evidence from other sites along the Lea as the economies of both Rammey Marsh and Stratford Market sites were interpreted as predicated on grazing animals and the locations of the sites partially determined by their proximity to wetland grazing and water (Corcoran et al 2011: 182, Powell 2012: 60).

8.2.7 There is an 8mm diameter hole drilled through the ishial shaft of the cattle pelvis, pushed through from the lateral side. However, it cannot be readily ascertained when this puncture occurred (Reilly 2016, Appendix 5). If contemporary with its proposed prehistoric – historic date, it shows human modification (and therefore association) with the bone.

8.2.8 Although there is always the possibility of material being introduced by fluvial action, the evidence for a permanent (or semi-permanent) wooden structure on the foreshore suggests localised human activity if seasonal in nature.

8.3 Phase 3 – Post-Prehistoric Inundation

8.3.1 The human activity in Trench 3 was sealed by a series of layers including the palaeochannel [18] and the lower alluvium. A similar sequence was recorded in Trench 2 along with early peat formation layers. Further to the east in Trenches 1 & 2 layers of clay and gravel, lenses of peat and upper alluvium illustrated the dynamics of a riverine system.

8.4 Phase 4 – Modern 20th Century

8.4.1 The establishment of (dispersed) housing on the site along with a race track in the 19th century is unlikely to have had a major impact on the archaeological asset. However, early to mid-20th century activities including the arrival of the Omnibus Depot and the later construction of factories and warehousing definitely threatened the resource through truncation of the upper layers of alluvium, the excavation of service trenches and drains and contamination, particularly that from seepage of diesel oil. A large trench [26] running alongside a series of storm water drains contained discarded stoneware bottles and other detritus and was heavily contaminated by diesel.

9 RESEARCH OBJECTIVES AND RESEARCH QUESTIONS

9.1 Original Research Objectives

9.1.1 The following research objectives were put forth in the Written Scheme of Investigation and these can now be addressed

To determine the natural topography and geology of the site, and the height at which it survives.

9.1.2 The natural topography of the site appears to have been locally truncated during the construction and development of the Omnibus Works in the early 20th century. Its subsequent demolition and the levelling and construction work required to create the Ferry Lane Industrial Estate in the later 20th century has also played a part in partially truncating the site from above and penetrating to depths of over 2.5m with regards to service trenches and storm drains.

9.1.3 The site is located east of the River Lea, a tributary of the River Thames. It is likely that the site was originally on a flood plain within the river's meander corridor and may have been originally wetlands or a braided river system in the prehistoric period. It would thus have been an ideal resource for fish, fowl and eels and on the interface with dry land and its relevant resources. The deposits of silty sand and clayey sand on the site reflects the dynamic nature of a riverine environment and the division between high energy environments (floods, inundations – which introduce the silts) and low energy environments (standing water - which allows clays to form). At the north of the site in Trench 1 the natural gravels were found to be at 5.78m OD, sloping down westwards to 4.84m OD. In Trench 2 they were at 6.42m OD falling towards the west at 5.76m OD. In Trench 3 the gravels were at 5.70m OD. These levels are slightly lower than those recorded during an evaluation undertaken in 2013 at the British Rail Yard immediately south of the site on the other side of Ferry Lane/Forest Road. (Hawkins, H 2013:12). The gravels were a little higher at this location, the highest points being 8.21m OD and 7.90m.

9.1.4 The natural gravels and foreshore layers were sealed by an extensive alluvial sequence of blue-grey silts and clays up to 1.4m thick in some places. There were direct similarities between these deposits and those encountered nearby at the Former British Rail Goods Yard site immediately to the south. Similarly, the British Rail Goods Yard site concluded that the clays contained neither anthropogenic artefacts nor any organic material but were entirely sterile and homogenous (ibid, 3), as was the case at Ferry Lane.

To establish the presence or absence of prehistoric activity.

9.1.5 The short timber post [15] found penetrating through layer [14] and into the natural gravels [9] in Trench 2 initially appeared to be too short for a pile and is not sharpened to a point, it was however, 150mm in diameter making it the largest of the timbers found. However, it is not part of a tree as it does not have any roots and penetrates the gravels. Tree ring identification has proven difficult due to the softness of the tree and damage to its top surface, possibly due to it being hammered into the gravels. It has been interpreted as a post base with a 'D' shaped cross-section (Goodburn 2016, Appendix 9).

9.1.6 In Trench 3, three further stakes [22], [23] and [24] were found driven into the gravels and two stake holes were identified, although they lacked their stakes *in situ*. However, timbers [22 – 24] had been sharpened to a point and the carpentry facets were clearly visible. They had been fashioned to penetrate the gravels but their form and purpose are unknown as there were too few timbers and they were sparsely spread across the area. Furthermore, they lacked any cohesive pattern, orientation or alignment. As they were stakes (as opposed to posts - none has a diameter which exceeds 110mm) it I safe to suggest that they are not part of a building but may be components of a fish trap or light weight fishing or fowling platform.

9.1.7 The Lea is a confluence of the Thames, where fish traps are known to have been used from the Mesolithic period until the post medieval period (TDP 2016). Most permanent

fish traps would have been constructed on the intertidal foreshore but because they were usually constructed of lightweight organic stakes and wattle-work fish traps can be both hard to identify and are prone to erosion and damage. Often, the posts are too small for Carbon 14 dating (TDP 2016).

9.1.8 It is safe to assume that larger posts with a wider diameter would be required for a building such as a pile dwelling which suggests that the timbers formed some other structure peripheral to settlement. Further, the structure is unlikely to be a trackway as they require a greater frequency, size and number of timbers, usually in association with horizontal layers of brushwood and smaller timbers. Similarly, the sandbank showed no signs of modification, redeposited soil or metalling with flint and/or pebbles and stones which suggests it is entirely natural even if the upper layers produced anthropogenic material.

9.1.9 Burnt flint and abraded daub was found in layer [14] which also contained frequent flecks of charcoal. A fragment of a clay weight complete with part of its suspension hole was also found. The piercing for the suspension hole was in the wrong place for a loom weight (Jarrett 2016, Appendix 7). If this is the case, then it opens the possibility that it is a fishing net weight which one would expect to find in association with a fish trap.

9.1.10 Animal bone was also recovered from layer [14] and driftwood from its surface on the interface between it and the palaeochannel fill [18] above. The animal bone is of particular interest as the measurements of a left humerus, left radius/ulna, left metacarpus and a lumber vertebra from the sand point to it being a small pony or donkey. If it is the latter, the discovery is considered to be of paramount importance as so few donkey bones are known from British archaeological sites, particularly those from within prehistoric contexts (Reilly 2016, Appendix 5).

To establish the presence or absence of Roman activity

9.1.11 A short section of flat wood found on the surface of layer [14] and putatively identified as a writing tablet may be an 'intrusive' object or was derived from the layer above, [11] which is a possible early peat layer. It is an object that is known to have been in use from the Roman through to the medieval period so its date range is quite wide. As the object was found on the surface (as opposed to within layer [14]) during excavation it cannot be attributed to any one context. Unfortunately, due to its unknown provenance its importance or relevance has been relegated to an 'intrusive,' out-of-context find.

9.1.12 Although the palaeochannel [18] has not been definitively dated there is a possibility that it may have silted up in the period up to or during the Roman period and post Bronze Age activity on the sandbank. A number of cattle bones were recovered from this context which aged the animal(s) as being adults whilst the recovered molar belonged to sub-adult aged between one and two years old. The absence of butchery marks and their general articulation suggests that they were not discarded food waste but do suggest human occupation close by, perhaps using the riverine pastures suitable for the keeping and breeding of large domesticates (Reilly 2016, Appendix 5).

9.1.13 It is difficult to say to which period the palaeochannel belongs. For the moment it is assigned to Phase 3, post-prehistoric inundation.

To establish the presence or absence of medieval activity.

9.1.14 There was no evidence of medieval activity found in the evaluation

To establish the presence or absence of post-medieval activity at the site.

9.1.15 There was no evidence of such activity found in the evaluation, other than the earlier parts of the made ground.

To establish the extent of all past post-depositional impacts on the archaeological resource.

9.1.16 It is apparent from the work of the evaluation that the post-depositional impacts have had a severe but localised effect on the preservation of the archaeology. As has already been outlined above with regards to the survival of the natural topography, 20th century construction and demolition has locally truncated the site down to 1.0 – 1.4m from the

present ground level surface with a mixture of concrete floors and service trenches which penetrate to over 2.6m deep. This said, the prehistoric activity and the early foreshore deposits were found to the west of the site sealed by the upper alluvium [2].

9.2 **Conclusions**

9.2.1 The river terrace gravels exposed during the evaluation will help to refine the existing topographic model created by the borehole evidence. Gravels were found to be generally higher than had been anticipated. Whilst the gravels in Trench 1 sloped steeply down towards the river at the west, in Trench 2 the gravels were consistently level for much of the trench's length. Trench 3 was too small to make topographic inferences but the level of the gravels was consistent with that found in Trench 2.

9.2.2 Studies of other river estuaries on the east coast have shown that over the last 10 000 years, sea levels have continued to rise resulting in the subsidence of the land mass in the south-east of Britain. It is believed that the level of the river in the Thames Estuary would have been 13-15m below that of today (Wilkinson 1987:29). Whilst early prehistoric sites were located on the lower valley slopes, the rising water levels at the end of the Neolithic resulted in Bronze Age settlements being moved further inland and onto the higher terraces (Wilkinson 1987:31). A Bronze Age site at Oliver Close estate, Leyton 4.3km to the south-east was located on such a gravel terrace (Daykin 1997:6) Wooden structures found along the route of the A13 at Woolwich Manor Way, Movers Lane and Freemason's Road were constructed during a period of increased wetness, a prelude to a major marine incursion, an environmental episode which is consistent with other sites in the area (Stafford 2012: 121).

9.2.3 The short timber 'post' [15] discovered embedded in the gravel in Trench 2 did not appear to be worked and was not sharpened into a point, however it had penetrated layer [14] and 0.19m into the gravel [9] itself. It had no roots and was not associated with any other organic or plant material. Although lacking in diagnostic carpentry marks, the insertion of the post was likely to have been an intentional act. This was in stark contrast to timber posts [22], [23] & [24] all of which had been sharpened to a point and upon which the carpentry facets were clearly visible. Although the posts had been truncated, they penetrated between 0.19m and 0.35m into the basal gravels and were unmistakeably the result of an intentional act to create a structure although the purpose of that structure is unknown.

9.2.4 Whilst it is always possible to argue that portable artefacts can be moved by water action, the presence of the posts at least ties some of the human activity to this point on the foreshore. Although the three posts do not define a recognisable structure they do share some of the attributes of wooden structures at other Bronze Age sites, '*invariably occurring towards the top of the peat sequences'* (Stafford 2012: 121).

9.2.5 Of further interest was the evidence for prehistoric activity in the form of burnt daub and the fragment of possible fishing weight which was retrieved from layer [14]. Tentatively spot-dated to be as early as c.1600 BC (onwards), the fragments do seem to support human activity at the river's edge. If the clay object is a net weight it may the support the idea of the wooden stakes being a fish trap (Jarrett 2016, Appendix 7)

9.2.6 The quantity of burnt flint and the amount of charcoal in this layer suggests hearths somewhere in the vicinity but does not constitute a burnt mound. It is likely that the flint was used in the cooking process either as hearth material or as 'pot boilers' within pottery or metal vessels. The presence of charcoal, burnt flint and burnt daub may also hint at other processes occurring nearby. At Hullbridge, Essex on the Crouch estuary, a Bronze Age site had been interpreted as having been seasonally occupied for specialized activities. Wooden hurdles, a trackway and a platform were associated with a hearth that had been used for salt processing (Wilkinson 1987:31).

9.2.7 The animal bone found within the palaeochannel with its drilled bone provides further evidence for human occupation of the shoreline with grazing pastures nearby and access to water.

9.2.8 The sandbank [14] may have formed when these gravel terraces were part of a larger braided river system within the prehistoric landscape. Although the evidence is light

and may only reflect the traces of seasonal hunting activities in the area, it is, nonetheless, an important potential component to understanding early prehistoric landscapes in the area.

9.2.9 No other structures or archaeological features were found.

10 IMPORTANCE OF THE RESULTS, FURTHER WORK AND PUBLICATION PROPOSAL

10.1 Importance of the Results

10.1.1 This phase of archaeological investigation has only revealed very limited results of note. These consist of three sharpened and modified wooden stakes driven into the natural river terrace gravels [9] through a foreshore deposit of shelly sand [14], a fourth, unmodified timber, a collection of burnt flint and daub and a possible loom or fishing weight. These results are of limited importance but support many of the models for Bronze Age activity along the River Lea valley.

10.2 Further Work

10.2.1 In relation to the archaeological data obtained from this excavation; listed below are the recommendations of further work as identified in the specialist assessments (see appendices).

10.3 Prehistoric Fired Clay

10.3.1 There are no recommendations for further work on the fired clay at this stage of work, although should further archaeological work take place on the study area and more fired clay is recovered, then the recommendations for the assemblage will need to be reassessed.

10.4 Prehistoric Worked Wood

10.4.1 It is suggested that C14 dates are sought for the worked wood to substantiate the interpretations made from the carpentry facets. A comparative study could then be made with wood recovered from the excavations that had been carried out during the Olympics project. Further work could include a more detailed report on the wood including illustrations for future publications.

10.5 Animal Bone

10.6 It is considered that the identification of the small equid is of paramount importance, due to the small number of donkey bones found at British archaeological sites, and in particular from prehistoric contexts. Also, it would be of interest to study the size of the cattle bones with the intention of perhaps establishing their date of deposition by comparison with size data from Iron Age and Roman levels from sites in the general vicinity

10.7 Burnt Flint

10.7.1 Although burnt flint is often associated with sites dating to later prehistory, no further work has been suggested at this time.

10.8 Pottery, Metal & Glass

10.8.1 The pottery, metal and glass fragments all date to the 19th and 20th centuries and represent back-filled demolition material and debris from the late 19th and early 20th century buildings and activities on the site prior to the construction of the present Ferry Lane Industrial estate. No further work is recommended.

10.9 Publication Proposal

10.9.1 At present the results of the archaeological investigation to date merit an article in the *London Archaeologist*'. If further remains and artefacts are uncovered in subsequent phases of work the extent of publication and further work may have to be reconsidered. The results of the geoarchaeological and environmental work which are to be reported separately, will need to be presented as part of such a publication.

10.9.2 The entire site archive will be deposited at LAARC, under site code FYL16, following approval of this report. PCA will provide a copy to the commissioning client, to the GLHER and the Archaeology Advisor of the London Borough of Waltham Forest

11 CONTENTS OF THE ARCHIVE

The archive comprises:
The paper archive:

	Scale	Drawings	Sheets
Context Sheets	-	-	245
Plans	1:20	10	85
Sections	1:10	6	6

The photographic archive:

Digital Format	148 Frames

The finds archive:

Pottery	1 box
Glass	1 box
Flint	1 box
CBM	1 box
Small finds	1 object
Bulk samples	3

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http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html

Thames Discovery Programme –

http://www.thamesdiscovery.org/discover/foreshore-factsheet-fishtraps

13 ACKNOWLEDGEMENTS

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APPENDIX 1: CONTEXT INDEX

Site Code	Context No	Trench	Plan	Section	Type	Description	Date	Phase
FYL16	1	TR 1	Tr 1	1	Layer	20th Century building rubble & crush	Modern	4
	2	TR 1	TR 1	1 - 7	Layer	Upper alluvium: firm blueish dark grey clay-	Natural	3
	3	TR 1	TR 1	1,2	Layer	Alluvium: firm dark grey clay & gravel	Natural	3
	4	TR 1	TR 1	1	Layer	Alluvium: firm dark brown silty-clay (peat?)	Natural	4
	5	TR 1	TR 1	1	Layer	Alluvium: soft blueish dark grey silty sand	Natural	3
	6	TR 1	TR 1	1,2	Layer	Alluvium: firm, dark grey clay & gravel (interface)	Natural	3
	7	TR 1	TR 1	1	Fill	Firm, dark brown greyish sandy clay	Natural	1
	8	TR 1	TR 1	1	Cut	Palaeochannel	Natural	1
	9	TR 1	TR 1	1 - 7	Layer	Compact, reddish mid brown sandy gravel. Gravel terrace	Natural	1
	10	TR 2	TR 2	5,6	Layer	Alluvium: firm dark brown silty-clay (peat?)	Natural	3
	11	TR 2	TR 2	7	Layer	Alluvium: firm dark brown silty-clay (peat?)	Natural	3
	12	TR 2	TR 2	7	Layer	Alluvium: firm light brown silty-clay, flecks of shell	Natural	3
	13	TR 2	TR 2	7	Layer	Alluvium: firm dark brown silty-clay	Natural	3
	14	TR 2	TR 2	7	Layer	Soft, light grey brownish, silty sand, shell inclusions	Natural	1
	15	TR 2	TR 2	-	Timber	Semi-circular short post, 160mm diameter x 190mm length. Bark in situ	Prehistoric	2
	16	TR 2	TR 2	-	Cut	Sub circular, 0.18m in diameter, 0.20m deep	Prehistoric	2
	17	TR 3	TR 3	-	Timber	Sub oval in	Prehistoric	2

Site Code	Context No	Trench	Plan	Section	Type	Description	Date	Phase
						cross-section, 820mm long x 62mm wide. Driftwood		
	18	TR 3	TR 3	8	Fill (or layer)	Dark brown sandy clay with specks of charcoal & shell	Natural	3
	19	TR 3	TR 3	8	Cut (or edge)	Edge of palaeochannel	Natural	3
	20	TR 3	TR 3	-	Timber	Rectangular in cross section, 540mm m long x 140mm wide x 82mm thick. Driftwood	Prehistoric	2
	21	TR 3	TR 3	-	Timber	Sub oval in cross -section, 960mm long x 120mm wide x 90mm thick. Driftwood	Prehistoric	2
	22	TR 3	TR 3	8	Timber	Stake circular in cross-section, 340mm long x 90mm diameter. Carpentry facets visible.	Prehistoric	2
	23	TR 3	TR 3	8	Timber	Stake, circular in cross-section, 190 mm long x 60mm diameter. Carpentry facets visible.	Prehistoric	2
	24	TR 3	TR 3	8	Timber	Stake, circular in cross-section, 350 mm long x 90mm diameter. Carpentry facets visible.	Prehistoric	2
	25	TR 3	TR 3	8	Fill	Black silty clay contaminated back-fill of 20th C service trench	Modern	4
	26	TR 3	TR 3	8	Cut	Linear 1.6m deep x 0.46m wide; early 20th century service trench	Modern	4
	27	TR 3	TR 3	-	Fill	Soft dark grey clayey sand	Prehistoric	2
	28	TR 3	TR 3	-	Cut	Circular stake hole, descends to a point, 15mm x 15mm x 33mm	Prehistoric	2

Site Code	Context No	Trench	Plan	Section	Type	Description	Date	Phase
	29	TR 3	TR 3	-	Fill	Soft, light grey clayey sand	Prehistoric	2
	30	TR 3	TR 3	-	Cut	Circular stake hole, descends to a point, 10mm x 10mm x 10mm	Prehistoric	2
	31	TR 3	TR 3	-	Timber	Irregularly shaped, 540mm long x 280mm wide. Driftwood	Prehistoric	2
	32	TR 3	TR 3	-	Cut	Circular stake hole, descends to a point, 340mm x 90mm	Prehistoric	2
	33	TR 3	TR 3	-	Cut	Circular stake hole, descends to a point, 190mm x 60mm	Prehistoric	2
	34	TR 3	TR 3	8	Cut	Circular stake hole, descends to a point, 350mm x 90mm	Prehistoric	2

Phases

Natural Geology

Prehistoric: Middle to Late Bronze Age c.1000 – 700 BC

Post Prehistoric Inundation

Modern 20th Century

APPENDIX 2: POTTERY ASSESSMENT

Post-Roman pottery assessment (FYL16)

Chris Jarrett

Introduction

A small sized assemblage of pottery was recovered from the sites (one box). The pottery dates almost exclusively to the late post-medieval period, except for a single sherd dated to the late medieval-early post-medieval period. None of the sherds are abraded and so the material was probably mostly deposited fairly rapidly after breakage or was discarded, which was mostly by secondary depositional circumstances. The fragmentation of the pottery ranges from sherd material to vessels with complete profiles and two intact vessels occur. The pottery was quantified by sherd count (SC) and estimated number of vessels (ENVs), besides weight. Pottery was recovered from four contexts and as small (fewer than 30 sherds) sized groups.

The assemblage consists of nine sherds/8 ENV/1.212kg of which none are unstratified. The assemblage was examined macroscopically and microscopically using a binocular microscope (x20), and recorded in a database format by fabric, form and decoration. The classification of the pottery types is according to the Museum of London Archaeology (2014). The pottery is discussed by types and its distribution.

THE POTTERY TYPES

Chinese blue and white porcelain (CHPO BW), 1590–1900, one sherd, 1 ENV, 2g, from: ?plate. Context [2]

English brown salt-glazed stoneware (ENGS), 1670–1900, one sherd, 1 ENV, 555g, from: ginger beer bottle. Context [1]

English stoneware with Bristol glaze (ENGS BRST), 1830–1900, two sherds, 2 ENV, 1.097kg, from: intact ginger beer bottles. Contexts [1] and [25]

Miscellaneous unsourced post-medieval pottery (MISC), 1480–1900, one sherd, 1 ENV, 3g, from: ?bowl. Context [2]

London-area post-medieval redware (PMR), 1580–1900, one sherd, 1 ENV, 3g, from: Context [18]

Refined white earthenware with under-glaze polychrome-painted decoration in 'chrome' colours (REFW CHROM), 1830–1900, one sherd, 1 ENV, 53g, from: plate. Context [1]

Refined whiteware with under-glaze transfer-printed decoration (TPW), 1780–1900, , one sherd, 1 ENV, 52g, from: tureen lid. Context [1]

Refined whiteware with under-glaze transfer-printed 'flow blue' decoration (TPW FLOW), 1830–1900, one sherd, 1 ENV, 7g, from: unidentified. Context [2]

The earliest pottery type recorded was a sherd of late medieval/early post-medieval fine buff earthenware (MISC) with an internal yellow-olive glaze and was possibly derived from a bowl (context [2]).

The two stoneware ginger beer bottles are of interest and are marked with the names of different companies. The first example (context [1]) has stamped above the base the name 'R,

WHITES' in a ribbon over a medallion containing St George slaying the dragon with 'TRADE' and 'MARK' on either side of the medallion, above 'GINGER BEER'. The vessel has an internal Bristol glaze. R. White's lemonade was established in Camberwell, London, in 1845 and became R. White & Sons Ltd in 1894. Therefore the bottle is most likely to be dated *c*. 1845–1894. The second ginger beer bottle (Context [25] has a later method of marking the name of the company on the vessel by the use of a black printed name (achieved with a rubber stamp). The bottle has a bichrome glaze with the upper third of the vessel covered in a tan coloured top. On the wall of the vessel there is an oval badge containing 'BARRATT'S VAUXHALL', found around the edge of the oval, while at the centre is found 'UNRIVALLED/BREWED/ GINGER/BEER'. Additionally, there is printed on the top right corner of the oval the number '88' and around the base is the name of the bottle manufacturer: 'J. STIFF & SONS LAMBETH'. Printed names on stoneware vessels were introduced in *c*. 1890, while James Stiff established his pottery in Lambeth in 1840 and became James Stiff & Sons by 1870. This company was taken over by Doulton's stoneware company in 1870. Barrett's Brewery and Bottling Co Ltd was founded in 1883 at the Vauxhall Brewery, Wandsworth Road, Vauxhall and changed its name to Plowman, Barrett & Co. Ltd 1907 (Richmond and Turnton 1990, 267) and therefore the ginger beer bottle is dated *c*. 1883/90–1907/13.

Another datable item is the REFW CHROM plate (context [1]) which has red line and band decoration on the rim and that style is dated *c*. 1870 to the early 20th century. The tureen lid (context [2]) is represented only by a knob moulded in the shape of a lion and shows evidence of the Willow pattern

Distribution

Context	Size	SC	ENV	Wt (g)	Context ED	Context LD	Pottery types (and forms)	Spot date
1	S	3	3	660	1830	1900	ENGS BRST (ginger beer bottle), REFW CHROM (plate), TPW (tureen lid)	End of 19th century (*c*. 1870–1900)
2	S	4	3	12	1830	1900	CHPO BW (plate), MISC (?bowl), TPW FLOW	1830–1900
18	S	1	1	3	1580	1900	PMR (flower pot)	19th-20th century
25	S	1	1	537	1830	1900	ENGS BRST (ginger beer bottle)	*C*. 1890–1907

Table 3. FLY16: distribution of pottery types showing the size/number of sherds (SC), estimated number of vessels (ENV), weight in grams (Wt(g), the date range of the latest pottery type (Context ED/LD) , the pottery types present and a spot date (context considered date) for each context post-Roman pottery occurs in

Significance and potential of the collection and recommendations for further work

The pottery has little significance at a local level. The assemblage mostly follows the ceramic profile for the London area and consists of forms frequently recorded archaeologically. The main potential of the pottery is to date the contexts it was recovered from. If a short publication text is required on the pottery then the information should be taken from this report.

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APPENDIX 3: GLASS ASSESSMENT

Glass Assessment (FYL16)

Chris Jarrett

A single glass item (97g) was recorded from the archaeological work and this was found in context [20]. The item is intact and made of opaque white glass and comes in the form or a squat octagonal-section jar. The rim has an external screw thread, which still has the heavily decayed metal lid attached to it, a convex neck and the front of the jar has an oval recessed panel that would originally held a label. Embossed on two opposed side panels is the name VEN-YUSA and on the underside of the base is embossed 'ECNo 120'. The interior of the jar still contains a white solidified deposit. External screw-threads on glass containers were introduced at the end of the 19th century. Ven-Yusa Oxygen Face Cream was certainly in existence during WWI when it was promoted to women working in munitions factories, where exposure to TNT was damaging to their complexion. The white glass jar is therefore likely to date to the early 20th century.

The glass jar has little significance. Its only potential is to date the context it was recovered from. There are no further recommendations for further work on the glass jar.

APPENDIX 4: BUILDING MATERIAL ASSESSMENT

Assessment of Ceramic Building Materials, Ferry Lane Industrial Estate, Walthamstow, Waltham Forest, E17 6HG (FYL16)

Compiled by Amparo Valcarcel, September 2016

A small number of building materials was retained from the excavations at Ferry Lane Industrial Estate, Walthamstow, Waltham Forest, E17 6HG (FYL16).

Central NGR: TQ 535637 189469

This small sized assemblage (11 examples 60 g.) was assessed in order to:

- Identify (under binocular microscope) the fabric and forms of the building materials
- Reference should also be made to the access catalogues for the building material (FYL16.mdb)
- Made recommendations for further study.

METHODOLOGY

The application of a 1kg masons hammer and sharp chisel to each example ensured that a small fresh fabric surface was exposed. The fabric was examined at x20 magnification using a long arm stereomicroscope or hand lens (Gowland x10) and compared with Pre-Construct Archaeology's stone and ceramic building material reference collection.

Peg Tile

*2586; Iron Oxide fabrics (1180-1800),*1 example, 15 gr.

Overlapping, flat rectangular peg tiles attached to the roofing by two nails form numerically the most common medieval roofing form. Only one abraded fragment of medieval/post medieval peg tile was recovered from [2].

Daub

Unworked slightly abraded daub attesting to the presence of timber framed wattle and daub construction in the vicinity was identified in small lumps [2] [14] [18] [27], probably associated to Prehistoric activity.

DISTRIBUTION

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date	Spot date with mortar
002	3102;2586	Abraded daub; post medieval unglazed peg tile	2	1500BC	1800	1180	1800	1180-1800	No mortar
014	3102	Abraded and burnt daub	7	1500BC	1666	1500BC	1666	1500BC-1666	No mortar
018	3102	Abraded and burnt daub	1	1500BC	1666	1500BC	1666	1500BC-1666	No mortar
027	3102	Abraded and burnt daub	1	1500BC	1666	1500BC	1666	1500BC-1666	No mortar

The value of this small assemblage lies in dating features from the Iron Age. The fragment of peg tile indicates some earlier medieval to post medieval activity around the area of investigation. No further work recommended.

APPENDIX 5: ANIMAL BONE ASSESSMENT

Assessment of animal bone recovered from Ferry Lane Industrial Estate, London Borough of Waltham Forest, E17 6HG (FYL16)

Kevin Rielly, September 2016

Introduction

An evaluation was undertaken within the former industrial estate at Ferry Lane. These excavations included an earlier evaluation (Perkins 2016) as well as the present investigation. In combination they provided evidence for natural truncation followed by some prehistoric activity, possibly Bronze Age moving into the Roman period, beneath a relatively deep series of sterile alluvial layers and eventually overlain by 19th and 20th century occupation levels. A small collection of well preserved animal bones were recovered from two of the lowermost horizons within the putative prehistoric/Roman section of the stratigraphic sequence. In addition, two bulk samples were taken from these lower levels, these as yet to be washed through and examined.

Methodology

The bone was recorded to species/taxonomic category where possible and to size class in the case of unidentifiable bones such as ribs, fragments of longbone shaft and the majority of vertebra fragments. Recording follows the established techniques whereby details of the element, species, bone portion, state of fusion, wear of the dentition, anatomical measurements and taphonomic including natural and anthropogenic modifications to the bone were registered. The sample collections will be washed through a modified Siraf tank using a 1mm mesh and the subsequent residues will be air dried and sorted.

Description of faunal assemblage

The site provided a total of eight animal bones (as shown in Table 1), arising from the fill of a palaeochannel [18] with three bones and the remainder from an alluvial sandy deposit [14], this described as a foreshore sandbank located below the aforementioned palaeochannel. While the latter deposit does appear to date to the prehistoric era, the upper level could be a little later, possibly Roman. None of these bones showed butchery marks and it is perhaps significant that these bones are either complete or nearly complete. It could be supposed that the cattle bones, if not the equid (and see below) would represent food waste but the absence of butchery or obvious fragmentation may suggest otherwise. Both the humerus and the pelvis are from adult individuals, possibly the same animal, while the tooth, a deciduous third molar, is obviously from a subadult, probably aged between one and two years. The major part of the equid collection clearly forms the remains of a partial articulation, including most of the bones of the left forelimb. It is unknown if they were in articulation when discovered but this is more than likely. Damage noticed at the proximal ends of the humerus and ulna was certainly caused by dog gnawing, thus suggesting the initial means whereby this carcass was dismembered. Other parts may well have been lost prior to the deposition of this limb, as for example the phalanges, while some of the smaller bones (the carpals) may not have been recovered during the excavation of these remains. Each of these respective bones are fully fused, indicative of an animal in excess of 3 to 4 years old (ages after Schmid 1972, 75). There is a possible sign of human modification as shown by a hole (8mm diameter) through the ischial shaft of the cattle pelvis. This had clearly been pushed through from the lateral aspect of the bone, however, it cannot be readily ascertained when this puncture occurred.

Context	Species	Bone	Part
14	Equid	Lumbar vertebra	Complete
		Left humerus	Near complete
		Left radius/ulna	Radius complete and Ulna damaged at proximal end
		Left metacarpus	Complete
18	Cattle	Right humerus	Distal and most of shaft
		Left pelvis	Near complete
		Loose maxillary tooth	Complete

Table 1. Description of hand collected bones

The size of the equid making up this partial articulation would suggest it represents either a small pony or a donkey. A metacarpal lateral length of 189.7mm provides a shoulder height of 1215.9mm (after von den Driesch and Boessneck 1974) or nearly 12 hands. This would fit into the category of small ponies, generally deemed as 12.2 hands (130cm) or smaller as for example the Dartmoor and Exmoor not exceeding 12.2/12.3 hands (Summerhays 1968, 89 and 99). Donkeys vary considerably in size but tend to average about 10 to 11 hands (ibid, 40). It is clearly not possible to distinguish horse from donkey by their size or indeed from other individual measurements. However, a method has been devised using a range of dimensions, principally using the metacarpus and the metatarsus (after Eisenmann and Bekouche 1986). Various measurements, taken from the bone to be identified are contrasted with similar dimensions taken from a number of metacarpals or metatarsals from known onager skeletons. This comparison translates these measurements into log ratios, the values derived from the bone to be tested contrasted with the 'base' values from the onager (as shown in Figure 1, also including data derived from various other equid types). The points to look out for (ibid, 125) are the differences between the greatest length (measure 1) and the breadth (measure 3) and depth (measure 4) of this skeletal part at the midshaft. There is a notably greater upward angle between measure 1 and 3 as well as a steeper downward angle between measure 3 and 4 in the horse (including the ponies) compared to the donkey. The specimen from this site is certainly closer to the pattern provided by the latter species which would suggest that it is far more likely to represent a donkey than a horse.

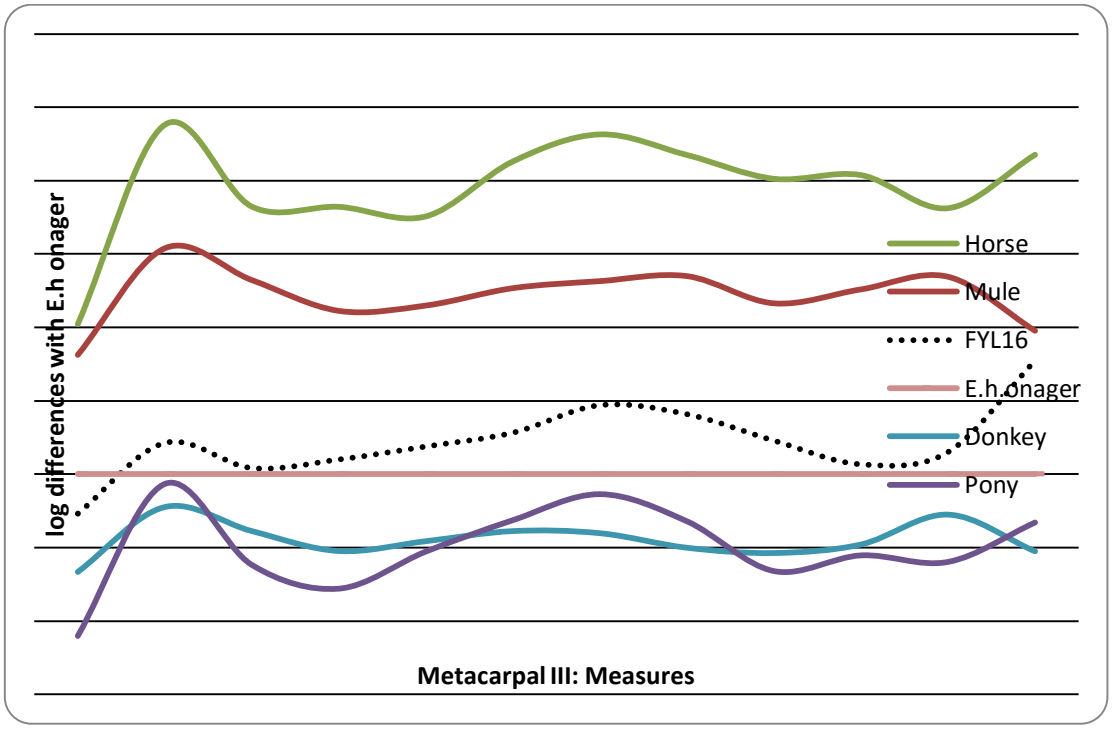

Figure 1. Ratio diagrams of an equid metacarpal from [14] compared with published mean dimensions of equid species and hybrids (Eisenmann and Bekouche, 1986).

Conclusion and recommendations for further work

These few bones demonstrate the use, in this area, of cattle and a small equid. It can be suggested due to the level of fragmentation (and perhaps absence of butchery marks, here disregarding the punctured hole noticed on the cattle pelvis) of the former and the articulation of the latter that little use was made of their respective post-mortem parts. However, if as seems likely, these deposits date to the prehistoric era or possibly relate to a rural Roman community, it should be mentioned that the butchery methods employed may not be conducive to the creation of butchery marks. There is little doubt that the use of metal knives and/or flint implements for butchery purposes will tend to leave few if any marks on the bone, at least in comparison to the utilisation of metal cleavers (typically used in Roman urban centres) for similar purposes (after Maltby 1989). Nevertheless these few bones do suggest some form of human occupation in the general locality, the palaeochannel collection suggesting the use of sub-adult as well as adult cattle, the waterlain deposits indicative of riverine pastures suitable for the keeping and breeding of this large domesticate.

The identification of the small equid is of paramount importance, largely due to the rather small number of donkey bones found at British archaeological sites, and in particular from prehistoric levels. Fifteen bones identified as definite or probable donkeys or mules are listed in Johnstone (2010, 22) taken from Iron Age and Roman levels, of which four are taken from the earlier period. These include two probable donkeys from Danebury as well as a definite donkey and a probable mule from Thorpe Thewles. All of these were 'identified' using a Discriminant Function analysis (as described in Jonstone 2004 and 2006) incorporating a wider range of limb bones in comparison to just the metapodials used by Eisenmann and Bekouche (1986). It would certainly be beneficial to apply this method to the small equid bones found at this site, here incorporating the radius as well as the metacarpus, both of which were complete. Obviously, prior to any such analyses, it should be established whether these bones do indeed belong to the prehistoric era. To confirm this it is recommended that a portion of these bones should be sent off for carbon dating and in addition that the accompanying wooden pilings be subjected to carbon dating.

Finally, it would be of interest to study the size of the cattle bones with the intention of perhaps establishing their date of deposition by comparison with size data from Bronze Age and Roman levels from sites in the general vicinity, a good start being the wealth of information available from Elms Farm, Heybridge in Essex (Johnstone and Albarella 2002) and further expounded in Albarella et al (2008).

As previously mentioned, the bulk samples from the bone bearing horizons have yet to be washed and sorted. These may well provide additional faunal material, perhaps concerning the meat diet of the local populace and/or various species which can be used to demonstrate the environmental conditions at their time of deposition.

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APPENDIX 6: LITHIC ASSESSMENT

Burnt flint assessment (FYL16)

Chris Jarrett

A total of 26 fragments (633g) of mostly grey coloured burnt flint, dating to the prehistoric period, was recovered from the archaeological work and this was found in two contexts. Context [14] produced 24 fragments (518g) and context [18] yielded 26 fragments (633g) of burnt flint. The burnt flint was most likely to have been used as heated stones to cook food in ceramic or metal vessels.

The burnt flint has little significance except to infer prehistoric activity on the site. Its only potential is to broadly date the context it was recovered from and imply that cooking activities were occurring on or close to the site during the prehistoric period. There are no recommendations for further work on the material and if a publication text is required then the information should be taken from this report.

APPENDIX 7: FIRED CLAY ASSESSMENT

Prehistoric fired clay objects (FYL16)

Chris Jarrett

A total of nine fragments (146g) of prehistoric fired clay, representing two objects, was recovered solely from context [14]. The largest fragment (98g) is a conical item with a maximum diameter of 90mm and it has a central circular piercing, *c*. 20mm in diameter. The item's fabric can be described as soft with a reduced exterior and oxidised core, besides being composed of a fine sandy matrix with very occasional fine white flint. The item cannot be paralleled to any other examples and probably represents a weight of some type. It does not appear to represent a Bronze Age or Iron Age triangular 'loomweight' as the piercings on these items are located differently. The second fired clay object is very fragmentary (six fragments, 48g) and its fabric can be described as hard or high-fired, marbled, with fine sandy inclusions and occasional ill-sorted larger quartzes and has both reduced and oxidised surfaces. Two of the fragments have rounded surfaces and are likely to represent a weight.

The fired clay objects are of interest for demonstrating prehistoric activity on the site and broadly date the context that they were recovered from. There are no recommendations for further work at this stage, although if further archaeological work should occur on the study area (and more fired clay objects are recovered) then their importance should be reassessed.

APPENDIX 8: ENVIRONMENTAL ASSESSMENT

[Quest report]

APPENDIX 9: WATERLOGGED WOOD

Summary assessment notes on waterlogged wood found at Ferry Lane,

NE London; PCA site code FYL 16

DM Goodburn

Background and terms of reference of this report

This writer was asked to process, record and provisionally assess this possibly prehistoric assemblage of waterlogged wood including obviously worked items. For wider details of the archaeological site, such as the organisation of the site work, stratigraphy, and geological background readers should see the main site report by W. Perkins.

The site is located in the Lea Valley next to Ferry Lane, now an area dominated by reservoirs. Previous archaeological work in the valley has shown that in the historic and earlier periods the valley contained many natural and humanly altered channels that were highly mobile over time. It is also known that there were many scouring episodes and others of deposition. Much of the valley bottom has a high water table today and the southern end surrounds tidal channels. The OD levels recorded on the tops of the horizontal waterlogged wood found were in the region of + 5.9m OD, indicating that the deposits that contained them were laid down in fresh water riverine conditions, well above possible tidal regimes. Trench 3, where the wood was found, was dominated in the west by a sand bank [14] and palaeochannel [18] to the east.

The prehistoric waterlogged woodwork from most of the east London sites has been found at much lower OD levels in what became the tidal flood plain of the Thames and adjacent wetlands rarely higher than +1.0m OD. The geo-archaeological work on the site will help refine our understanding of the context of the human activity greatly.

Background to recording prehistoric waterlogged woodwork in the London area in brief

Resources only allow the briefest summary of previous related archaeological work on very early waterlogged wood from London. Though not as well known as Somerset, the Severn estuary and the Fens as an area with waterlogged prehistoric sites, a variety of sites have been excavated systematically in Greater London since the mid 1980s. The vast majority of these sites lay at lower OD levels on the Thames estuary flood plain and lower tributary channels particularly in the Beckton area (Meddens 1996) . More recently large infra structure projects such as the A13 extension and 2012 Olympics project have revealed a variety of sites with preserved prehistoric woodwork dating from the Neolithic, early, middle and late Bronze Ages and a smaller amount of Iron Age woodwork has also been found (See Stafford, Goodburn and Bates 2012, - contains detailed accounts of prehistoric waterlogged sites to the south east of Ferry Lane, typical stratigraphy on the flood plain and summaries of many of the key Greater London prehistoric wetland sites *) . This writer has been involved with the vast majority of this work over the last thirty years and patterns in the evidence, such as changing tool mark form and size, have started to emerge. These variations in the evidence have been dated by C14 and can be set beside similar evidence from other wetland areas of Britain.

Methodology

The waterlogged wood was revealed during a combination of controlled machine excavation with a ditching bucket and hand excavation, thus the very tops of several of the timbers did receive a little damage. Once located hand excavation proceeded with the box sectioning of the three solid and well preserved stake tips (see Plates in main text) The material was then gently lifted and double wrapped with sediment adhering. Off site it was washed, drawn and recorded by this author and initial site records up dated. Several photographs were also taken by PCA staff of the cleaned stake tips. Finally, C14 samples were taken of stake [22] and

microscopic species Id samples taken from items, [15], [17], [20], [21], and [24] (The species Id samples can also be used for C14 if needed). The oak roundwood had too few rings for tree-ring dating to be attempted. Most of the non-oak material is probably alder. This methodology is broadly commensurate with HE Guidelines on Waterlogged wood and established practice in the region (Brunning 1996).

Provisional summary of the small assemblage waterlogged wood found in Trench 3 and its possible date range

The small assemblage of ancient waterlogged wood found was widely distributed across Trench 3, probably mainly as a result of uneven, fairly recent, truncation. Alternatively the widely dispersed elements could indicate that the human activity in the area was quite limited and the main centre of activity lay a short distance away? The humanly altered material included three roundwood stake tips in situ, the largest was substantial at 110mm in dia. These were found heavily truncated in the fill of Palaeochannel [18] but as they are only the tips of stakes they must be relics of structures erected at a substantially higher level. The other material appeared to be washed into the site and included two partially charred items, possibly firewood, and one cleft pole section that may have been a stake originally. The small amount of worked material prevents easy interpretation of the original function of the stakes.

The small rounded axe marks on the stake tips are best paralleled in the Bronze Age. However, the small number of clear tool marks and lack of completeness of the marks does not allow us to be more precise. On the basis of the condition of the woodwork, toolmarks and stratigraphy a late prehistoric date currently seems fairly certain and will hopefully be confirmed and tightened with C14 dating in due course.

Outline details of the waterlogged wood found in Trench 3

Timber [15], a post base

This timber was found as a 'post' base set into a gravel layer c. 200mm (W Perkins Pers Com.). It survived 0.19m long by 150mm dia. One end appeared be the rotted top, but what would have been the base was roughly flat with no clear tool marks. Most of the timber had a bark covering whilst one face was split off leaving a 'D' shaped cross section. The species was uncertain though probably alder and was sampled for species Id.

Timber [17], a partially charred branch

This item was found horizontal in the fill of palaeo channel [18]. It was an apparently unaltered branch with one heavily charred end surviving 0.82m long by 55mm in dia and was probably partially burnt firewood.

Timber [20], a weathered drift log

This item was abraded, weathered and rolled indicating it had been deposited by water. No tool marks were found. It survived 0.54m long by 220m dia.

Timber [21], a weathered stake out of situ

This timber was a cleft ¼ pole and was abraded and weathered with one broken end and the other had a worn point. It had a surviving length of 0.97m width of 95mm by 50mm thick. The tip had concave sides, as if cut with a small axe with a rounded blade. It was probably a stake originally. The species was uncertain and sampled and probably alder.

Timber [22], a stake tip in situ

This item was a stake in situ surviving 0.355m (The site photo suggests it was originally longer) to its machined top with a dia. of 110mm. It had been roughly hewn from a fast grown oak pole just over 20 years old, probably of coppice origin. It had a three facetted tip with clear incomplete rounded axe stop marks up to c. 35mm wide (See record drawing). These tool marks are best paralleled in the Bronze Age.

Timber [23], a stake tip in situ

This item was similar to stake [23] but more truncated with a surviving length of only 0.2m long with a dia. of 78mm. It had also been hewn from a fast grown oak pole with a small bladed metal axe, leaving incomplete axe stop marks up to 40mm wide. The tip was of a pencil form. As this stake was only the very tip it must have been driven from much higher up than the 5.68m OD noted, at perhaps 6.2m OD or more. As these two stakes, [22] and [23], were similar and found close together on the east side of the trench it is likely that they were part of a structure that ran north-east south-west.

Timber [24], a stake tip in situ

This stake lay to the north-west of the two oak stakes and was of uncertain species (Possibly, willow, poplar or alder) which was sampled for microscopic species ID. It survived 0.37m long with a dia of 90mm. The tip had a three facetted form. The rounded smooth axe stop marks appeared nearly complete at c. 55mm wide and were of typical Bronze Age form. The axe marks were a little wider than is typical for LBA axe marks in the London region, perhaps suggesting an MBA rather than LBA date but this is far from conclusive (Most MBA axe marks typically being wider than LBA examples, Iron Age axe marks are typically wider still and less concave*).

Timber [31], a burnt crooked piece from the section

This item was dug out of palaeochannel [18] fill in the northern section of Trench 3. It was a crooked, cross section of oak with one broken and charred end and one probably axe cross cut. It must have been cut from the upper part of a medium sized parent tree, but had insufficient tree-rings to attempt dendro dating.

Initial thoughts on the significance of the woodwork

This small assemblage of what appears to be late prehistoric woodwork of likely Bronze Age date has to be acknowledged as modest in size. It can provisionally be described as of local, and regional significance, particularly as it derives from well up the River Lea tributary of the Thames. To date very little detail has been published about assemblages of waterlogged prehistoric woodwork found well into the fresh water zones of Greater London's river valleys, compared to that from the estuary floodplain zones.

The potential for further analysis

After further geo-archaeological, environmental archaeological and stratigraphic work has been completed and targeted C14 dates obtained, the material can be compared with key assemblages from the area. This comparison could include reference to other sites further up the Thames estuary tributaries such as investigation by PCA in the River Rom valley, work by the joint PCA/ MOLA team for the Olympics project lower down the Lea Valley itself and work by Wessex Archaeology somewhat to the north. This analysis work would set the material and archaeology of the site as a whole better in context.

Suggestions for a targeted, specialist contribution to the analysis/ Publication report for the project

Following the completion of the other specialist work noted above a short revised, more fully referenced, report on this woodwork could be completed in c. 1.5 days depending on the format desired. This report should include clear illustration of the key worked wood including at least one photograph and several scale drawings based on the detailed record drawings.

Acknowledgements

Thanks are due to Wayne Perkins and other PCA staff for supplying rapid summary information about the site, including scale plans, photographs etc.

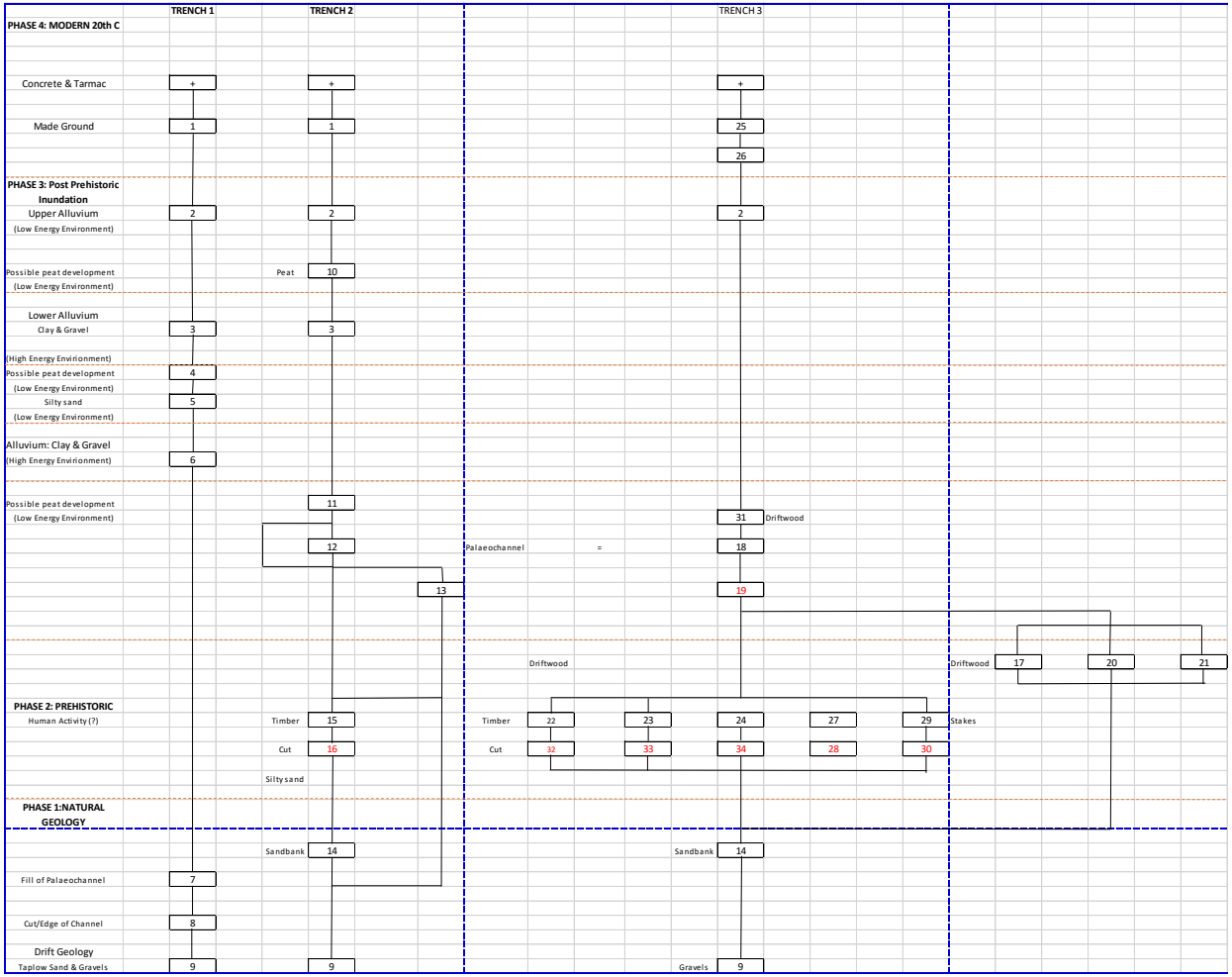
Select references

Brunning, R, 1996 *Waterlogged Wood, English Heritage Guidelines 2nd edition* (The most practically applicable edition..)

Meddens, F, 1996 *Sites from the Thames estuary wetlands, England and their Bronze Age use*, Antiquity :70, 325-332

Stafford, L, Goodburn, D, and Bates, M, 2012 *Landscape and prehistory of the east London wetlands; Investigations along the A13 DBFO road scheme, Tower Hamlets, Newham, and Barking and Dagenham,* Oxford Archaeology Mono No17

APPENDIX 10: MATRIX



APPENDIX 11: OASIS FORM

OASIS ID: preconst1-264131

Project details

Project name	Ferry Lane Industrial Estate, Walthamstow, Waltham Forest, E17 6HG
Short description of the project	An archaeological evaluation was carried out at Ferry Lane Walthamstow. Three trenches were excavated across the site to the top of the natural gravel. A total of four wooden timbers were found driven into the underlying gravel terrace, three of which had been sharpened to a point and the carpentry facets were clearly visible. The timbers have been provisionally dated to the Bronze Age. This timber structure, possibly a fish trap, was supplemented by finds from the sandbank itself consisting of burnt flint, fragmentary daub and a partial clay weight with a suspension hole - this was interpreted as a fishnet weight. Animal bone recovered from the same context turned out to be a donkey or small pack animal, an unusual find from the prehistoric period and usually associated with Roman contexts.
Project dates	Start: 23-05-2016 End: 22-09-2016
Previous/future work	Yes / Not known
Any associated project reference codes	FYL16 - Sitecode
Type of project	Field evaluation
Site status	Local Authority Designated Archaeological Area
Site status (other)	Archaeological Priority Zone (APZ1)
Current Land use	Industry and Commerce 4 - Storage and warehousing
Monument type	WOODEN STAKES Late Bronze Age
Significant Finds	FISH NET OR LOOM WEIGHT Iron Age
Methods & techniques	"Sample Trenches"
Development type	Urban residential (e.g. flats, houses, etc.)

Prompt	Planning condition
Position in the planning process	After outline determination (eg. As a reserved matter)

Project location

Country	England
Site location	GREATER LONDON WALTHAM FOREST WALTHAMSTOW Ferry Lane Industrial Estate
Postcode	E17 6HG
Study area	1.03 Hectares
Site coordinates	TQ 35637 89469 51.587237269768 -0.041919147087 51 35 14 N 000 02 30 W Point
Height OD / Depth	Min: 4.84m Max: 6.42m

Project creators

Name of Organisation	PCA
Project brief originator	WSP Environmental
Project design originator	Andrew Rudge
Project director/manager	Helen Hawkins
Project supervisor	Wayne Perkins
Type of sponsor/funding body	Legal and General Partners Services Limited
Name of sponsor/funding body	Legal And General

Project archives

Physical Archive recipient	LAARC
Physical Archive ID	FYL16
Physical Contents	"Animal Bones","Ceramics","Environmental","Glass","Wood"
Digital Archive recipient	LAARC
Digital Archive ID	FYL16
Digital Contents	"Animal Bones","Ceramics","Environmental","Glass","Wood"
Digital Media available	"Database","Images raster / digital photography","Survey","Text"
Paper Archive recipient	LAARC
Paper Archive ID	FYL16
Paper Contents	"none"
Paper Media available	"Context sheet","Drawing","Matrices","Photograph","Plan","Report","Section","Survey ","Unpublished Text"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Ferry Lane Industrial Estate, Walthamstow, Waltham Forest, E17 6HG: An Archaeological Evaluation
Author(s)/Editor(s)	Perkins, W
Date	2016

Issuer or publisher	PCA
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Entered by	archive (archive@pre-construct.com)
Entered on	21 October 2016

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