Deepham's Sewage Works Edmonton Greater London



Geoarchaeological Watching Brief Report



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Issue	Prepared by	Checked by	Approved by	Signature
	Carl Champness	Liz Stafford	Liz Stafford	
1	Geoarchaeologist	Head of	Head of	
	_	Geoarchaeological	Geoarchaeological	AND
		Services	Services	\mathcal{O}

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Janus House Osney Mead Oxford OX2 0ES t: +44 (0) 1865 263800 e: oasouth@thehumanjourney.net f: +44 (0) 1865 793496 w: oasouth.thehumanjourney.net Oxford Archaeological Unit Limited is a Registered Charity No: 285627



Deepham's Sewage Works, Edmonton,

London Borough of Enfield

Geoarchaeological Watching Brief Report

Written by Carl Champness

illustrated by Julia Moxham

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Summary

In May 2010 Oxford Archaeology South (OAS) were commissioned by Thames Water Ltd to maintain a Watching Brief on geotechnical boreholes at Deepham's Sewage Works, Edmonton, Greater London. The purpose of the field investigation was to provide baseline data on the underlying sedimentary sequence at the Site, which lies partly on the floodplain just to the west of the River Lea. This work forms part of an initial phase of archaeological investigation aimed at assessing the archaeological potential of the Site prior to redevelopment.

Following the recommendations of the previous desk-based assessment, and in consultation with Greater London Archaeological Advisory Service and Thames Water, five out of the eight borehole locations were selected for monitoring. A 2m deep Holocene alluvial sequence was recorded towards the east of Site in BHMW8. This comprised minerogenic silts and sands with inter-bedded organic silt and peat deposits. The alluvial sequence overlay the Pleistocene gravels at +6.90m OD. No evidence of archaeological activity was identified, although similar peat deposits in the area are known to preserve remains dating from the Neolithic to Bronze Age. The waterlogged condition of the sediments also have excellent potential to preserve organic remains suitable for palaeoenvironmental reconstruction.

The remaining boreholes (BHMW1-7) encountered the Pleistocene gravels at higher elevations, between +10.40m and +10.10m OD, suggesting the gravel terrace is located towards the northwest of the Site. This is confirmed by the geological mapping of the area that suggests the terrace edge crosses the center of the Site on a north-south alignment. Victorian and Modern make-up deposits were also identified overlying Langley Silts in this area, with clear signs of truncation in some areas down to Pleistocene gravel.

This initial phase of work suggests in prehistory the Site would have been located at the interface of an important ecotonal zone, between the gravel terrace and floodplain. Topographically these areas are known to have been a focus of activity in the past due to the abundance of wetland resources available for exploitation, as well as the close proximity of dry ground suitable for more permanent settlement.



Deepham's Sewage Works, Edmonton

Geoarchaeological Watching Brief Report

1 INTRODUCTION

1.1 Location and scope of work

- 1.1.1 In May 2010 Oxford Archaeology South (OAS) was commissioned by Thames Water Utilities Ltd to maintain a geoarchaeological Watching Brief during a programme of geotechnical boreholes within the Deepham's Sewage Works, Edmonton.
- 1.1.2 Kim Stabler, Archaeological Officer for Greater London Archaeological Advisory Service (GLAAS) and Thames Water requested that a selection of the boreholes (BHMW1-8) be monitored by a suitably qualified geoarchaeologist in order to better understand the alluvial stratigraphy and buried palaeotopography. The results of the work will contribute to the assessment of archaeological potential and inform future mitigation strategies associated with the redevelopment of the Site.

1.2 Geology and topography

- 1.2.1 The site is located in the Deepham Sewage Treament Works, Pickett's Lock Lane, Edmonton, London Borough of Enfield (NGR: TQ 3580 9350). The area is occupied by slurry lagoons surrounded by earthwork bunds (Figure 1). The rest of the site comprises work's buildings, with areas of hard standing and storage tanks.
- 1.2.2 The Site lies on the western edge of the River Lea, a tributary of the River Thames, and extends across the former floodplain that was reclaimed during the post medieval period. The site lies between +15m and +10m OD, sloping down towards the river.
- 1.2.3 The drift geology of the area is mapped as alluvium to the east and Kempton Gravel to the northwest (BGS sheet 256 1:50,000). Previous geotechnical and archaeological investigations at the site have identified a sequence of alluvium, marls, brickearth and peat deposits underlying thick deposits of made-ground.
- 1.2.4 The Quaternary history of the Lea Valley has been previously summarised in Gibbard (1994, 109-112). The floodplain gravel is known as the "Lea Valley Gravel", a member which includes the gravel and sand units that underlie the modern floodplain and the "Lower Terrace", 1-2m above the floodplain on the western bank (Warren 1916). Contained within these gravels are organic rich deposits dating from the last glaciation known as the Lea Valley Arctic Beds (Gibbard 1994, 109).

1.3 Archaeological and historical background

1.3.1 The archaeological potential of the Site has been previously outlined in the desk-based assessment (Lewis 1995) which is summarised in the following sections.

Prehistoric (500,000BC – 43AD)

1.3.2 The prehistoric period is represented in the area by relatively few findspots. The earliest remains include Palaeolithic and Mesolithic flint artefacts, mostly recovered from the floodplain or riverine locations.

- 1.3.3 By the Bronze Age there is evidence to suggest that large areas of London were being organised into co-axial field systems serviced by droveways and waterholes. On the floodplain of the Thames and its tributaries such as the Rivers Lea and Colne, there is evidence for rising water-levels and correspondingly the construction of wooden trackways and platforms.
- 1.3.4 Bronze Age finds from the area are more frequent and tend to be found in these waterlain or peat contexts. Some are clearly utilitarian tools lost by accident, others; a rapier, spearhead and shield, may reflect ceremonial or ritually placed deposits. Excavations to the north of the site at Rammey Marsh, has also revealed a complex sequence of occupation and land division of Bronze Age date (Wessex Archaeology 1997).
- 1.3.5 Finds of prestigious metalwork from alluvial contexts during the Iron Age may represent a continuation of ritual offerings within water bodies. Pottery, coins and metalwork within the wider area would also suggest some settlement within the surrounding river terraces.
- 1.3.6 Low-lying floodplain locations were preferably settled and utilised in Mesolithic and Neolithic times (Clarke 1976). During later prehistory when flooding and ground water became more of an issue (Lambrick and Robinson 1984), Bronze Age and Iron Age occupation appears to have retreated to the terrace edges and islands of the floodplain. Evidence of 'gravel islands' and terrace edges within the site area have been previously mapped by Lewis (1995).

Roman (43AD – 450AD)

- 1.3.7 In the Roman period, Londinium (London) developed into an urban centre and later the provincial capital of Roman Britain (Perring and Bridgham 2000). A network of roads were constructed that connected London to the regional centres, such as Lindium Colonia (Lincoln). The Roman road to Lincoln runs just to the west of the site.
- 1.3.8 Roman remains are well represented within the area surrounding the Site with the emphasis of activity along the corridor of the Roman road. Finds of pottery, coins and metal work would suggest a largely settled landscape at this time.

Medieval (450AD – 1539AD)

- 1.3.9 After the Romans left London the city fell into decline. There is little documentary evidence for Saxon Lundenwic, and even less for the outlying areas. Evidence of Saxon activity in the area of the Site is not well represented, but settlement activity has been identified at Edmonton and Lower Hall Lane.
- 1.3.10 In contrast, later medieval activity from the area is well-represented by a large number of known sites and findspots. Deepham's Manor House lies just to the north of the Site beneath the retained area of the sewage works.

Post-medieval to Modern (1539AD onwards)

- 1.3.11 During the post medieval period the area was predominantly used for mixed agriculture associated with the Deepham's Manor Farm. In 1952, the Manor is recorded as owning 25 bullocks, oxen, horses, pigs geese and chickens.
- 1.3.12 It was not until the 1870's that the sewage works were constructed on the former Deepham's Farm and the works were extended to cover 200 acres in 1927. The construction of the works will have had a major impact on the archaeological survival at the site. However, the previous borehole records do reveal areas of intact alluvial



deposits towards the south. No work has previously been undertaken to the north in the area of the current Site and the level of survival is unknown.

1.3.13 Quarrying of brickearth and gravel is widely known to have occurred in the area, in particular to the north of the Deepham's site at Picketts Lock. These works continued to be exploited until 1951.

Previous archaeological Investigations

- 1.3.14 The archaeological potential of the Site was highlighted in the desk-based assessment (Lewis 1995). This study identified significant archaeological deposits in the area and suggested that similar deposits could extend into the Site. The study also identified, through the examination of geotechnical boreholes, the presence of buried peat deposits, sealed beneath alluvium and found in association with gravel islands. It concluded that the Site has high potential to preserve early prehistoric archaeology associated with buried land surfaces.
- 1.3.15 Two phases of field evaluation were undertaken in 2001 in order to investigate the archaeological potential towards the south of the Site. The first phase (Pine 2001) was targeted on the deposits and topographic features identified in the desk-based assessment. No archaeological features or deposits were identified during the evaluation. Deposits of made ground up to 1m in thickness were recorded sealing a sequence of alluvium and laterally extensive peat.
- 1.3.16 The second phase of evaluation also produced no evidence of archaeological deposits or artefacts of interest (Hull & Ford 2001). The peat deposits identified during the trenching were further sampled and three samples were processed for radiocarbon dating. The remains of a land surface, developed on the surface of the gravel, produced an early Mesolithic date (KIA-14505: 6870±46 BP). The main peat body identified within the sequence formed between the Neolithic and Bronze Age (KIA-14506: 3820±48 BP), but the start of minerogenic accumulation could not be accurately established due to issues of contamination.
- 1.3.17 A watching brief was also maintained between January and December 2001 on all intrusive works. Again no archaeological deposits were identified and some areas revealed evidence of severe disturbance.
- 1.3.18 A desk-based assessment to the north of the Site, at Ponder's End (OA 2009), identified a former meander of the River Lea through the study of historical boreholes. Again the potential of channel-edge environments were thought to have a high archaeological potential.

1.4 Acknowledgements

1.4.1 OA would like to thank Claire Hallybone of Thames Water who facilitated the works and for her advice during the project. The fieldwork and reporting was undertaken by Christof Heistermann and Carl Champness. The project was managed by Liz Stafford.



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2 EVALUATION AIMS AND METHODOLOGY

2.1 Aims

- 2.1.1 The main objective of the borehole monitoring was to provide baseline data on the sedimentary sequence that underlies the Site. The following is a summary of the specific aims of the investigation, developed to include a consideration of wider regional issues outlined in the Historic Environment Research Strategy for Greater London (2008):
- 2.1.2 The main aims of the Watching Brief were to;
 - describe and interpret the sediment sequence from the borehole samples, and to take palaeoenvironmental samples where possible;
 - identify significant variations in the deposit sequence indicative of localised features such as topographic highs or palaeochannels;
 - identify the location and extent of any waterlogged organic deposits and address the potential and likely locations for the preservation of archaeological and palaeoenvironmental remains;
 - identify any archaeological remains (if present) or deposits that the development may remove or impact upon during any future work;
 - re-assess the archaeological significance of the site and whether further mitigation should be recommended;
- 2.1.3 The regional research aims were to;
 - place the site within the wider archaeological and geoarchaeological studies of the Lea Valley.
 - investigate evidence of relative sea-level change within sequences that will help to provide broad period maps showing major channels, islands, promontories and wetland edge for major periods.

2.2 Methodology

- 2.2.1 Eight geotechnical boreholes were undertaken on behalf ofThames Water within the Deepham's Sewage Works. Three of the boreholes (BHMW1, BHMW2, and BHMW8) were identified as requiring specialist geoarchaeological monitoring due to the fact they were located on either the floodplain or its margins. The five remaining boreholes were all located on the gravel terrace (BHMW3-BHMW7) which initially produced very similar sequences. Consequently only two of these boreholes were monitored (BHMW3 and BHMW7). The borehole locations are illustrated in Figure 2.
- 2.2.2 The drilling was undertaken by Structural Soils Ltd and samples were retrieved as disturbed stratified bulk samples using a shell and auger cable percussion rig. At each sampling location an OA geoarchaeologist monitored the drilling and logged the samples on-site. The sediment sequence in each borehole was recorded on a summary proforma sheet which included information on sample numbers and location with reference to Ordnance Datum and the National Grid.
- 2.2.3 The sediments were logged according to Jones *et al* 1999 *The Description and Analysis of Quaternary Stratigraphic Field Sections,* Technical Guide No 7, Quaternary Research Association 1999, and included information about depth, texture, composition, colour, clast orientation, structure (bedding, ped characteristics etc) and contacts between deposits. Note was also made of any visible ecofactual, or artefactual



inclusions e.g. pottery, daub or charcoal fragments. Samples for further description and/or palaeoenvironmental remains were retrieved opportunistically.



3 Results

3.1 Introduction

- 3.1.1 The results presented in the main text of this report provide an overview of the findings of the Watching Brief. The detailed borehole descriptions are included in Appendix A.
- 3.1.2 Each sedimentary unit is referred to in terms of positive depths below borehole ground level (bgl) and metres above sea-level (m OD). The results of the Watching Brief are discussed in terms of both the individual and site-wide sequences.

3.2 General soils and ground conditions

- 3.2.1 The soils and sediments recorded throughout the Site were found to be quite variable, especially in the upper part of the sequence where a significant amount of ground disturbance and in-filling was identified.
- 3.2.2 The majority of the boreholes were drilled in their intended locations and were able to reach full depth to bedrock. Borehole BHMW8 was relocated on several occasions (BHMW8a-c) due to the presence of buried services and a concrete surface located *c* 1m below the present ground level.

3.3 Description of the sedimentary sequence

3.3.1 Based on the results of the borehole samples a broad sequence of stratigraphic units can be identified. Assignment of individual lithologies to these units is based on texture, nature of inclusions and sedimentary contacts. It should be noted, however, the sequence is based on the data from only five boreholes and therefore is not necessarily wholly representative of the entire site sequence. Discrete sedimentary parcels can often occur in fluvial active environments due to variations in local topography.

Pre-Holocene Deposits

- 3.3.2 **Bedrock:** The London Clay was reached in all of the boreholes and comprised a stiff to firm bluish grey clay. These deposits were identified at a depth of between 5.50m and 7.70m bgl (+5.90m and +4.40m OD). The surface of the clay appeared weathered in places with lenses of grey fine sand. The overlying gravels were on average 4.59m in thickness on the gravel terrace (Kempton Park Gravels) and 2.6m on the floodplain (Lea Valley Gravels).
- 3.3.3 **Sandy Gravels:** These deposits were encountered at a depth between 1.00m (+10.40m OD) and 5.20m bgl (+6.90m OD), at the bottom of the sequence. They comprised loose light yellowish brown fine to medium sandy gravel, with inter-stratified bands (20-30mm) of moderately firm greyish brown coarse silty sand. At depth these deposits contained well sorted sub-rounded to sub-angular chert pebbles (30-70%)
- 3.3.4 Based on the elevation of the gravels a basic cross-section of the Site has been created (Figure 3). The gravels appear to dip from west to east towards the River Lea. The edge of the gravel terrace is identified towards the west of the Site and is present in all but one of the boreholes (BHMW8), which was located on the floodplain. The terrace gravels were identified at depths of between 1m to 2m (+10.40m and +10.10m OD) below the present ground surface.
- 3.3.5 The surface of the gravel essentially defines the topography of the early Holocene landscape. Bates (1998) refers to this as the 'topographic template' and suggests that variations in the template largely dictated patterns of landscape evolution, as flooding



and sedimentation ensued during the prehistoric period. At terrace edge situations and in areas of complex palaeotopography, sedimentation patterns can often change significantly over a short distance.

3.3.6 As highlighted in the desk-based assessment, low-lying gravel islands and promontories will have been very attractive locations for hunting and fishing camps during the early prehistoric period and have previously been associated with *in-situ* flint scatters. Such features are likely to be present on the Site considering its position and the results of the previous sub-surface mapping in the area. Any finds recovered from within the gravels themselves, will have undergone a high degree of transportation and are likely to be abraded. However, at least 20 palaeolithic handaxes have been recovered from the gravels within the area.

Holocene sedimentary sequence

- 3.3.7 The floodplain sequence was only recorded to east of the Site in BHMW8. A 5.20m deep sequence was recorded within this area comprising minerogenic sands and silty clays, with inter-bedded organic silts and peats.
- 3.3.8 **Lower organic silts/sands:** A sequence of organic sands were identified just above the surface of the gravels between 5.20m and 4.80m bgl. These deposits comprised humic or peaty sands directly grading up-profile into light brownish grey fine sand and sandy clay. The lower part of the sequence showed signs of rooting and stabilization suggesting that it may have developed into a floodplain surface. The inclusion of small angular gravel inclusions may indicate periodic high energy flooding of this surface. The overlying more minerogenic deposits indicate higher energy deposition and may reflect increasing fluvial activity and flooding during later periods.
- 3.3.9 The archaeological potential of these deposits will be determined by the extent to which a stabilized land surface developed on the floodplain during this time and by how much it survived later fluvial erosion.
- 3.3.10 **Organic silts and Peats:** A soft blackish brown organic silty clay with peaty inclusions was identified overlying the sands between 4.80m and 4.00m bgl (+7.30m OD and +8.10m OD). In places this deposit contained rare plant and reed inclusions, that have the potential for palaeoenvironmental assessment and dating work. When taking into account the limitations of the sampling method, it is possible that a more intact sequence of peat exists than was possible to record. Occasional sub-angular inclusions were noted near the base of this sequence.
- 3.3.11 These low-energy deposits represent the encroachment of vegetation on the floodplain, probably as an indirect result of fluctuating sea-levels in the Thames Estuary. Extensive peat deposits, indicative of alder and willow carr environments appear to have become widely established on the floodplain of the Thames and its tributaries valleys during the Neolithic and Bronze Age (Long *et. al.* 2000; Sidell *et. al.* 2000 & 2004 and Bates *et. al.* 2004). Not all of the peat sequence is likely to be contemporary and a mosaic of different wetland environments ranging from carr to reedswamp, probably existed at the same time on the floodplain.
- 3.3.12 Artefacts associated with these peat deposits are likely to have undergone only limited lateral transportation and would have been rapidly sealed by later flooding. Material recovered from this period is likely to be of significant value representing well-preserved and possibly *in-situ* early prehistoric activity.



- 3.3.13 **Upper Silty Clay:** These deposits consist of soft light-grey to greyish-brown sandy clays and silty clays, occasionally with organic peat lenses at the base. They were recorded to 1.0m in thickness at approximately +9.10m OD to +8.10m OD.
- 3.3.14 Previous environmental studies in the Thames and its tributaries record a similar sequence of minerogenic silts overlying peat, reflecting rising water-level and increased alluviation on the floodplain. Similar evidence for increased flooding and rising water-levels during the later prehistoric period are recorded in the mid and upper Thames Valley (Lambrick and Robinson 1984). It is possible that large-scale deforestation played a significant role in increased flooding and rising water-levels of floodplain environments during this period.
- 3.3.15 Any artefacts identified within these silty clay deposits are likely to have undergone a moderate degree of lateral transportation and possible size sorting. Human activity is likely to be found towards the terrace edges which could have acted as natural harbours. These may have been used for communications and trade, necessary for the growth of Roman and medieval activity in the area.
- 3.3.16 **Brickearth subsoil:** Brickearth deposits (Langley Silts) were identified overlying the gravel on the terrace. This comprised stiff to firm light yellowish/reddish brown sandy clay with frequent reddish and black mottling. The subsoil was between 0.50m in thickness. The notable absence of any surviving soils would suggest that the former pre-sewage works topsoil/ploughsoil had been previously removed across most of the Site.
- 3.3.17 <u>Victorian and modern make-up deposits:</u> A series of Victorian and modern make-up deposits were identified across the Site overlying the upper alluvium and terrace gravels. These varied in thickness from between 2.00m in the west to 3.00m in the east. They variously consisted of layers of gravel, humic sandy silt and redeposited alluvium.
- 3.3.18 These deposits represent ground raising and levelling activities of a similar nature to those identified throughout the area. Clearly parts of the Site appear to have been truncated by the digging of various sewage tanks and the foundations of former utility buildings. The depth of this truncation is thought to extend to a depth of 8m below current ground level.
- 3.3.19 The archaeological potential of these deposits is considered to be low and may obscure other significant archaeological deposits that may be present on the gravel surface.

3.4 Finds summary

3.4.1 The only datable finds recovered from the boreholes was a collection of Victorian willow pattern and white glaze pottery from the made-up deposits within BHMW8. Modern brick and tile was also recovered from the upper deposits to the west of the Site above the gravel terrace.



4 DISCUSSION

4.1 Reliability of field investigation

- 4.1.1 The Watching Brief was able to address most of the original aims and objectives outlined in Section 2. Overall, the work has provided a broad indication of the character of the stratified alluvial deposits across the Site. The level of interpretation, however, is limited by the fact that it relies on the records of five closely spaced boreholes. Discrete sedimentary parcels representing a range of environments of deposition, can occur in fluvially active environments, often associated with very local variations in topography.
- 4.1.2 Archaeological visibility during borehole surveys, by the nature of the sampling, is very low. The failure to identify cultural evidence of prehistoric or early historic date does not necessarily indicate remains are unlikely to be present at the Site.

4.2 Significance and potential

- 4.2.1 Intact waterlogged Holocene alluvial deposits appear to survive within the east of Site within the area of BHMW8. Despite evidence of truncation and the presence of thick make-up deposits, archaeological deposits may have survived better in the lower-lying areas than on the terrace gravels where a greater level of disturbance is indicated. A limited number of environmental samples were recovered from the organic/peat deposits in BHMW8. These could be used for dating or palaeoenvironmental work should this be required.
- 4.2.2 Evidence of a possible early prehistoric landsurface was detected just above the floodplain gravels at +7.10m OD. A similar sequence of deposits identified to the south of Site have been radiocarbon dated to the early Mesolithic (KIA 14505: 6870±46 BP) (Hull and Ford 2001). Previous excavations along the Lea at Broxbourne (Warren et al 1934) and along the Colne Valley (Lewis et al 1992) have demonstrated the potential of the lower alluvial deposits to contain *insitu* flint scatters dating from the late Palaeolithic to early prehistoric periods. This activity has been most commonly found associated with channel and floodplain edge environments.
- 4.2.3 The organic alluvium and peat deposits are considered to have potential for the later prehistoric periods and there is a possibility that they may preserve structures such as timber trackways, bridges or evidence of river-side occupation. Evidence of ritual or votive practices; particularly metal artefacts or deposition of human remains, may also be recovered from these deposits.
- 4.2.4 The upper alluvial deposits may preserve evidence of Roman and medieval activity on the floodplain. The environment during this later phase probably consisted of open marsh dissected by channels, with streams issuing from the terrace. Activity on the floodplain may have been intermittent or seasonal. Remains may include structures such as fishtraps or stake alignments delineating fence lines or animal pens.

4.3 Summary

- 4.3.1 The results of the investigation may be summarised as follows;
 - No archaeological remains were identified during the monitoring.
 - The Watching Brief identified intact alluvial deposits within the southeast of the Site that have survived the construction of the Sewage Works. The remaining boreholes were located on the gravel terrace which is overlain by thick make-up deposits of Victorian to Modern date.



- The alluvial sequence identified within borehole BHMW8, is considered to have a high archaeological and palaeoenvironmental potential. The waterlogged conditions increase the likelihood of the preservation of organic remains. This includes the remains of wooden structures, as well as palaeoenvironmental material dating from the Mesolithic period onwards. Such material has the potential to contextualize any archaeological remains present, as well as adding to current research data regarding the palaeoenvironmental history and evolution of the Lea floodplain in general. The presence of organic remains could also potentially provide material in which to date the sequences.
- The construction of the Sewage Works resulted in extensive deposits of make-up layers across the Site with significant truncation in the vicinity of the tanks. Away from the tanks, if truncation has occurred, it is more likely to be associated with the upper alluvium and terrace gravels. Any archaeology associated with these deposits is likely to date from the very late prehistoric, Roman and medieval periods.
- No conclusive evidence of the Lea Valley Arctic beds were identified within the sequences, but fine grain sediments were noted within the gravels.

4.4 Recommendations for further work

4.4.1 The borehole monitoring has confirmed that intact alluvial sequences are preserved within the Site area. However, greater site coverage and more detailed deposit modelling would provide a much clearer understanding of the palaeotopography and archaeological survival potential. This could be facilitated by integrating the data from approximately 300 historical borehole records from previous ground investigations carried out at the Site. This follows recommendations made within the original desk-based assessment (Lewis 1995).

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June 2010



APPENDIX A. BOREHOLE LOG SHEETS



FIELD SEDIMENT LOGGING SHEET

SITE CODE: DSW10 NG EASTING: 535777 DATE: 11/05/2010 BH NO: BHMW1 ELEVATION: 12.1 NG NORTHING: 193688.1 LOGGER: CH Depth Lithology Cores Description 0.00 0.00, 0.30 Friable very dark grey humic sandy silt with small sub-angular pebble inclusions (10-15%). Frequent rootlets with occassional modern brick inclusions.(Make-up deposit) 0.50 0.30, 0.65 Friable/stiff dark greyish brown sandy clay with large sub-rounded to sub-angular cobble inclusions. Frequent fragments of red brick and mortar identified within the deposit. (Make-up deposit). 1.00 0.65, 1.50 Friable/soft mid yellowish brown sandy clay with frequent small to large subrounded to sub-angular pebbles of gravel. Rare fragments of CBM and slag identified within the deposits (Make up deposit). 1.50 1.50, 2.00 Stiff light reddish yellow sandy clay with frequent (40%) sub-rounded and subangular gravel inclusions. (Make up deposits) 2.00 2.00, 3.50 Loose light yellowish brown clast supported sub-rounded coarse sandy gravel. (Pleistocene Gravels) 2.50 3.00 3.50 3.50, 5.20 Loose brownish yellow clast supported sub-angular to sub-rounded coarse sandy gravel. (Pleistocene Gravels). 4.00 4.50 5.00 5.20, 5.60 Loose brownish yellow clast supported sub-angular to sub-rounded sandy gravels. (Pleistocene Gravels) 5.50 5.60, 5.90 Loose brownish yellow fine to coarse silty sand mtrix supported gravel of small to large sub-rounded to angular flint pebbles. (Pleistocene Gravels) 6.00 5.90, 6.80 Loose brownish yellow fine to coarse clast supported sandy gravels with small to medium rounded to sub-rounded sub-angualr pebbles. Occassional (10%) fine to coarse gritty sand. (Pleistocene Gravels) 6.50 6.80, 8.00 Firm to stiff dark grey silty/sandy clay with fine lens of light grey sand. (Weathered 7.00 London Clay) 7.50 8.00 NOTES: Located on the lawn besides the access road, approx. 25m N of MW2. Hand dug hole down to 1.20 m. Page 1 of 2

FIELD SEDIMENT LOGGING SHEET



SITE CO	ODE: DSW10			NG EASTING: 535764.2	DATE:10/05/10
BH NO:	BHMW2		ELEVATION: 11.6	NG NORTHING: 193669.6	LOGGER:CH
Depth	Lithology	Cores	Description		
0.00			0.00, 0.30 Soft/friable rounded gravel pebble	dark greyish brown organic sandy clay wit es. Rare inclusions of CBM (1%). (Make-up	h rare poorly sorted sub- deposit)
0.50			0.30, 0.60 Firm dark of rounded to sub angula	live brown slighlty silty and clayey gravelly ar gravel pebbles (40%). (Make-up deposi	sand with frequent sub-
1.00			0.60, 1.00 Firm dark y to sub-angular gravel	ellowish brown slighlty clayey gravelly san pebbles (Make-up deposits)	d with frequent sub-rounded
1.50			1.00, 1.20 Stiff light ye (Subsoil?)	ellowish brown sandy clay with frequent rec	Idish and black mottling.
1.00			1.20, 1.50 Stiff light ye (Subsoil?)	ellowish brown sandy clay with frequent rec	Idish and black mottling.
2.00			1.50, 2.20 Compacted and sub-angular grave	l pale yellowish brown sandy gravels with p els (60%). (Pleistocene Gravels).	oartially sorted sub-rounded
2.50			2.20, 2.50 Compacted sub-rounded and sub-	l pale yellowish brown slightly clayey sand angular gravels (60%). (Pleistocene Grave	y gravels with partially sorted also.
3.00			2.50, 2.80 Compacted sub-angular gravels (6	l dark yellowish brown sandy gravels with v 60-70%). (Pleistocene Gravels).	well sorted sub-rounded and /
			2.80, 3.20 Compacted sub-angular gravels (6	l dark yellowish brown sandy gravels with v 50%). (Pleistocene Gravels).	well sorted sub-rounded and /
3.50			3.20, 3.50 Compacted sub-angular gravels (6	l dark yellowish brown sandy gravels with v 50-70%). (Pleistocene Gravels).	well sorted sub-rounded and
4.00			3.50, 4.00 Compacted sub-angular gravels (6	l dark yellowish brown sandy gravels with v 60-70%). (Pleistocene Gravels).	well sorted sub-rounded and /
4.50			4.00, 5.00 Compacted and sub-angular pebb	l dark yellowish brown sandy gravels with le and cobble gravels (60-70%). (Pleistoce	oartially sorted sub-rounded ine Gravels).
5.00			5.00, 5.20 Firm dark y pebbles. (Pleistocene	ellowish brown clayey sand with frequent v Gravels)	vell sorted sub-rounded
5.50			5.20, 6.20 Compacted	l dark grevish brown coarse sandy gravel v	with partially sorted small

5.20, 6.20 Compacted dark greyish brown coarse sandy gravel with partially sorted small sub-angular to sub-rounded pebble gravel. (Pleistocene Gravel)

6.20, 6.50 Stiff dark olive grey sand clay. (Weathered London Clay).

6.50, 7.50 Stiff very dark grey sandy clay with no inclusions. (London Clay)

NOTES:

6.00

6.50

7.00

7.50

Iron rod at 0.30m. Hand dug to 1.20m

EEEE

1



FIELD SEDIMENT LOGGING SHEET

SHE CODE: DSWID	

SITE CC	DDE: DSW10			NG EASTING: 535671.7	DATE: 12/05/2010
BH NO: BHMW3			ELEVATION: 11.4 NG NORTHING: 193699.4		LOGGER: CH
Depth	Lithology	Cores	Description		
0.00			0.00, 0.15 Friable dar inclusions (15%). (Ma	k greyish brown silt sand with poorly sorte ke-up deposits)	d sub-angular gravel
0.50 -			0.15, 0.40 Friable/soft pebble inclusions. Oc	dark grey sandy clay with small to large s cassional CBM and red tile (5%). (Make-up	ub-angular to rounded o deposits)
1.00 -			0.40, 1.00 Soft light ye sub-rounded pebbles	ellowish brown sandy clay with strong brow inclusions of gravel (5%). (Make-up depos	vn and black mottling. Rare its)
1.50 -			1.00, 3.00 Loose light rounded to sub-angula	brownish yellow fine to medium coarse sa ar pebbles (30%). (Pleistocene Gravel)	ind with infrequent sub-
2.00 -					
2.50 -					
3.00 -			3.00, 5.00 Compacted to rounded pebble inc	l light yellowish brown coarse sandy grave lusions (70%). (Pleistocene Gravels)	I with small to large angular
3.50 -					
4.00 -					
4.50 -					
5.00 -			5.00, 5.50 Compacted rounded gravels (30%	l yellowish brown fine to coarse gravelly sa). (Pleistocene Gravel)	and with rounded to sub-
5.50 -			5.50, 7.00 Firm to stiff clays. (Weathered Lor	dark greenish grey silty/sandy clay. Black ndon Clay)	ish mottling throughout the
6.00 -					
6.50 -					
7.00					

NOTES:

Hand dug down to 1m.



FIELD SEDIMENT LOGGING SHEET

SITE CODE	E: DSW10			NG EASTING: 535652.9	DATE: 12/05/2010
BH NO:BHI	MW7		ELEVATION: 11.4	NG NORTHING: 193688.9	LOGGER: CH
Depth	Lithology	Cores	Description		

	0.00, 0.20 Friable dark greyish brown sandy silt with poorly sorted sub-angular gravel inclusions. (Make-up deposits)
	0.20, 0.60 Friable/soft dark grey sandy clay with small to large sub-angular to rounded pebble inclusions. Occassional CBM and red tile. (Make-up deposits)
	0.60, 1.20 Firm/Stiff yellowish brown silty clay with rare sub-rounded pebbles inclusions of limestone. (Make-up deposits)
	1.20, 3.00 Loose light brownish yellow fine to medium coarse sand with infrequent sub- rounded to sub-angular pebbles (30%). (Pleistocene Gravels)
3.00	3 00, 4 50 Compacted light vellowish brown coarse sandy gravel with small to large angular
3.50	to rounded pebble inclusions (70%). (Pleistocene Gravels)
4.50	
	4.50, 5.00 Compacted dark grey fine to coarse clast supported sandy gravels with rounded to sub-rounded gravels (60%) . Deposits contaminated with petro-chemicals .(Pleistocene Gravels)
	5.00, 6.00 Compacted dark greyish brown matrix supported sandy gravels with small to medium sub-angular ro rounded gravel pebbles (20%) (Pleistocene Gravels).
5.50	
	6.00, 7.00 Firm to stiff dark grey silty/sandy clay. (Weathered London Clay)
7.00 _LLLLLLL 7.00 _LLLLLLL	
NOTES	



FIELD SEDIMENT LOGGING SHEET

SITE CODE: DSW10			NG EASTING: 535922.3	DATE: 18/05/2010
BH NO: BHMW8		ELEVATION: 12.1	NG NORTHING: 193321.7	LOGGER: CC
Depth Lithology	Cores	Description		
		0.00, 1.20 Loose dark inclusions. Frequent w	blackish brown sandy silt with poorly sorte hite glazed pottery and Willow pattern rec	ed sub-angular gravel overed from these deposits.
0.50		(Make-up deposits)		
		1.20, 2.00 Firm blackis	sh brown silty clay with no coarse inclusior	s. Occassional white glazed
		pottery and red tile. (iv	ake-up deposits)	
2.00		2.00. 2.00 Erichle blog	high grow conducilt with concerned brief	
		inclusions. (Make-up o	deposits)	and sub-angular gravel
2.50 - 2.50				
		3.00, 4.00 Soft dark bl	ackish brown structureless organic silty cla	ay with no inclusions.
		(Alluvium)		
		4.00, 4.80 Soft dark bl inclusions. (Organic al	ackish brown organic silty clay with occas: lluvium/peat)	sional partially humified peat
		4.80, 5.00 Soft/Loose	light brownish grey sandy clay with rare su	ub-rounded gravel inclusions
		(5%). (Alluvium)		
		5.00, 5.20 Loose/Soft	dark blackish brown organic/peaty sand w	ith frequent angular to sub-
5.50		rounded gravel inclusi	ons (20%). (Alluvium)]
		5.20, 7.70 Loose brow (70%), (Pleistocene G	nish yellow clast supported sub-angular to ravels)	sub-rounded sandy gravels
6.00 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0		(,	
		7 70, 9 00 Firm to stiff	dark grev silty/sandy clay (Weathered Lo	ndon Clav)
			aan groy any/sandy day. (Weathered LO	
NOTES:				
				Page 1 of 2



APPENDIX B. SUMMARY OF SITE DETAILS

Site name:	Deepham's Sewage Works, Edmonton.
Site code:	DSW10
Grid reference:	TQ 3580 9350
Туре:	Watching brief
Date and duration:	10 th -18 th May 2010
Area of site:	0.06 Ha
Summary of results:	Watching brief of 5 geotechnical boreholes across the Deepham Sewage Works to provide base-line information on the site sequence and archaeological preservation potential. Despite truncation of the upper sequence, a stratified sequence of organic alluvial deposits was identified to the east of the Site on the floodplain.
Location of archive:	The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES, and will be deposited with the Museum of London in due course, under the following accession number: DSW10





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Figure 1: Site location





OA East 15 Trafalgar Way Bar Hill Cambridgeshire CB23 8SQ

t: +44(0)1223 850500 f: +44(0)1223 850599 e: oaeast@thehumanjourney.net w:http://thehumanjourney.net

OA North

Mill 3 Moor Lane Mills Moor Lane Lancaster LA11GF

t: +44(0)1524541000 f: +44(0)1524848606 e: oanorth@thehumanjourney.net w:http://thehumanjourney.net

OA South

Janus House Osney Mead Oxford OX20ES

t: +44(0)1865263800 f: +44(0)1865793496 e: info@oxfordarch.co.uk w:http://thehumanjourney.net

OA Grand Ouest

7 Rue des Monderaines ZI-Ouest 14650 Carpiquet France

t:+33(0)249880101 f:+33(0)249880102 e:info@oago.fr w:http://oago.fr

OA Méditerranée

115 Rue Merlot ZAC La Louvade 34 130 Mauguio France

t: +33(0)4.67.57.86.92 f: +33(0)4.67.42.65.93 e: oamed@thehumanjourney.net w: http://oamed.fr/



Director: David Jennings, BA MIFA FSA



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