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DESIGN DISTRICT (PLOT 11), GREENWICH PENINSULA, ROYAL BOROUGH OF GREENWICH

Environmental Archaeological Assessment Report

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Written by: Dr D.S. Young
& Dr C.R. Batchelor

QUEST, School of Archaeology, Geography and Environmental Science, Whiteknights, University of Reading, RG6 6AB

Tel: 0118 378 7978 / 8941
Email: d.s.young@reading.ac.uk
http://www.reading.ac.uk/quest

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1. NON-TECHNICAL SUMMARY

A programme of environmental archaeological assessment was undertaken on borehole WS5, following the recommendations of a geoarchaeological deposit modelling exercise for the site (Young, 2017a). The aims of the environmental archaeological assessment at the Design District (Plot 11 site were (1) to clarify the nature, character and date of the peat deposits at the site; (2) to investigate whether the sequences contain any artefact or ecofact evidence for prehistoric or historic human activity; and (3) to investigate whether the sequences contain any evidence for natural and/or anthropogenic changes to the landscape (wetland and dryland).

The results of the deposit modelling indicate that in the area of the site, the Late Devensian Shepperton Gravel is overlain by a sequence of Holocene alluvial sediments, containing peat, and buried beneath modern Made Ground. The site is likely to lie either within, or on the margins of, a former Late Devensian/Early Holocene channel, within which the Gravel surface lies at between *ca*. -2 and -5m OD. At the present site the Gravel surface lies at *ca*. -3.37m OD; on this basis, the archaeological potential of the interface between the Gravel and alluvium is considered to be low, and deeply buried. Between *ca*. 3 and 5m of Holocene alluvial deposits are recorded in the area surrounding the site. Within the site itself this includes two peat horizons, one at the base of the Lower Alluvium, dated to the Early Neolithic, and one overlying the Lower Alluvium dated to the Middle/Late Neolithic to the Middle Bronze Age. The period of Peat formation at these sites thus appears to be contemporaneous with a widespread period of accumulation recorded elsewhere across the Lower Thames Valley, between *ca*. 6500-3000 cal BP, largely driven by variations in relative sea level rise.

The results of the palaeobotanical assessment indicate that the concentration and preservation of palaeobotanical remains was highly variable through the sequence. Overall however, a floodplain environment occupied by alder carr with a ground flora of sedges, grasses and mixed herbs is indicated for much of the period of deposition, whilst the dryland was occupied by mixed deciduous woodland dominated by oak and lime. Towards the top of the Peat and within the Upper Alluvium there is some suggestion of a decrease in woodland cover, which correlates with other sequences from the Lower Thames and beyond. Potential evidence of human activity was limited, but included the presence of a cereal grain in the Lower Alluvium, and high values of microcharcoal in the Lower and Upper Alluvium. On the basis of (1) the variable concentration of the palaeobotanical remains in the WS5 sequence, and (2) the similar stratigraphy and chronology of the Cable Car sequence upon which a much more detailed palaeoenvironmental reconstruction has been undertaken (Batchelor *et al*., 2015a), no further analysis is recommended. The data should however be integrated into any relevant future publications on the Greenwich Peninsula area.

2. INTRODUCTION

2.1 Site context

This report summarises the findings arising out of the environmental archaeological assessment undertaken by Quaternary Scientific (University of Reading) in connection with the proposed development of land at Design District (Plot 11), Greenwich Peninsula, Royal Borough of Greenwich (National Grid Reference: TQ 3918 7980; Figures 1 & 2). Quaternary Scientific were commissioned by RPS to undertake the investigations. The site is located towards the north of Greenwich Peninsula, bounded to the south by Edmund Halley Way, to the west by the Bus Service Road and the west by Phoenix Avenue (Figure 1). Greenwich Peninsula itself is formed and bounded by a meander of the Thames to the west, east and north of the site, and lies opposite the confluence of the River Lea. The ground across the area originally formed part of the natural floodplain of the Thames, and is underlain by river alluvium (British Geological Survey 1:50,000 sheets 256 North London 1993, 257 Romford 1996, 270 South London 1998, 271 Dartford 1998). This alluvium consists of fine-grained mineral-rich deposits and peat, and is mapped to the south to approximately the position of the A206 where it meets higher drier ground. Beneath the alluvium, sand and gravel is present and is assigned by Gibbard (1994) to the Late Devensian Shepperton Gravel. The bedrock beneath this is mapped as the Palaeogene Lambeth Group – Clay, Silt and Sand. Ground level at the site is recorded at between *ca*. 3.5 and 4.5m OD (Concept Site Investigations, 2016).

During recent geoarchaeological investigations at the site, including a programme of fieldwork and deposit modelling (Young, 2017a), the sediments present beneath the site were found to be similar in character to those recorded elsewhere on Greenwich Peninsula: In the area of the site the Late Devensian Shepperton Gravel is overlain by a sequence of Holocene alluvial sediments, buried beneath modern Made Ground. The deposit model for the wider area indicates that the site is likely to lie either within, or on the margins of, a former Late Devensian/Early Holocene channel, within which the Gravel surface lies at between *ca*. -2 and -5m OD. Between *ca*. 3 and 5m of Holocene alluvial deposits were recorded in the area of the site, including two peat horizons, one at the base of the Lower Alluvium (-3.27 and -3.33m OD) and one overlying the Lower Alluvium between -0.95 and -1.62m OD.

Elsewhere on Greenwich Peninsula (see Figure 1), relatively high Gravel surfaces (between *ca*. -1 and -1.7m OD) have been recorded on the Tunnel Avenue (Landscape Zone B; Batchelor, 2013) and Victoria Deep Water Terminal sites (Landscape Zone A; Corcoran, 2002). Towards the north-east of the Tunnel Avenue site however, the Gravel surface drops to below -4m OD. It does the same towards the south-west and south-east of the MO115 (Landscape Zone B; Young & Batchelor, 2013a) and MO117 (Landscape Zones A and B; Young & Batchelor, 2013b) sites, in the far south-eastern corner of Greenwich Millennium Village (Miller & Halsey, 2011), and across much of the Greenwich Peninsula Central East site (Young & Batchelor, 2015a). At Plot 18.03 (Young, 2017c), the Gravel surface falls from -1m OD towards the northeast to below -3m OD towards the south. Elsewhere, smaller 'patches' of lower gravel surface >-4m OD were recorded towards the centre and south-western areas of the Millennium Festival Site (Landscape Zone D; Bowsher & Corcoran, unknown). These areas of lower Gravel surface have been interpreted as either localised hollows, or part of interconnected palaeochannels, and lie at similar elevations to those recorded at the present site.

Peat has been identified elsewhere on Greenwich Peninsula, including at the Victoria Deep Water Terminal site (Corcoran, 2002), where peat accumulation was radiocarbon dated to 5280-4660 cal BP (Middle-Late Neolithic), whilst at the Cable Car South Station (within *ca*. 200m to the east; Batchelor *et al*., 2015a), the beginning of accumulation was dated to ca. 5580-5310/5890-5610 cal BP (Middle Neolithic), continuing until at least 3380-3210 cal BP Late Bronze Age). At Greenwich Peninsula Central East (Young & Batchelor, 2015a) a complex sequence of alluvium and at least three intercalated peat horizons of between 0.1 and 1.0m thickness were recorded, dated to 6720-6500 cal BP (lower Peat; Late Mesolithic), 6190-5990 cal BP (middle Peat; Early Neolithic) and 3340 to 3080 cal BP (upper Peat; Middle Bronze Age). The peat horizons recorded across much of Greenwich Peninsula thus appear to have accumulated within the same general age range of 6700 to 3000 cal BP (late Mesolithic to late Bronze Age; broadly equivalent to Devoy's (1979) Tilbury III Peat).

2.2 Geoarchaeological, palaeoenvironmental and archaeological significance

The geoarchaeological, palaeoenvironmental and archaeological potential of the Design District (Plot 11) site has been discussed in broad terms within the overarching WSI for the area of Greenwich Peninsula encompassed by the 2015 Masterplan (see QUEST/RPS, 2017). Significantly, the peat recorded at the site represents a period of semi-terrestrial conditions that may date to the Neolithic through to the Bronze Age periods. The palaeoenvironmental potential of the sequences at the site is therefore considered to be high. Significantly, on the basis of the radiocarbon dates from sites elsewhere on the Peninsula, it is possible that this peat may have been accumulating at the same time as trackway construction occurred at the 72-88 Bellot Street (Mclean, 1993; Philp, 1993) and the Garage Site, Bellot Street (Branch *et al*., 2005) sites (Bronze Age) approximately 1.5km to the south. In addition, the existing records from the nearby area indicate a variable sequence of Holocene alluvial deposits resting on a highly variable Shepperton Gravel surface. The different deposits recorded are significant as they represent different environmental conditions that would have existed in a given location. For example: (1) variations in the topography of the River Terrace Gravels could indicate the position of former channels and islands on the floodplain; (2) the presence of soils and peat represent former terrestrial or semi-terrestrial land-surfaces, and (3) the less organic alluvial deposits of sands/silts/clays represent periods of varying hydrological conditions on the floodplain. At present, our understanding is that the Design District (Plot 11) site lies in an area of deeper gravel surfaces, potentially indicative of a within-channel setting, overlain by organic-rich deposits and peat. By studying the sub-surface stratigraphy across the site in greater detail, it will be possible to build a greater understanding of the former landscapes and environmental changes that took place over space and time at this location of Greenwich Peninsula.

Organic-rich sediments (in particular peat) also have high potential to provide a detailed reconstruction of prehistoric environments on both the wetland and dryland. In particular, there is the potential to increase knowledge and understanding of the interactions between hydrological change, human activity, vegetation succession and climate in this area of the Middle Thames Valley. Significant vegetation changes include the early Holocene/early Mesolithic transition from pine-dominated to mixed-deciduous dominated woodland; the late Mesolithic/Neolithic decline of elm woodland, the Neolithic colonisation and decline of yew woodland; the late Neolithic/early decline of wetland and dryland woodland. Such investigations are carried out through the assessment/analysis of palaeoecological remains (e.g. pollen, plant macrofossils & insects) and radiocarbon dating. Palaeoenvironmental reconstructions have been carried out on the sedimentary sequences from elsewhere in this general area, including at the Victoria Deep Water Terminal site (Corcoran, 2002), at the Cable Car South Station (Batchelor *et al*., 2015a), Greenwich Peninsula Central East (Young & Batchelor, 2015a), Enderby Wharf (Batchelor *et al*., 2015b), Plot 18.03 (Young, 2017c) and Alcatel-Lucent Telegraph Works (Young & Batchelor, 2015b).

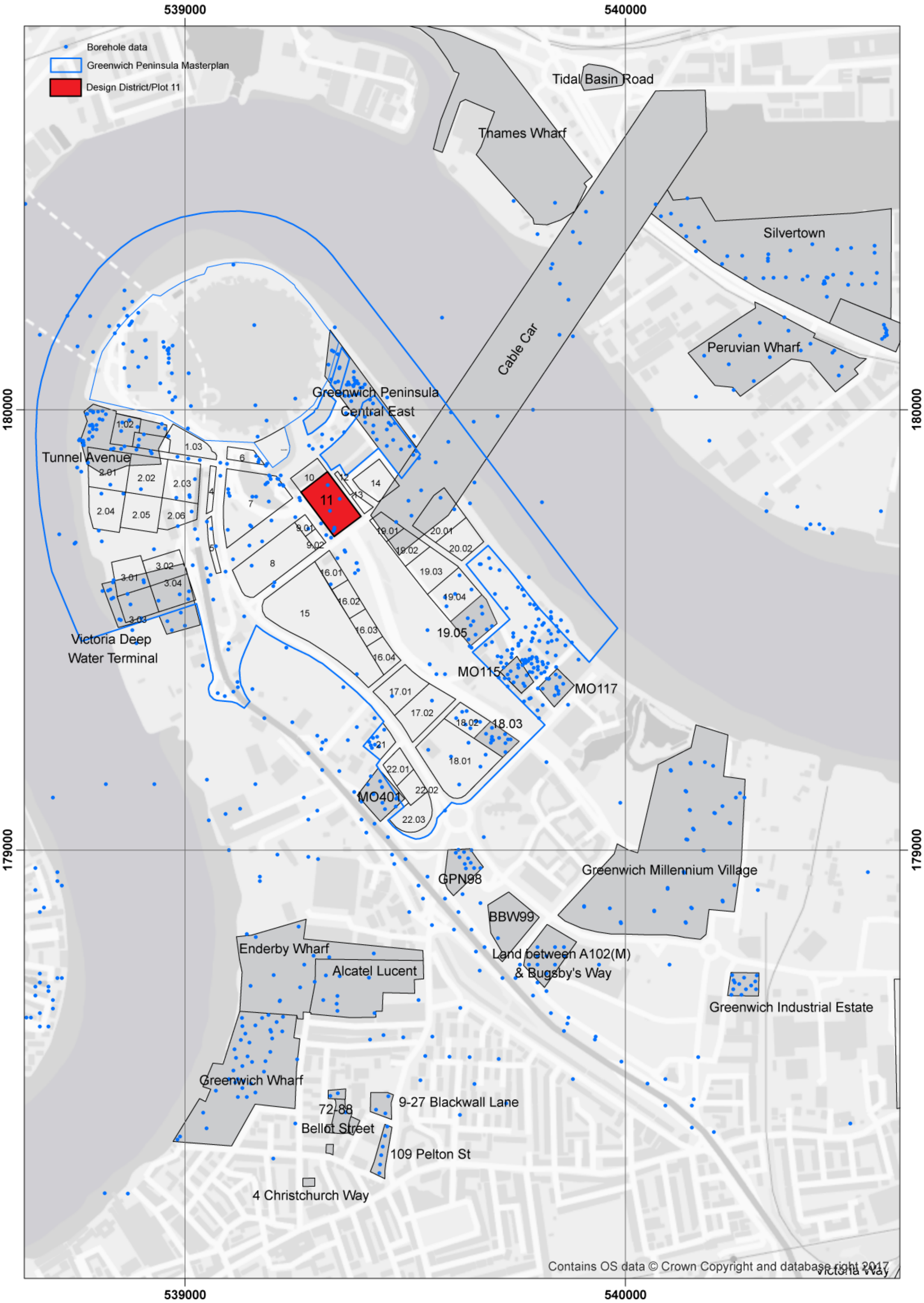
Finally, areas of high gravel topography, soils and peat represent potential areas that might have been utilised or even occupied by prehistoric people, evidence of which may be preserved in the archaeological (e.g. features and structure) and palaeoenvironmental record (e.g. changes in vegetation composition). As stated above, such evidence was identified in the form of a Bronze Age trackway at the nearby 72-88 Bellot Street (Mclean, 1993; Philp, 1993) and Garage Site, Bellot Street (Branch *et al*., 2005) sites (Bronze Age) approximately 1km to the south.

2.3 Aims and objectives

On the basis of the palaeoenvironmental potential of the alluvial sequence at the site, it was recommended that an environmental archaeological assessment was undertaken on borehole WS5 (see Young, 2017a). The recommendations made here are in line with those made in the overarching WSI for the area of Greenwich Peninsula encompassed by the 2015 Masterplan (see QUEST/RPS, 2017), and in the site-specific WSI for this site (Young, 2017b). The specific aims of the environmental archaeological assessment are as follows:

1. To clarify the nature, character and date of the peat deposits at the site;
2. To investigate whether the sequences contain any artefact or ecofact evidence for prehistoric or historic human activity;
3. To investigate whether the sequences contain any evidence for natural and/or anthropogenic changes to the landscape (wetland and dryland);
4. To integrate the new geoarchaeological record with ongoing investigations in the area of Greenwich Peninsula (including those carried out as a response to the Historic England Archaeological Brief and Plot Specific WSI), and other recent work in the local area, for publication in an academic journal.

In order to address the first three of these aims, an environmental archaeological assessment was undertaken on borehole WS5.



539000
540000
Borehole data
Greenwich Peninsula Masterplan
Design District/Plot 11
Tidal Basin Road
Thames Wharf
Silvertown
Cable Car
Peruvian Wharf
Greenwich Peninsula Central East
Tunnel Avenue
Victoria Deep Water Terminal
19.05
MO115
MO117
18.03
MO401
GPN98
Greenwich Millennium Village
BBW99
Land between A102(M) & Bugsby's Way
Enderby Wharf
Alcatel Lucent
Greenwich Industrial Estate
Greenwich Wharf
72-88 Bellot Street
9-27 Blackwall Lane
109 Pelton St
4 Christchurch Way
180000
179000
Contains OS data © Crown Copyright and database right 2017

Figure 1: Location of (1) Design District (Plot 11), Royal Borough of Greenwich and selected other geoarchaeological and archaeological sites nearby: Greenwich Peninsula Plot 19.05 (Young & Batchelor, 2017a); Plot MO115 (Young & Batchelor, 2013b); Plot MO117 (JHW13; Young & Batchelor, 2013a); Plot 18.03 (Young, 2017c); Greenwich Millennium Village (Miller & Halsey, 2011); Land between A102(M) & Bugsby's Way (GPN98); The Leisure Site, Bugsby's Way (BW99); Land between A102(M) & Bugsby's Way (GPN98); Enderby Wharf, Christchurch Way (Batchelor *et al*., 2015a); Alcatel-Lucent Telegraph Works (Young & Batchelor, 2015b); Greenwich Wharf (Nicholls *et al*., 2017); Plot MO401 (Batchelor, 2014); Bellot Street (GLB05; Branch *et al*., 2005); 72-88 Bellot Street (BSG93; McLean, 1993; Philp, 1993); Tunnel Avenue (GPF12; Batchelor, 2013); Greenwich Peninsula Central East (Young & Batchelor, 2015a); The Cable Car route (CAB11; Batchelor *et al*., 2015a); Victoria Deep Water Terminal (TUA02; Corcoran, 2002); Greenwich Peninsula Plot 18.03 (Young & Batchelor, 2017b) and Plot NO201 (Young, 2017b). Outline of the 2015 Master Plan (QUEST/RPS, 2017) shown in blue.

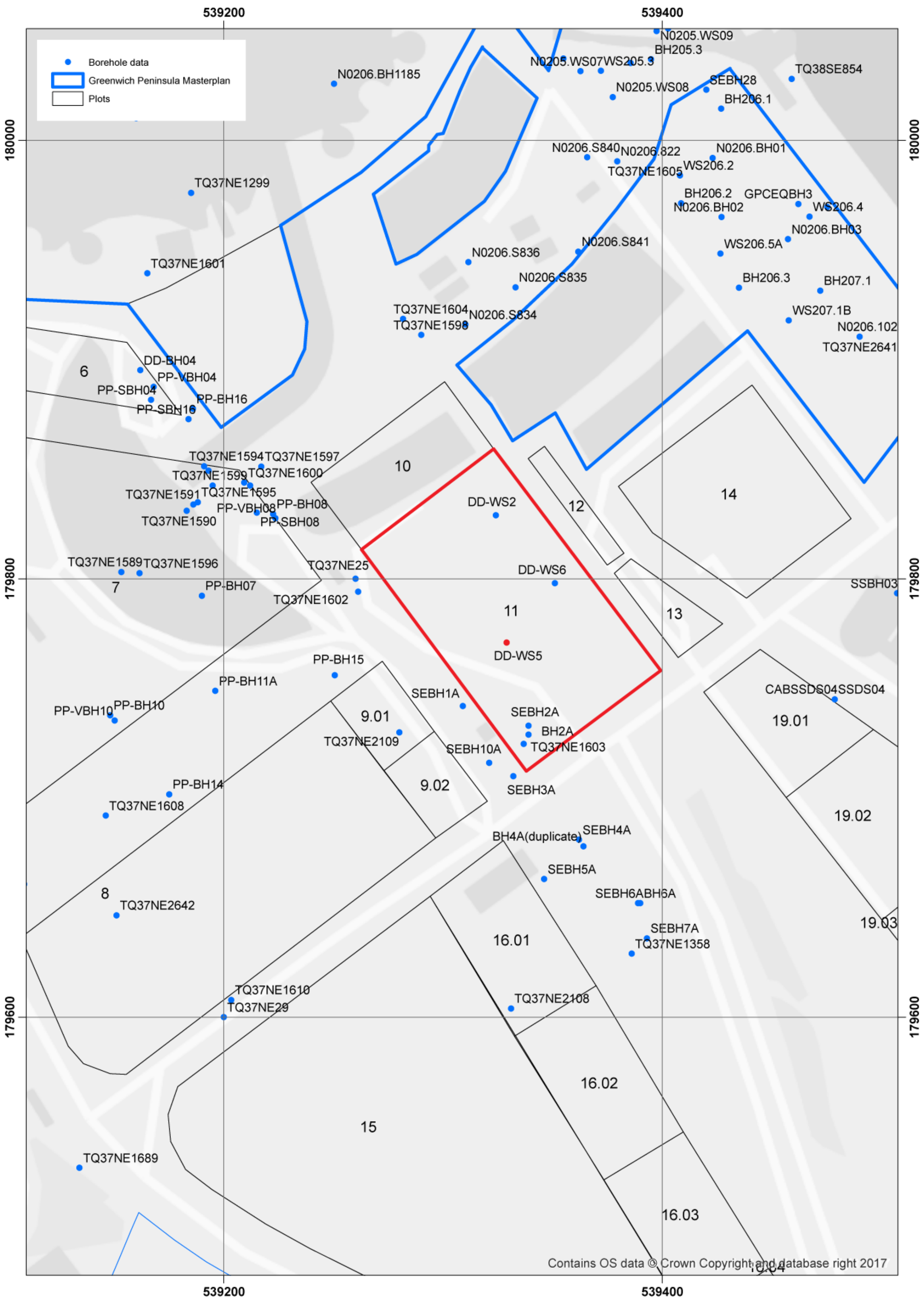


Figure 2: Location of the geoarchaeological (red), geotechnical and British Geological Survey (BGS) archive (blue) boreholes in the area of the Design District (Plot 11) site, Greenwich Peninsula, Royal Borough of Greenwich. Site outline shown in red.

3. METHODS

3.1 Previous investigations (field investigations, lithostratigraphic descriptions and deposit modelling)

During the geotechnical investigations at the site in August 2017 (see Young, 2017a), core samples were collected for geoarchaeological purposes from a single borehole (WS5) (Figure 2). The collection of the samples was monitored by Quaternary Scientific. The borehole core samples were recovered using a Terrier Rig and window sampler gouge set. This coring techniques provide a suitable method for the recovery of continuous, undisturbed core samples and provides sub-samples suitable for sedimentary and microfossil assessment and analysis and also macrofossil analysis. Spatial co-ordinates for each borehole were obtained using a Leica Differential GPS (see Table 1).

Laboratory-based lithostratigraphic descriptions of the new borehole samples was carried out using standard procedures for recording unconsolidated sediment and peat, noting the physical properties (colour), composition (gravel, sand, clay, silt and organic matter) and inclusions (e.g. artefacts). The procedure involved: (1) cleaning the samples with a spatula or scalpel blade and distilled water to remove surface contaminants; (2) recording the physical properties, most notably colour; (3) recording the composition e.g. gravel, fine sand, silt and clay; (4) recording the degree of peat humification, and (5) recording the unit boundaries e.g. sharp or diffuse. The results are displayed in Table 2.

The deposit model for the Design District site (see Young, 2017a) was based on the existing Quest data set for Greenwich Peninsula, incorporating over 900 geotechnical, geoarchaeological and archaeological interventions (see Young et al. (in press) and Appendix 1). Sedimentary units from the boreholes were classified into seven groups: (1) Bedrock, (2) Gravel, (3) Sand, (4) Lower Alluvium. (5) Peat, (6) Upper Alluvium and (7) Made Ground. The classified data for groups 1-7 were then input into a database within the RockWorks 16 geological utilities software, the output from which was generated using ArcMap 10. A southeast to northwest transect of selected boreholes across the site and the wider area is displayed in Figure 3. Models of surface height were generated for the Gravel, Lower Alluvium, Peat and Upper Alluvium using an Inverse Distance Weighted algorithm (Figures 4, 5, 6 and 8). Thickness of the Peat, total Holocene alluvium (incorporating the Sand, Lower Alluvium, Peat and Upper Alluvium) and Made Ground (Figures 7, 9 and 10) were also modelled (also using an Inverse Distance Weighted algorithm).

Because the boreholes are not uniformly distributed over the area of investigation the reliability of the models generated using RockWorks is variable. Because of the 'smoothing' effect of the modelling procedure, the modelled levels of stratigraphic contacts may differ slightly from the levels recorded in borehole logs and section drawings. As a consequence of this the modelling procedure has been manually adjusted so that only those areas for which sufficient stratigraphic data is present will be modelled. In order to achieve this, a maximum distance cut-off filter equivalent to a 50m radius around each record is applied to all deposit models from site with the exception of the model for the wider area (Figure 11), which uses a radius of 100m for the purpose of visualising the topographic features. In addition, it is important to recognise that multiple sets of boreholes are represented, put down at different times and recorded using different descriptive terms and subject to differing technical constraints in terms of recorded detail including the exact levels of the stratigraphic boundaries.

3.2 Organic matter determinations

A total of 25 subsamples from borehole WS5 were extracted for determination of the organic matter content (Table 3 and Figure 12). These records were important as they can identify increases in organic matter possibly associated with more terrestrial conditions. The organic matter content was determined by standard procedures involving: (1) drying the sub-sample at 110^{0}C for 12 hours to remove excess moisture; (2) placing the sub-sample in a muffle furnace at 550°C for 2 hours to remove organic matter (thermal oxidation), and (3) re-weighing the sub-sample obtain the 'loss-on-ignition' value. The samples were then re-weighed after 2 hours at 950°C for determination of the calcium carbonate content (see Bengtsson & Enell, 1986).

3.3 Radiocarbon dating

A total of three subsamples were extracted from the peat horizons within borehole WS5 for radiocarbon dating: One from the basal peat within the Lower Alluvium, and one from the base and top of the upper peat. The samples were submitted for AMS radiocarbon dating to the BETA Analytic Radiocarbon Dating Facility, Miami, Florida. The results have been calibrated using OxCal v4.2 (Bronk Ramsey, 1995; 2001 and 2007) and the IntCal13 atmospheric curve (Reimer *et al.*, 2013). The results are displayed in Figure 12 and in Table 4.

3.4 Pollen assessment

Twelve subsamples from borehole WS5 were extracted for an assessment of pollen content. The pollen was extracted as follows: (1) sampling a standard volume of sediment (1ml); (2) adding two tablets of the exotic clubmoss *Lycopodium clavatum* to provide a measure of pollen concentration in each sample; (3) deflocculation of the sample in 1% Sodium pyrophosphate; (4) sieving of the sample to remove coarse mineral and organic fractions (>125μ); (5) acetolysis; (6) removal of finer minerogenic fraction using Sodium polytungstate (specific gravity of 2.0g/cm^3); (7) mounting of the sample in glycerol jelly. Each stage of the procedure was preceded and followed by thorough sample cleaning in filtered distilled water. Quality control is maintained by periodic checking of residues, and assembling sample batches from various depths to test for systematic laboratory effects. Pollen grains and spores were identified using the University of Reading pollen type collection and the following sources of keys and photographs: Moore *et al* (1991); Reille (1992). The assessment procedure consisted of scanning the prepared slides, and recording the concentration and preservation of pollen grains and spores, and the principal taxa on four transects (10% of the slide) (Table 5).

3.5 Diatom assessment

A total of four samples from borehole WS5, focussed on the interface between the peat/Lower Alluvium and the Lower Alluvium/basal peat, were submitted for an assessment of diatom presence. 0.5g of sediment was required for the diatom sample preparation. All samples were first treated with sodium hexametaphosphate and left overnight, to assist in minerogenic deflocculation. Samples were then treated with hydrogen peroxide (30% solution) to remove organic material. Samples were finally sieved using a 10µm mesh to remove fine minerogenic sediments. The residue was transferred to a plastic vial, from which a slide was prepared for subsequent assessment. A minimum of four slide traverses were undertaken across each slide sample. Due to the nature of the rapid assessment, taxa were not identified, but records were made of the concentration, preservation and diversity of the assemblages. The results of the assessment are shown in Table 6.

3.6 Macrofossil assessment

A total of seven small bulk samples from borehole WS5 were extracted and processed for the recovery of macrofossil remains, including waterlogged plant macrofossils, wood, insects and Mollusca (Table 7). The samples were focussed on the peat horizons within borehole WS5. The extraction process involved the following procedures: (1) measuring the sample volume by water displacement, and (2) processing the sample by wet sieving using 300µm and 1mm mesh sizes. Each sample was scanned under a stereozoom microscope at x7-45 magnifications, and sorted into the different macrofossil classes. The concentration and preservation of remains was estimated for each class of macrofossil (Table 7). Preliminary identifications of the waterlogged seeds (Table 8) have been made using modern comparative material and reference atlases (e.g. Martin & Barkley, 2000; NIAB, 2004; Cappers *et al.* 2006). Nomenclature used follows Stace (2005).

Table 1: Spatial attributes and lithostratigraphic data for the new geotechnical and geoarchaeological boreholes at Design District (Plot 11), Greenwich Peninsula, Royal Borough of Greenwich

Borehole	Easting	Northing	Elevation (m OD)	Total Depth (m)	Upper Alluvium surface (m bgl)	Peat surface (m bgl)	Lower Alluvium surface (m bgl)	Sand surface (m bgl)	Gravel surface (m bgl)
WS2	539324.00	179829.00	5.30	8.00	3.40	Unknown	Unknown	Unknown	Unknown
WS5	539329.00	179771.00	4.60	8.00	2.75	5.55	6.22	7.93	7.97
WS6	539329.00	179771.00	4.60	8.00	2.75	Unknown	Unknown	Unknown	Unknown

4. RESULTS, INTERPRETATION & DISCUSSION OF THE GEOARCHAEOLOGICAL DEPOSIT MODELLING, LOSS-ON-IGNITION ANALYSIS & RADIOCARBON DATING

The results of the deposit modelling are displayed in Figures 3 to 12. Figure 3 is a two-dimensional southeast-northwest transect of selected boreholes across the wider area of the site, whilst Figures 4 to 10 are surface elevation and thickness models for each of the main stratigraphic units. Figure 11 is an updated surface elevation model for the Gravel across the wider area of Greenwich Peninsula. The results of the lithostratigraphic descriptions, loss-on-ignition analysis and radiocarbon dating of borehole WS5 are shown in Figure 12.

The borehole records in the surrounding area provide a provisional indication of the likely former landscapes that may have persisted at the site, and its associated palaeoenvironmental and archaeological potential. The full sequence of sediments recorded in the boreholes surrounding the site comprises:

Made Ground – widely present
Upper Alluvium – widely present
Peat – widely present
Lower Alluvium – locally present; contains a peat horizon in borehole WS5
Sand – locally present
Gravel – widely present

4.1 Gravel

The Shepperton Gravel was present in all the boreholes that penetrated to the bottom of the Holocene sequence in this area. It was deposited during the Late Glacial (15,000 to 10,000 years before present) and comprises the sands and gravels of a high-energy braided river system which, while it was active would have been characterised by longitudinal gravel bars and intervening low-water channels in which finer-grained sediments might have been deposited. Such a relief pattern would have been present on the valley floor at the beginning of the Holocene when a lower-energy fluvial regime was being established.

Within the site itself the surface of the Gravel is recorded in borehole WS5 at -3.37m OD (boreholes WS2 and WS6 did not reach the Shepperton Gravel surface, terminating at -2.7 and -3.2m OD respectively). The deposit model for the wider area (see Figures 3 and 4) indicates that the Gravel slopes from around -3m OD to the south of the site, to between *ca*. -4 and -5m OD towards the north (towards borehole TQ37NE1299); north of TQ37NE1299 it then rises again to *ca*. -3m OD, towards the west of The O2. The surface topography in this wider area thus indicates that the Design District site lies either within or on the margins of a large former channel that may date to the Late Devensian or Early Holocene periods (see Figure 11). This channel is aligned broadly northeast-southwest, and may traverse the entire area of Greenwich Peninsula; it opens out where it meets the modern channel of the Thames to the northeast of the Design District site.

This depression in the Shepperton Gravel surface is one of a number of palaeochannels identified in the Late Devensian/Early Holocene topography of Greenwich Peninsula (see Figure 11 and Young *et al.*, in press). Perhaps one of the more substantial of these channels (and similar in character to the channel identified here) is that aligned broadly west-east and underlying the Alcatel-Lucent (Young & Batchelor, 2015b), Enderby Wharf (Batchelor *et al.*, 2015b) and 20 Horn Lane (Young & Batchelor, 2017) sites. This channel reaches similar depths of around -4 to -5m OD. Towards its eastern end at 20 Horn Lane and Greenwich Millennium Village (Miller & Halsey, 2011), the Shepperton Gravel is lower, ranging between -4 and -8m OD. Similarly towards the south-east, a deep depression is evident beneath the Greenwich Industrial Estate site (Morley, 2003), potentially representing a channel draining off the terrace edge towards the present day River Thames. Towards the north of 20 Horn Lane and further onto the main area of Greenwich Peninsula, the Shepperton Gravel surface is recorded in various places down to -4m OD representing the presence of further smaller channels. For example, towards the north-east of the Tunnel Avenue site the Gravel surface drops to below -4m OD, perhaps forming part of the same channel identified at the Design District site. It does the same towards the south-west and south-east of the MO115 (Landscape Zone B; Young & Batchelor, 2013a) and MO117 (Landscape Zones A and B; Young & Batchelor, 2013b) sites, in the far south-eastern corner of Greenwich Millennium Village (Miller & Halsey, 2011), and across much of the Greenwich Peninsula Central East site (Young & Batchelor, 2015a). In addition, smaller 'patches' of lower gravel surface >-4m OD were recorded towards the centre and south-western areas of the Millennium Festival Site (Landscape Zone D; Bowsher & Corcoran, unknown). These areas of lower Gravel surface have been interpreted as either localised hollows, or part of interconnected palaeochannels.

Relatively high Gravel surfaces (between *ca*. -1 and -1.7m OD) were recorded towards the north of the Peninsula on the Tunnel Avenue (Landscape Zone B; Batchelor, 2013) and Victoria Deep Water Terminal sites (Landscape Zone A; Corcoran, 2002). These topographic features represent small, but potentially important former islands. Wherever the Gravel surface reaches such elevations, it is more likely to represent the former River Terrace of the Kempton Park Gravel, deposited during the middle-late Pleistocene. Such terraces have negligible potential for Palaeolithic remains since the Kempton Park Gravel was deposited during a period when hominid remains have not previously been recorded in the British Isles; however, they do represent areas of greater archaeological potential as they would have been raised above the surrounding floodplain. This is demonstrated by prehistoric trackway remains found within the overlying peat at Bellot Street (e.g. Branch *et al.*, 2005).

4.2 Sand

A thin unit of Sand was recorded in borehole WS5 between -3.33 and -3.37m OD; this unit has been recorded elsewhere on Greenwich Peninsula in thicknesses of between *ca*. 0.05 and 2m, generally (but not restricted to) where the Gravel surface is recorded at its lowest. This unit is typical of moderate to high energy fluvial activity within rivers or streams, often found at the base of channel features across Greenwich Peninsula. Up to *ca*. 1.5m of Sand was identified just to the northwest (*ca*. 10-20m) of the site in boreholes TQ37NE1593 and TQ37NE1594, indicative of fluvial activity within the possible Late Devensian/Early Holocene channel identified above. In these boreholes it was recorded at lower elevations of between *ca*. -5.8 and -4.2m OD.

4.3 Lower Alluvium

The majority of boreholes in area of the site contain a unit of sandy silt, recorded either directly overlying the Shepperton Gravel or the Sand where it is recorded. The deposits of the Lower Alluvium are described as a predominantly silty or clayey, tending to become increasingly sandy downward in most sequences. The Lower Alluvium frequently contains detrital wood or plant remains, and in many cases is described as organic and with occasional Mollusca remains. The sediments of the Lower Alluvium are indicative of deposition during the Early to Mid-Holocene, when the main course of the Thames was probably confined to a single meandering channel. During this period, the surface of the Shepperton Gravel was progressively buried beneath the sandy and silty flood deposits of the river. The richly-organic nature of the Lower Alluvium suggests that this was a period during which the valley floor was occupied by a network of actively shifting channels, with a drainage pattern on the floodplain that was still largely determined by the relief on the surface of the underlying Shepperton Gravel.

The surface of the Lower Alluvium is generally recorded at between *ca*. -2 and -3m OD, although in places (including at the present site) it rises to between *ca*. -1 and 0m OD (Figure 5). The Lower Alluvium occasionally contains richly organic or peaty units; this is the case in borehole WS5 at the present site, where peat was identified within the Lower Alluvium at between -3.27 and -3.33m OD (up to 50% organic content). The organic content of the Lower Alluvium is highly variable as might be expected at between 6 (-2.28m OD) and 62% (-1.80m OD); with the exception of the basal peat, the high organic content within this unit probably reflects detrital plant material washed in during the process of its formation.

Radiocarbon dating of the basal peat indicates that its accumulation began during the Early Neolithic (5915-6170 cal BP; see Table 4). The unit does not appear to be widespread, and most likely represents a transition to semi-terrestrial conditions within a localised floodplain hollow at a time when sandy and silty material was accumulating elsewhere.

4.4 Peat

A horizon of peat was recorded between -0.95 and -1.62m OD in borehole WS5, overlying the Lower Alluvium and generally between 50 and 65% organic-rich (see Table 3 and Figure 12). Peat is frequently recorded in the area surrounding the site, generally overlying the Lower Alluvium or the Shepperton Gravel (see Figure 3) and present at elevations of between *ca*. 0.0 and -4.0m OD (see Figure 3). Although geotechnical boreholes WS2 and WS6 reached depths of -2.7 and -3.2m OD respectively, no peat was identified; however, these boreholes did not reach the base of the Holocene alluvial sequence. In the area surrounding the site the surface of the Peat lies at between *ca*. 0.0 and -2.0m OD (Figure 6), and it is present in thicknesses of between *ca*. 0.5 and 2.0m (Figure 7). The peat appears to be thickest within the area of the palaeochannel identified above; around 2m is recorded towards the north of the site.

Where peat is recorded it is indicative of a transition towards semi-terrestrial (marshy) conditions, supporting the growth of sedge fen/reed swamp and/or woodland communities which might have been utilised by prehistoric communities. In borehole WS5, the results of the radiocarbon dating indicate that the accumulation of this horizon occurred from the Middle to Late Neolithic until the Middle Bronze Age, with the base of the peat dated to 4620-4840 cal BP and the top dated to 3390-3560 cal BP (see Table 4 and Figure 12).

Across Greenwich Peninsula more generally, the Peat is frequently recorded in thicknesses of up to 3m, with greater thicknesses often recorded in areas where the Shepperton Gravel topography is lower. Thick peat horizons have been recorded to the south at the Alcatel-Lucent (Batchelor *et al*., 2015) and Enderby Wharf (Batchelor *et al*., 2015b) sites for example, although in places the peat can be relatively thin (<0.5m), for example at Plot 18.03 (Young & Batchelor, 2017c). At these sites, the peat has been dated to from the Early to Late Neolithic period, and Middle Neolithic to Bronze Age periods respectively. At the Victoria Deep Water Terminal site (Corcoran, 2002) peat accumulation was radiocarbon dated to 5280-4660 cal BP (Middle-Late Neolithic), whilst at the Cable Car South Station (*ca*. 50m to the east; Batchelor *et al*., 2015a), the beginning of accumulation was dated to *ca*. 5580-5310/5890-5610 cal BP (Middle Neolithic), continuing until at least 3380-3210 cal BP Late Bronze Age). At Greenwich Peninsula Central East (Young & Batchelor, 2015a) a complex sequence of alluvium and at least three intercalated peat horizons of between 0.1 and 1.0m thickness were recorded, dated to 6720-6500 cal BP (lower Peat; Late Mesolithic), 6190-5990 cal BP (middle Peat; Early Neolithic) and 3340 to 3080 cal BP (upper Peat; Middle Bronze Age).

The peat horizons recorded across much of Greenwich Peninsula thus appear to have accumulated within the same general age range of 6700 to 3000 cal BP (late Mesolithic to late Bronze Age; broadly equivalent to Devoy's (1979) Tilbury III Peat), and both periods of peat formation at the present site fall within this general period.

4.5 Upper Alluvium

The Upper Alluvium was recorded in all records across the site, resting variously on the Peat, Lower Alluvium (where recorded) or the Gravel. The sediments of the Upper Alluvium are indicative of deposition within low energy fluvial and/or semi-aquatic conditions during the Holocene. The high mineral content of the sediments are considered to reflect increased sediment loads resulting from intensification of agricultural land use from the later prehistoric period onward, combined with the effects of rising sea level. The deposits of the Upper Alluvium are described as predominantly silty or clayey which are very occasionally organic-rich, although here they are consistently less than 10% organic (see Table 4 and Figure 12). The surface of this unit in the area of the Design District site (Figure 8) is relatively even, lying at between *ca*. 0.5 and 2m OD, probably close to the natural level of the floodplain in this area.

The thickness of the Holocene alluvial sequence (incorporating the Sand, Lower Alluvium, Peat and Upper Alluvium) is displayed in Figure 9. This thickness tends to reflect the topography of the Gravel surface, with greater thicknesses recorded in areas of lower Gravel topography and *vice versa*, as might be expected; in the area of the present site, between *ca*. 3 and 5m is generally recorded (see Figure 9).

4.6 Made Ground

Between *ca*. 3 and 4m of Made Ground caps the Holocene alluvial sequence in the area surrounding the Design District site (Figure 10).

Table 2: Lithostratigraphic description of borehole WS5, Design District (Plot 11), Greenwich Peninsula, Royal Borough of Greenwich

Depth (m OD)	Depth (m bgl)	Description	Stratigraphic group
4.60 to 1.85	0.00 to 2.75	Made Ground of topsoil over concrete, brick and mortar in a matrix of brown silty clay.	MADE GROUND
1.85 to 1.00	2.75 to 3.60	10YR 4/2; As3 Ag1; dark greyish brown silty clay. Some dark grey mottling. Diffuse contact in to:	UPPER ALLUVIUM
1.00 to 0.60	3.60 to 4.00	10YR 4/1; As2 Ag1 Ga1; dark greyish brown sandy silty clay. Diffuse contact in to:	
0.60 to -0.95	4.00 to 5.55	10YR 4/1; Ag2 As2 Ga+; dark grey silt and clay with a trace of sand. Diffuse contact in to:	
-0.95 to -1.62	5.55 to 6.22	2.5YR 2.5/1; Sh4 Th+ Tl+; humo. 4; very well humified reddish black peat with traces of herbaceous and woody material. Diffuse contact in to:	PEAT
-1.62 to -3.27	6.22 to 7.87	2.5Y 4/1; Ag2 As1 Dh1 Ga+; dark grey clayey silt with detrital herbaceous material and a trace of sand. Sharp contact in to:	LOWER ALLUVIUM
-3.27 to -3.33	7.87 to 7.93	2.5YR 2.5/1; Sh3 $Tl^2$1 Th+ Ag+; humo. 3; well humified reddish black woody peat with a trace of herbaceous material and silt. Sharp contact in to:	PEAT
-3.33 to -3.37	7.93 to 7.97	2.5Y 4/2; Ga3 Ag1 Gg+; dark greyish brown silty sand with occasional gravel clasts. Sharp contact in to:	SAND
-3.37 to -3.40	7.97 to 8.00	2.5Y 4/2; Gg3 Ga1; dark greyish brown sandy gravel. Clasts are flint, sub-angular to rounded, up to 20mm in diameter.	SHEPPERTON GRAVEL

Table 3: Results of the borehole WS5, Design District (Plot 11), Greenwich Peninsula, Royal Borough of Greenwich loss-on-ignition analysis.

Depth (m OD)		Organic matter content (%)
From	To	
1.08	1.07	6.01
0.92	0.91	3.34
0.76	0.75	3.08
0.44	0.43	6.61
0.28	0.27	3.37
0.12	0.11	5.88
-0.04	-0.05	6.08
-0.20	-0.21	7.87
-0.36	-0.37	7.22
-0.52	-0.53	6.13
-0.68	-0.69	6.70
-0.84	-0.85	19.38
-1.00	-1.01	49.90
-1.16	-1.17	65.88
-1.32	-1.33	48.29
-1.48	-1.49	16.85
-1.64	-1.65	13.07
-1.80	-1.81	62.15
-1.96	-1.97	43.33
-2.12	-2.13	37.45
-2.28	-2.29	6.00
-3.08	-3.09	11.48
-3.24	-3.25	11.50
-3.28	-3.29	49.87
-3.32	-3.33	49.23

Table 4: Results of the borehole WS5 radiocarbon dating, Design District (Plot 11), Greenwich Peninsula, Royal Borough of Greenwich loss-on-ignition analysis.

Laboratory code / Method	Material and location	Depth (m OD)	Uncalibrated radiocarbon years before present (yr BP)	Calibrated age BC/AD (BP) (2-sigma, 95.4% probability)	δ13C (‰)
BETA 483613 AMS	Twig wood; top of peat	-1.00 to -1.05	3240 ± 30	1440 to 1610 cal BC (3390 to 3560 cal BP)	-28.2
BETA 483614 AMS	Twig wood; base of peat	-1.57 to -1.62	4190 ± 30	2760 to 2890 cal BC (4620 to 4840 cal BP)	-25.2
BETA 483615 AMS	Twig wood; basal peat	-3.27 to -3.33	5220 ± 30	3965 to 4220 cal BC (5915 to 6170 cal BP)	-27.0

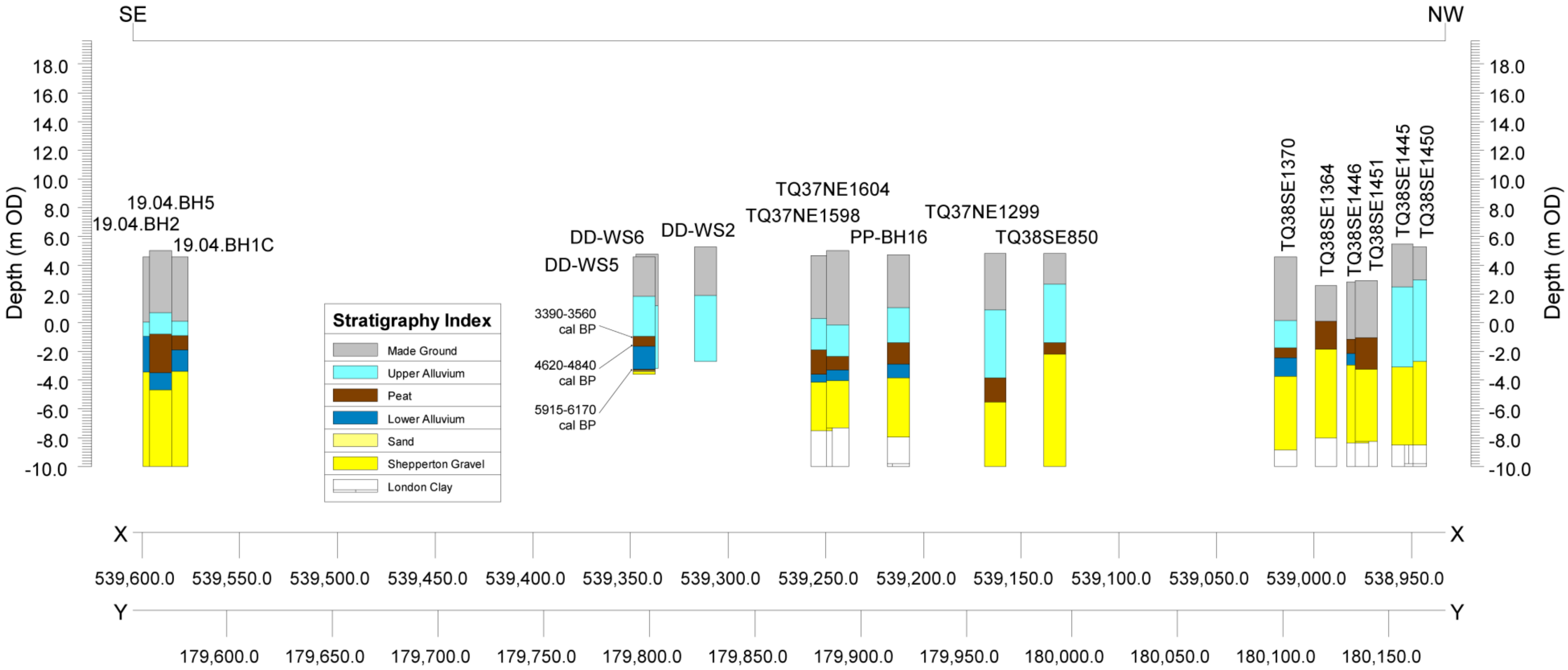


Figure 3: Southeast-northwest transect of selected boreholes across the Design District (Plot 11) site (DD-) and the wider area of Greenwich Peninsula, Royal Borough of Greenwich. Results of the radiocarbon dating of borehole WS5 also shown.

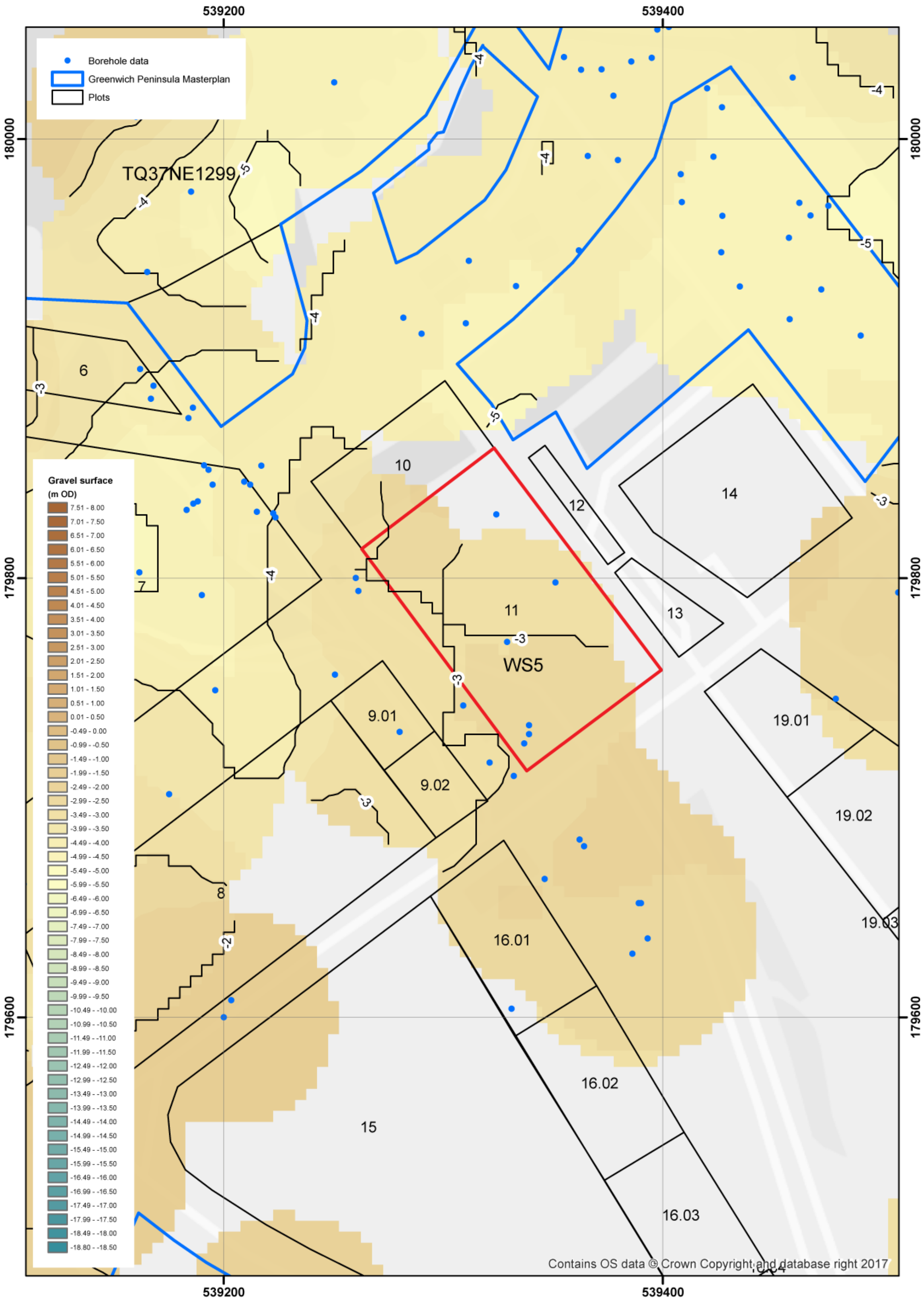


Figure 4: Top of the Gravel (m OD)

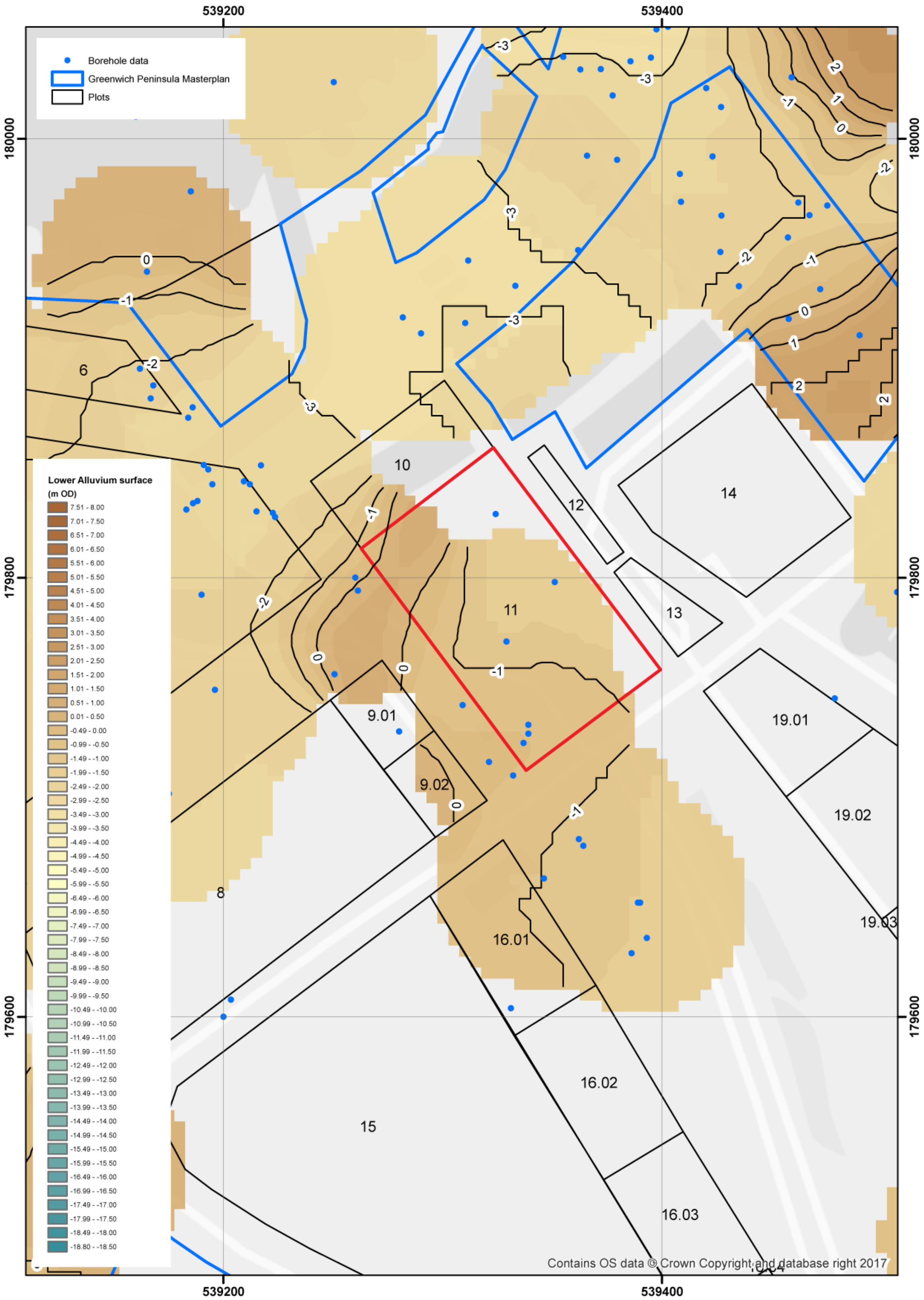


Figure 5: Top of the Lower Alluvium (m OD)

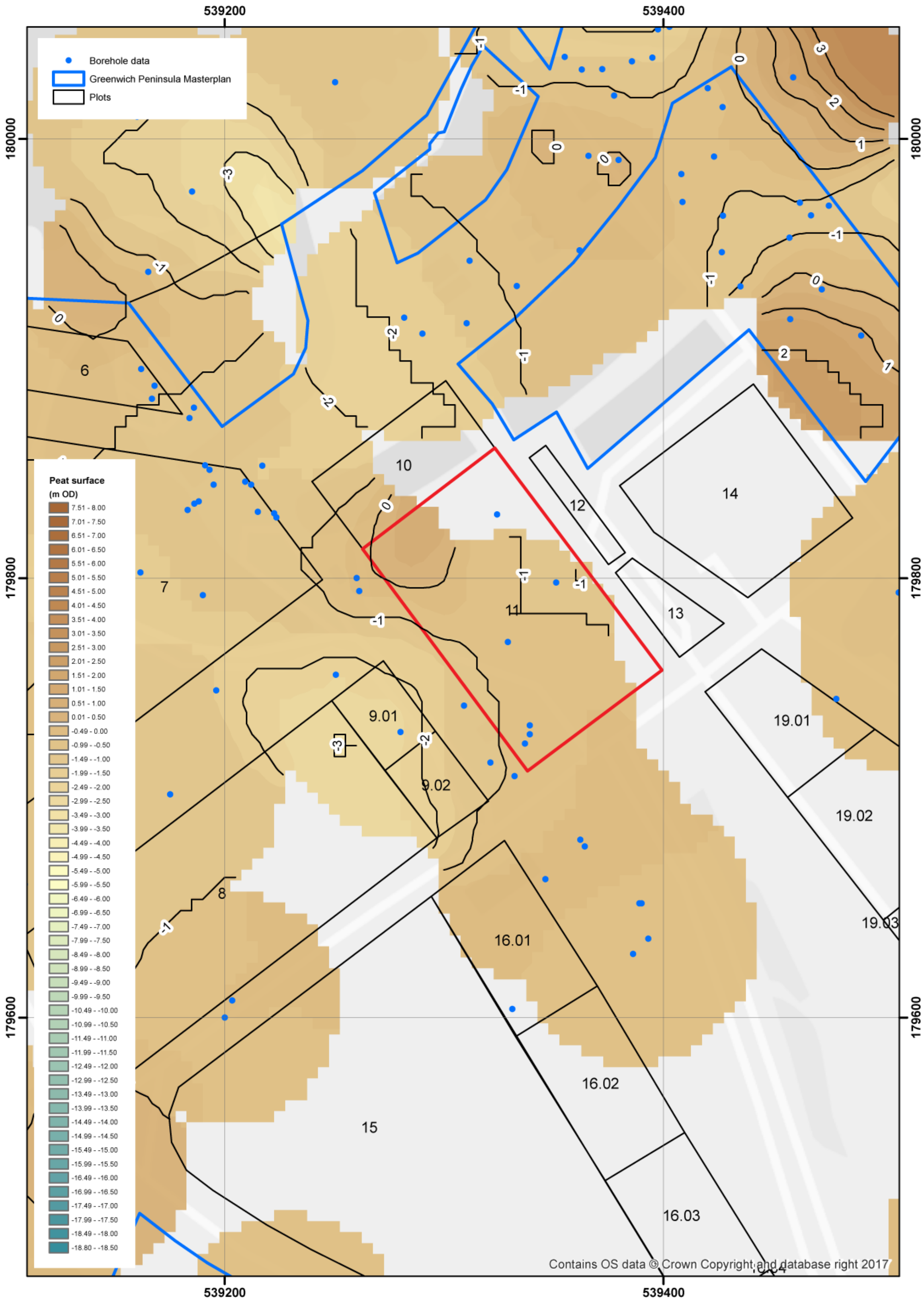


Figure 6: Top of the Peat (m OD)

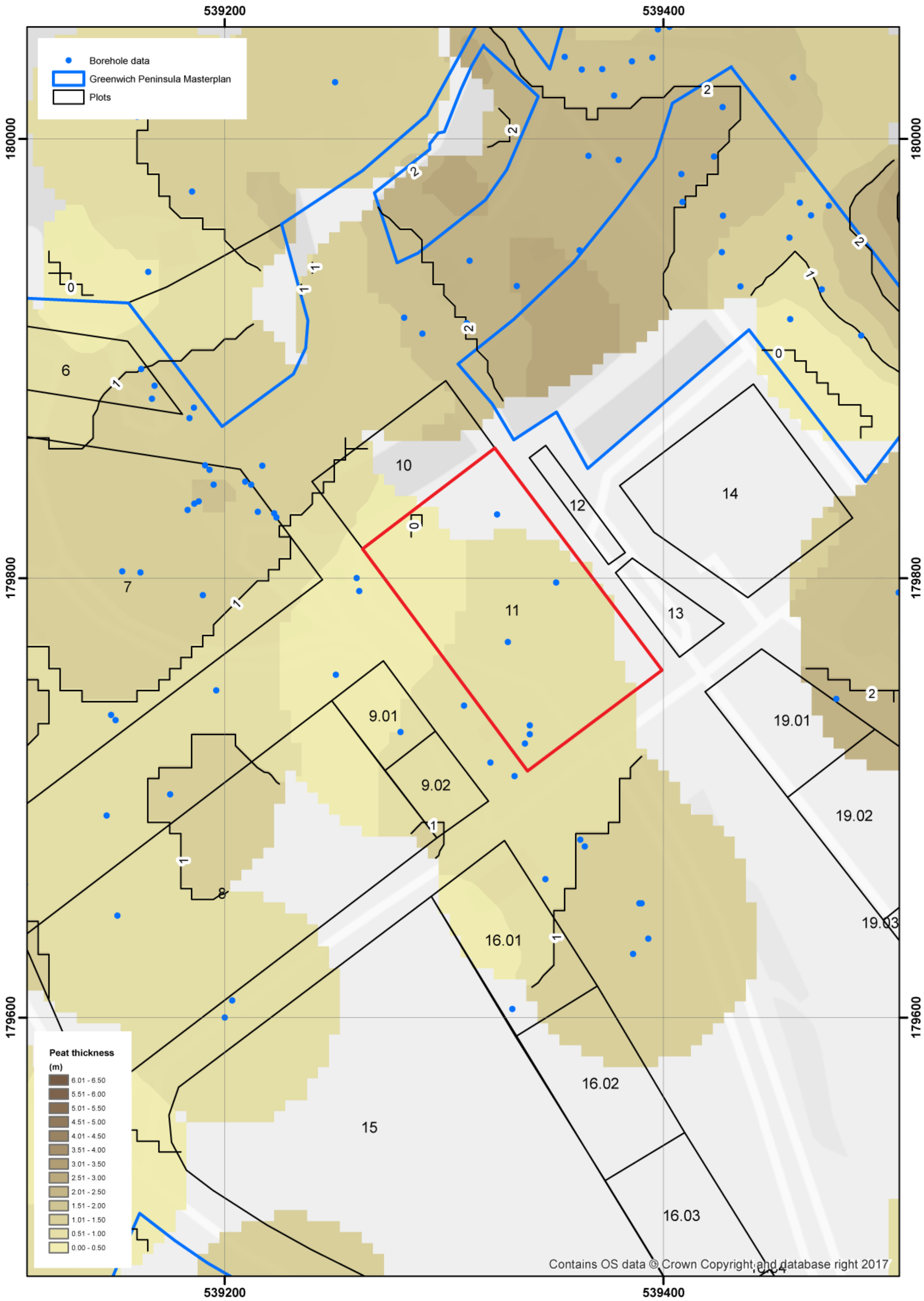


Figure 7: Thickness of the Peat (m)

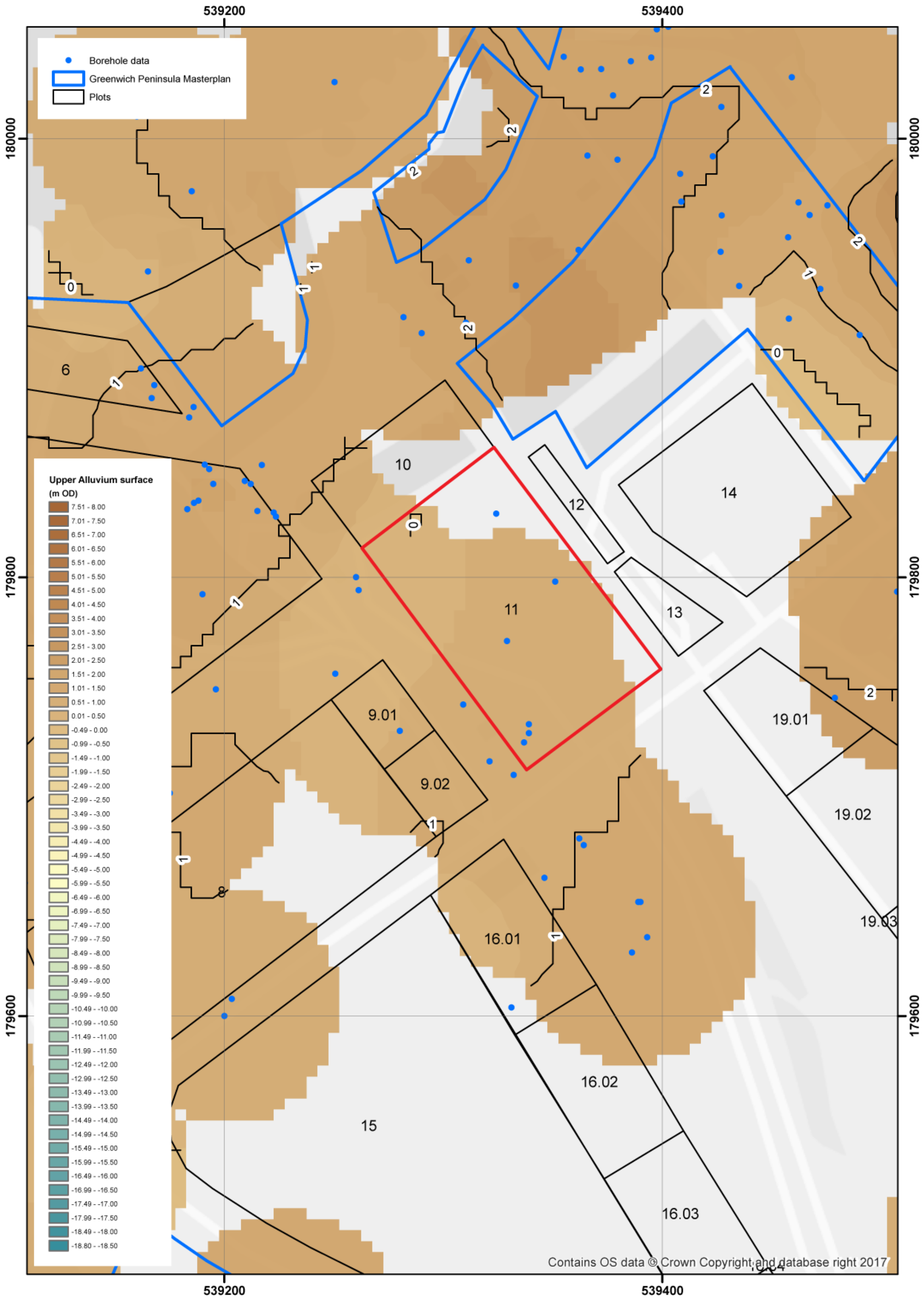


Figure 8: Top of the Upper Alluvium (m OD)

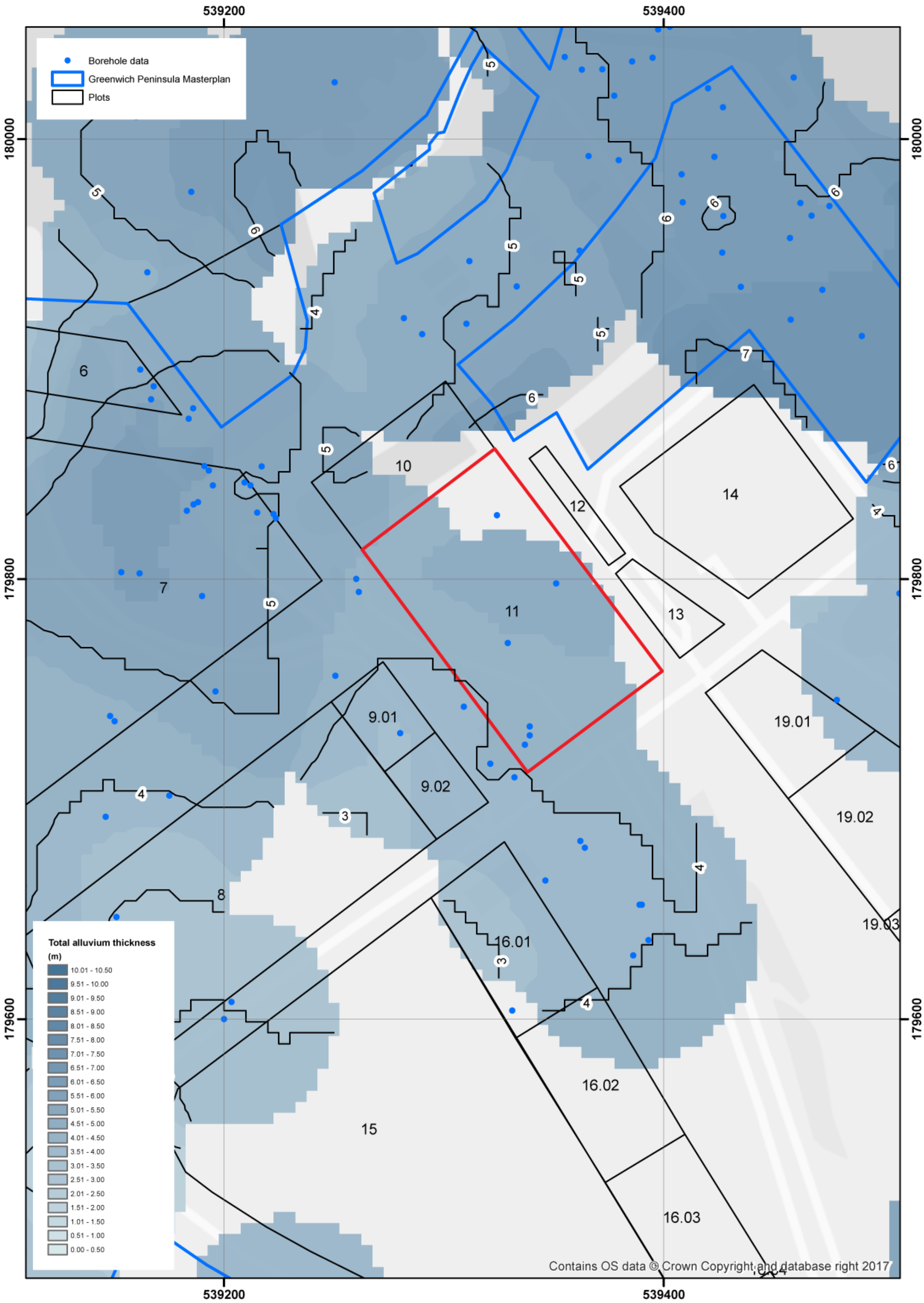


Figure 9: Thickness of the Total Alluvium (Lower Alluvium, Peat and Upper Alluvium) (m)

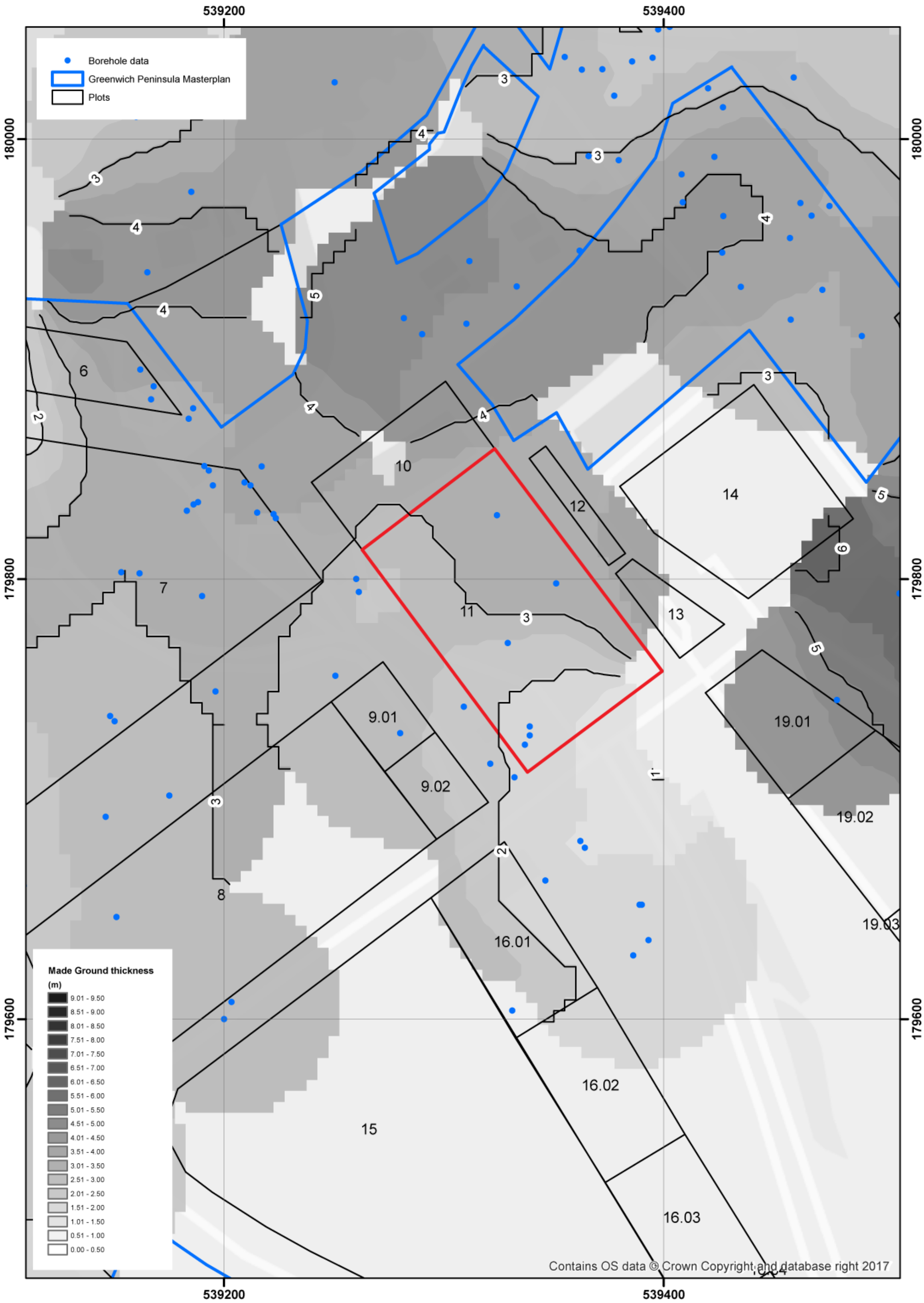


Figure 10: Thickness of Made Ground (m)

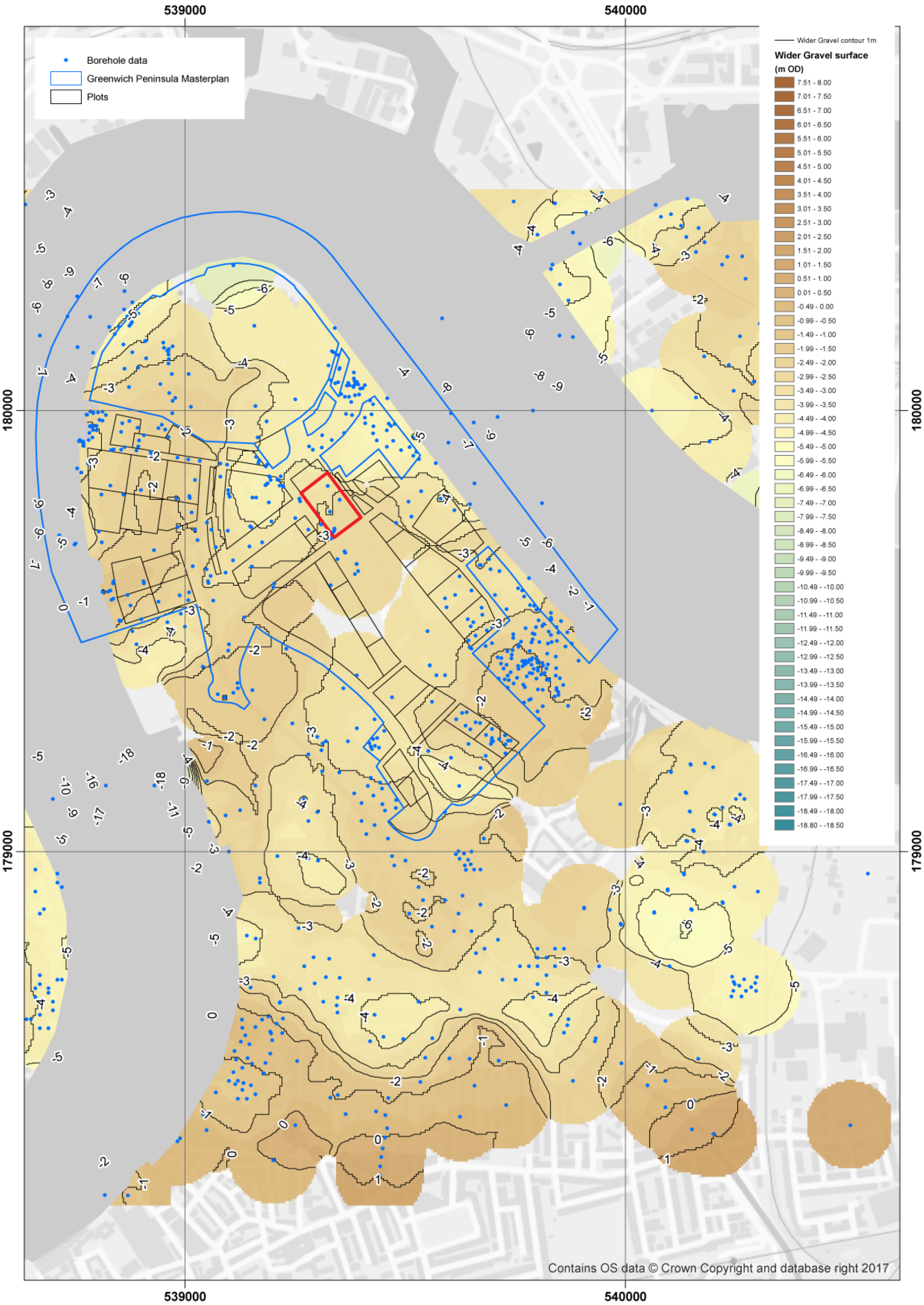


Figure 11: Top of the Gravel across the wider area of Greenwich Peninsula (m OD; 100m interpolation radius). See Figure 1 for site names.

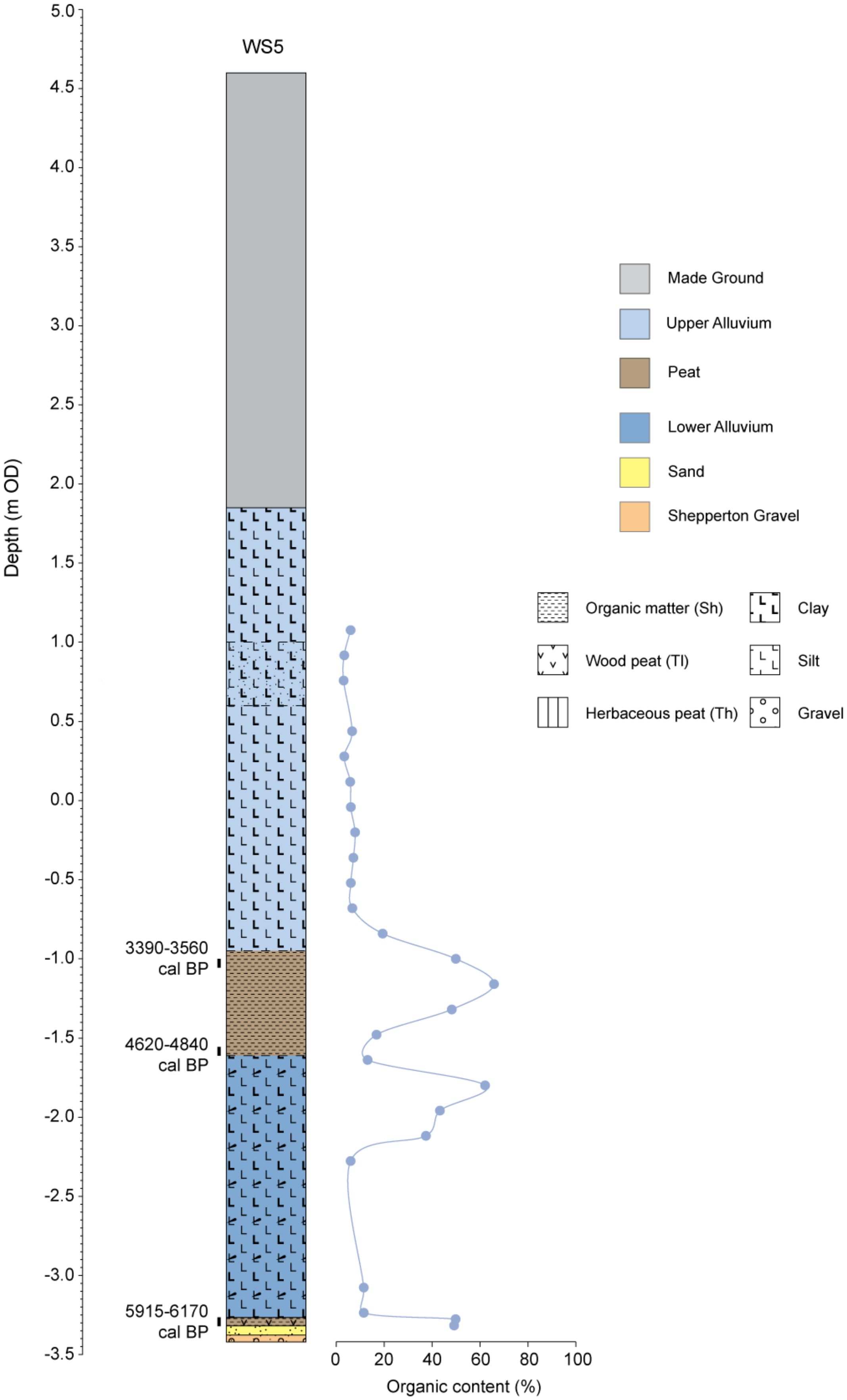


Figure 12: Results of the lithostratigraphic descriptions, organic content determinations and radiocarbon dating of borehole WS5, Design District (Plot 11), Greenwich Peninsula, Royal Borough of Greenwich

5. RESULTS & INTERPRETATION OF THE POLLEN ASSESSMENT

The results of the assessment record a variable concentration and preservation of remains (from very poor/low to very high/excellent) with little apparent correlation to each of the main stratigraphic units. *Alnus* (alder), *Quercus* (oak) and *Corylus* type (hazel) tend to dominate the assemblages, with less common occurrences of *Tilia* (lime), *Ulmus* (elm) and *Fraxinus* (ash). The herbaceous assemblage is limited, with sporadic occurrences of Cyperaceae (sedges), Poaceae (grasses – most likely including reeds), *Chenopodium* type (goosefoot family), Caryophyllaceae (pinks), *Plantago* lanceolata (ribwort plantain), *Ranunculus* type (buttercup/water crowsfoot) and *Cirsium* type (thistles). Aquatic and spore taxa are more or less absent. Microcharcoal concentrations are largely absent/negligible within the Peat and high within the Lower/Upper Alluvium.

The results of the assessment indicate that for much of the period of deposition, the floodplain environment was occupied by alder carr with a ground flora of sedges, grasses and mixed herbs. Oak, hazel, ash and other tree/shrub taxa may have grown within the alder carr woodland, but more likely occupied the dryland forming mixed deciduous woodland dominated by oak and lime. Potential evidence of human activity includes the following: (1) the presence of a cereal grain in the Lower Alluvium. (2) high values of microcharcoal in the Lower and Upper Alluvium and (3) a reduction in the presence of lime towards the top of the sequence.

The presence of the cereal grain may suggest an early Neolithic episode of nearby cultivation. However, cereal grains have a very similar morphology to that those of wetland grasses; as such, there is a possibility that it does not originate from an anthropogenic source. Even if anthropogenic, its position in the Lower Alluvium means it is may be fluvially-derived as opposed to representing *in situ* deposition. High values of microcharcoal are indicative of burning, though whether of anthropogenic or natural origin is impossible to determine without additional evidence. Added to this, as with the cereal grain, microcharcoal values are high in only the Lower and Upper Alluvium, consequently it cannot be determined if they originate from a local or regional source.

The near absence of lime pollen grains at the top of the peat and within the Upper Alluvium is suggestive of a reduction in lime woodland. Whilst this trend is unclear due to the very poor concentration and preservation of pollen in this part of the sequence, it would represent a similar even to many other palaeoenvironmental records from the Lower Thames Valley and beyond. It is during this period that environmental changes on the floodplain and late prehistoric activity caused the widespread reduction of woodland on both the wetland and dryland surfaces.

Table 5: Results of the pollen assessment from WS5, Design District (Plot 11)

	Depth (m OD)	0.44	-0.04	-0.52	-1.00	-1.16	-1.32	-1.48	-1.80	-2.28	-3.08	-3.28	-3.32
	Stratigraphy	UPPER ALLUVIUM			UPPER PEAT				LOWER ALLUVIUM			LOWER PEAT	
Latin name	Common name												
Trees													
Alnus	alder	1	4	5	10	3	11	17	36	2	1	2	12
Quercus	oak		1	1	2	4	3	5	6	1	3	1	8
Pinus	pine		1		1			1	1	3	2		
Tilia	lime	1				3	1	2	7				2
Ulmus	elm						2		1	1		1	
Taxus	yew											1	
Fraxinus	ash					1	1						1
Shrubs													
Calluna vulgaris	heather	1								1			
Corylus type	e.g. hazel			1	1		2	6	6	3	3		6
Prunus type	blackthorn										1		
Herbs													
Cyperaceae	sedge family		2						1		2		
Poaceae	grass family		3			1		1		7			
Cereale *type*	cereal										1		
Lactuceae	dandelion family	1	1							3	1		
Plantago lanceolata	ribwort plantain		1				1						
Chenopodium type	goosefoot family		3							9	1		
Caryophyllaceae	pink family									1			
Cirsium type	thistle									1			
Centaurea nigra	black knapweed	1											
Ranunculus type	buttercup / water crowsfoot									1			1
Apiaceae	carrot family								1				
cf Sinapis type	mustard family		2							25			
Aquatics													
Typha latifolia	bulrush										1		
Spores													
Pteridium aquilinum	bracken										1		
Filicales	ferns							1			1		
Polypodium vulgare	polypody								2				
Total Land Pollen (grains counted)		5	18	7	14	12	21	32	59	60	15	5	30
Concentration*		1	3	1	2	2	3-4	5	5	5	3	1	4

	Depth (m OD)	0.44	-0.04	-0.52	-1.00	-1.16	-1.32	-1.48	-1.80	-2.28	-3.08	-3.28	-3.32
	Stratigraphy	UPPER ALLUVIUM			UPPER PEAT				LOWER ALLUVIUM			LOWER PEAT	
Latin name	Common name												
Preservation**		3	3	4	3	4	3	4	4	2-3	4	3	4
Microcharcoal Concentration***		4	3	5	0	0	1	1	0	4	4	0	0
Suitable for further analysis		NO	YES	NO	YES	YES	YES	YES	YES	YES	YES	NO	YES

*Key: *Concentration: 0 = 0 grains; 1 =1-75 grains, 2 = 76-150 grains, 3 =151-225 grains, 4 = 226-300, 5 =300+ grains per slide; **Preservation: 0 = absent; 1 = very poor; 2 = poor; 3 = moderate; 4 = good; 5 = excellent; ***Microcharcoal Concentration: 0 = none, 1= negligible, 2 = occasional, 3 = moderate, 4 = frequent, 5 = abundant*

6. RESULTS & INTERPRETATION OF THE DIATOM ASSESSMENT

A total of four samples, focussed on the interface between the peat/Lower Alluvium and the Lower Alluvium/basal peat in borehole WS5, were submitted for assessment of diatoms. The results are displayed in Table 6. The results of the assessment indicate that diatoms were present in very low concentrations in three samples (-1.60 to -1.61, -1.64 to -1.65 and -3.24 to -3.25m OD) but absent in the sample from -3.28 to -3.29m OD. Where diatoms were found, these were generally poorly preserved and the diversity of the assemblage was low.

A number of factors influence diatom preservation, and it is probable that in the sediments examined here diatom concentrations were always low and that post-depositional destruction of the frustules has occurred due to drying-out, abrasion and possibly unfavourable chemical conditions. Dissolution of the diatom silica, for example, can occur as a response to the ambient dissolved silica concentration, the pH in open water, and the interstitial water in sediments. Using both fossil and modern diatoms, these and other environmental factors have been shown to affect the quality of preservation of assemblages (Flower, 1993; Ryves *et al.*, 2001).

Table 6: Results of the diatom assessment of samples from borehole WS5, Design District (Plot 11). Greenwich Peninsula, Royal Borough of Greenwich.

Depth (m OD)	Stratigraphy	Diatom concentration	Quality of preservation	Diversity
-1.60 to -1.61	Peat/Lower Alluvium interface	1	1	Low
-1.64 to -1.65	Lower Alluvium	1	1	Low
-3.24 to -3.25	Lower Alluvium	1	1	Low
-3.28 to -3.29	Basal peat/Lower Alluvium interface	0	-	-

7. RESULTS & INTERPRETATION OF THE MACROFOSSIL ASSESSMENT

A total of seven small bulk samples from borehole WS5 were extracted and processed for the recovery of macrofossil remains, including waterlogged plant macrofossils, wood, insects and Mollusca (Table 7). The samples were focussed on the peat horizons recorded in WS5.

The samples in borehole WS5 were dominated by waterlogged wood, with moderate to high quantities recorded in all but two samples (-0.95 to -1.00 and -1.32 to -1.42m OD; low concentrations). Waterlogged seeds were recorded in low concentrations in two samples -0.95 to -1.00 and -1.12 to -1.22m OD). Waterlogged sedge remains, generally lacking the diagnostic epidermal tissues necessary for identification, were recorded in low to moderate concentrations in all samples with the exception of -1.00 to -1.05m OD. Insect remains, generally present as fragments of elytra, were recorded in low concentrations in the sample from -0.95 to -1.00m OD. No charred remains, bone or Mollusca were identified in the samples from WS5

The waterlogged seed assemblage in the two samples (Table 8) was limited to *cf*. Brassicaceae (mustard family) and *Alnus glutinosa* (alder). This assemblage is too small to attempt a full environmental interpretation, but the species recorded are consistent with those in or on the margins of a wetland fen.

Table 7: Results of the macrofossil assessment of samples from borehole WS5, Design District (Plot 11), Greenwich Peninsula, Royal Borough of Greenwich.

				Charred					Waterlogged			Mollusca		Bone			
Depth (m OD)	Unit	Volume processed (ml)	Fraction	Charcoal (>4mm)	Charcoal (2-4mm)	Charcoal (<2mm)	Seeds	Chaff	Wood	Seeds	Sedge remains (e.g. stems/roots)	Whole	Fragments	Large	Small	Fragments	Insects
-0.95 to -1.00	Upper peat	0.05	>300µm	-	-	-	-	-	1	1	1	-	-	-	-	-	1
-1.00 to -1.05	Upper peat	0.05	>300µm	-	-	-	-	-	3	-	-	-	-	-	-	-	-
-1.12 to -1.22	Upper peat	0.10	>300µm	-	-	-	-	-	4	1	2	-	-	-	-	-	-
-1.32 to -1.42	Upper peat	0.05	>300µm	-	-	-	-	-	1	-	2	-	-	-	-	-	-
-1.52 to -1.57	Upper peat	0.05	>300µm	-	-	-	-	-	2	-	2	-	-	-	-	-	-
-1.57 to -1.62	Upper peat	0.05	>300µm	-	-	-	-	-	3	-	1	-	-	-	-	-	-
-3.27 to -3.33	Basal peat	0.05	>300µm	-	-	-	-	-	3	-	1	-	-	-	-	-	-

Key: 0 = Estimated Minimum Number of Specimens (MNS) = 0; 1 = 1 to 25; 2 = 26 to 50; 3 = 51 to 75; 4 = 76 to 100; 5 = 101+

Table 8: Results of the seed identifications of samples from borehole WS5, Design District (Plot 11), Greenwich Peninsula, Royal Borough of Greenwich.

Depth (m OD)	Unit	Seed identification		Quantity
		Latin name	Common name	
-0.95 to -1.00	Upper peat	cf. Brassicaceae	mustard family	3
-1.00 to -1.05	Upper peat	-	-	-
-1.12 to -1.22	Upper peat	*Alnus glutinosa* (catkin)	alder	2
-1.32 to -1.42	Upper peat	-	-	-
-1.52 to -1.57	Upper peat	-	-	-
-1.57 to -1.62	Upper peat	-	-	-
-3.27 to -3.33	Basal peat	-	-	-

8. DISCUSSION & CONCLUSIONS

The aims of the environmental archaeological assessment at the Design District (Plot 11) site were (1) to clarify the nature, character and date of the peat deposits at the site; (2) to investigate whether the sequences contain any artefact or ecofact evidence for prehistoric or historic human activity; and (3) to investigate whether the sequences contain any evidence for natural and/or anthropogenic changes to the landscape (wetland and dryland). The results of the previous geoarchaeological field investigations and deposit modelling (Young, 2017a) indicated that the sediments present beneath the Design District site were similar in character to those recorded elsewhere on Greenwich Peninsula, and in the Lower Thames Valley more generally. In the area of the site the Late Devensian Shepperton Gravel is overlain by a sequence of Holocene alluvial sediments, buried beneath modern Made Ground. The deposit model for the wider area indicates that the site is likely to lie either within, or on the margins of, a former Late Devensian/Early Holocene channel, within which the Gravel surface lies at between *ca*. -2 and -5m OD. At the present site the Gravel surface lies at *ca*. -3.37m OD; on this basis, the archaeological potential of the interface between the Gravel and alluvium is considered to be low, and deeply buried. Archaeological remains have been found within the floodplain deposits *ca*. 1.5km to the south of the site, including the Bronze Age trackway at Bellot Street (Branch *et al*., 2005; McLean, 1993; Philp, 1993); however, this was recorded in association with an underlying Gravel surface of -2m OD or higher.

8.1 Chronology

Between *ca*. 3 and 5m of Holocene alluvial deposits are recorded in the area surrounding the site. Within the site itself this includes two peat horizons, one at the base of the Lower Alluvium (-3.27 to -3.33m OD), dated to the Early Neolithic (5915-6170 cal BP), and one overlying the Lower Alluvium between -0.95 and -1.62m OD and dated to the Middle/Late Neolithic to the Middle Bronze Age (4620-4840 cal BP to 3390-3560 cal BP). The period of peat formation at these sites thus appears to be contemporaneous with a widespread period of accumulation recorded elsewhere across the Lower Thames Valley, between *ca*. 6500-3000 cal BP, largely driven by variations in relative sea level rise (e.g. Devoy, 1979; Sidell, 2003). They are also consistent with those recorded elsewhere on Greenwich Peninsula. At the Victoria Deep Water Terminal site (see Figure 1), peat accumulation was radiocarbon dated to 5280-4660 cal BP (Neolithic; Corcoran, 2002), whilst at the Cable Car South Station in SSBH1C , the base of the peat was recorded around 5580-5310/5890-5610 cal BP and continued until 3380-3210 cal BP (Neolithic through to Bronze Age; Batchelor *et al*., 2015a). At the 20 Horn Lane site the peat was radiocarbon dated to the early/middle Neolithic (3620 to 3370 cal BC/5570 to 5320 cal BP) through to the middle Bronze Age (1610 to 1440 cal BC/3560 to 3390 cal BP); at the western end of the channel within which this site lies, similar Neolithic and Bronze Age dates have been recorded at the Alcatel-Lucent (Batchelor *et al*., 2017) and Enderby Wharf (Batchelor *et al*., 2015b) sites. At the latter site a lower, silty peat horizon was recorded within the Lower Alluvium between -2.61 and -2.77m OD; subsequent radiocarbon dating indicated that peat accumulation commenced here around 5450-5070 cal BP (middle Neolithic; Batchelor *et al*., 2015b).

8.2 Vegetation history

The results of the palaeobotanical assessment indicate that the concentration and preservation of palaeobotanical remains (pollen, diatoms, waterlogged wood and seeds) was highly variable through the sequence. Overall however, a floodplain environment occupied by alder carr with a ground flora of sedges, grasses and mixed herbs is indicated for much of the period of deposition, whilst the dryland was occupied by mixed deciduous woodland dominated by oak and lime. Towards the top of the Peat and within the Upper Alluvium there is some suggestion of a decrease in woodland cover, which correlates with other sequences from the Lower Thames and beyond. Potential evidence of human activity was limited, but included the presence of a cereal grain in the Lower Alluvium, and high values of microcharcoal in the Lower and Upper Alluvium.

The new sequence from Design District (Plot 11) site is within 200m of the Cable Car South Station (Batchelor *et al.*, 2015a). The two pieces of work record the same broad floodplain and dryland vegetation communities over almost exactly the same chronological period. The Cable Car record however had a higher and less variable concentration and preservation of remains, enabling a much more detailed reconstruction of the vegetation history. This included identification of a large reduction in lime woodland during the Neolithic, succeeded by a brief and small expansion of yew (*Taxus*). In addition, the change in vegetation history on both the floodplain and dryland at the interface between the peat and Upper Alluvium was far more evident in the palaeobotanical record (Batchelor *et al.*, 2012). Assessment of the diatoms was also carried out, demonstrating changes in saline influence at the interface between the major stratigraphic units (Batchelor *et al.*, 2012).

At the 20 Horn Lane site (Young & Batchelor, 2017) the wetland appears to have been occupied by a similar assemblage of alder with a ground flora of sedges and grasses, representing carr woodland and/or sedge or reed swamp habitats. The dryland contained at least some mixed decidious woodland, dominated by oak, lime and elm. In the pollen record, evidence for major changes in vegetation composition could not be defined, including a decline in floodplain and dryland woodland which is often seen towards the end of peat formation (ant tentatively identified at the present site). In contrast, at the Alcatel-Lucent site (Batchelor *et al.*, 2017) two distinct assemblages where identified within the peat: the lower assemblage, between -2.74 and -1.86m OD was indicative of a relatively damp and open wetland environment, dominated by sedges and ferns but with alder and willow carr also forming part of the wetland vegetation. On the dryland a mixed deciduous woodland dominated by oak, lime and elm was recorded. Significantly, a decline in lime and elm pollen values towards the base of the sequence was recorded, suggestive of environmental changes taking place towards the wetland-dryland interface (e.g. the loss of dryland habitat or anthropogenic impact). No definitive evidence of human activity was recorded in this part of the sequence, but the occurrence of microcharcoal may be suggestive of either natural or anthropogenic burning in the nearby environment. Between -0.26 and -1.46m OD the assemblage was suggestive of a shift towards sedge fen, reed swamp and salt-marsh communities with an estuarine influence, most likely as a consequence of an increase in relative sea level rise (RSL). On the dryland, the decline of oak is suggestive of a large reduction in mixed deciduous woodland; the increase of a large array of herbaceous taxa including cereal pollen suggests that this decline was a consequence of woodland clearance for settlement and agricultural purposes, which took place from the Bronze Age onwards.

There are some significant differences between the relatively open environments indicated at the Alcatel-Lucent site, and those from Enderby Wharf (immediately to the east of Alcatel-Lucent), where a much stronger wetland woodland signal was recorded (Batchelor *et al*., 2015). These differences may reflect localised variations in environment and vegetation at the time the Peat was forming, or given the uncertainties regarding the chronology of the Alcatel-Lucent sequence, may indicated that the Peat is of a different age to that recorded at Enderby Wharf (see Batchelor *et al*., 2015b). At this latter site, the analysis indicated that during the early stages of Peat formation (between 5450-5070 and 5290-4980 cal BP; middle Neolithic) the wetland environment was occupied by alder-carr swamp and sedge fen communities with areas of still or standing water, and potentially a limited tidal influence. Shortly after 5290-4980 to around 3390-3230 cal BP (middle Neolithic to Bronze Age) this vegetation community underwent a transition towards more mature and drier fen carr woodland dominated by alder, but may also have included hazel, ivy, elm, ash and yew. At this time the dryland environment was occupied by mixed deciduous woodland dominated by oak with lime, birch, hazel, elm and ash. Changes in the structure and composition of the dryland woodland are indicated from shortly after 5290-4980 to 3390-3230 cal BP as both lime and elm increased relative to oak. At the very top of the sequence around 3390-3320 cal BP, a reduction in fen woodland cover and an increase in herbaceous and aquatic taxa indicate a transition towards a wetter environment at the site. The timing of this event, in combination with elevated values of *Chenopodium* pollen, suggests this transition was caused by an increased saline influence which may correlate with that recorded in the upper part of the Alcatel-Lucent sequence.

Similar to the present site, no definitive indicators of human activity were recorded at Enderby Wharf or 20 Horn Lane, including around the time of trackway construction at 72-88 Bellot Street (Philp & Garrod, 1994; 3380 to 3500 cal BP) and the Garage Site, Bellot Street (Branch *et al*., 2005; (3890-3680 to 3720-3570 cal BP).

9. RECOMMENDATIONS

On the basis of (1) the variable concentration of the palaeobotanical remains in the WS5 sequence, and (2) the similar stratigraphy and chronology of the Cable Car sequence upon which a much more detailed palaeoenvironmental reconstruction has been undertaken (Batchelor *et al*., 2015a), no further analysis is recommended. The data should however be integrated into any relevant future publications on the Greenwich Peninsula area.

11. REFERENCES

Barnett, C., Allen, M.J., Evans, G., Grimm, J.M., Scaife, R., Stevens, C.J. & Wyles, S.F. (2010) A Submerged Forest with Evidence of Early Neolithic Burning Activity and the Tilbury Alluvial Sequence at Canning Town, East London. *Transactions of the London and Middlesex Archaeological Society*, 61, 1-15.

Batchelor, C.R. (2013) A report on the geoarchaeological borehole investigations and deposit modelling on land at Greenwich Peninsula, Tunnel Avenue, London Borough of Greenwich (Site Code: GPF12*). Quaternary Scientific (QUEST) Unpublished Report February 2013; Project Number 079/12.*

Batchelor, C.R. (2014) A report on the geoarchaeological deposit modelling on land at plot MO401, the Gateway Site, Greenwich Peninsula, London Borough of Greenwich. *Quaternary Scientific (QUEST) Unpublished Report November 2014; Project Number 178/14.*

Batchelor, C.R., Branch, N.P., Elias, S., Young, D., Austin, P., Green, C.P., Morgan, P. and Williams, K. (2008a). Former Borax works, Norman Road, Belvedere, London Borough of Bexley: rapid environmental archaeological assessment (site code: NNB07). *ArchaeoScape Unpublished Report.*

Batchelor, C.R., Branch, N.P., Christie, R., Elias, S. Young, D.S., Austin, P., Williams, K., & Wilkinson, K. (2008b) Imperial Gateway, Belvedere: environmental archaeological assessment report. *Quaternary Scientific (QUEST) Unpublished Report December 2008; Project Number 056/08.*

Batchelor, C.R., Young, D.S., Green, C.P., Austin, P., Cameron, N. & Elias, S. (2012). A Report on the Environmental Archaeological Analysis of Boreholes collected from the London Cable Car Route, London Boroughs of Newham and Greenwich (site code: CAB11). *Quaternary Scientific (QUEST) Unpublished Report January 2012; Project Number 140/10.*

Batchelor, C.R., Green, C.P., Young, D., Austin, P., Cameron, N. and Elias, S. (2015a) Prehistoric landscapes beneath the London Cable Car. *London Archaeologist* **14**(3): *65-72*.

Batchelor, C.R., Young, D.S. and Green, C.P. (2015b) Land at Enderby Wharf, Christchurch Way, London Borough of Greenwich SE10 0AG (NGR: TQ 3925 7873): Environmental Archaeological Analysis Report. *Quaternary Scientific (QUEST) Unpublished Report May 2015; Project Number 140/13.*

Batchelor, C.R., Young, D.S. & Hill, T. (2017) *Alcatel-Lucent Telegraph Works, London Borough of Greenwich. Geoarchaeological & Palaeoenvironmental Analysis Report*. Quaternary Scientific (QUEST) Unpublished Report April 2017; Project Number 095/14.

Bengtsson, L. & Enell, M. (1986) *Chemical Analysis*. In (Berglund, B.E. ed.) *Handbook of Holocene palaeoecology and palaeohydrology*, 423-451. Chichester: John Wiley and Sons.

Branch, N., Canti, M., Clark, P. and Turney,C. (2005) *Environmental Archaeology: theoretical and Practical Approaches*. Edward Arnold, London.

Branch, N.P., Green, C.P., Vaughan-Williams, A., Elias, S., Swindle, G., & Batchelor, C.R. (2005) Bellot Street, Maze Hill, London Borough of Greenwich (site code: GBL05): environmental archaeological assessment. *ArchaeoScape Unpublished Report.*

Branch, N.P., Batchelor, C.R., Elias, S., Green., C.P. & Swindle, G.E. (2007) Preston Road, Poplar High Street, Poplar, London Borough of Hamlets (site code: PPP06): environmental archaeological analysis. *ArchaeoScape Unpublished Report.*

Branch, N.P., Canti, M.G., Clark, P. and Turney, C.S.M. (2005) *Environmental Archaeology: Theoretical and Practical Approaches*, Edward Arnold, London.

Bronk Ramsey C. (1995) Radiocarbon Calibration and Analysis of Stratigraphy: The OxCal Program, *Radiocarbon* 37 (2), 425-430.

Bronk Ramsey C. (2001) Development of the Radiocarbon Program OxCal, *Radiocarbon* 43 (2a), 355-363.

Bronk Ramsey, C. (2007) Deposition models for chronological records. *Quaternary Science Reviews* (INTIMATE special issue; 27(1-2), 42-60.

Bowsher, J. (2002) Gallions Reach Urban Village, Canal extension, Thamesmead: an archaeological watching brief. *MoLAS unpublished report.*

Cappers, R.T.J., Bekker R.M. & Jans J.E.A. (2006) *Digital Seed Atlas of the Netherlands*. Groningen Archaeological Series 4. Barkhuis, Netherlands

Corcoran, J. (2002) Greenwich Peninsula SE10: a geoarchaeological report. *MoLAS unpublished report.*

Corcoran, J, (2008) Preliminary evaluation of archaeological and palaeoenvironmental potential at Greenwich Wharf (Phase 1). (Site Code GWW07). *MoLAS unpublished report.*

Corcoran, J. and Lam, J. (2002) Land at Project Alice, the former British Gypsum Site, Corinthian Quay, Church Manor Way, Erith: a report on the geoarchaeological evaluation. *MoLAS Unpublished Report.*

Corcoran, J., Halsey, C., Spurr, G., Burton, E. and Jamieson, D. (2011) Mapping past landscapes in the lower Lea valley: A geoarchaeological study of the Quaternary sequence. *Museum of London Archaeology, MOLA Monograph 55.*

Concept Site Investigations (2007) Greenwich Peninsula Plot MO1-14 borehole logs. *Concept Site Investigations Unpublished Report December 2007.*

Concept Site Investigations (2016) Greenwich Peninsula: Peninsula Place Factual Report. *Concept Site Investigations Unpublished Report November 2016.*

Daykin, A. (2008) Summary of preliminary results from Greenwich Wharf (Phase 1) Blocks 6b, 6c and 7 (Site Code GWW07). *MoLAS unpublished report.*

Devoy, R.J.N. (1979) Flandrian sea-level changes and vegetational history of the lower Thames estuary. *Philosophical Transactions of the Royal Society of London*, B285, 355-410.

Flower, R.J. (1993) Diatom preservation: experiments and observations on dissolution and breakage in modern and fossil material. *Hydrobiologia* 269/270, 473-484.

Gibbard, P.L. (1994) *Pleistocene History of the Lower Thames Valley*. Cambridge University Press, Cambridge.

Green, C.P. & Young, D.S. (2012) A Report on the Geoarchaeological Borehole Investigations and Deposit Modelling on Land at Canning Town Regeneration Area 7/1C, London Borough of Newham (NGR 539610 181443). *Quaternary Scientific (QUEST) Unpublished Report June 2012; Project Number 048/12*

Hogg, I. (2012) Greenwich Peninsula, Tunnel Avenue, Royal Borough of Greenwich: An Archaeological Watching Brief Report. *AOC Archaeology Group, Unpublished Report.*

Holder, N. (1998) An Archaeological Excavation Assessment and Updated Project Design for Royal Docks Community School Site, Prince Regent Lane, Newham. *MoLAS Unpublished Report.*

Ian Farmer Associates (2016) Factual Report on Ground Investigation Carried Out at Greenwich Peninsula, Plot 18.03, West Parkside, SE10 0BL. *Ian Farmer Associates Unpublished Report, July 2016.*

Lakin, D. (1998) Atlas Wharf, Westferry Road, Isle of Dogs. *MoLAS unpublished report.*

Martin, A.C. and Barkley, W.D. (2000) *Seed Identification Manual*. The Blackburn Press, Caldwell, New Jersey.

McLean. G. (1993) An outline report on an archaeological evaluation at the land at the rear of 72-88 Bellot Street Greenwich London SE10. *SELAU Unpublished Report.*

Meager, R. (2014) Archaeological Desk Based Assessment: Alcatel-Lucent Telegraph Works Blackwall Lane Greenwich London SE10. *CgMs Consulting Unpublished Report*.

Miller, P. & Halsey, C. (2011) Greenwich Millennium Village Phase 3-5, Greenwich SE10: A geoarchaeological and historic environment assessment. *Museum of London Archaeology Unpublished Report 2011.*

Moore, P.D., Webb, J.A. & Collinson, M.E. (1991) *Pollen Analysis*. Oxford: Blackwell Scientific.

Morley, M. (2003) Greenwich Industrial Estate, Bugsby's Way, Charlton, London SE7, a Geoarchaeological Investigation. *MoLAS Unpublished Report.*

NIAB (2004) *Seed Identification Handbook Agriculture, Horticulture & Weeds. 2nd edition*. NIAB, Cambridge.

Pepys, S. (1665). Samuel Pepys Diary September 1665. Available at http://www.pepysinfo/1665/ 1665sep.html accessed on 20th April 2007.

Philp, B. (1993) An Outline Report on an Archaeological Evaluation Excavation at the Land at the Rear of 72-88 Bellot Street, Greenwich, London SE10. *SELAU Unpublished Report.*

QUEST/RPS (2017) Greenwich Peninsula, Royal Borough of Greenwich. Geoarchaeological & Palaeoenvironmental Written Scheme of Investigation. *Quaternary Scientific (QUEST)/RPS Unpublished Report, June 2017; Project Number 052/16.*

Reille, M. (1992) *Pollen et spores D'Europe et D'Afrique du Nord*. Laboratoire de Botanique historique et Palynologie, Marsaille.

Reimer, P.J., Bard, E., Bayliss, A., Beck, J.W., Blackwell, P.G., Bronk Ramsey, C., Buck, C.E., Edwards, R.L., Friedrich, M., Grootes, P.M., Guilderson, T.P., Haflidason, H., Hajdas, I., Hatté, C., Heaton, T.J., Hoffmann, D.L., Hogg, A.G., Hughen, K.A., Kaiser, K.F., Kromer, B., Manning, S.W., Niu, M., Reimer, R.W., Richards, D.A., Scott, E.M., Southon, J.R., Turney, C.S.M., and van der Plicht, J., (2013) IntCal13 and Marine13 radiocarbon age calibration curves, 0-50,000 years cal BP. *Radiocarbon* 55: 1869-1887.

Ryves, D.B., Juggins, S., Fritz, S.C. & Battarbee, R.W. (2001) Experimental diatom dissolution and the quantification of microfossil preservation in sediments. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 172, 99-113.

Sidell, E.J. (2003) *Relative sea-level change and archaeology in the inner Thames estuary during the Holocene*. University College, London, Unpublished PhD Thesis.

Stafford, E. (2012) Landscape and Prehistory of the East London Wetlands. *Oxford Archaeology Monograph no. 17.*

Stace, C. (2005) *New Flora of the British Isles. Cambridge*: Cambridge University Press.

Tröels-Smith, J. (1955) Karakterisering af løse jordater (Characterisation of unconsolidated sediments), *Danm. Geol. Unders.,* Ser IV 3, 73.

Wessex Archaeology (2000) Fort Street (West) Silvertown, London, E16, Archaeological excavation assessment report. *Wessex Archaeology: Unpublished Report.*

Wilkinson, K.N., Scaife, R.J. & Sidell, E.J. (2000) Environmental and sea-level changes in London from 10,500 BP to the present: a case study from Silvertown. *Proceedings of the Geologists' Association*, 111, 41-54.

Young, D.S. & Batchelor, C.R. (2013a) A report on the geoarchaeological borehole investigations and deposit modelling on land at Plot MO115, Greenwich Peninsula, London Borough of Greenwich (site code: CHB13). *Quaternary Scientific (QUEST) Unpublished Report February 2013; Project Number 210/12.*

Young, D.S. & Batchelor, C.R. (2013b) A report on the geoarchaeological borehole investigations and deposit modelling on land at Plot MO117, Greenwich Peninsula, London Borough of Greenwich (site code: JHW13). *Quaternary Scientific (QUEST) Unpublished Report February 2013; Project Number 210/12.*

Young, D.S. and Batchelor, C.R. (2015a) Greenwich Peninsula Central East, Plots N0205, N0206 and N0207 (Site Code: CTT15): Environmental Archaeological Assessment Report. *Quaternary Scientific (QUEST) Unpublished Report August 2015; Project Number 067/15.*

Young, D.S. and Batchelor, C.R. (2015b) Alcatel-Lucent Telegraph Works, London Borough of Greenwich Environmental Archaeological Assessment Report. *Quaternary Scientific (QUEST) Unpublished Report December 2015; Project Number 094/14.*

Young, D.S. (2017a) Design District (Plot 11), Greenwich Peninsula, Royal Borough of Greenwich Geoarchaeological Deposit Model. *Quaternary Scientific (QUEST) Unpublished Report October 2017; Project Number 109/17.*

Young, D.S. (2017b) Design District (Plot 11), Greenwich Peninsula, Royal Borough of Greenwich. Geoarchaeological and Palaeoenvironmental Written Scheme of Investigation. *Quaternary Scientific (QUEST) Unpublished Report August 2017; Project Number 112/17.*

Young, D.S. (2017c) Greenwich Peninsula Plot NO201, Royal Borough of Greenwich. Desk-Based Geoarchaeological Deposit Model. *Quaternary Scientific (QUEST) Unpublished Report June 2017; Project Number 112/17.*

Young, D.S. (2017d) Greenwich Peninsula Plot 18.03, West Parkside, Royal Borough of Greenwich Geoarchaeological Deposit Model Report. *Quaternary Scientific (QUEST) Unpublished Report May 2017; Project Number 145/16.*

Young, D.S., Batchelor, C.R., Green, C.P. and Clark, A. (in press) *Deposit modelling in the Lower Thames Valley (East London): Correlating the sedimentary sequence with archaeological and palaeoenvironmental evidence of prehistoric human activity.* Historic England Deposit Modelling Guidelines (tbc).

Young, D.S. and Batchelor, C.R. (2017b) 20 Horn Lane, Royal Borough of Greenwich Environmental Archaeological Assessment Report. *Quaternary Scientific (QUEST) Unpublished Report September 2017; Project Number 213/16.*

12. APPENDIX 1: BOREHOLE DATA

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
BH10-2011	538830.63	179591.7	4.61	30
BH11-2011	538837.02	179573.32	4.49	30
BH13-2011	538812.26	179588.74	1.66	30
BH13A	539569	179881	5.64	9.75
BH1A-2011	538812.94	179997.36	5.65	30
BH2A	539339	179729	2.98	30
BH2C-2011	538971.08	179994.61	4.87	30
BH3A-2011	538790.76	179961.93	4.99	30
BH4A(duplicate)	539364	179678	3.04	30
BH6A	539390	179652	3.1	30
BH7-2011	538755.27	179868.66	2.8	30
BH802	538873.93	179976.86	4.106	30
BH803	538906.71	179944.1	4.092	30
BH804	538831.75	179910.64	4.078	30
BH805	538862.19	179917.21	4.615	30
BH806	538892.06	179961.53	5.113	30
BH807	538954.6	179956.83	3.419	30
BH808	538894.02	179919.26	4.172	30
BH809	538921.9	179905.98	4.162	30
CABSSDS04	539478.67	179745.07	5.05	30
EWBH1	539161	178803	2.25	10
EWBH2	539258	178827	1.9	10
EWBH3	539149	178692	2.77	29.46
EWBH4	539201	178717	2.16	30
EWBH5	539271	178740	2.05	20
EWBH6	539261	178689	2.05	30.18
EWBH7	539215	178657	2.44	20
EWQBH1	539270.39	178739.98	1.84	6
EWQBH2	539215.97	178659.37	2.32	7
EWQBH3	539428.27	178765.33	1.59	5
GMVBH3/1	540102	179182	5.8	10
GMVBH3/10	540153	179049	6.7	9.71
GMVBH3/11	540177	179000	6.5	9.05
GMVBH3/2	540147	179198	6.5	8
GMVBH3/4	540136	179135	6.3	8
GMVBH3/7	540145	179092	6	10.69
GMVBH3/8	540201	179085	5.8	11
GMVBH4/10	540065	178863	3.9	13.71
GMVBH4/11	540136	178837	3.4	12.57
GMVBH4/2	540132	178951	5.5	12.5
GMVBH4/4	540095	178915	5.2	12.57
GMVBH4/7	540149	178870	3.9	9.78

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
GMVBH4/8	539906	178873	3.6	8.86
GMVBH4/9	539989	178837	3.4	9.56
GMVBH5/2	540236	179062	5.7	13.29
GMVBH5/5	540220	178886	4.3	9.71
MO114BH001A	539709.3	179440.2	5.05	12.4
MO114BH002	539731	179454.2	5.37	16.6
MO114WS001B	539696.5	179472.3	5.38	5
MO114WS003	539716.6	179426.3	5.01	5
MO115BH1	539746	179381	5.2	14.3
MO115BH2	539741	179438	5.41	13.2
MO115BH3	539768	179379	5.58	5
MO115BH4	539753	179394	5.32	5
MO115BH5	539735	179389	5.2	5
MO115BH6	539723	179415	4.86	5
MO115BH7	539756	179421	5.63	5
MO115BH713	539739	179407	5.7	14
MO115BH714	539771	179373	5.89	17.2
MO115QBH1	539732.01	179398.95	4.4	6
MO115QBH2	539757.1	179413.97	4.63	6
MO115QBH3	539741.82	179446.1	4.62	7
MO117BH1	539858	179378	6.15	23.5
MO117BH2	539843	179371	6.3	24
MO117BH3	539812	179367	6.3	26.5
MO117BH4A	539839	179352	6.2	5
MO117BH5	539843	179367	6.2	5
MO117BH6	539851	179393	6.25	5
MO117BH719	539826	179390	6.85	17.2
MO117BH720	539847	179355	5.23	8.5
MO117BH7A	539825	179389	6.3	5
MO117BH8	539841	179399	6.3	5
SSBH01C	539535.75	179817.14	5.72	30
SSBH02D	539513.84	179759.81	5.31	30
SSBH03	539507.18	179793.44	5.34	30
STBH01	539655.23	179973.19	-8.72	1
STBH03	539656.99	179834.86	-4.08	7.8
STBH04	539597.2	179927.28	-3.88	30
TBH10	539009	179588	2.52	30
TBH11	538901	179527	4.55	30
TBH12	538876	179558	4.67	30
TBH1a	538836	179608	4.75	30
TBH2	538838	179613	4.73	30
TBH5	538906	179613	4.51	30
TBH6	538907	179608	4.48	30

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
TBH7	538869	179582	4.27	30
TBH8	538940	179567	4.27	30
TBH9	538988	179581	2.68	30
TP4-2011	538799.25	179965.29	5.48	2
TP5	539007	179570	2.42	4
TP802	538857.34	179971.77	4.124	2
TP804	538838.17	179912.53	3.889	2
TP805	538854.88	179911.24	4.893	2
TP806	538889.9	179909.41	4.377	2
TP808	538895.81	179932.12	4.096	2
TP809	538924.49	179900.88	3.608	2
TQ37NE1295	539611	179774	5.26	20
TQ37NE1309/A	539820	179200	3.76	12.05
TQ37NE1358	539386	179629	3.05	30
TQ37NE1369	539013.3	180008.6	4.42	30
TQ37NE1471	539430	179300	2.1	30
TQ37NE1473	539650	179460	4.3	30
TQ37NE1474	539830	179530	4.3	30
TQ37NE1475	539780	179620	4.7	30
TQ37NE1477	539730	179550	4.57	14.93
TQ37NE1478	539800	179550	4.57	91.44
TQ37NE1588	539028.26	179706.61	2.336	30
TQ37NE1589	539153.14	179803.14	3.224	30
TQ37NE1592	539194.77	179842.51	3.943	30
TQ37NE1593	539192.92	179849.25	3.964	30
TQ37NE1594	539190.97	179851.37	3.95	30
TQ37NE1596	539161.55	179802.51	3.34	30
TQ37NE1597	539217.01	179851.21	5.025	30
TQ37NE1598	539290.01	179911.28	4.69	30
TQ37NE1599	539212.02	179842.64	5.005	30
TQ37NE1600	539209.3	179843.9	5.01	30
TQ37NE1601	539165.01	179939.42	4.925	30
TQ37NE1602	539261.15	179794.15	2.971	30
TQ37NE1603	539336.72	179724.75	3.143	30
TQ37NE1604	539281.71	179918.57	5.031	30
TQ37NE1605	539379.47	179990.44	5.024	30
TQ37NE1606	538929.59	179683.16	2.719	30
TQ37NE1679	538983	179893.3	2.15	30
TQ37NE1680	539007.1	179889.4	2.48	30
TQ37NE1681	539022.2	179842.9	2.64	30
TQ37NE1683	539014.7	179769.3	2.91	30
TQ37NE1685	539023	179729.5	3.05	30
TQ37NE1686	539017.9	179647.3	2.21	30

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
TQ37NE1687	539049	179640.1	2.32	30
TQ37NE1688	539063.9	179568.9	2.37	30
TQ37NE1689	539134.1	179531.3	2.73	30
TQ37NE1690	539097.8	179455.5	2.16	30
TQ37NE1691	539040.5	179419	2.55	30
TQ37NE1692	539074.2	179356.7	3.04	30
TQ37NE1695	539243.5	179290.5	2.47	30
TQ37NE1701	539006.2	179958.1	4.19	30
TQ37NE1702	539033.6	179886	3.09	30
TQ37NE1703	539058.5	179625.1	3.35	30
TQ37NE1705	538947.1	179968.2	2.57	30
TQ37NE1706	538962.8	179939.8	2.06	30
TQ37NE1713	539011.1	179802	2.79	30
TQ37NE1714	539009.5	179806.6	2.79	30
TQ37NE1715	539052.6	179613.5	2.16	30
TQ37NE2108	539331	179604	3.35	30
TQ37NE2151	539670	179190	2.43	58
TQ37NE2152	538780	179880	4.8	30
TQ37NE2154	538900	179820	2.15	30
TQ37NE2155	538860	179810	2.9	30
TQ37NE2156	538810	179810	3.15	30
TQ37NE2157	539430	178630	1.57	7.6
TQ37NE2641	539490	179910.5	5.08	30
TQ37NE2642	539151	179646.5	2.75	30
TQ37NE2644	539869.5	179330.5	5.56	30
TQ37NE2646	539988	179108	6.47	31.5
TQ37NE2648	539646.5	179787.5	5.3	30
TQ37NE28	539580	179800	2.1	15.24
TQ37NE3713	539765	179592	5.65	16
TQ37NE3714	539697	179509	5.1	30
TQ37NE3715	539830.34	179541.33	5.4	30
TQ37NE3716	539789	179481	4.42	30
TQ37NE3718	539823.42	179424.03	5.28	30
TQ37NE3719	539725	179391	4.85	4.7
TQ37NE3720	539766	179420	5.03	4.7
TQ37NE3721	539775	179397	4.99	4.8
TQ37NE3722	539811	179428	5.47	4.7
TQ37NE3723	539788	179404	5.09	5
TQ37NE3724	539772	179433	5.06	5
TQ37NE3725	539782	179455	4.76	4.8
TQ37NE3726	539743	179457	4.59	4.7
TQ37NE3727	539793	179493	4.6	4.7
TQ37NE3728	539804	179475	4.88	4.7

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
TQ37NE3729	539822	179449	5.11	4.7
TQ37NE3730	539842	179416	5.06	4.7
TQ37NE3731	539821	179390	5.14	5
TQ37NE3732	539801	179368	5.04	5
TQ37NE3733	539781	179344	5.02	5
TQ37NE3735	539732	179372	4.85	5
TQ37NE3736	539802	179524	5.01	5
TQ37NE3737	539831	179526	5.3	5
TQ37NE3738	539853	179523	5.32	5
TQ37NE3739	539825	179499	5.05	5
TQ37NE3740	539847	179496	5.35	4.6
TQ37NE3741	539868	179497	5.6	5
TQ37NE3742	539824	179472	5.12	5
TQ37NE3743	539844	179478	5.1	4.8
TQ37NE3744	539878	179472	5.57	5
TQ37NE3758	539792	179557	5.4	5.5
TQ37SE1243	539583.2	180209.1	-9.69	30
TQ38SE1011	539850	180170	-6.2	31
TQ38SE1012	539870	180250	5.15	38.8
TQ38SE1013	539910	180450	5.55	32
TQ38SE1274	539746	180474	4.63	35.05
TQ38SE1357	538862.9	180271.3	-2.03	30
TQ38SE1358	538880.5	180245.7	0.15	30
TQ38SE1359	538827.6	180189.6	0.31	30
TQ38SE1360	538880.6	180131.9	5.49	30
TQ38SE1361	538911.5	180119.1	5.33	30
TQ38SE1362	538893.9	180097.9	5.18	30
TQ38SE1364	538970.5	180083.6	2.59	30
TQ38SE1365	538944.1	180060.6	2.9	30
TQ38SE1370	539008.6	180083.3	4.56	30
TQ38SE1371	538868.9	180214	5.3	30
TQ38SE1372	538849.2	180191.3	5.36	30
TQ38SE1401	538784.7	180213	-4.41	30
TQ38SE1403	538861.9	180229.8	-0.86	30
TQ38SE1404	538791.3	180131.8	-0.7	30
TQ38SE1405	538840.2	180173.7	5.37	30
TQ38SE1408	538879.9	180200.9	4.77	30
TQ38SE1409	538876.6	180196.7	4.47	30
TQ38SE1410	538873.7	180192.7	4.59	30
TQ38SE1411	538859.8	180149.8	4.1	30
TQ38SE1413	538909.1	180157.8	4.25	30
TQ38SE1414	538910.8	180158.6	4.38	30
TQ38SE1415	538862.4	180095	5.35	30

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
TQ38SE1416	538873	180053.4	5.06	30
TQ38SE1417	538977.6	180029.1	4.1	30
TQ38SE1421	538894.3	180220.1	5.36	30
TQ38SE1440	538961.9	180134.3	5.38	30
TQ38SE1441	538961.9	180136.6	5.41	30
TQ38SE1442	538963.6	180139.9	5.58	30
TQ38SE1443	538962.2	180127.2	2.94	30
TQ38SE1444	538971.9	180145.7	5.62	30
TQ38SE1445	538950.9	180154.3	5.3	30
TQ38SE1446	538962.2	180107.2	2.85	30
TQ38SE1448	538959.6	180136.1	5.47	30
TQ38SE1450	538952.1	180142.2	5.49	30
TQ38SE1451	538963.4	180117.1	2.95	30
TQ38SE1452	538960.4	180137.5	5.46	30
TQ38SE2283	539110	180330	5.85	30
TQ38SE3298	539157.5	180192.5	5.01	30
TQ38SE3299	539340.5	180187.5	6.12	30
TQ38SE3704	539800	180399	5.47	30
TQ38SE4131	539840	180470	4.35	12.5
TQ47NW1314	540320	179770	5.36	15
TQ47NW1315	540320	179810	3.08	3
TQ47NW302	540580	179770	4.71	15.35
TQ47NW326	540410	179730	3.35	18.29
TQ47NW327	540420	179740	1.524	10
TQ47NW328	540440	179740	1.524	10
TQ47NW330	540470	179720	3.35	15
TQ47NW856	540180	179200	8.08	18.29
TQ48SW1645	540451	180292	3.66	10
TQ48SW1646	540459	180300	4.73	20
TQ48SW1647	540449	180286	2.54	20
TQ48SW1648	540453	180287	2.51	20
TQ48SW1651	540505	180284	1.85	20
TQ48SW1652	540567	180287	1.88	20
TQ48SW1733	540219	180331	4.66	25
TQ48SW1735	540336	180300	4.2	25
TQ48SW1736	540402	180296	4.21	25.1
TQ48SW1737	540456	180301	4.25	25
TQ48SW1738	540537	180285	1.98	25
TQ48SW2054	540565	180373	4.43	16
TQ48SW2055	540570	180311	4.32	17
TQ48SW2056	540512	180368	4.35	16
TQ48SW2057	540513	180310	4.31	17
TQ48SW2058	540481	180364	4.35	17

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
TQ48SW2059	540471	180307	4.22	17
TQ48SW2060	540424	180376	4.33	17
TQ48SW2061	540413	180303	4.05	17
TQ48SW2062	540374	180362	4.54	17
TQ48SW2063	540364	180301	4.3	17
TQ48SW2064	540324	180353	4.43	17
TQ48SW2065	540313	180299	4.29	16
TQ48SW2066	540265	180350	4.5	17
TQ48SW2067	540231	180349	4.81	17.5
TQ48SW2079	540323	180338	5.16	20
TQ48SW2080	540565	180357	5.39	20
TQ48SW334/B	540160	180030	2.225	20
TQ48SW383/A	540060	180000	5.34	20
TQ48SW799	540360	180210	1.57	18.1
WS1-2011	538778.21	179990.86	1.2	30
WS2-2011	538783.48	179964.69	1.33	30
WS3-2011	538783.17	179949.72	-0.96	30
WS4-2011	538781.31	179932.99	0.84	30
WS820	538854.81	179951.99	3.826	30
TQ47NW329	540450	179730	3.35	9.14
SVTBH5	540457.35	180256.64	2	10
SVTBH6	540323.07	180343.71	4.5	10
SVTBH7	540165.7	180414.01	6	10
SVTBH8	540068.13	180466.46	8	11
BCPP5	540586.74	180192.89	1.8	5
BCPP6	540588.97	180185.91	1.7	5
BCPP7	540592.3	180180.19	1.7	5
BCPP8	540591.19	180174.32	1.7	5
BCPP9	540593.41	180169.24	1.7	6
BCPP11	540587.86	180166.38	1.8	5
BCPP12	540582.46	180160.98	1.9	5
MO401-BH1	539414.5	179149.5	2.93	10
MO401-BH2	539446.9	179143.5	2.56	10
MO401-BH3	539447.6	179107.7	4.75	10
MO401-BH4	539477.8	179099.3	4.75	10
MO401-WS1	539442.7	179157	2.45	5
MO401-WS2	539479.1	179116.7	4.73	4
MO401-WS3	539453.9	179093	4.82	5
MO401-WS4	539427.5	179127.4	3.66	5
MO401-WS5	539421.7	179168.2	2.3	5
TQ37NE712	539280	179220	1.84	9.63
TQ37NE711	539310	179230	1.54	10.67
TQ37NE696	539312	179245	2.38	10

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
TQ37NE710	539300	179260	2.56	13.71
TQ37NE38	539370	179250	2.4	23.5
TQ37NE730	539650	179000	1.09	3.84
TQ37NE728	539590	179090	1	8.11
TQ37NE721	539470	178990	2.31	9.14
TQ37NE722	539500	178980	1.41	9.14
TQ37NE714	539350	179180	2.42	4.27
TQ37NE944	539311	179182	0.88	4.57
TQ37NE718	539400	179070	2.5	4.57
TQ37NE945	539411	179040	2.59	6.1
TQ37NE719	539430	179060	2.36	9.14
TQ37NE717	539400	179110	2.33	6.1
TQ37NE41	539270	179120	1.5	38.5
TQ37NE698	539475	178969	2.29	10
TQ37NE697	539384	179132	2.79	9.5
TQ37NE1498	538830	179830	4.09	100
TQ38SE1366	538972	180022	2.48	30
TQ37NE1684	539050	179746	2.98	30
TQ37NE1693	539119	179382	3.06	30
TQ37NE1694	539153	179366	5.66	30
TQ37NE1696	539312	179245	2.38	20
TQ37NE1700	539092	179633	2.87	9
TQ37NE1716	539053	179609	2.16	16.5
TQ37NE2643	539555	179422	3.17	30
TQ37NE2645	539678	179030	2.19	31.5
TQ37NE27	539520	179940	1.83	15.24
TQ37NE25	539260	179800	2.1	15.85
TQ37NE720	539460	179030	2.04	13.72
TQ37NE724	539530	178920	1.05	18.29
TQ37NE725	539550	178940	3.3	8.1
TQ37NE731	539670	178960	0.87	3.81
TQ38SE114	538964	180040	2.83	19.35
TQ37NE23	538940	179960	2.76	11.13
TQ37NE702	539110	179360	2.71	4.87
TQ37NE703	539180	179300	2.38	4.57
TQ37NE701	539100	179470	2.04	4.87
TQ37NE705	539080	179880	2.1	12.8
TQ37NE706	539120	179370	2.41	11.43
TQ37NE29	539200	179600	1.83	14.47
TQ37NE34	539470	179350	2.1	20.73
TQ37NE35	539550	179500	2.1	11.28
TQ37NE37	539560	179340	2.1	22.25
TQ37NE36	539570	179400	2.1	12.65

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
TQ37NE32	539360	179370	2.1	13.11
TQ37NE31	539090	179350	1.52	15.24
TQ37NE2098	539170	178940	3.66	8.83
TQ37NE2099	539210	178990	3.87	9.14
TQ37NE2101	539100	179000	3.66	9.14
TQ37NE2100	539280	179070	4.97	14.93
TQ37NE1587	538984	179736	2.22	29.5
TQ37NE1590	539183	179831	3.8	30
TQ37NE1591	539186	179834	3.79	25.7
TQ37NE1595	539188	179835	3.79	14.9
TQ37NE1467	539050	179160	5	35
TQ37NE1468	539160	179150	3.55	35
TQ37NE1469	539320	179250	2.45	32
TQ37NE1470	539390	179280	1.1	33
TQ37NE1472	539590	179400	2.35	37
TQ37NE1476	539810	179790	-5.3	3.65
TQ38SE1010	539790	180000	-9.3	0.4
TQ38SE1497	539946	180494	3.72	18
TQ37NE925	539054	179068	0.24	7
TQ37NE926	539092	179082	2.74	16.61
TQ37NE927	539125	179094	2.59	11.43
TQ37NE33	539390	179400	2.1	21.95
TQ37NE24	538980	179800	2.1	10.33
TQ48SW205	540080	180440	1.52	19.81
TQ37NE30	539230	179460	1.83	14.02
TQ48SW1732	540138	180394	4.94	25
TQ48SW2617	540160	180360	4.43	24.25
TQ48SW2068	540179	180382	5.03	50
TQ48SW2069	540126	180419	4.68	17
TQ48SW2070	540103	180446	5.96	25
TQ38SE895/B	539830	180321	4.72	23
TQ38SE854	539459	180028	5.83	16.61
TQ37NE1299	539185	179976	4.84	20.88
TQ38SE850	539160	180010	4.84	17.37
TQ37NE2109	539280	179730	2.82	30.48
TQ37NE602	539280	178985	4.27	13.71
TQ37NE603	539302	178980	4.27	13.72
TQ37NE779	539170	178930	2.74	7.92
TQ37NE777	539300	179090	2.74	7.62
TQ48SW572	540140	180480	5.76	23.6
TQ48SW1734	540272	180299	4.31	20
NTBH02	539850.35	180286.36	5.16	11
SSDS04	539478.67	179745.07	5.05	5

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
STBH02	539603.46	179994.39	-5.88	4.2
TUBH02	539709.58	179986.13	-10.04	1.6
TUBH01	539879.91	180166.61	-4.89	3.2
SEBH28	539420	180023	5	10
SEBH1A	539309	179742	2.93	6
SEBH2A	539339	179733	2.99	6
SEBH3A	539332	179710	2.93	6
SEBH4A	539362	179681	3.04	6
SEBH5A	539346	179663	2.98	6
SEBH6A	539389	179652	3.15	6
SEBH7A	539393	179636	3.35	7
SEBH10A	539321	179716	3.05	8
SEBH13A	539569	179881	5.64	10
PQBH01	538804.18	179725.773	5.272	8
PQBH02	538810.702	179701.001	4.92	8
BH207.1	539472.13	179931.5	5.3	12
BH207.2	539509.17	179917.51	6.14	12
BH207.3	539530.61	179889.73	6.15	12
WS205.1	539349.85	180094	5.47	6
WS205.3	539371.9	180031.66	5.86	6
BH205.1A	539337.37	180132.09	5.62	13.8
BH205.2	539347.72	180064.9	5.64	13.9
BH205.3	539394.93	180036.95	5.76	13.9
BH205.4	539390.28	180065.76	5.62	14
BH205.5	539325.45	180102.57	5.55	12.3
BH206.1	539426.81	180014.36	5.69	13.8
BH206.2	539408.57	179971.32	5.72	13.8
BH206.3	539435.05	179932.88	5.61	15.2
WS206.2	539407.99	179983.96	5.86	5
WS206.4	539467.11	179965.17	5.49	5
WS206.5A	539426.49	179948.32	5.67	6
WS207.1B	539457.74	179917.97	5.31	6
WS207.2A	539518.02	179897.56	5.88	6
GPCEQBH1	539333	180135	5.6	11
GPCEQBH2	539367	180057	5.7	11
GPCEQBH3	539462	179971	5.6	11
GPCEQBH4	539525	179906	6.2	5.65
ALQBH1	539351	178714	1.8	6
ALQBH2	539417	178711	1.8	6
MWS1	539292	178761	1.4	3
MWS2	539327	178757	1.5	3
MWS3	539320	178716	1.8	4
MWS4	539294	178701	2	0.9

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
MWS5	539346	178635	2.1	3
MWS6	539346	178669	1.9	3
MWS7	539314	178660	2.1	4
TQ37NE2158	539530	178660	1.69	20
TQ37NE631	539625	178642	1.92	7.9
TQ37NE3948	539669	178727	2.01	15
TQ37NE739	539660	178770	1.35	7.62
TQ37NE737	539610	178820	1.21	3.05
TQ37NE735	539560	178830	2.42	7.62
TQ37NE1946	539509	178860	3.05	6.1
TQ37NE1757	539420	178570	1.27	15
TQ37NE1756	539450	178580	1.33	15
TQ37NE1947	539495	178575	1.34	6.1
TQ37NE623	539561	178577	1.86	7.62
ALQBH4	539344	178651	2.02	6
TQ37NE3946	539867.8	178606.5	0.96	3
TQ37NE733	539630	178900	1.12	4.11
TQ37NE748 A	539860	178590	0.27	4.57
TQ37NE629	539624	178399	1.74	4.88
TQ37NE626	539545	178533	1.8	5.46
TQ37NE627	539600	178531	1.68	5.49
TQ37NE746 C	539790	178670	0.79	5.49
TQ37NE628	539646	178530	1.52	5.94
TQ37NE745	539760	178740	1.14	6.1
TQ37NE630	539657	178469	1.61	6.25
TQ37NE746 B	539790	178670	0.67	6.4
TQ37NE2647	539964	178868.5	2.97	6.5
TQ37NE743	539720	178710	1.36	7.01
TQ47NW1022	540300	178910	5.9	7.3
TQ37NE741	539710	178800	2.08	7.62
TQ37NE746 A	539790	178670	0.94	7.62
TQ37NE747	539830	178630	0.79	7.62
TQ48SW382C	540370	180180	2.53	7.62
TQ48SW382D	540370	180180	2.52	7.62
TQ37NE732	539670	178880	0.31	7.77
TQ37NE622	539534	178478	1.67	8.5
TQ37NE624	539712	178526	1.25	9
TQ37NE736	539620	178860	1.6	9.5
TQ47NW1019	540510	178380	2.29	9.5
TQ37NE753 B	539990	178520	1.66	9.91
TQ37NE726	539540	178890	1.3	10
TQ37NE740	539680	178780	1.6	10
TQ37NE727	539590	178890	0.95	10.5

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
TQ37NE3947	539931.84	178577.05	0.85	10.5
TQ47NW1017	540510	178380	1.65	10.5
TQ37NE625	539729	178425	1.95	11
TQ37NE748 B	539860	178590	0.76	11
TQ37NE750	539930	178570	0.93	11
TQ37NE738	539650	178820	2.46	11.5
TQ37NE749	539870	178620	0.79	12
TQ37NE59	539880	178480	3.05	12
TQ38SE895D	539896	180379	4.65	15
TQ47NW283	540050	178470	0.78	12
TQ47NW284	540090	178480	0.83	12
TQ47NW285	540090	178420	0.77	12
TQ47NW287	540150	178420	1.38	12
TQ47NW288	540150	178370	1.61	12
TQ47NW360	540190	179930	3.2	12
TQ47NW289	540200	178360	2.65	12
TQ47NW312	540390	179780	2.43	12
TQ47NW1020	540510	178380	2.27	12
TQ48SW384	540420	180150	1.5	12.95
TQ37NE744 A 2	539750	178710	1.07	13
TQ37NE748 C	539860	178590	0.97	13
TQ38SE895H	539834	180331	4.88	13.5
TQ38SE895K	539880	180404	5.3	14
TQ47NW1150	540165	178530	0.36	14
TQ37NE744 A	539750	178710	1.35	15
TQ47NW858	540220	179100	8.32	16
TQ47NW1016	540510	178380	1.75	16
TQ47NW859	540250	179120	8.44	18.29
TQ47NW857	540260	179130	8.08	18.29
TQ47NW860	540270	179120	8.02	18.29
TQ47NW1750	540155	178435	1.82	20
TQ47NW1021	540510	178380	2.27	20
TQ47NW1018	540510	178380	1.65	21
TQ47NW1153	540100	178740	2.53	25
TQ47NW1237	540247	178921	6.87	37.5
TQ47NW999	540550	178950	3	51.8
TQ48SW385	540470	180130	2	64
GBL05/Tr1	539330	178442	1.5	2.5
GBL05/Tr2	539347	178448	1.55	3.5
BBW99-TP3	539799.83	178760.022	3.29	5.7
BBW99-TP4	539780.018	178739.92	2.62	3.6
BBW99-TP5	539799.96	178779.9	3.09	5.4
BBW99-TP6	539800	178740	2.41	6.1

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
BBW99-TP7	539800.06	178699.96	1.68	6.2
BBW99-TP8	539939.99	178740	3.4	5.9
BBW99-TP9	539819.95	178760.01	2.58	5.5
BBW99-TP10	539819.97	178720	2.56	5.8
BBW99-TP11	539820	178680	2.11	5.7
BBW99-TP12	539940	178740	3.62	5.4
BBW99-TP13	539840	178780	3.43	6
BBW99-TP14	539840	178740	2.76	5.7
BBW99-TP16	539860	178780	3.43	6
BBW99-TP17	539860	178760	3.11	5.9
GPM12-BH1	540139.92	179023.846	6.9	15
GPN98-TP1	539614.5	178994.5	0.6	6
GPN98-TP2	539620.5	179001.5	2.22	4
GPN98-TP3	539633	178996	2.4	6
GPN98-TP4	539642	178982	2.48	6
GPN98-TP5	539648	178971.5	2.51	6
GPN98-TP6	539656	178959.5	2.51	6
GPN98-TP7	539637	178959	2.49	6
GPN98-TP8	539634.5	178969	2.41	6
GPN98-TP9	539622.5	178984	2.32	6
BLL12-BH1	539461	178441	1.9	4
BLL12-BH2	539433.608	178410.939	1.53	4
BLL12-BH3	539454.458	178402.155	1.95	4
BLL12-BH4	539459	178372.945	1.8	4
BLL12-BH5	539453.505	178351.397	2.1	4
BLL12-BH6	539448.319	178327.162	2.03	4
BLL12-BH7	539444.721	178307.794	2.5	4
BLL12-BH8	539442.816	178286.5	2.7	4
BLL12-BH9	539441.123	178266.604	2.7	4
BSG93-TR1W	539365	178405	1	2
BSG93-TR1E	539365	178405	1	2
GMP12-BH3/1	540103.401	179181	5.8	10
GMP12-BH3/10	540155	179047	6.7	11
GMP12-BH3/11	540177.5	178999	6.5	13
GMP12-BH3/2	540147.5	179197	6.5	11
GMP12-BH3/4	540138	179133.5	6.35	10
GMP12-BH3/7	540146.5	179090.5	6	12
GMP12-BH3/8	540202.5	179084	5.8	12
GMP12-BH4/10	540064.5	178861	3.9	12
GMP12-BH4/11	540136.5	178835.5	3.5	12
GMP12-BH4/2	540133	178949	5.35	10
GMP12-BH4/4	540095.5	178912.5	5.1	10
GMP12-BH4/7	540150	178868	3.65	9

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
GMP12-BH4/8	539906	178871.5	3.6	7
GMP12-BH4/9	539989.5	178834.5	3.3	7
GMP12-BH5/2	540238	179061.5	5.75	11
GMP12-BH5/5	540221	178883	4.3	10
GMP12-GA3	540138	179025	7.05	13
GMP12-GA1	540198.5	179191.5	6.3	10
GWW07-BH3	538989	178350	3.8	5
GWW07-BHM	539048.5	178369	3.6	5
GWW07-BH4	539041	178404	3.6	6
GWW07-BHJ	539070	178454.5	5.15	7
GWW07-BHH	539114	178472.5	5.45	8
GWW07-BH5	539132.5	178475.5	2.5	6
GWW07-BHG	539179	178497	2.2	4
GWW07-BH12	539195	178588	3.05	4
GWW07-BH13	539189.5	178626	2.6	4
CW/TR1	539250	178380	2.46	1.2
PR/TR1	539200	178300	2.04	2.5
PW/BH101	540304.531	180197.225	1.82	40
PW/BH102	540178.291	180122.719	1.8	40
PW/BH103	540290.768	180065.771	1.8	40
PW/BH104	540491.147	180098.767	1.8	40
BH6D	540245	180045	2	10
BH18	540474	180135	2	10
BH19	540484	180078	2	12
GW/MBH101	539129	178619	6.2	16
GW/MBH103	539160	178602	4	12
GW/MBH104	539146	178563	2.4	20
GW/MBH105	539221	178589	2.8	25
GW/MBH106	539183	178521	1.91	23
GW/MTP101	539194	178542	2.1	4
GW/MTP102	539152	178519	2.4	3.5
GW/MTP103	539112	178548	2.77	3.5
GW/MTP104	539137	178584	2.37	3.1
GW/MTP105	539198	178573	2.29	2.5
GW/MTP107	539194	178592	2.7	3.4
GW/MTP108	539208	178610	2.9	2.3
GW/MTP109	539222	178622	2.6	2.8
GW/MTP110	539175	178619	2.8	3.5
GW/MTP111	539127	178569	2.47	3.5
GW/MTP112	539130	178601	5.66	4.5
GW/MTP113	539142	178532	2.4	3.2
GW/BH3	538983	178343	4	7
GW/MBH102	539116	178529	2.63	16

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
PW-QBH1	540234.2	180103.7	2.07	6
PW-QBH2	540259.6	180168.5	2.05	6
PW-QBH3	540327	180119.8	1.81	6.9
PW-QBH4	540397.3	180135	2	6.3
UKPN.MSSBH01	539435.96	179257.91	2.67	15
UKPN.MSSBH13	539418.25	179245.48	2.52	15
UKPN.MSSBH14	539423.92	179231.99	2.57	15
UKPN.MSSTP02	539421.4	179238.17	2.48	3
UKPN.MSSTP03	539451.51	179273.48	2.75	3.2
UKPN.MSSTP04	539430.98	179239.97	2.43	3.2
UKPN.MSSTP05	539426.16	179254.95	2.85	3.8
UKPN.MSSTP06	539440.26	179235.89	2.05	1.9
RW.BH1-2011	538820.09	179989.79	5.65	1.1
RW.BH1A-2011	538812.94	179977.36	5.65	20
RW.BH2-2011	538784.27	179998.52	4.28	6
RW.BH2A-2011	538789.19	179997.82	4.71	0.7
RW.BH2B-2011	538791.26	179996	4.78	0.4
RW.BH2C-2011	538791.08	179994.61	4.87	25
RW.BH3-2011	538790.65	179956.1	1.99	3.15
RW.BH3A-2011	538790.76	179961.93	4.99	20
RW.BH5-2011	538769.52	179926.01	5.15	1.2
RW.BH6-2011	538764.14	179859.64	5.05	1.65
RW.BH7-2011	538755.27	179868.66	2.8	10.3
RW.BH10-2011	538830.63	179591.7	4.61	15.95
RW.BH11-2011	538837.02	179573.32	4.49	15.5
RW.BH12-2011	538854.39	179522.32	4.72	2
RW.BH13-2011	538812.26	179588.74	1.66	11.38
RW.TP1-2011	538802.48	179996.39	5.3	3
RW.TP2-2011	538805.72	179979.33	5.35	3
RW.TP3-2011	538789.19	179966.25	4.97	1.95
RW.TP4-2011	538799.25	179955.29	5.48	3
RW.TP5-2011	538790.13	179939.09	4.97	1.4
RW.TP6-2011	538769.52	179926.01	5.15	1.5
RW.TP7-2011	538825.04	179589.94	4.76	2.8
RW.TP8-2011	538833.02	179571.11	4.64	2.2
RW.TP9-2011	538851.09	179524.71	4.75	1.1
RW.IP1-2011	538768.3	179930.32	-0.25	1.2
RW.IP1A-2011	538765.96	179930.35	-0.37	1.4
RW.IP1B-2011	538763.27	179930.42	-0.49	0.7
RW.IP1C-2011	538759.58	179930.38	-0.59	0.4
RW.IP3-2011	538768.42	179920.97	-0.42	1.5
RW.WS1-2011	538776.21	179990.65	1.2	4
RW.WS2-2011	538783.46	179964.89	1.33	5

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
RW.WS3-2011	538783.17	179949.72	-0.96	5
RW.WS4-2011	538761.31	179932.99	0.84	4
N0205.TP01	539383.71	180072.97	5.56	0.9
N0205.TP02	539370.75	180062.6	5.53	1.6
N0205.TP03	539393.63	180059.5	5.64	2.6
N0205.TP04	539354.89	180037.27	5.74	3
N0205.TP05	539385.83	180059.43	5.7	0.85
N0205.TP06	539331.58	180068.82	5.68	3.7
N0205.TP07	539407.74	180058.05	5.57	0
N0205.WS01	539346.63	180126.12	5.63	5
N0205.WS02	539350.79	180097.06	5.66	3.4
N0205.WS03	539340.7	180061.98	5.67	2.1
N0205.WS04	539383.49	180086.32	5.57	3.2
N0205.WS05	539368.06	180057.33	5.68	5
N0205.WS06	539381.43	180055.01	5.76	0.7
N0205.WS06A	539382.45	180053.9	5.76	0.7
N0205.WS07	539362.72	180031.52	5.77	1.2
N0205.WS08	539377.37	180019.77	5.87	1
N0205.WS09	539397.39	180049.86	5.71	0.7
N0205.WS09A	539402.71	180051.09	5.71	3.3
N0205.WS10	539385.6	180035.32	5.83	1.5
N0205.Core 1	539373.32	180058.07	5.68	3.8
N0205.Core 2	539384.92	180066.93	5.53	3.8
N0206.BH01	539423	179992	5.9	45
N0206.BH02	539427	179965	5.83	30
N0206.BH03	539457.4	179955	5.61	45.5
N0206.S47	539475.3	179969.6	2.29	15
N0206.102	539490	179910.5	5.08	47.47
N0206.822	539379.47	179990.43	5.02	28
N0206.S834	539310.18	179915.97	5.16	15.5
N0206.S835	539333.07	179933.03	5.14	14.8
N0206.S836	539311.46	179944.48	4.98	14.2
N0206.S840	539365.75	179992.2	4.95	15
N0206.S841	539361.66	179949.25	5.2	16.5
N0206.BH1185	539250.24	180025.73	5	16.5
BRS.BH104	539555.5	179422.5	3.17	30
BRS.BH105	539869.5	179330.5	5.56	36.5
BRS.BH701	539646	179463	5.11	10
BRS.BH702	539712	179392	5.45	6
BRS.BH703	539803	179300	6.07	5.4
BRS.BH705	539786	179474	6.73	6
BRS.BH706B	539847	179355	5.26	6
BRS.BH707	539682	179466	4.27	36

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
BRS.BH709	539718	179439	5.52	23
BRS.BH710	539757	179469	6.25	24
BRS.BH712	539811	179512	6.4	24
BRS.BH713	539739	179407	5.7	23.5
BRS.BH714	539771	179373	5.89	22.6
BRS.BH715	539788	179439	6.71	24
BRS.BH716	539830	179491	6.51	22
BRS.BH717	539841	179442	6.79	23
BRS.BH718	539812	179330	6.38	23
BRS.BH719	539826	179390	6.85	21.4
BRS.BH720	539847	179362	4.9	8.5
BRS.BH720A	539847	179355	5.28	34
BRS.BH721	539893	179433	6.41	22
BRS.BH722E	539832	179475	5.08	35
BRS.TP709	539730	179424	5.53	4.3
BRS.TP742	539863	179465	4.77	4.3
BRS.WS03	539843	179509	6.15	5
EON.BH1	539414.5	179149.5	2.93	31
EON.BH2	539446.9	179143.5	2.56	31.5
EON.BH3	539447.6	179107.7	4.75	20.5
EON.BH4	539477.8	179099.3	4.75	20.7
EON.WS1	539442.7	179157	2.45	5
EON.WS4	539427.5	179127.4	3.66	5
EON.WS5	539421.7	179168.2	2.3	5
M0120.BH1	539784.8	179345.3	5.88	25
M0120.BH2	539769.3	179338.4	5.16	23.2
M0120.BH3	539800	179317.4	5.87	21.9
M0116.BH001	539773	179425	6.15	40.5
M0116.BH002	539808	179402	6.36	40.5
M0116.BH003	539791.8	179414.7	6.39	23.2
M0116.WS001	539798.5	179435.4	6.42	5.8
M0116.WS002A	539782.5	179404.8	6.18	6
M0116.WS003	539815.6	179404.9	6.37	5.1
M0116.TP001	539781.2	179434.6	6.34	5
M0116.TP002	539800.2	179428.9	6.44	5.7
M0116.TP003	539812.3	179422.3	6.33	5
M0116.TP004	539786.4	179423.4	6.47	5.3
M0116.TP005	539769.2	179425.7	6.14	5.2
M0116.TP006	539797.5	179392.3	6.35	4
M0116.TP007	539820.4	179415.3	6.5	4.25
M0117.BH723B	539765	179432	5.22	5
M0103.BH103.1	539783	179559	6.55	60
M0103.BH103.2B	539789	179495	6.2	17.5

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
M0103.BH103.3D	539814.65	179516.22	6.23	24.1
M0103.BH104.1A	539702.99	179581.82	5.93	55.5
M0103.BH104.3	539769.81	179578.17	6.48	45
M0103.BH116.1B	539785.48	179434.36	6.52	25.75
M0103.BH116.2	539800.9	179410.46	6.69	23
M0103.BH119.1A	539745	179493.1	5.92	24.5
M0103.BH119.2A	539756.96	179464.12	5.68	24
M0103.BH121.1	539713.32	179635.96	6.41	56.2
M0103.BH121.2	539668.95	179649.37	6.11	26.1
M0103.BH121.2A	539671.52	179650.07	6.12	45.2
M0103.BH121.3	539693.11	179640.54	6.18	40.05
M0103.TP103.4	539797.57	179547.95	6.46	4.5
M0103.TP103.5	539772.96	179506.24	6.22	3.5
M0103.TP103.6	539796.77	179508.91	6.18	4.5
M0103.TP104.1	539755.85	179597.45	6.07	4.5
M0103.TP116.1	539778.56	179429.25	6.3	4.5
M0103.TP116.2	539797.5	179437.93	6.59	4.6
M0103.TP116.3	539800.64	179417.09	6.26	4.5
M0103.TP119.3	539745.07	179484.86	5.77	3.4
M0103.TP119.4	539762.86	179476.2	5.92	4.5
M0103.TP121.2	539690.17	179663.53	6.4	4.5
601/608.BH802	538873.9	179976.9	4.11	25
601/608.BH803	538906.7	179944.1	4.09	28
601/608.BH805	538862.2	179917.2	4.62	29.61
601/608.BH806	538892.1	179961.5	4.22	60.5
601/608.BH807	538954.6	179956.8	3.42	1.2
601/608.BH807A	538954.6	179956.8	3.42	33.1
601/608.BH808	538894	179919.3	4.17	29
601/608.BH809	538921.9	179906	4.16	60
601/608.WS820	538854.8	179952	3.83	7.45
601/608.TP802	538857.3	179971.8	4.12	3
601/608.TP804	538838.2	179912.5	3.89	3
601/608.TP805	538854.9	179911.2	4.89	3
601/608.TP806	538889.9	179909.4	4.38	2.8
601/608.TP808	538895.8	179932.1	4.1	3.1
601/608.TP809	538924.5	179900.9	3.61	3
M0114.BH001A	539709.3	179440.2	5.05	45.5
M0114.BH002	539731	179454.2	5.37	46.5
M0114.WS001B	539696.5	179472.3	5.38	5
M0114.WS003	539716.6	179426.3	5.01	5
TQ37NE1608	539146	179692	2.53	4
TQ37NE1610	539203.35	179607.86	3.31	4
TQ37NE1609	539095.08	179877.75	1.97	4

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
TQ37NE695	539080	179850	2.1	4.87
TQ37NE699	539060	179730	2.7	6.7
TQ37NE700	539070	179690	2.8	4.8
TQ37NE597	538990	179540	1.3	9.14
TQ37NE599	538960	179520	1.44	9.14
TQ37NE596	539000	179510	2.13	15
TQ37NE598	538970	179500	1.48	15.39
18.03.01	539697	179278	4.78	40
18.03.02	539696	179252	4.59	40
18.03.03	539726.1	179263.3	4.92	40
18.03.04	539739.124	179251.442	4.96	40
18.03.WS1	539683	179264	4.5	5
18.03.WS2	539713	179255	4.77	5
18.03.WS3	539727	179243	4.8	4
18.03.WS4	539727	179223	4.75	5
18.03.WS5	539694	179244	4.56	5
18.03.WS6	539697	179258	4.6	4
19.05.BH1	539648.363	179510.8	4.915	25.45
19.05.BH2	539659.052	179489.5	5.117	40.45
19.05.BH3	539684.47	179501.398	5.326	40.45
19.05.BH4	539674.194	179537.319	5.296	40.45
19.05.BH5	539654.408	179520.308	4.971	40
19.05.BH6	539641.824	179526.806	5.073	25.45
Horn-QBH1	540248.149	178699.267	1.25	4.75
Horn-QBH2	540285.027	178692.909	1.15	6
Horn-BH01	540242	178717	1.7	17
Horn-BH02	540244	178684	2	20
Horn-BH03	540296	178684	1.8	20
Horn-WS01	540269	178711	1.9	4
Horn-WS02	540240	178672	1.9	4
Horn-WS03	540263	178672	1.9	4
Horn-WS04	540273	178684	1.9	4
Horn-TP01	540245	178705	1.95	3
Horn-TP02	540258	178696	1.95	2.6
Horn-TP03	540298	178716	1.75	3.6
Horn-TP04	540294	178702	1.8	2.8
18.03.QBH1	539698.985	179249.806	4.186	6
18.03.QBH2	539733.179	179251.818	4.559	6
19.05.QBH2	539643.382	179478.689	2.339	6
19.05.QBH1	539672.678	179552.849	2.388	6
18.02.BH1	539628.8	179314.4	4.32	40.27
18.02.BH2A	539669.5	179291.5	4.53	40.15
18.02.BH3	539615	179300.2	4.07	30

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
18.02.BH4	539647.3	179277.3	4.29	30.45
18.02.WS1	539659.1	179293	4.42	5
18.02.WS2	539636.7	179285.2	4.24	5
18.02.WS4	539638.9	179315.7	4.39	5
19.04.BH1C	539589.902	179574.128	4.601	55
18.01.BH1	539603.318	179213.078	3.5	20.4
18.01.BH2	539622.27	179149.577	3.4	20.6
18.01.BH3A	539682.45	179216.595	4.2	33
18.01.WS1	539552.126	179227.732	3.1	4
18.01.WS5	539643.372	179244.145	4	4
19.04.BH2	539593.363	179553.928	4.557	40
19.04.BH3	539649.884	179592.028	5.423	28
19.04.BH4	539622.729	179624.083	5.823	30
19.04.BH5	539612.817	179581.59	5.008	20
TQ37NE577	539120	178440	4.41	13.72
TQ37NE578	539140	178440	2.1	10.66
TQ37NE579	539160	178450	2.1	10.97
TQ37NE580	539150	178470	1.95	12.19
TQ37NE582	538870	178220	4.84	15.24
TQ37NE583	539110	178500	-0.7	9.14
TQ37NE584	539130	178510	2	1
TQ37NE585	539120	178480	5.1	11.15
TQ37NE586	539100	178480	5.1	10.85
TQ37NE587	539130	178460	2.3	9.32
TQ37NE1948	539255	178525	1.18	6.1
TQ37NE1998	539140	178810	5.2	28
TQ37NE3305	538630	178730	3.73	13.1
TQ37NE3306	538670	178720	4.2	16.15
TQ37NE3307	538720	178710	4.6	15
TQ37NE3308	538620	178700	3.84	16.15
TQ37NE3309	538660	178690	4.29	9.45
TQ37NE3310	538690	178690	4.81	15.6
TQ37NE3311	538630	178670	4.15	14.5
TQ37NE3312	538670	178630	4.87	19.65
TQ37NE3313	538700	178640	4.65	14.65
TQ37NE3314	538600	178630	4.33	21
TQ37NE3315	538640	178620	4.58	14.6
TQ37NE3316	538690	178600	4.62	22
TQ37NE3317	538670	178600	4.56	6.45
TQ37NE3318	538690	178680	4.83	8.85
TQ37NE3320	538710	178710	4.62	12
TQ37NE3321	538670	178700	4.48	5.8
TQ37NE3322	538620	178660	4.36	9.5

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
TQ37NE3323	538660	178670	4.61	10.5
TQ37NE3324	538700	178660	4.47	12
TQ37NE3325	538610	178630	4.31	9
TQ37NE3326	538650	178620	4.82	11.5
TQ37NE3327	538690	178600	4.48	11.3
TQ37NE3482	538610	178880	4.68	17
TQ37NE3483	538670	178860	4.92	16.5
TQ37NE3484	538620	178920	4.62	15.1
TQ37NE3485	538660	178910	4.97	1.7
TQ37NE3488	538720	178920	0.012	9.05
TQ37NE3493	538610	178860	3.96	2.6
TQ37NE3496	538680	178870	4.9	2.1
TQ37NE3662	538818	178221	-1.95	7.5
TQ37NE1997	538660	178960	5.1	27
TQ37NE1464	538700	179120	-5.3	24
TQ37NE3487	538710	178950	-0.21	8.5
TQ37NE3486	538710	178930	5.16	17.1
TQ37NE1465	538820	179150	-8.56	22
TQ37NE1466	538930	179150	-8.6	24
TQ37NE600	538890	179470	15.5	9.14
TQ37NE601	538880	179500	15.5	15.39
TQ37NE3490	538610	178940	4.14	3
TQ37NE1463	538620	179160	5	30
TQ37NE3214	538600	179160	3.93	15.15
TQ37NE1583	538752	179699	-2.7	31
TQ37NE1584	538714	179717	-9.23	5.55
TQ37NE1585	538749	179696	-3.01	40
TQ38SE111	538670	180170	-7.7	15.24
TQ38SE348	538630	180211	2.13	25.6
TQ38SE1355	538755	180259	-9.03	35.4
TQ38SE1356	538733	180214	-9.9	45
TQ38SE1402	538756	180144	-3.24	30
TQ37NE2153	538770	179920	4.65	15.4
TQ38SE1384	538602	180462	5.3	53.72
TQ38SE1385	538604	180464	5.17	40
TQ38SE1386	538606	180466	5.14	40
TQ38SE1388	538637	180468	-3.09	41.55
TQ38SE1389	538626	180472	4.94	57.7
TQ38SE1390	538614	180439	-2.96	45
TQ38SE1431	538618	180459	4.94	1
TQ38SE1432	538618	180460	5.01	14
TQ38SE1437	538604	180457	4.99	39.45
TQ38SE1438	538600	180452	4.98	23

Name	Easting	Northing	Elevation (m OD)	Total depth (m)
DD-BH02	539099.1	179811.6	4.19	70.3
DD-BH04	539161.8	179895.2	4.64	62
DD-BH05A	539096.7	179727.6	2.87	41
PP-BH07	539189.9	179792.3	4.38	41.95
PP-BH08	539222.5	179829.6	4.63	45.8
PP-BH10	539148.1	179737.8	3.84	68
PP-BH11A	539196	179748.9	3.8	65.5
PP-BH13	539108.9	179660.6	3.12	57.5
PP-BH14	539175.1	179701.7	3.42	54.05
PP-BH15	539250.6	179756.1	3.71	55.5
PP-BH16	539185.9	179877.6	4.75	20
PP-SBH02	539101.1	179804.9	4.22	6
PP-SBH04	539166.8	179881.6	4.52	6
PP-SBH08	539215	179830.2	4.58	6
PP-SBH16	539183.8	179872.8	4.65	6
PP-VBH02	539098.1	179820	4.22	20
PP-VBH04	539168	179887.6	4.69	20
PP-VBH08	539223.4	179827.7	4.66	17.1
PP-VBH10	539150.1	179735.3	3.79	20
DD-WS2	539324	179829	5.3	8
DD-WS6	539351	179798	4.8	8
DD-WS5	539329	179771	4.6	8

14. APPENDIX 2: OASIS FORM

OASIS ID: quaterna1-297271

Project details

Project name	Design District (Plot 11), Greenwich Peninsula
Short description of the project	A programme of environmental archaeological assessment was undertaken on borehole WS5, following the recommendations of a geoarchaeological deposit modelling exercise for the site. The Late Devensian Gravel at the site is overlain by a sequence of Holocene alluvial sediments, containing peat, and buried beneath modern Made Ground. The site is likely to lie either within, or on the margins of, a former Late Devensian/Early Holocene channel, within which the Gravel surface lies at between ca. -2 and -5m OD. Between ca. 3 and 5m of Holocene alluvial deposits are recorded in the area surrounding the site. Within the site itself this includes two peat horizons, one at the base of the Lower Alluvium, dated to the Early Neolithic, and one overlying the Lower Alluvium dated to the Middle/Late Neolithic to the Middle Bronze Age. a floodplain environment occupied by alder carr with a ground flora of sedges, grasses and mixed herbs is indicated for much of the period of deposition, whilst the dryland was occupied by mixed deciduous woodland dominated by oak and lime. Towards the top of the Peat and within the Upper Alluvium there is some suggestion of a decrease in woodland cover, which correlates with other sequences from the Lower Thames and beyond. Potential evidence of human activity was limited, but included the presence of a cereal grain in the Lower Alluvium, and high values of microcharcoal in the Lower and Upper Alluvium.No further analysis was recommended.
Project dates	Start: 01-08-2017 End: 02-10-2017
Previous/future work	No / Yes
Any associated project reference codes	DDT17 - Sitecode
Type of project	Environmental assessment
Monument type	PEAT Early Neolithic
Monument type	PEAT Middle Neolithic
Monument type	PEAT Middle Bronze Age

Survey techniques	Landscape

Project location

Country	England
Site location	GREATER LONDON GREENWICH GREENWICH Design District (Plot 11)
Postcode	SE10 0SQ
Site coordinates	TQ 3918 7980 51.49947693221 0.005370202149 51 29 58 N 000 00 19 E Point

Project creators

Name of Organisation	Quaternary Scientific (QUEST)
Project brief originator	RPS
Project design originator	D.S. Young
Project director/manager	C.R. Batchelor
Project supervisor	D.S. Young
Type of sponsor/funding body	Developer

Project archives

Physical Archive Exists?	No
Digital Archive Exists?	No
Paper Archive recipient	LAARC
Paper Contents	"Stratigraphic","Environmental"
Paper Media available	"Report"

Entered by	Daniel Young (d.s.young@reading.ac.uk)
Entered on	26 January 2018