

# LAND ADJACENT TO PEARSON HOUSE, EDINBURGH GATE, HARLOW, ESSEX

## Geoarchaeological Deposit Model Report

**NGR:** TL 44908 11265

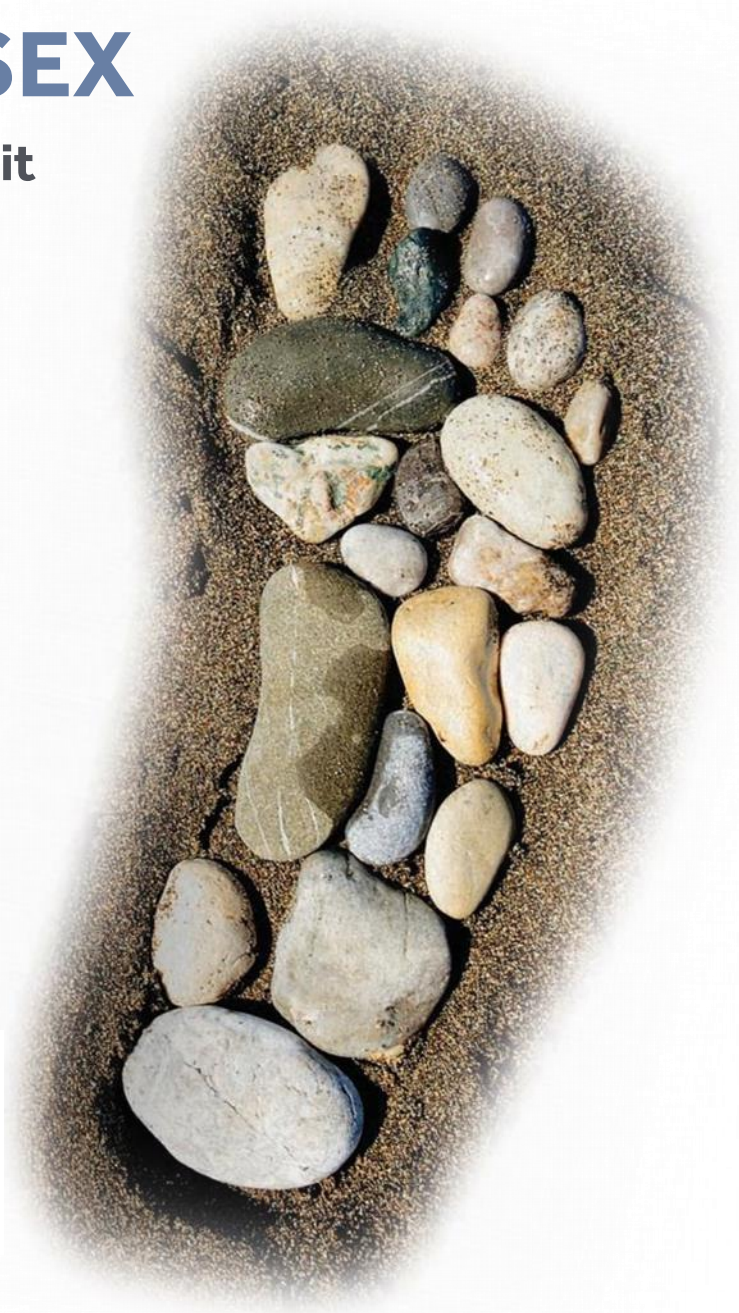
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## 1. NON-TECHNICAL SUMMARY

A programme of geoarchaeological monitoring and deposit modelling was instigated at the Pearson House site in order to: (1) clarify the nature of the sub-surface stratigraphy; (2) clarify the nature, depth, extent and possible date of any alluvium and organic/peat deposits; and (3) make recommendations for any further environmental archaeological assessment. In order to address these aims, a total of three geoarchaeological boreholes were described in the field. These new boreholes were integrated with stratigraphic data from the geotechnical records in order to produce a deposit model of the major depositional units across the site.

The results of the deposit modelling indicate that the site lies towards the edge of the floodplain and the edge of a former channel, the main axis of which probably traverses the north-western area of the site. Overlying the bedrock at the site is therefore a sequence of Gravel (thought to be of Late Devensian age), Holocene alluvium and modern Made Ground. The Holocene alluvial sequence consists of a tripartite sequence of general sandy Lower Alluvium, Organic Clay, and the clay-rich Upper Alluvium. Significantly, the organic unit at the site is indicative of a transition towards semi-terrestrial (marshy) conditions, perhaps supporting the growth of sedge fen/reed swamp and/or woodland communities across the floodplain. It is generally present at between ca. 38.5 and 35.5m OD across the site, in thicknesses of between 2.6 and 0.18m. However, there is some uncertainty as to the exact thickness and extent of this unit due to discrepancies between the geoarchaeological and geotechnical descriptions.

A limited programme of environmental archaeological assessment is recommended on the retained sequence from the site (WS16). The site's location towards the margins of the floodplain (and potentially a former channel) suggest that the archaeological potential is considered to be limited to where the Gravel surface lies above ca. 37m OD.

## 2. INTRODUCTION

### 2.1 Site context

This report summarises the findings arising out of the geoarchaeological fieldwork and deposit modelling undertaken by Quaternary Scientific (University of Reading) in connection with the proposed development of Land Adjacent to Pearson House, Edinburgh Gate, Harlow, Essex (National Grid Reference (NGR); TL 44908 11265 Figures 1 & 2). Quaternary Scientific were commissioned by CgMs Heritage to undertake the geoarchaeological investigations. The area of investigation lies in the valley of the River Stort, a tributary of the River Lea that rises in the village of Langley and drains in to the River Lea at Hoddesdon. The site lies approximately 100m to the south of the modern waterfront, where the British Geological Survey (BGS) maps the superficial geology across the majority of the site as Alluvium – described as 'Clay, Silt, Sand and Gravel', overlying London Clay bedrock (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>). Towards the southeastern margin of the site the superficial geology is shown as Quaternary Head deposits – also described as 'Clay, Silt, Sand and Gravel'. The site is therefore probably located close to the interface between the floodplain and dryland environments.

Two geotechnical boreholes were put down within the eastern area of the site in 1991 (BH1 and BH2; see CgMs, 2018). In these boreholes a unit of gravel was recorded at the base of the alluvial sequence, the surface of which was identified at between 36.05 (BH1) and 37.6m OD ([above Ordnance Datum](#)) (BH2). Silty clay alluvium was recorded in both boreholes, to a level of 38m OD in BH1 and 38.65m OD in BH2; in BH1 the alluvium included bands of peat and frequent organic material at between 37.1 and 36.35m OD. The sequence was capped by variable thicknesses of Made Ground associated with ground raising in the area of the former velodrome, with 3.7m recorded in BH1, and 5.35m recorded in BH2, although it is understood that much of this Made Ground was removed during subsequent development of the site (CgMs, 2018). A number of BGS archive boreholes are present in the area of the site, recording variable thicknesses of alluvium (generally between ca. 1 and 2m); one of these (borehole TL41SW351) records 0.84m of peat within the alluvium, at a depth of 0.53m below ground level (no elevation data is available for this borehole).

### 2.2 Geoarchaeological, palaeoenvironmental and archaeological significance

As outlined within the Written Scheme of Investigation (WSI) for the site (Young, 2018) the available records indicate some variation in the height of the underlying gravel, and the type, thickness and age of the subsequent Holocene alluvial deposits. Such variations are significant as they represent different environmental conditions that would have existed in a given location. For example: (1) the varying surface of the gravel may represent the location of former channels and bars; (2) the presence of peat represents former terrestrial or semi-terrestrial land-surfaces, and (3) the alluvium represents periods of channel activity or changing hydrological conditions. Thus by studying the sub-surface stratigraphy across the site and wider area in more detail, it will be possible to build our understanding of the former landscapes and environmental changes that took place across space and time.

Organic-rich sediments (in particular peat) also have high potential to provide a detailed reconstruction of past environments on both the wetland and dryland. In particular, they provide the potential to increase knowledge and understanding of the interactions between hydrology, human activity, vegetation succession and climate. Significant vegetation changes include the Mesolithic/Neolithic decline of elm woodland, the Neolithic colonisation and decline of yew woodland; the Late Neolithic/Early Bronze Age growth of elm on Peat, and the general decline of wetland and dryland woodland during the Bronze Age.

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 structures) and palaeoenvironmental record (e.g. changes in vegetation composition).

### **2.3 Aims and objectives**

Further records are required in order to enhance our understanding of the sub-surface stratigraphy at the Pearson House site, and to assess its palaeoenvironmental and archaeological potential. Five significant research aims relevant to the geoarchaeological investigations were therefore proposed within the WSI for the site (Young, 2018):

1. To clarify the nature of the sub-surface stratigraphy;
2. To clarify the nature, depth, extent and possible date of any alluvium and organic/peat deposits;
3. To investigate whether the sequences contain any artefact or ecofact evidence for prehistoric or historic human activity;
4. To investigate whether the sequences contain any evidence for natural and/or anthropogenic changes to the landscape (wetland and dryland);
5. To integrate the new geoarchaeological record with other recent work in the local area for publication (if appropriate, pending the results of the investigations).

In order to address the first two of these aims, the following objectives were proposed:

1. To monitor a minimum of three boreholes during the course of the geotechnical site investigation works in March 2018, collecting a continuous sequence of samples from a selected borehole during these works (see Figure 2);
2. To describe the new boreholes under both field and laboratory-based conditions;
3. To use the stratigraphic data from new and existing records to produce a deposit model of the major depositional units across the site, and to characterise the depositional sequence in more detail;
4. To make recommendations for any further environmental archaeological assessment of the retained sequence from the site (where necessary).

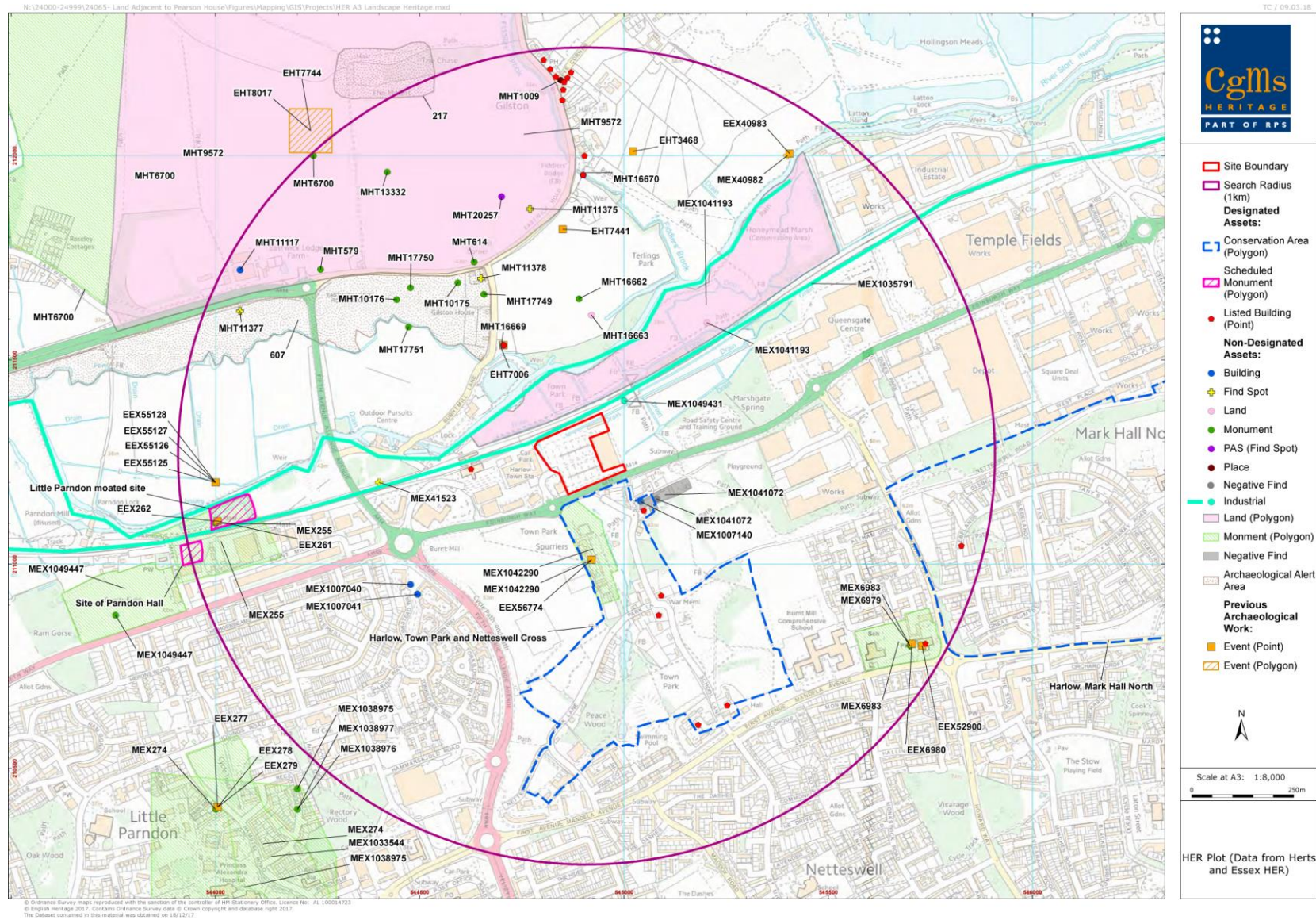
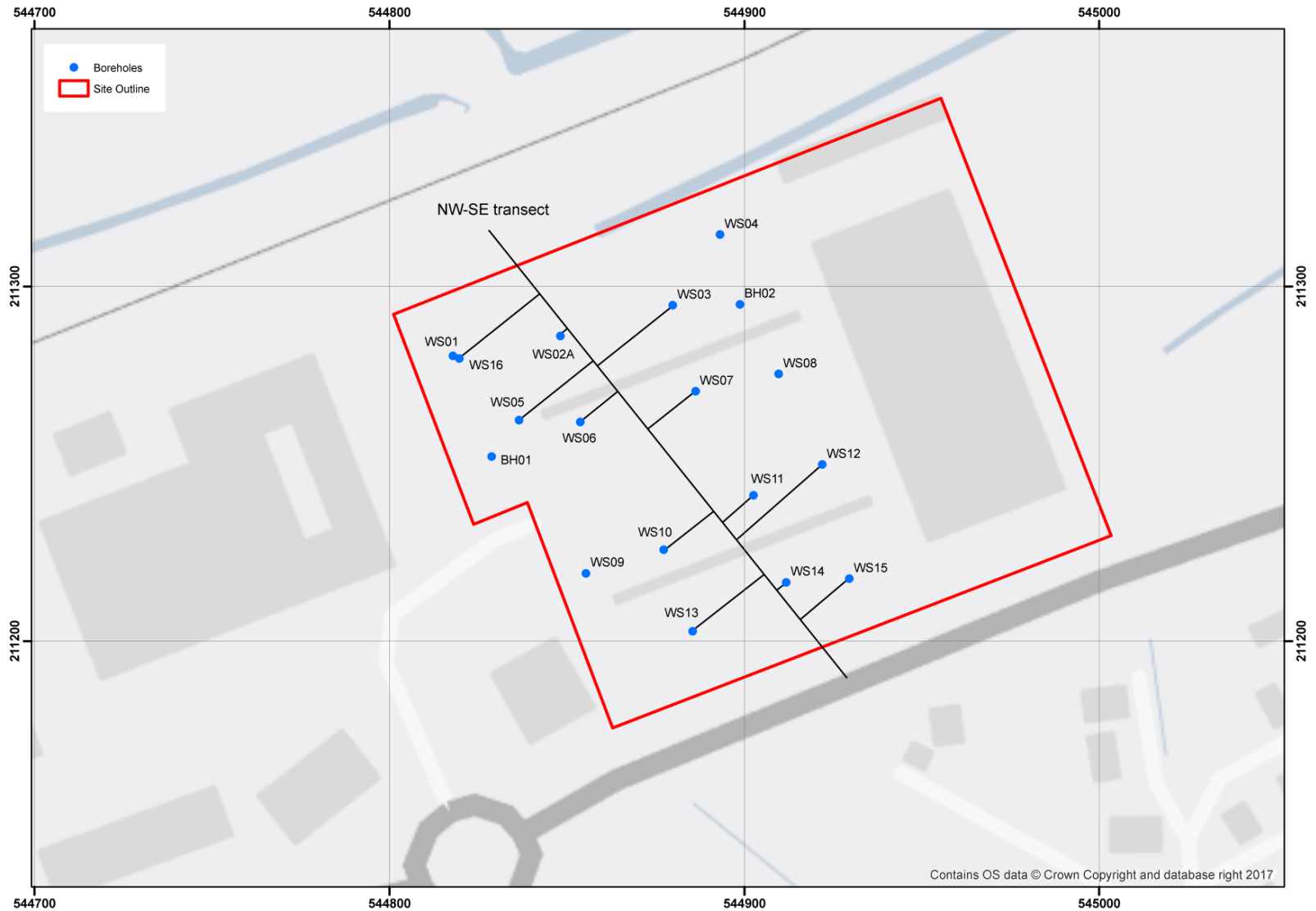


Figure 1: Location of the site at Pearson House, Edinburgh Gate, Harlow, Essex, showing Herts and Essex HER data. Figure provided by CgMs (2018).



**Figure 2: Location of the new boreholes on Land Adjacent to Pearson House, Edinburgh Gate, Harlow, Essex. Alignment of the northwest-southeast transect (Figure 10) also shown.**

### 3. METHODS

#### 3.1 Field investigations

A total of 17 geotechnical boreholes (BH01 to BH02 and WS01 to WS15) were put down at the site by Stansted Environmental Services Ltd in March 2018 (see Table 1 and Figure 2) using a rotary auger (BH01/BH02) and a windowless sampler (WS01-WS15). Of these, two were monitored and described in the field by Quaternary Scientific, with a subsequent borehole (WS16) retained for laboratory-based description and further assessment (where necessary). The location of WS16 was determined following the results of the geoarchaeological monitoring and upon examination of the remaining geotechnical logs; on the basis that the organic sediments appeared to be thickest in the area of WS01, this location was selected for sampling using a windowless sampler. This coring technique provides a suitable method for the recovery of continuous, undisturbed core samples and provides sub-samples suitable for not only sedimentary and microfossil assessment and analysis, but also macrofossil analysis. Spatial co-ordinates for each borehole were obtained by Stansted Environmental Services Ltd (Table 1).

**Table 1: Spatial data for the boreholes used in the deposit model on Land Adjacent to Pearson House, Edinburgh Gate, Harlow, Essex.**

Name	Easting	Northing	Elevation (m OD)
<i>Geotechnical boreholes</i>			
WS01	544817.89	211280.35	38.60
WS02A	544848.25	211285.96	38.60
WS03	544879.88	211294.63	38.60
WS04	544893.15	211314.52	38.80
WS05	544836.51	211262.23	38.95
WS06	544853.86	211261.72	38.90
WS07	544886.26	211270.40	39.00
WS08	544909.73	211275.25	39.10
WS09	544855.39	211219.12	39.30
WS10	544877.33	211225.75	39.25
WS11	544902.59	211241.06	39.25
WS12	544921.97	211249.73	39.25
WS13	544885.49	211202.79	39.60
WS14	544911.77	211216.57	39.80
WS15	544929.63	211217.59	39.70
BH01	544828.86	211252.03	39.00
BH02	544898.76	211294.89	39.20
<i>Geoarchaeological borehole</i>			
WS16	544819.74	211279.65	38.60

#### 3.2 Lithostratigraphic description

Field-based lithostratigraphic description of BH02 and WS13, and laboratory-based description of WS16, 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 descriptions are displayed in Tables 2 to 4.

### 3.3 Deposit modelling

The deposit model for the site was based on a review of the 18 new borehole records (see Figure 2), following the general guidelines of Carey *et al.* (2018). Sedimentary units from the boreholes were classified into six groups: (1) Bedrock, (2) Gravel, (3) Lower Alluvium, (4) Organic alluvium, (5) Upper Alluvium and (6) Made Ground. The classified data for groups 1-6 were then input into a database within the RockWorks 16 geological utilities software, the output from which was displayed using ArcMAP 10. A north-west to south-east borehole transect is displayed in Figure 3. Models of surface height were generated for the Gravel, Lower Alluvium, Organic Alluvium and Upper Alluvium using an Inverse Distance Weighted algorithm (Figures 3 to 5 and 7). Thickness of the Organic Alluvium (Figure 6), total Holocene alluvium (incorporating the Lower Alluvium, Organic Alluvium and Upper Alluvium; Figure 8) and Made Ground (Figure 9) were also modelled (also using an Inverse Distance Weighted algorithm). A northwest-southeast transect of selected boreholes across the site is displayed in Figure 10.

Because the boreholes are not uniformly distributed over the area of investigation, the reliability of the models generated using RockWorks is variable. In general, reliability improves from outlying areas where the models are largely supported by scattered archival records towards the core area of commissioned boreholes. 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 the site.

## 4. RESULTS, INTERPRETATION & DISCUSSION OF THE LITHOSTRATIGRAPHIC DESCRIPTIONS AND DEPOSIT MODELLING

The results of the deposit modelling are displayed in Figures 3 to 10. Figures 3 to 9 are surface elevation and thickness models for each of the main stratigraphic units across the site, whilst Figure 10 is a two-dimensional northwest-southeast transect of selected boreholes across the site. The results of the deposit modelling indicate that the number and spread of the logs is sufficient to permit modelling with a high level of certainty across the majority of the site, ~~although the absence of boreholes within the existing building footprint means that the eastern margin of the site is not represented in the model. However, on the basis of the observed sequence, this area of the site is not expected to differ significantly to that recorded elsewhere.~~

The full sequence of sediments recorded in the boreholes comprises:

Made Ground

Upper Alluvium – widely present

Organic Clay – widely present, thicker towards the southeast

Lower Alluvium – present towards the northwest

Gravel – widely present; rises to the southeast

### 4.1 Gravel

A horizon of sandy gravel was recorded at the base of the sequence in all 17 boreholes. This unit is considered likely to have been deposited during the Devensian 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.

The deposit modelling exercise indicates that the surface of the Gravel rises towards the southeast (see Figures 3 and 10), where it is recorded at between 37.15 (WS10/WS11) and 38.3m OD (WS15); in the north-western half of the site it lies at between 35.78 (WS16) and 36.8m OD (BH02). The topography of the gravel surface thus indicates that the site lies close to the edge of the floodplain and the edge of a former channel, the main axis of which probably traverses the north-western area of the site.

### 4.2 Lower Alluvium

Recorded within this channel towards the northwest of the site is a unit of generally silty, sandy clay alluvium, described here as the Lower Alluvium. This unit rests directly on the Gravel, and is generally only recorded below ca. 37m OD, its surface falling towards the northwest (see Figure 4). The Lower Alluvium was absent towards the southeast, where the Gravel surface rises above ca. 37m OD.

This unit is similar to that recorded elsewhere in the Lower Thames Valley and its tributaries, and is likely to represent a similar depositional environment. Here, the deposits of the Lower Alluvium are described as a predominantly silty or clayey tending to become increasingly sandy downward, and often containing detrital organic material and Mollusca. The sediments of the Lower Alluvium are indicative of deposition during the Early to Mid-Holocene, when the main course of the river was probably confined to a single meandering channel. During this period, the surface of the 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 Gravel.

### **4.3 Organic Clay**

A unit of organic clay was frequently recorded overlying the Lower Alluvium towards the northwest, and the Gravel towards the southeast. This organic unit is indicative of a transition towards semi-terrestrial (marshy) conditions, perhaps supporting the growth of sedge fen/reed swamp and/or woodland communities across the floodplain. However, this unit is relatively mineral-rich, and is therefore indicative of frequent (perhaps seasonal) flood events during its accumulation.

The surface of this organic unit is uneven, lying at between 36.4 (WS02A) and 38.6 OD (WS14/WS15) (Figure 5). However, it should be noted that it was not always possible to identify this unit and its exact elevation in the geotechnical logs, leading to some uncertainty as to its extent across the site. Where recorded, this unit measures between ca. 2.6 (BH01) and 0.18m in thickness (WS16) (Figure 6). Significantly, this unit was considered to be thinner in the borehole described in the laboratory (WS16) than the neighbouring geotechnical borehole (WS01), indicative of either significant variability in the thickness of this unit across the floodplain, or the different descriptive terminology used in the geotechnical and geoarchaeological logs. In general this unit increases in thickness towards the southeast, despite the gravel surface rising in this direction (see Figures 6 and 10); the lower surface of this unit towards the northwest may be indicative of subsequent erosion of the organic alluvium by fluvial activity in this area. However, it should be noted that the organic clay described in the geotechnical log for WS13 was interpreted as the Upper Alluvium in the geoarchaeological description, with no organic material noted. The actual extent/thickness of organic material in this area of the site is therefore unclear.

### **4.4 Upper Alluvium**

The Upper Alluvium rests variously on the Organic Clay, Lower Alluvium or Gravel, and was recorded in the majority of records across the site, although it was absent in some records towards the southeast (although there is some uncertainty as to the differentiation between this unit and the Organic Clay here; see above). The sediments of the Upper Alluvium are indicative of deposition within low energy fluvial and/or semi-aquatic conditions on the floodplain during the Holocene. The high mineral content of the sediments may 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, with occasional organic lenses and gravel clasts. The surface of this unit is recorded at between 37.4 (WS16) and 38.6m OD (WS09), generally rising toward the southeast (Figure 7).

The Total Alluvium thickness (incorporating the Lower Alluvium, Organic Clay and Upper Alluvium) is displayed in Figure 8. The thickness of the alluvial sequence tends to reflect the topography of the Gravel surface, with greater thicknesses recorded in areas of lower Gravel topography towards the northwest (see Figure 8), including within the possible former channel identified here.

#### 4.5 Made Ground

Between 0.4 (WS03) and 1.2m (WS02A/WS06/WS11/WS14/WS16) of Made Ground caps the alluvial sequence across the site (Figure 9). The Made Ground appears to be thickest in a line across the centre of the site, perhaps related to a phase of previous development at the site or the infilling of a linear depression.

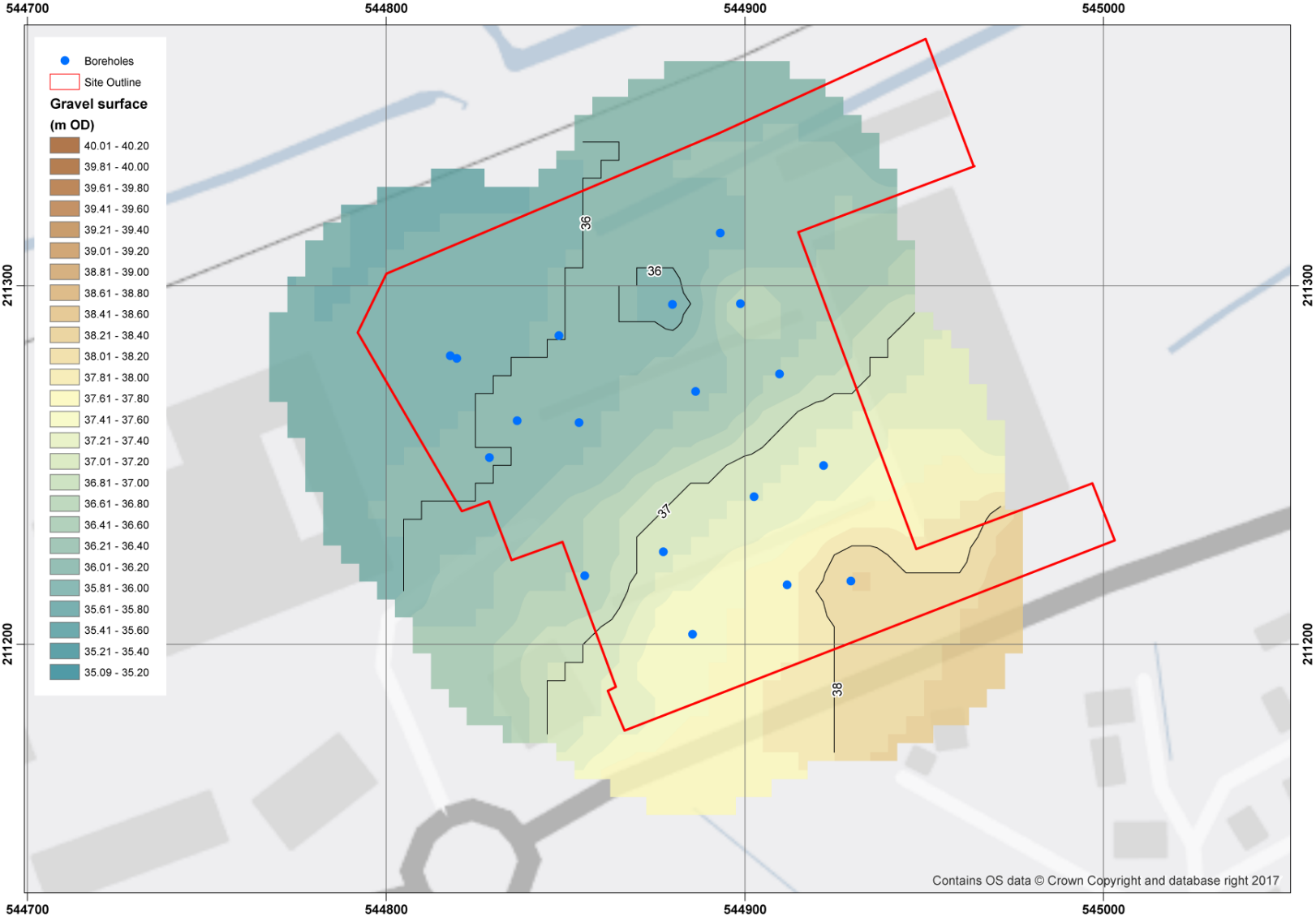


Figure 3: Top of the Gravel (m OD)

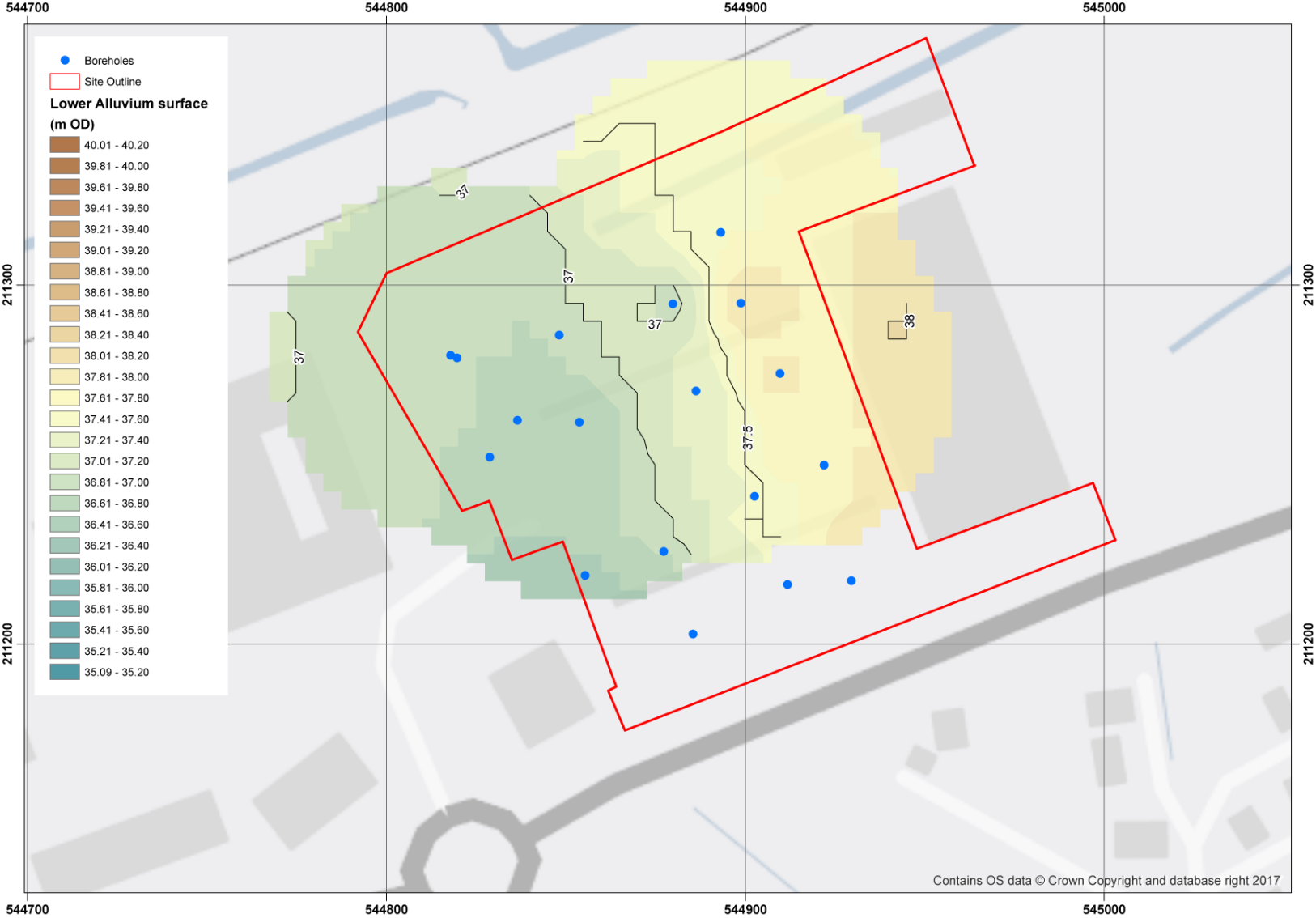


Figure 4: Top of the Lower Alluvium (m OD)

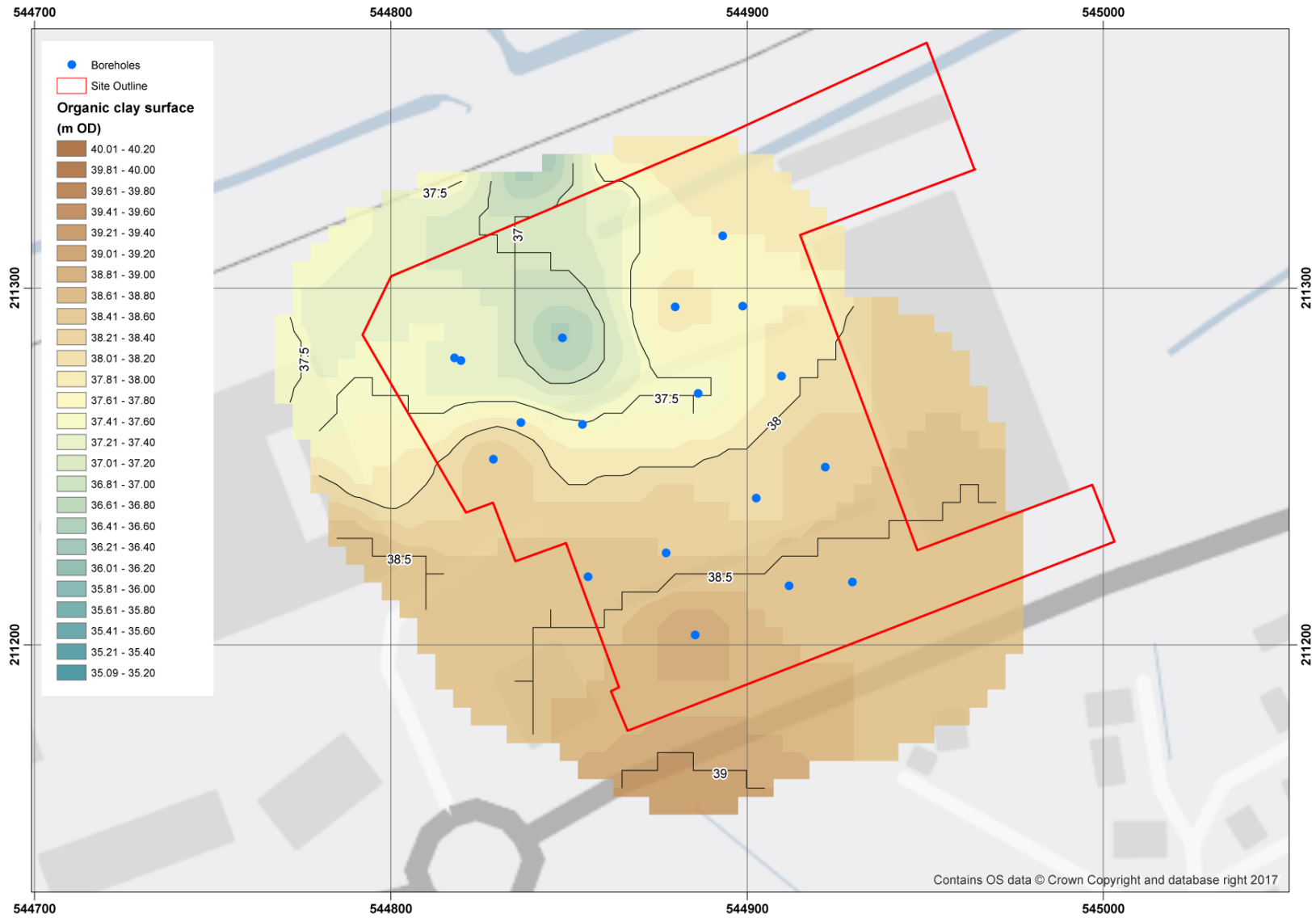


Figure 5: Top of the Organic Clay (m OD)

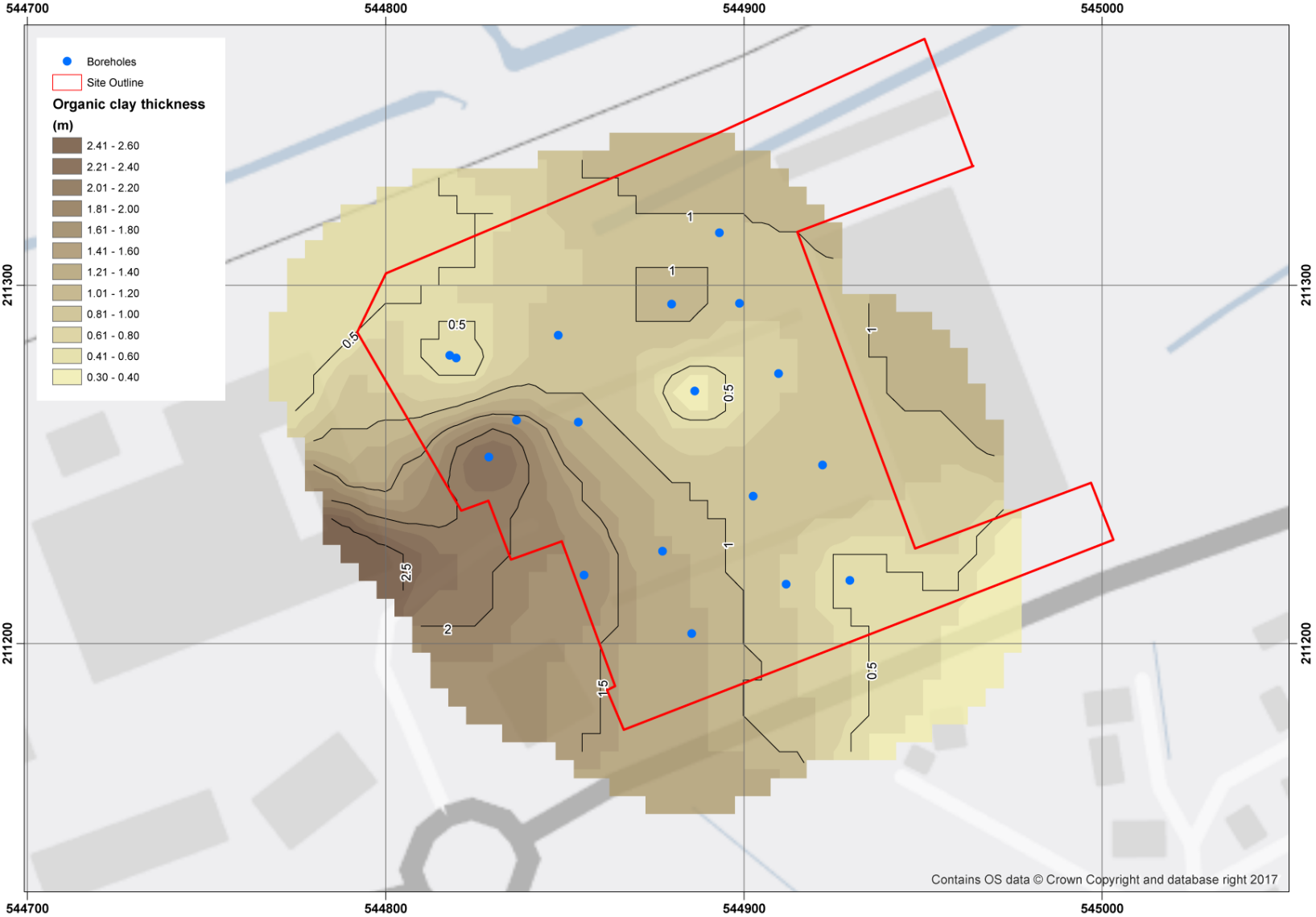


Figure 6: Thickness of the Organic Clay (m)



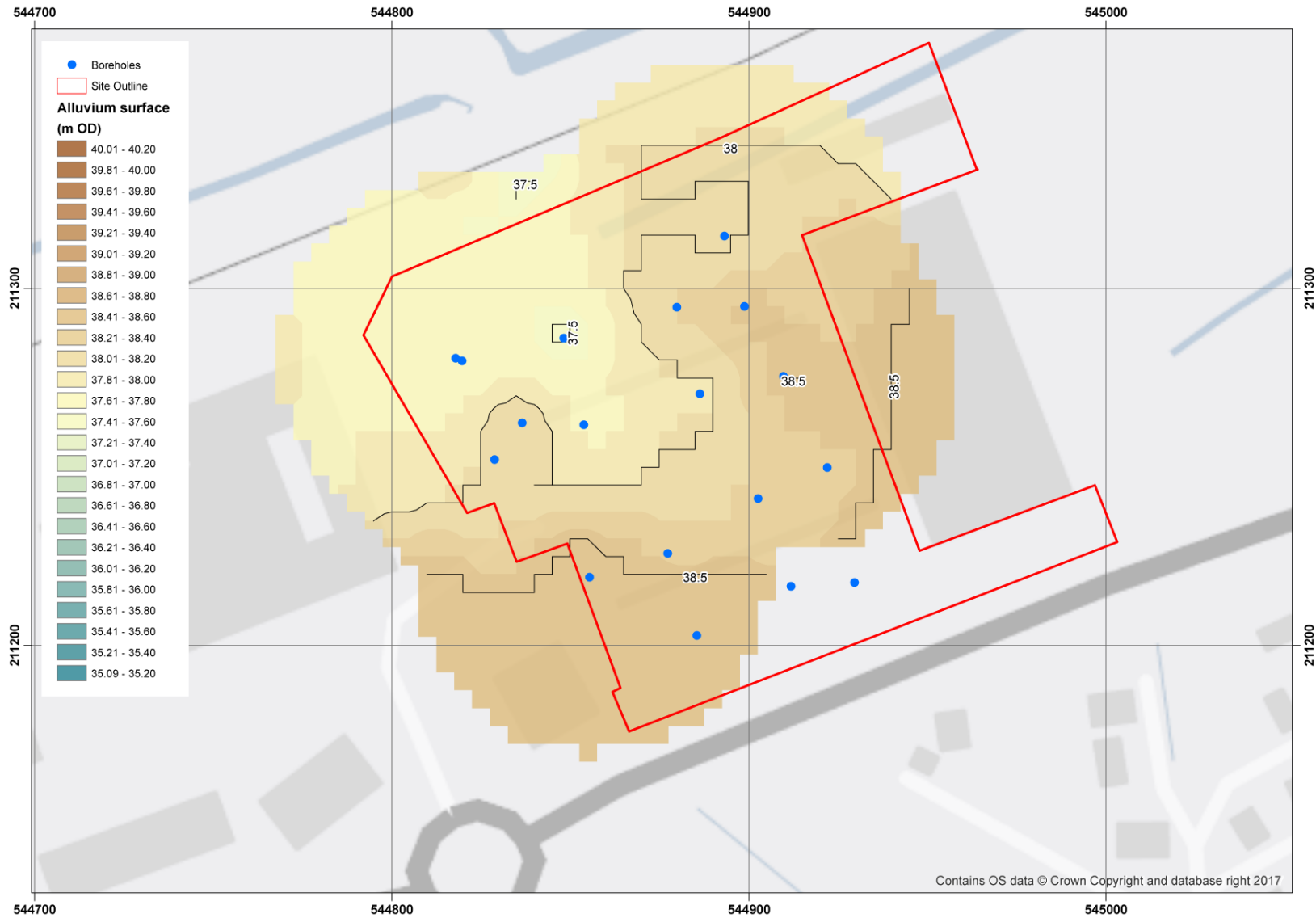
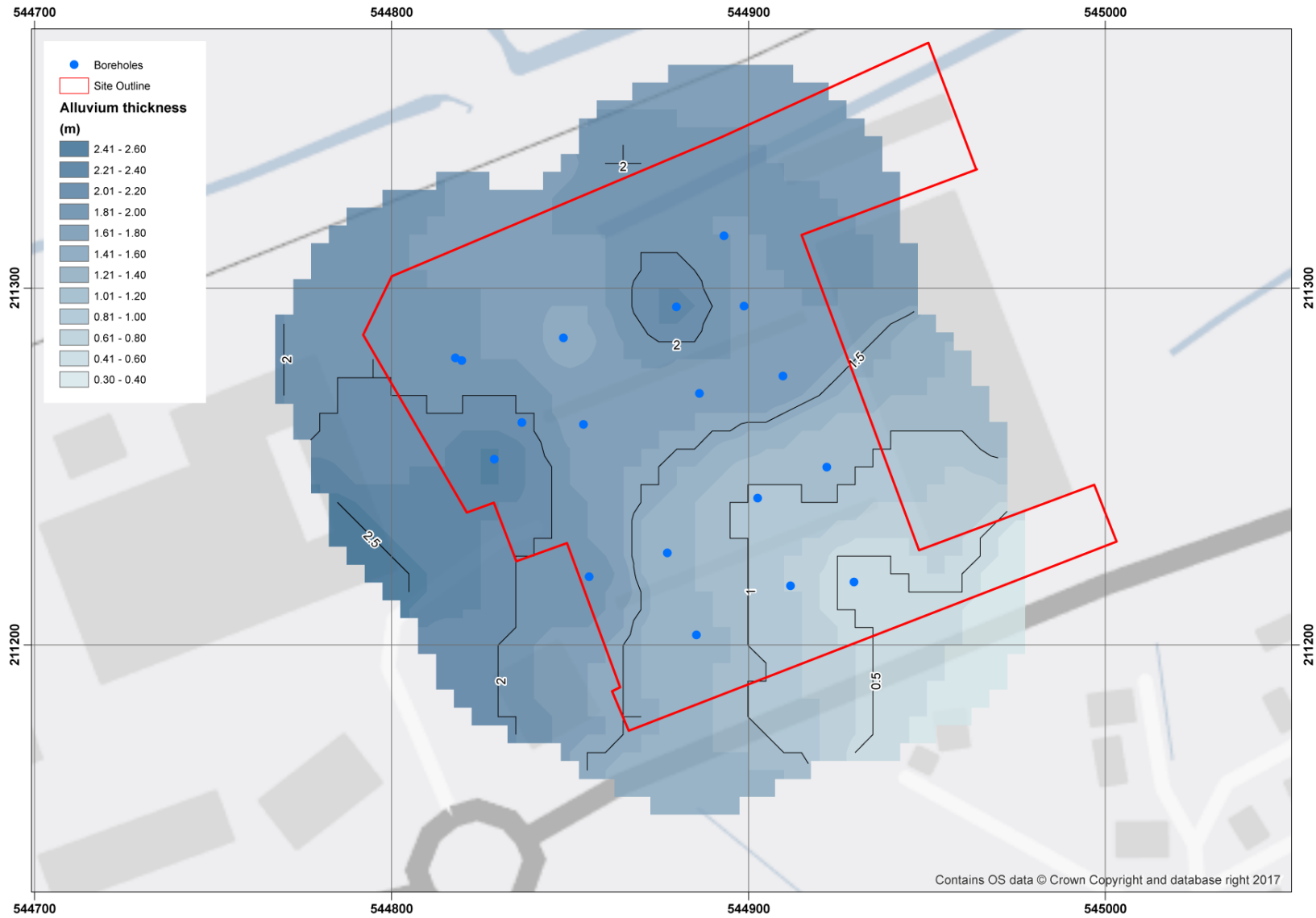


Figure 7: Top of the Upper Alluvium (m OD)



**Figure 8: Thickness of the Total Alluvium (Lower Alluvium, Organic Clay and Upper Alluvium) (m)**

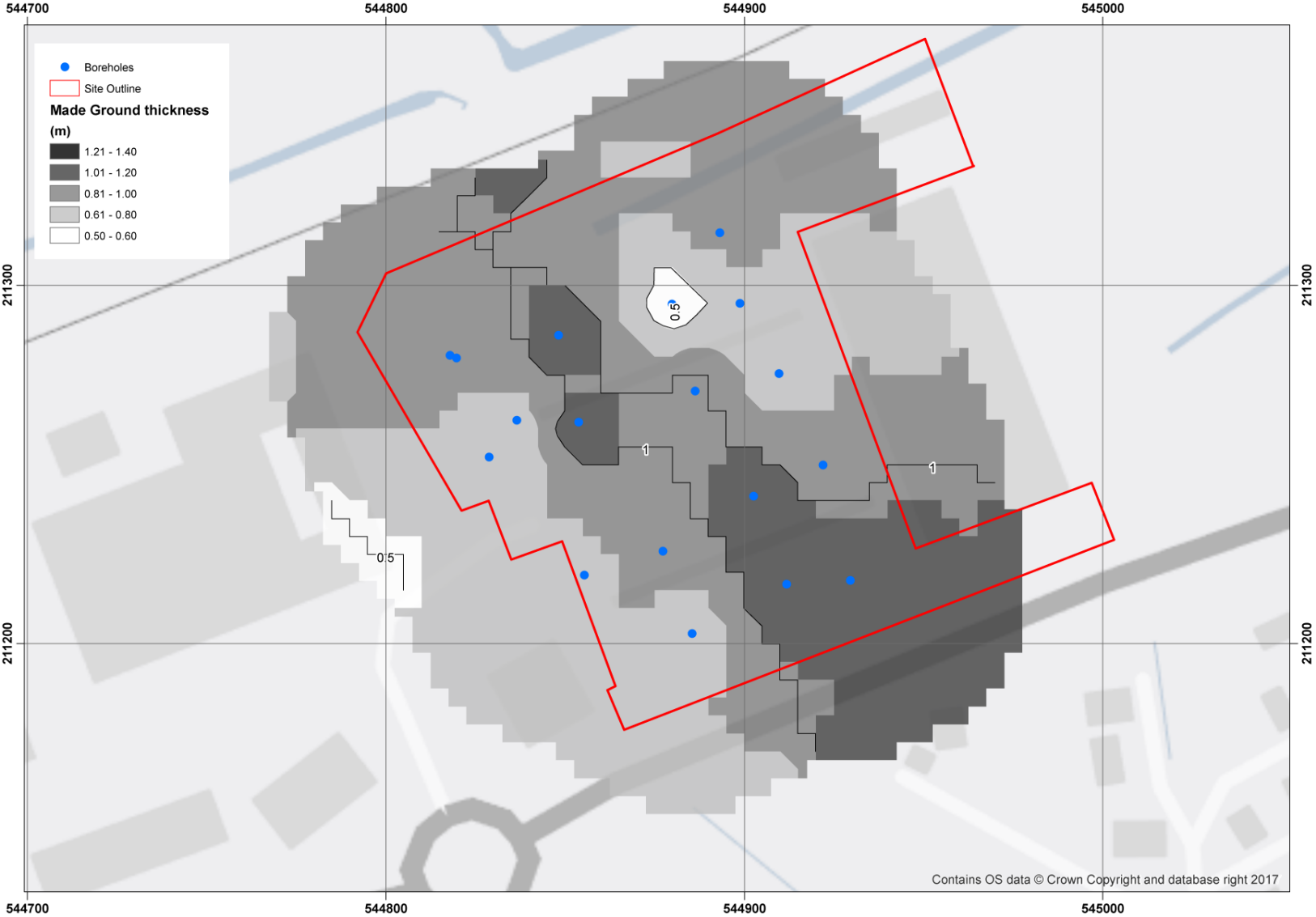
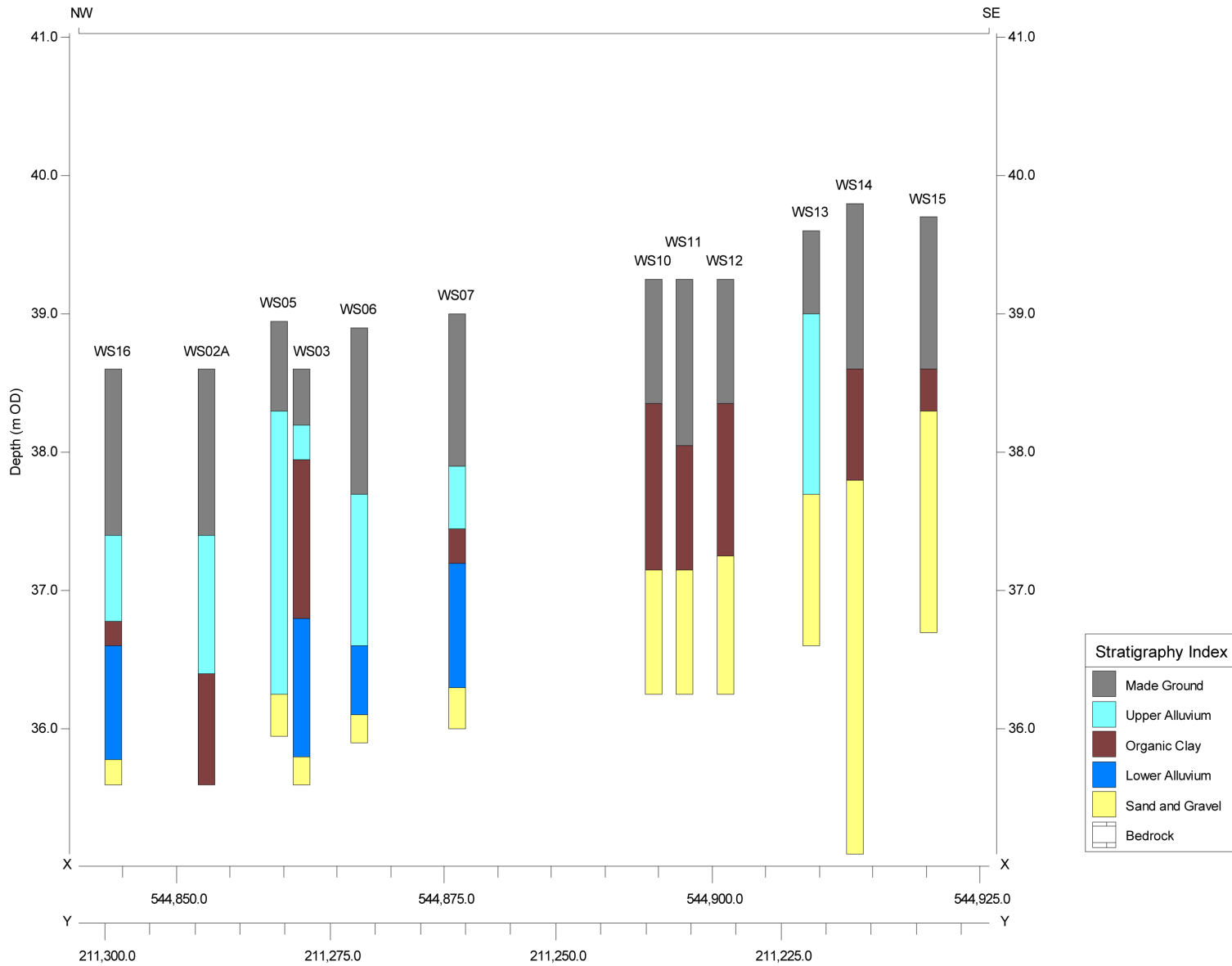


Figure 9: Thickness of Made Ground (m)



**Figure 10: Northwest-southeast transect of boreholes across the Pearson House site (see Figure 2 for alignment).**

**Table 2: Field-based lithostratigraphic description of borehole BH02, Land Adjacent to Pearson House, Edinburgh Gate, Harlow, Essex.**

Depth (m OD)	Depth (m bgl)	Description	Stratigraphic group
39.20 to 38.50	0.00 to 0.70	Made Ground of brick paving over concrete, sand and gravel.	MADE GROUND
38.50 to 38.00	0.70 to 1.20	Made Ground of disturbed/redeposited dark grey clay with some Mollusca fragments.	
38.00 to 36.80	1.20 to 2.40	As3 Ag1 Sh+; dark grey silty clay with some organic lenses. Diffuse contact in to:	UPPER ALLUVIUM
36.80 to 36.50	2.40 to 2.70	As3 Ag1; grey silty clay with some Mollusca fragments. Sharp contact in to:	LOWER ALLUVIUM
36.50 to 36.20	2.70 to 3.00	Gley2 4/10G; Gg3 Ga1; dark greenish grey sandy gravel. Gravel clasts are flint, up to 40mm in diameter, sub-angular to well-rounded.	SAND AND GRAVEL

**Table 3: Field-based lithostratigraphic description of borehole WS13, Land Adjacent to Pearson House, Edinburgh Gate, Harlow, Essex.**

Depth (m OD)	Depth (m bgl)	Description	Stratigraphic group
39.60 to 38.90	0.00 to 0.70	Made Ground of brick cobbles over sand and gravel.	MADE GROUND
38.90 to 38.65	0.70 to 0.95	As3 Ag1 Gg+; grey silty clay with occasional gravel clasts. Diffuse contact in to:	UPPER ALLUVIUM
38.65 to 37.70	0.95 to 1.90	As2 Ag2 Ga+ Gg+; grey silty clay with occasional gravel clasts and a trace of sand. Diffuse contact in to:	
37.70 to 37.60	1.90 to 2.00	As2 Ag1 Gg1 Gg+; grey clay, silt and gravel with a trace of sand. Clasts are flint, angular to well-rounded, up to 30mm in diameter. Diffuse contact in to:	
37.60 to 36.60	2.00 to 3.00	Gg2 Ga2; orange sand and gravel. Clasts are flint, angular to well-rounded, up to 30mm in diameter.	SAND AND GRAVEL

**Table 3: Laboratory-based lithostratigraphic description of borehole WS16, Land Adjacent to Pearson House, Edinburgh Gate, Harlow, Essex.**

Depth (m OD)	Depth (m bgl)	Description	Stratigraphic group
38.60 to 37.40	0.00 to 1.20	Made Ground of brick paving over concrete, sand and gravel.	MADE GROUND
37.40 to 37.24	1.20 to 1.36	10YR 4/1; Ag1 As1 Dh1 Sh1 Ga+; dark grey organic silt, clay and detrital herbaceous material. Diffuse contact in to:	UPPER ALLUVIUM
37.24 to 36.78	1.36 to 1.82	Gley2 5/10G; Ag2 As2; greenish clay silt and clay. Some iron staining/mottling. Diffuse contact in to:	
36.78 to 36.60	1.82 to 2.00	10YR 3/1; Sh2 As1 Ag1 Th+ TI+; humo. 3; very dark grey, well humified very organic silt and clay with traces of woody and herbaceous material. Diffuse contact in to:	ORGANIC CLAY
36.60 to 36.39	2.00 to 2.21	10YR 4/1; As2 Ag2 Sh+; dark grey silt and clay with a trace of organic matter.	LOWER ALLUVIUM

Depth (m OD)	Depth (m bgl)	Description	Stratigraphic group
		Diffuse contact in to:	
36.39 to 36.31	2.21 to 2.29	10YR 4/1; Ag3 As1 Ga+; dark grey silt and clay with a trace of sand and frequent Mollusca fragments. Diffuse contact in to:	
36.31 to 36.22	2.29 to 2.38	10YR 2/1; Ag3 As1 Sh+; black clayey silt with a trace of organic matter. Diffuse contact in to:	
36.22 to 35.78	2.38 to 2.82	Gley2 4/10G; Ag2 As1 Ga1 Dh+; dark greenish grey sandy clayey silt with a trace of detrital herbaceous material. Sharp contact in to:	
35.78 to 35.60	2.82 to 3.00	Gley2 4/10G; Gg3 Ga1; dark greenish grey sandy gravel. Gravel clasts are flint, up to 40mm in diameter, sub-angular to well-rounded.	SAND AND GRAVEL

## 5. CONCLUSIONS & RECOMMENDATIONS

A programme of geoarchaeological monitoring and deposit modelling was carried out at the Pearson House site in order to: (1) clarify the nature of the sub-surface stratigraphy; (2) clarify the nature, depth, extent and possible date of any alluvium and organic/peat deposits; and (3) make recommendations for any further environmental archaeological assessment (if necessary). In order to address these aims, a total of three geotechnical boreholes were monitored and described in the field. These new boreholes were integrated with stratigraphic data from the remaining geotechnical logs in order to produce a deposit model of the major depositional units across the site.

The results of the deposit modelling indicate that the site lies towards the edge of the floodplain and the edge of a former channel, the main axis of which probably traverses the north-western area of the site. Overlying the bedrock is therefore a sequence of Gravel (thought to be of Late Devensian age), Holocene alluvium and modern Made Ground. The Holocene alluvial sequence consists of a tripartite sequence of generally sandy Lower Alluvium, Organic Clay, and the clay-rich Upper Alluvium. Significantly, the organic unit at the site is indicative of a transition towards semi-terrestrial (marshy) conditions, perhaps supporting the growth of sedge fen/reed swamp and/or woodland communities across the floodplain. It is generally present at elevations between ca. 38.5 and 35.5m OD, in thicknesses of between 2.6 and 0.18m. However, there is some uncertainty as to the exact thickness and extent of this unit due to discrepancies between the geoarchaeological and geotechnical descriptions (see above). Although this unit is mineral-rich, and therefore indicative of frequent (perhaps seasonal) flood events during its accumulation, its organic nature means that its palaeoenvironmental potential is high, and it has the potential to contain a wealth of further information on the past landscape, through the assessment/analysis of palaeoecological remains (e.g. pollen, plant macrofossils and insects) and radiocarbon dating. So called environmental archaeological or palaeoenvironmental investigations can identify the nature and timing of changes in the landscape, and the interaction of different processes (e.g. vegetation change, human activity, climate change, hydrological change) thereby increasing our knowledge and understanding of the site and nearby area. In the case of human activity, palaeoenvironmental evidence can include: (1) decreases in tree and shrub pollen suggestive of woodland clearance; (2) the presence of herbs indicative of disturbed ground, pastoral and/or arable agriculture; (3) charcoal/microcharcoal suggestive of anthropogenic or natural burning, and (4) insect taxa indicative of domesticated animals.

Because this unit is relatively thin and mineral rich in the retained borehole sequence, a limited programme of environmental archaeological assessment is recommended. This assessment should consist of: (1) a single radiocarbon date from the base of this unit, in order to ascertain the age of peat accumulation; and (2) assessment of the palaeobotanical remains (pollen, waterlogged wood and seeds) to provide a provisional reconstruction of the vegetation history. The assessment will highlight any indications of nearby human activity, and provide recommendations for further analysis (if necessary).

The site's location towards the margins of the floodplain (and potentially a former channel) suggest that the archaeological potential is considered to be limited to where the Gravel surface lies above ca. 37m OD (see Figure 11).



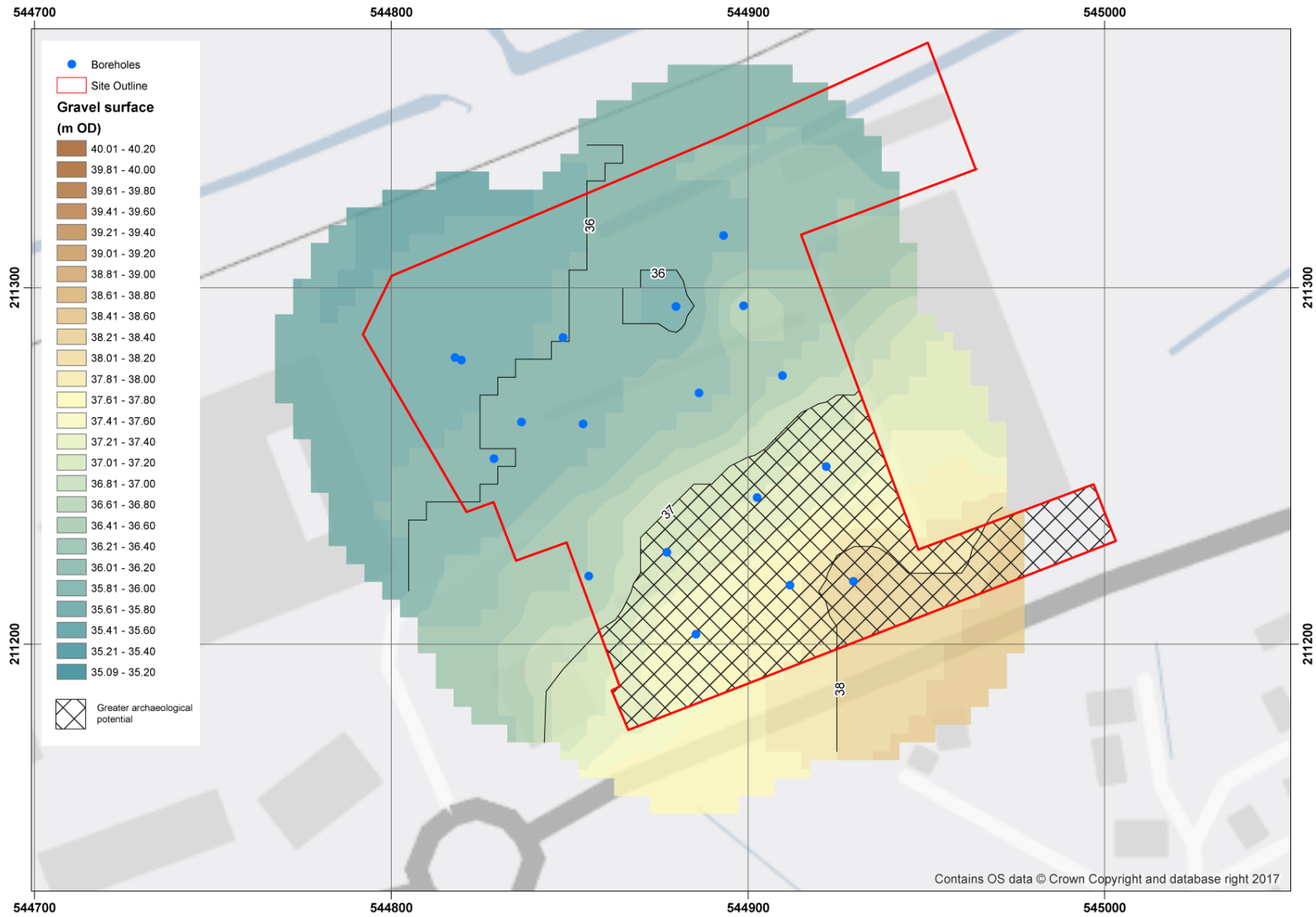


Figure 11: Proposed area of archaeological potential at the Pearson House site.

## 6. REFERENCES

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CgMs (2018) Archaeological Desk Based Assessment Land Adjacent to Pearson House Edinburgh Gate Harlow Essex. *CgMs Heritage Unpublished Report, January 2018*.

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

Young D.S. (2018) Land Adjacent to Pearson House, Edinburgh Gate, Harlow, Essex. Geoarchaeological Written Scheme of Investigation. *Quaternary Scientific (QUEST) Unpublished Report March 2018; Project Number 044/18*.

## 7. APPENDIX 1: OASIS

### OASIS ID: quaterna1-317077

#### Project details

Project name	Land adjacent to Pearson House, Harlow, Essex
Short description of the project	<p>A programme of geoarchaeological monitoring and deposit modelling was instigated at the Pearson House site in order to: (1) clarify the nature of the sub-surface stratigraphy; (2) clarify the nature, depth, extent and possible date of any alluvium and organic/peat deposits; and (3) make recommendations for any further environmental archaeological assessment. The results of the deposit modelling indicate that the site lies either towards the edge of the floodplain or the edge of a former channel, the main axis of which probably traverses the north-western area of the site. Overlying the bedrock at the site is therefore a sequence of Gravel (thought to be of Late Devensian age), Holocene alluvium and modern Made Ground. The Holocene alluvial sequence consists of a tripartite sequence of general sandy Lower Alluvium, Organic Clay, and the clay-rich Upper Alluvium. Significantly, the organic unit at the site is indicative of a transition towards semi-terrestrial (marshy) conditions, perhaps supporting the growth of sedge fen/reed swamp and/or woodland communities across the floodplain. It is generally present at between ca. 38.5 and 35.5m OD across the site, in thicknesses of between 2.6 and 0.18m. However, there is some uncertainty as to the exact thickness and extent of this unit due to discrepancies between the geoarchaeological and geotechnical descriptions. A limited programme of environmental archaeological assessment is recommended on the retained sequence from the site (WS16). The site's location towards the margins of the floodplain (and potentially a former channel) suggest that the archaeological potential is considered to be limited to where the Gravel surface lies above ca. 37m OD.</p>
Project dates	Start: 01-01-2018 End: 14-05-2018
Previous/future work	No / Not known
Type of project	Environmental assessment
Survey techniques	Landscape

#### Project location

Country	England
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Site location ESSEX HARLOW HARLOW Land adjacent to Pearson House, Harlow,  
Essex  
Postcode CM20 2DQ  
Site coordinates TL 44908 11265 51.780786568856 0.100875096464 51 46 50 N 000 06 03  
E Point

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### Project creators

Name of Quaternary Scientific (QUEST)  
Organisation

Project brief CgMs Heritage  
originator

Project design D.S. Young  
originator

Project D.S. Young  
director/manager

Project supervisor D.S. Young

Type of Developer  
sponsor/funding  
body

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### Project archives

Physical Archive No  
Exists?

Digital Archive No  
Exists?

Paper Archive Essex HER  
recipient

Paper Contents "Environmental","Stratigraphic"

Paper Media "Report"  
available

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Entered by Daniel Young (d.s.young@reading.ac.uk)

Entered on 14 May 2018