

Ouse Washes Habitat Creation Scheme Coveney Cambridgeshire



Archaeological Watching Brief Report



February 2011

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**Archaeological Watching Brief Report:
Ouse Washes, Habitat Creation Scheme, Coveney, Cambridgeshire**

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Summary

In October 2010 Oxford Archaeology East undertook a Watching Brief on geotechnical boreholes and testpits associated with a 200ha Habitat Creation Scheme adjacent to the Ouse Washes, near Coveney, Cambridgeshire.

The excavation of 8 boreholes and 7 test pits were monitored across the site. The purpose of the Watching Brief was to provide base-line data regarding the character, extent and archaeological potential of the alluvial and peat stratigraphy that may be effected by the Scheme.

The sedimentary sequences recorded in the interventions broadly comprised a relatively shallow Holocene peat of probable Bronze Age and later date, overlying a complex of late Devensian deposits related to cold climate solifluction, fluvial and aeolian processes. In places these deposits overlay fluvial gravels of Pleistocene age above the bedrock geology of Ampthill Clay. A discrete organic horizon lying at depth within the Pleistocene sequence may relate to temperate stage deposits known to exist in the area, either the Ipswichian Interglacial or Devensian Late Glacial Interstadial.

Although no archaeological features or artefacts were observed during the Watching Brief, a number of archaeological sites are known to be present within the Study Area and in the immediate vicinity. Within the Study Area this comprises artefact scatters of Mesolithic and Neolithic date, probably associated with a relict dryland ground surface at the interface between the peat and late Devensian deposits. In the interventions observed this interface lies on average within 0.5m and 1.0m below the current ground surface, although locally reaches a depths of up to 1.45m.

1 INTRODUCTION

1.1 Location and scope of work

- 1.1.1 In October 2010 Oxford Archaeology East were commissioned by Fugro Engineering Services Ltd to undertake a Watching Brief on geotechnical boreholes and testpits associated with a Habitat Creation Scheme adjacent to the Ouse Washes, near Coveney, Cambridgeshire.
- 1.1.2 It is proposed to create a 200ha wet grassland habitat area in order to meet the ecological requirements for those species negatively affected by deterioration of the Ouse Washes SPA; namely breeding black-tailed godwit, snipe and ruff and wintering wigeon. The works associated with the Scheme will include the construction of a winter water storage reservoir capable of storing around 0.5million m³ of water together with associated pumping systems, feeder drains, field drains and in-field foot drains. Three possible reservoir locations have been identified and their geotechnical suitability will be assessed using information from the ground investigation.
- 1.1.3 The primary aim of the Watching Brief was to provide base-line data regarding the character, extent and archaeological potential of the Holocene alluvial and peat stratigraphy that may be effected by the Scheme.

1.2 Geology, topography and land use

- 1.2.1 The site is located in the southern part of the Fenland Basin, on low-lying ground at the north-western edge of the former Isle of Ely (Fig. 1). The study area (centred on NGR 546500, 283500) comprises a 2km x 0.5km area immediately east of the New Bedford River (Ouse or Hundred Foot Washes). The area extends 3.5 km in SW–NE and 1.5km in SE–NW direction. The elevation at the site decreases from approximately 0m OD in the south to approximately -1m OD in the north. The surrounding villages of Wardy Hill, Mepal, Coveney and Pymore are situated at a higher elevation than the surrounding fenland. The study area is situated within a rural location with land use surrounding the site predominantly agricultural. The City of Ely is located approximately 9km to the east.
- 1.2.2 Most of the area is a drained and cultivated former peat fen. The topsoil is mainly peat derived and represents a fertile easy to farm soil. The topsoil and peat however are wasting away as a result of the drainage and farming. The area is accessed by wide regularly laid out dirt tracks locally called droves. They are accompanied by deep drainage ditches on either side and raised slightly above the surroundings. Usually the droves are slightly raised due to wastage of peat on the surrounding arable land.
- 1.2.3 The surface geology of the site is predominantly mapped as Holocene (Nordelf) peat (BGS sheet 173), although a swathe of alluvium is present associated with the Washes to the east. No Holocene deposits are mapped on the higher ground to the south of the site where there are outcrops of Jurassic Ampthill Clay and Kimmeridge Clay. It is likely that shallow Holocene peat deposits once extended further into the margins of these areas. Discrete deposits of Pleistocene river gravels and fluvial glacial deposits are noted skirting the fen edge that are likely to extend beneath the Holocene sequences within the Study Area (Fig. 2).

1.3 Ge archaeological and environmental background

Pleistocene

- 1.3.1 The Pleistocene deposits of the Mepal area have been the subject of some study (e.g. Burton 1987, Burton and West 1991, West *et al* 1995, West *et al* 2002). The sequence is complex and comprises a series of intercalated gravels, sands, silts and clays overlying Ampthill Clay. These deposits can be related to various fluvial, glacio-fluvial, aeolian and solifluction episodes dating from the middle to late Pleistocene. Investigations undertaken by West *et al* 2002 extend marginally into the south-western part of the current Study Area and a brief summary of the stratigraphic sequence is outlined below.
- 1.3.2 The earliest deposits in the Mepal area comprise the Fore Fen gravel; a fluvial deposit laid down in cold climate high-energy braided stream systems during the Wolstonian glaciation (c. 352,000-130,000 BP). This is overlain in places by temperate Ipswichian Interglacial deposits (c. 130,000-114,000 BP) comprising silt, organic clay and sand with freshwater shells. The latest fluvial gravel aggradation relates to the late Devensian Block Fen Gravel, deposited subsequent to the Last Glacial Maximum (c. 18,000 BP). This Formation outcrops to the north-west of the Washes around Chatteris and to the east along the edge of the Isle of Ely. Where Ipswichian deposits are absent the fluvial gravel formations are indistinguishable.
- 1.3.3 Overlying the Block Fen gravels are a series of variable fine-grained deposits of late Devensian date. These comprise massive fine clay rich sediments, interpreted as solifluction deposits derived largely from Ampthill Clay. Sands and sandy sediments forming lenses within these solifluction deposits indicate fluvial facies. Aeolian deposits; coversands and loess are also present in the area dating to this period. Intercalated between solifluction deposits in places is a unit of fine detritus mud interpreted as a lacustrine sediment dating to the Windermere Interstadial (c. 13,000-11,000 BP) associated with the 'Mepal depression' of Burton (1987)
- 1.3.4 This broad sequence is related to a period when the the River Great Ouse flowed between the Isle of Ely and the Chatteris and March 'islands', from the time of gravel aggradation before the Ipswichian to the Holocene. Pre- or early Holocene soil formation on the surface of the Pleistocene deposits is indicated by de-calcification of surface horizons with secondary carbonate nodules occurring lower down.

Holocene

- 1.3.5 During the past 10,000 years (Holocene or Flandrian) infilling of the Fenland Basin has occurred as a result of rising sea-level and local processes which has resulted in the accumulation of up to c. 30m of sediment in the deeper parts of the Basin (Waller 1994, Wheeler and Waller 1995). The sediment sequences comprise intercalated freshwater peats, alluvial silts, clays and lacustrine deposits, as well as minerogenic sediments indicative of brackish water incursion.
- 1.3.6 The formation of these deposits has attracted a great deal of research, when, as early as the 1800's Skertchly (1877, cited in Waller 1994) recognised the complexity of the Fenland sediment sequences. The Fenland Research Committee was established in the 1930's, which, pioneered by Sir Harry Godwin, resulted in a number of seminal papers on the stratigraphy of the Fenland deposits. Godwin was largely responsible for the establishment of a four-part chronostratigraphic division of Basal/Lower Peat, Fen Clay, Upper peat, and Upper Silt. However, the major limitations of this work was the lack of absolute dating, plus the fact that Godwin's studies were concentrated in the

southern Fens. Subsequently, further, more widespread, research in the 1950's (and the advent of C14 dating) highlighted major flaws with the existing chronostratigraphic divisions. During the 1970's the British Geological Survey established a new tripartite division (Gallois 1979, cited in Waller 1994 and Wheeler & Waller 1995). This system, however, still retained the very broad stratigraphic units adopted by Godwin, and has also since been found to be too simplistic and imprecise (Wheeler and Waller 1995).

1.3.7 Correlation of the various Fenland stratigraphic schemes is presented in Table 1.

| Skertchly (1877) | Godwin & Clifford (1938) | Gallois (1979) | Wyatt (1984); Horton (1989); Horton & Aldiss (1992) |
|---------------------------------|--------------------------|---------------------|---|
| Fen Silt | Upper Silt | Terrington Beds | Terrington Beds |
| | Upper Peat | Nordelph Peat | upper leaf of the Nordelph Peat |
| | Fen Clay | Barroway Drove Beds | upper member of the Barroway Drove Beds |
| lower leaf of the Nordelph Peat | | | |
| Peat | | | lower member of the Barroway Drove Beds |
| | | | Middle Peat |
| | | | lower member of the Barroway Drove Beds |
| | | | Lower Peat |
| | Lower Peat | Lower Peat | - |

Table 1: Generalized Holocene stratigraphy of the Fen Basin (from Wheeler and Waller, 1995).

- 1.3.8 It should be noted, however, at an individual site scale, especially in Fen edge situations, the sequences may be more complex, vertically conflated, and strongly influenced by local topography and hydrology. Not every event is represented in every sequence and there may be confusion in application of the macro-stratigraphic overview of the Fenland sequence, particularly in the absence of absolute dating evidence.
- 1.3.9 There are few studies of the Holocene sequence in the immediate vicinity of the Study Area. The closest site in Waller's 1994 review is at Pymore c. 2.5km to the north-east of the Study Area (Waller 1994, 137-41). The only deep fen sequences appear to occur to the north of Coveney in Byall Fen. Here peat would have formed by the Neolithic period and become covered with marine Fen Clay (> 1.2m thick), drained by a series of

channels now visible as roddons (Hall 1996, Fig. 25). The clay here is overlain by 0.75m of peat.

- 1.3.10 Further south the peat fens lie beyond the established limit of the Fen Clay marine incursion and the sequences become shallower against the areas of higher ground. The higher ground that defines the Isle of Ely only became isolated as a fenland island at the start of the middle Bronze Age (c.1500 BC). During this period marine incursion from the north resulted in the backing up of freshwater systems and expansion of marsh and fen environments (Evans 2003). Gallois' map of the past and present distribution of the Upper (Nordelph) peat in the vicinity of the Study Area suggests depths of up to 0.90m, although locally in the area occupied by the 'Mepal depression', to the west of the Study Area, thicknesses are recorded from 0.90m to 1.80m (Gallois 1988, Fig. 35).
- 1.3.11 An auger survey was carried out to the northeast of the Wardy Hill ringwork (Fig. 3, Evans 2003). The sequences here were similarly shallow reflecting the fen edge topography of the 'Cove'; a local embayment on the north-western margins of the Isle of Ely. The sequence primarily consisted of 0.40m to 1.00m of peat (Nordelph peat) and topsoil overlying Amphill clay that in places appeared reworked or disturbed
- 1.3.12 West *et al* 2002 recorded the Holocene sequence in the south-western part of the Study Area as comprising relatively shallow peat deposits overlying the late Devensian sequence. Here the peat is interpreted (in the absence of Fen Clay) primarily as a composite sequence of the Lower and Upper (Nordelph) peats. Peat formation would have continued in these areas up until the 17th century drainage associated with the Bedford Rivers.

1.4 Archaeological and historical background

- 1.4.1 No previous desk-based assessment of the known archaeology of the Study Area is available. However, traces of prehistoric occupation were recovered during the Fenland Survey (Hall 1996, 46). Within the Study Area two Mesolithic flint scatters were identified (Fig. 3, Witcham Sites 1 and 2). The assemblages included blades, micro-blade cores, core tools, a microlith and fire-cracked flint. Site 2 also produced a scalene triangle and piece of polished Neolithic axe. Site 1 continued into the Neolithic period producing a piece of pottery, bone fragments, as well as worked flint. A minor scatter of Neolithic flintwork, a few blades and cores, was also found on a sand rise west of Wardy Hill (Fig. 3, Coveney Site 5). Outside of the Study Area, but within the vicinity, the Fenland Survey identified similar Mesolithic and Neolithic artefact scatters. These included two sites immediately to the northeast at Way Head (Coveney Sites 3 and 4). To the southwest, on the other side of the Washes, an artefact scatter was identified lying on the eastern edge of the Chatteris prehistoric complex (Mepal Site 2).
- 1.4.2 Further evidence of prehistoric activity in the form of flint scatters and cut features has been recorded in the higher clays of the western side of the Isle of Ely, largely as a result of more recent investigations caused by commercial development. The evidence suggests low-level usage probably reflecting seasonal visits during the Neolithic and Bronze Age (Evans 2003, 8).
- 1.4.3 Substantial evidence of Iron Age and Roman occupation was recorded during the Fenland Survey across the northern part of the Isle of Ely, and particularly on the higher ground of the Wardy Hill environs (Hall 1996, Fig. 88). This includes the late Iron Age Wardy Hill ringwork (Fig. 3, Evans 2003, Coveney Site 1 in Hall 1996), as well as a number of other crop mark sites in the vicinity that may date to the Iron Age or Roman period.

2 AIMS AND METHODOLOGY

2.1 Aims

2.1.1 The aims of the Watching Brief can be defined as follows:

- Characterize the sequence of sediments and patterns of sedimentation throughout the site, including depth and lateral extent of major stratigraphical units and the nature of any basal land surface pre-dating the Holocene sediment deposition and peat formation.
- Identify significant variations in the deposit sequence indicative of localized features such as topographical highs or palaeochannels
- Identify the location and extent of any waterlogged organic deposits and address the potential and likely location of the preservation of archaeological and palaeoenvironmental remains.
- Clarify the relationship between sediment sequences with periods of soil formation and peat growth and the effects of relatively recent disturbances including the location and extent of made-ground.

2.2 Methodology

- 2.2.1 The excavation of 8 boreholes and 7 test pits were monitored across the site by a geoarchaeologist (Fig. 3). The boreholes were drilled using a shell and auger cable percussion rig up to depths of 6-10m. Bulk and disturbed samples were retrieved at intervals for geotechnical purposes as well as a smaller number of in-situ piston samples. The test pits were excavated using a JCB mechanical excavator. Opportunistic sampling was undertaken by the monitoring geoarchaeologist which included monolith samples from three locations (TP1, TP3 and TP7).
- 2.2.2 All test pits were photographed digitally. The deposit sequence was recorded from the edge of excavation. No testpits were entered due to safety considerations, however, all of the resulting spoil was examined for the presence of artefacts. The sediment sequence in each borehole was also recorded from the geotechnical bulk samples. The piston samples, however, were not extruded on site and were therefore not observed.
- 2.2.3 The sediments were described according to Jones *et al* 1999 *The Description and Analysis of Quaternary Stratigraphic Field Sections*, Technical Guide No 7, Quaternary Research Association 1999, to include information about depth, texture, composition, colour, clast orientation, structure (bedding, ped characteristics etc.) and contacts between deposits. Notes were also made on the presence/absence of visible ecofactual, or artefactual inclusions.
- 2.2.4 The lithological data from each sample location was inputted into geological modelling software (©Rockworks14) for analysis and correlation of deposits into key stratigraphical units. These units have been used to demonstrate the nature and the extent of sediment accumulation patterns across the site. Various cross sections and plots have been produced in order to illustrate the main points of discussion (Figs. 4 - 7).

3 RESULTS

3.1 General

3.1.1 The evidence from the boreholes and test pits revealed that a range of different sediment types are present throughout the investigation area. A number of broad stratigraphical units have been identified. It should be noted, however, the Pleistocene deposits in particular demonstrated considerable variation in lithology and further subdivision, in the absence of dating evidence, proved difficult given the large distances between sample locations. In addition the nature of some of these deposits, e.g. solifluction deposits derived from reworked Ampthill Clay, meant that it was sometimes difficult to distinguish from the true bedrock in the small exposures observed. No archaeological features or artefacts were identified during the Watching Brief.

3.1.2 Details of the stratigraphic units are presented in Table 2 based on elevation of the surface of the deposits (m OD) and include the following in order of deposition:

1. Bedrock (AC)
2. Pleistocene gravel (GRAV)
3. Late Pleistocene silts and clays (LP)
4. Holocene peat complex (HOL)
5. Topsoil (TS)

| Name | Easting | Northing | Top:TS | Top:HOL | Top:LP | Top:GRAV | Top:AC |
|------|------------|------------|--------|---------|--------|----------|--------|
| BH01 | 545,162.34 | 282,007.59 | -0.41 | -0.71 | -1.01 | - | -1.76 |
| BH02 | 545,865.93 | 282,320.45 | 0.23 | -0.17 | - | - | -0.72 |
| BH03 | 545,671.22 | 282,450.33 | -0.54 | -0.94 | -1.34 | - | -1.94 |
| BH04 | 546,494.36 | 282,278.89 | 1.52 | - | 0.92 | - | 0.07 |
| BH05 | 546,688.98 | 282,706.22 | 0.87 | 0.47 | - | - | -0.58 |
| BH06 | 546,524.77 | 283,148.82 | -0.35 | -0.75 | -1.45 | -7.85 | -9.55 |
| BH07 | 547,831.59 | 284,474.10 | -0.99 | -1.39 | -1.84 | -3.19 | -6.89 |
| BH08 | 547,511.98 | 284,866.33 | -1.1 | -1.4 | -1.6 | -3.55 | -4.95 |
| TP01 | 546,310.71 | 282,294.49 | 1.7 | 1.29 | 0.8 | - | -0.45 |
| TP03 | 546,867.67 | 283,562.48 | -0.69 | -1.09 | -1.34 | -2.89 | - |
| TP04 | 547,454.40 | 283,654.62 | -1.38 | -1.83 | -2.48 | - | -3.63 |
| TP05 | 546,933.74 | 284,112.66 | -0.76 | -1.11 | -1.26 | -2.36 | - |
| TP06 | 547,592.13 | 284,250.38 | -0.58 | -1.03 | -1.63 | -3.08 | - |
| TP07 | 547,244.40 | 284,522.24 | -1.35 | -1.8 | -2.05 | -2.7 | - |
| TP08 | 548,183.21 | 283,973.73 | 0.07 | -0.16 | -0.68 | - | -0.68 |

Table 2: Summary of stratigraphy

3.2 Pre-Holocene deposits and basement topography

Bedrock

- 3.2.1 The bedrock of the investigation area underlying the Quaternary geology is Ampthill Clay (Jurassic) with recorded thicknesses between 20 and 50m (BGS sheet 173). All of the boreholes reached bedrock, but 4 of the test pits did not (TP03, TP05, TP06 and TP07). Bedrock was reached by the interventions at depths of between 0.75 and 9.2m bgl. The highest elevations broadly correspond to the modern topography in the south-western part of the site.
- 3.2.2 The normal appearance of Ampthill clay is that of a stiff greenish grey (5GY 4/1) clay. It occasionally contains fossils and includes beds of hard light greenish grey siltstone of 0.6 to 1.35m thickness. The upper part of the Ampthill Clay frequently appeared soft and mottled brown in colour with frequent selenite crystals as a result of extensive weathering.

Gravels

- 3.2.3 Pleistocene fluvial gravels are present beneath the central and northern areas of the Study Area (BH6, BH7, BH8, TP3, TP5, TP6 and TP7) overlying the bedrock. The gravels are generally dense, poorly sorted, and comprise 40-60% small to medium angular to sub-rounded flint pebbles, within a matrix of grey or olive-brown fine to coarse sand.
- 3.2.4 Where the base of the gravel was reached in the boreholes it ranged from 1.4m to 3.7m in thickness. The sediments in BH6, however, appeared anomalous. Here the gravels occur at a very low elevation; c. 7.5m bgl. (-7.85m OD). This may indicate the location of a relict channel or perhaps a feature of periglacial origin (Fig. 6). It should be noted there was some uncertainty regarding the nature of the overlying deposits at this location as they bore much resemblance to the local bedrock. They have, however been provisionally interpreted as predominantly redeposited Ampthill Clay, probably reworked by solifluction processes (see below).
- 3.2.5 In general the gravels represent cold-climate deposits deposited in high-energy braided stream systems. Any ecofactual or artefactual material recovered from these deposits is likely to have been the subject of considerable reworking. However, of note is the presence of an organic unit identified within the main gravel aggradation in BH07 at c. 3.65m to 3.80m bgl. (-4.64 to -4.79m OD, Figs. 6 and 7). This is described as a dark brown sandy organic silt with 20% small angular pebbles and may be related to fossiliferous temperate stage deposits described in the area by West *et al* 2002.

Sands, clays and silts

- 3.2.6 Overlying the gravels and bedrock across much of the site occurs a complex sequence of interdigitating sands, clayey sands, sandy clays and sandy silts (Figs. 6 and 7). The sandy clay seems to predominantly originate from redeposited Ampthill Clay and frequently included selenite crystals. This sequence is consistent with late Pleistocene Bed 5 deposits described by West *et al* 2002, interpreted as the products of cold climate fluvial, solifluction and aeolian processes.

3.3 Holocene deposits

The early Holocene topographic template

- 3.3.1 The composite surface of the bedrock and Pleistocene deposits formed the topography of the early Holocene landscape in which prehistoric activity would have occurred. A

model of this surface is presented in Figure 4 which reveals the highest elevations occur in the southern part of the Study Area at c. 0.6m OD, reducing northwards to c. -2.0m OD.

Peat Complex

- 3.3.2 Over most of the site the late Pleistocene deposits are overlain by a relatively shallow Holocene peat/organic sequence ranging from 0.15m to 0.7m in thickness. Peat was absent from BH4. No substantial deposits of minerogenic alluvium were identified with certainty, although it is possible due to poor visibility in some of the exposures that this may have been incorporated into the upper part of sediments ascribed to the late Pleistocene. The exception to this is TP4 where 0.30m of soft brownish grey silty clay deposits were noted beneath 0.35m of dark brown silty peat (Fig. 7).
- 3.3.3 In many interventions, however, parts of the peat profile contained a component of silt, and on occasion minor silty clay units, or lenses, were also noted, suggesting episodes of inundation or flooding during accumulation. In TP1, for example, 0.22m of dark greyish brown organic rich sandy silt overlay 0.27m of firm dark reddish brown pseudofibrous silty peat (Fig. 7). In general the peat was described as dry/desiccated or well-humified, although woody fragments were noted to be preserved in the lower parts of the deeper sequences.

Topsoil

- 3.3.4 The topsoil was recorded as a separate stratigraphic unit averaging 0.3m to 0.5m in thickness, although it was apparent that it was mostly formed from the upper part of the peat profile. Topsoil developed from peat is a black friable silt with a high organic component and frequently with some traces of sand. Where peat coverage is absent the topsoil is partly derived from weathered bedrock or from the Pleistocene sediments and peat.
- 3.3.5 Occasional thin deposits of yellowish brown mineral sediment noted on top of the peat and at the base of the modern topsoil could represent redeposited material as this generally occurred at locations at the margin of droves with trenches either side, e.g. in TP3 0.05m of dark grey sandy organic silt with clasts of yellow clay occurred between the topsoil and underlying peat.
- 3.3.6 A model of the thickness of the Holocene sequence (Topsoil and peat combined) is presented in Figure 5. The deposits range in thickness from 0.5m to 1.45m. The thickest deposits occur in the central part of the Study Area at 1.45m and 1.1m (BH5 and BH6).

3.4 Finds Summary

- 3.4.1 No finds were recovered during the Watching Brief

3.5 Environmental Summary

- 3.5.1 Samples were collected opportunistically from both boreholes and testpits. The primary purpose of this was to retain reference material for more detailed lithological examination as part of this assessment and largely comprised small disturbed grab samples. Undisturbed monolith samples were retrieved from the Holocene sequence at three locations (TP1, TP3 and TP7).

4 DISCUSSION AND CONCLUSIONS

- 4.1.1 The results of the Watching Brief have served well in broadly characterizing the sediment sequence present across the Study Area. However, a number of points must be made regarding the reliability of the results.
- 4.1.2 Correlation of sediment units between sample locations, particularly the complex Pleistocene sequences, proved difficult given the large distances, limited exposure, and in the absence of detailed analysis such as absolute dating. The distribution of sample points should be taken into account when reviewing the plots produced in Figures 4 and 5 which are intended to provide a broad indication of trends in the data. There are, however, large parts of the Study Area where no data is available.
- 4.1.3 With reference to the absence of archaeological remains, the test pits were quite small, widely spaced and only excavated in the northern part of the Study Area. They were not accessible due to safety considerations, therefore archaeological visibility should be considered moderate to poor.
- 4.1.4 Archaeological remains are known to be present within the Study Area in the form of Mesolithic and Neolithic flint scatters (Hall 1996, 46) and the locations of these scatters are noted in Figure 3. These remains were identified as surface scatters during fieldwalking for the Fenland Survey. The combination of shallow peat sequences, in part due to peat wastage as a result of drainage, together with deep ploughing, resulted in the underlying sandy deposits being brought to the surface at these locations. It is suggested more extensive, in-situ *remains*, may be present in areas where ploughing has not penetrated the full peat profile (*ibid*). The peat profile for the most part probably relates to accumulation of the Upper (Nordelph Peat) which began to form under conditions of rising groundwater during the 2nd millennium BC. Prior to this the area was likely to have been relatively dry, albeit dissected by channels, and contemporary land surfaces with any associated archaeology are likely to be preserved at the interface between the peat and underlying Pleistocene deposits. In most of the interventions observed this interface lies between c. 0.5m and 1.0m of the current ground surface, although locally reaches depths of 1.45m (Fig. 5).
- 4.1.5 The preservation of biological remains suitable for palaeoenvironmental reconstruction for the Holocene period is likely to have been effected by extensive drainage that has occurred since the 17th century. This is reflected in the often desiccated character of the peat deposits. Categories of material such as insect remains and the less robust soft tissue of macroscopic plant remains; seeds and fruits, are likely to have been most effected in the upper parts of the profiles or where the profiles are very shallow. Woody fragments were, however, noted in the lower parts of the deeper sequences.
- 4.1.6 With reference to the Pleistocene sequence. Any artefactual material encountered in cold climate fluvial or solifluction deposits is likely to have undergone a considerable amount of reworking. Organic deposits were noted, albeit at considerable depth, within the Pleistocene sequence (e.g. BH07) and may relate to temperate stage deposits known to exist in the vicinity (West *et al* 2002). These temperate deposits of Ipswichian and late Devensian Age have proved to be fossiliferous providing material for palaeoenvironmental reconstruction, although no associated archaeological remains were identified. Ipswichian deposits are unlikely to do so given it is widely believed the British mainland was unoccupied during this period. Evidence of human occupation found in association with deposits dated to the late Devensian Windermere Interstadial, however, would be of regional importance, representing recolonization following the Last Glacial Maximum at c. 18,000 BP.

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APPENDIX B OASIS REPORT FORM

All fields are required unless they are not applicable.

Project Details

| | | | |
|---------------------------------|---|-------------|------------|
| OASIS Number | oxfordar3-90100 | | |
| Project Name | Ouse Washes, Habitat Creation Scheme, Coveney, Cambridgeshire | | |
| Project Dates (fieldwork) Start | 18-10-2010 | Finish | 28-10-2010 |
| Previous Work (by OA East) | No | Future Work | Unknown |

Project Reference Codes

| | | | |
|-----------|----------|-----------------------|--|
| Site Code | CVYOUW10 | Planning App. No. | |
| HER No. | ECB3511 | Related HER/OASIS No. | |

Type of Project/Techniques Used

Prompt

Please select all techniques used:

| | | |
|--|---|---|
| <input type="checkbox"/> Field Observation (periodic visits) | <input type="checkbox"/> Part Excavation | <input type="checkbox"/> Salvage Record |
| <input type="checkbox"/> Full Excavation (100%) | <input type="checkbox"/> Part Survey | <input type="checkbox"/> Systematic Field Walking |
| <input type="checkbox"/> Full Survey | <input type="checkbox"/> Recorded Observation | <input type="checkbox"/> Systematic Metal Detector Survey |
| <input type="checkbox"/> Geophysical Survey | <input type="checkbox"/> Remote Operated Vehicle Survey | <input checked="" type="checkbox"/> Test Pit Survey |
| <input type="checkbox"/> Open-Area Excavation | <input type="checkbox"/> Salvage Excavation | <input checked="" type="checkbox"/> Watching Brief |

Monument Types/Significant Finds & Their Periods

List feature types using the [NMR Monument Type Thesaurus](#) and significant finds using the [MDA Object type Thesaurus](#) together with their respective periods. If no features/finds were found, please state "none".

| Monument | Period | Object | Period |
|----------------------|------------------|----------------------|------------------|
| <input type="text"/> | None | <input type="text"/> | None |
| <input type="text"/> | Select period... | <input type="text"/> | Select period... |
| <input type="text"/> | Select period... | <input type="text"/> | Select period... |

Project Location

| | | | |
|------------|----------------|---|--------------|
| County | Cambridgeshire | Site Address (including postcode if possible) | |
| District | | | |
| Parish | Covney | | |
| HER | Cambridgeshire | | |
| Study Area | 281 ha | National Grid Reference | TL 4637 8317 |

Project Originators

| | |
|---------------------------|---------|
| Organisation | OA EAST |
| Project Brief Originator | |
| Project Design Originator | |
| Project Manager | |
| Supervisor | |

Project Archives

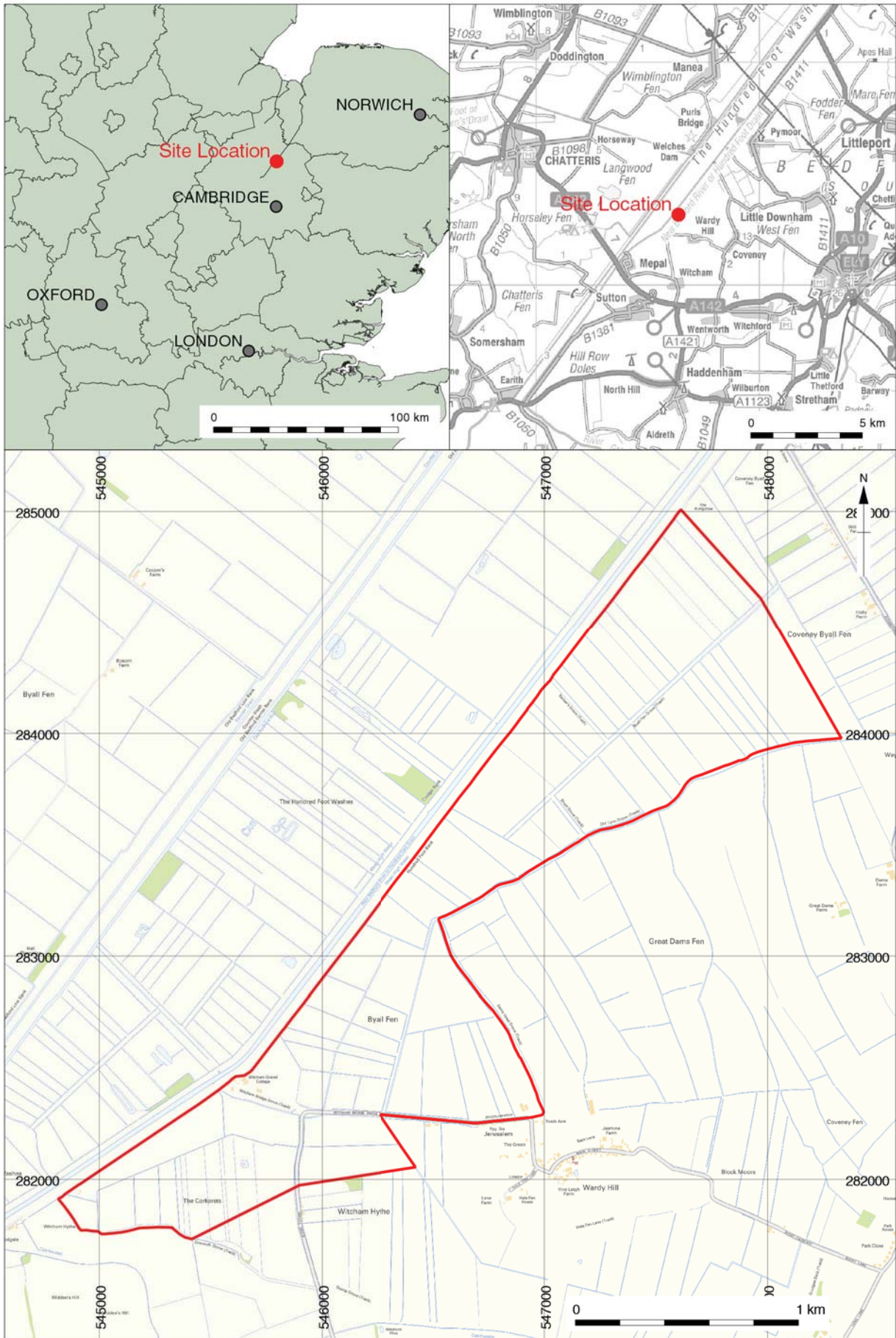
| Physical Archive | Digital Archive | Paper Archive |
|------------------|------------------|------------------|
| Location ... | Location ... | Location ... |
| Accession ID ... | Accession ID ... | Accession ID ... |

Archive Contents/Media

| | Physical Contents | Digital Contents | Paper Contents |
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| Ceramics | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Environmental | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Glass | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Human Bones | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
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| Other | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| Digital Media | Paper Media |
|--|---|
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| <input type="checkbox"/> GIS | <input type="checkbox"/> Context Sheet |
| <input type="checkbox"/> Geophysics | <input type="checkbox"/> Correspondence |
| <input type="checkbox"/> Images | <input type="checkbox"/> Diary |
| <input type="checkbox"/> Illustrations | <input type="checkbox"/> Drawing |
| <input type="checkbox"/> Moving Image | <input type="checkbox"/> Manuscript |
| <input type="checkbox"/> Spreadsheets | <input type="checkbox"/> Map |
| <input type="checkbox"/> Survey | <input type="checkbox"/> Matrices |
| <input type="checkbox"/> Text | <input type="checkbox"/> Microfilm |
| <input type="checkbox"/> Virtual Reality | <input type="checkbox"/> Misc. |
| | <input type="checkbox"/> Research/Notes |
| | <input type="checkbox"/> Photos |
| | <input type="checkbox"/> Plans |
| | <input type="checkbox"/> Report |
| | <input type="checkbox"/> Sections |
| | <input type="checkbox"/> Survey |

Notes:



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Figure 1: Site location (study area outlined red)



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HOLOCENE

- Nordelph peat
- Alluvium

PLEISTOCENE

- River gravel
- Till
- Fluvio-glacial gravel

BEDROCK

- Kimmeridge Clay
- Ampthill Clay

- Fen edge
- Study Area

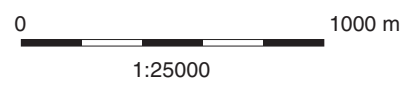


Figure 2: Surface geology of the Study Area



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





- | | | | | | |
|---|---------------|---|----------------------------|---|---|
|  | Testpit |  | Fenland Survey (Hall 1996) |  | Area of auger survey (West <i>et al</i> 2002) |
|  | Borehole |  | W1 Witcham Site 1 |  | Area of auger survey (Evans 2003) |
|  | Cross-section |  | W2 Witcham Site 2 | | |
|  | Study Area |  | C1 Coveney Site 1 | | |
| | |  | C5 Coveney Site 5 | | |



Figure 3: Location of boreholes and testpits

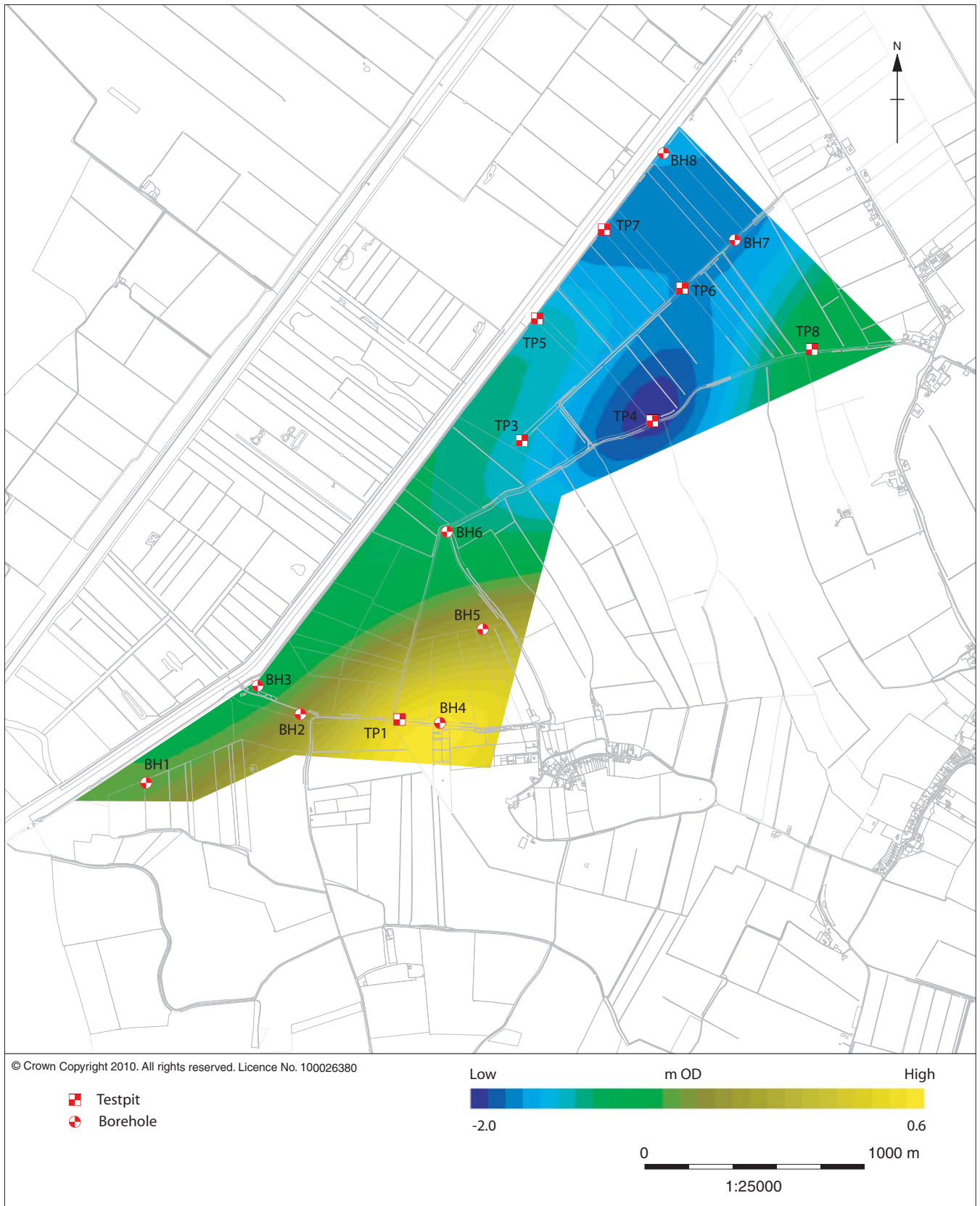


Figure 4: Modelled surface of the late Pleistocene sediments

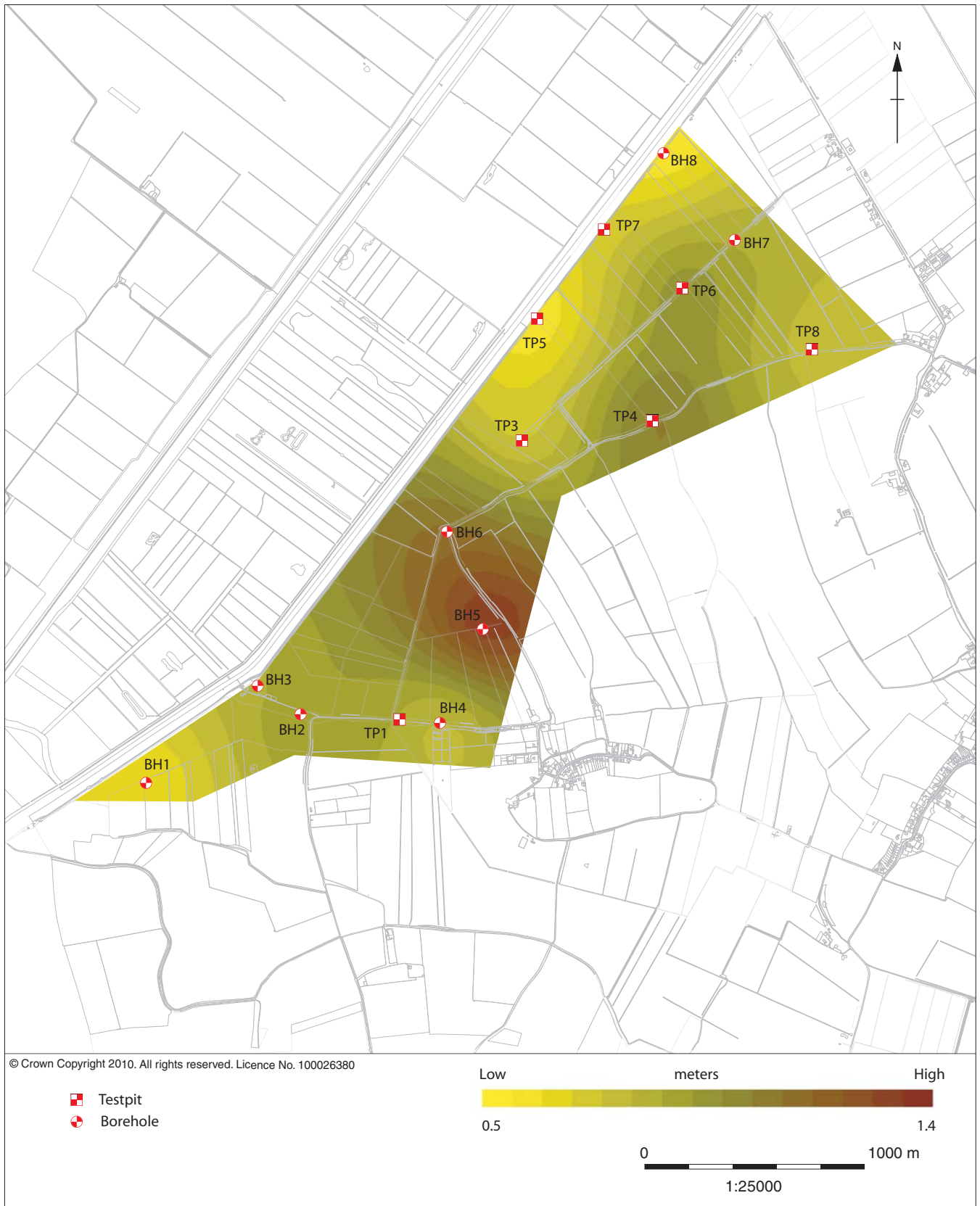


Figure 5: Modelled thickness of Holocene deposits (including topsoil)

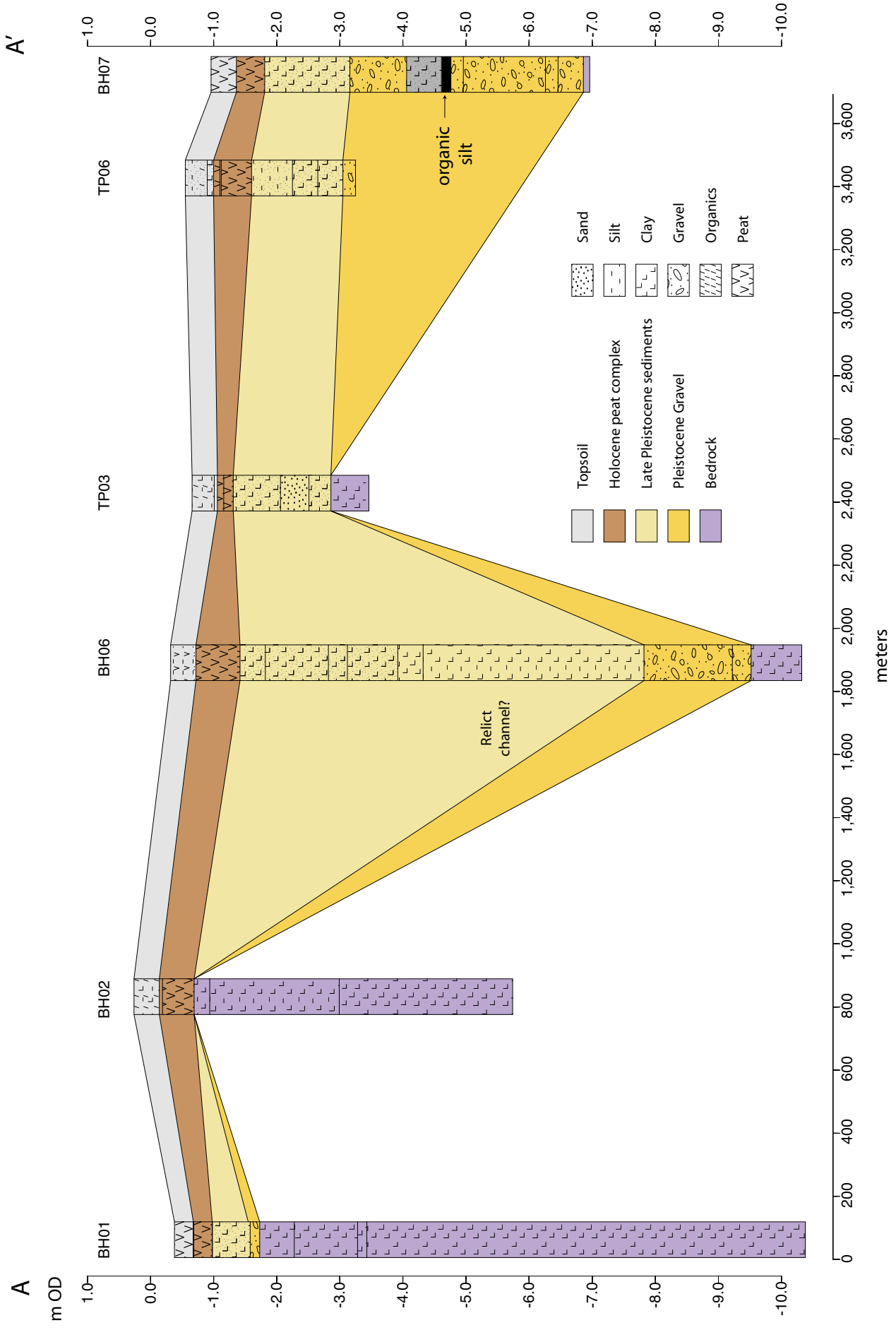


Figure 6 : Cross -section A-A'

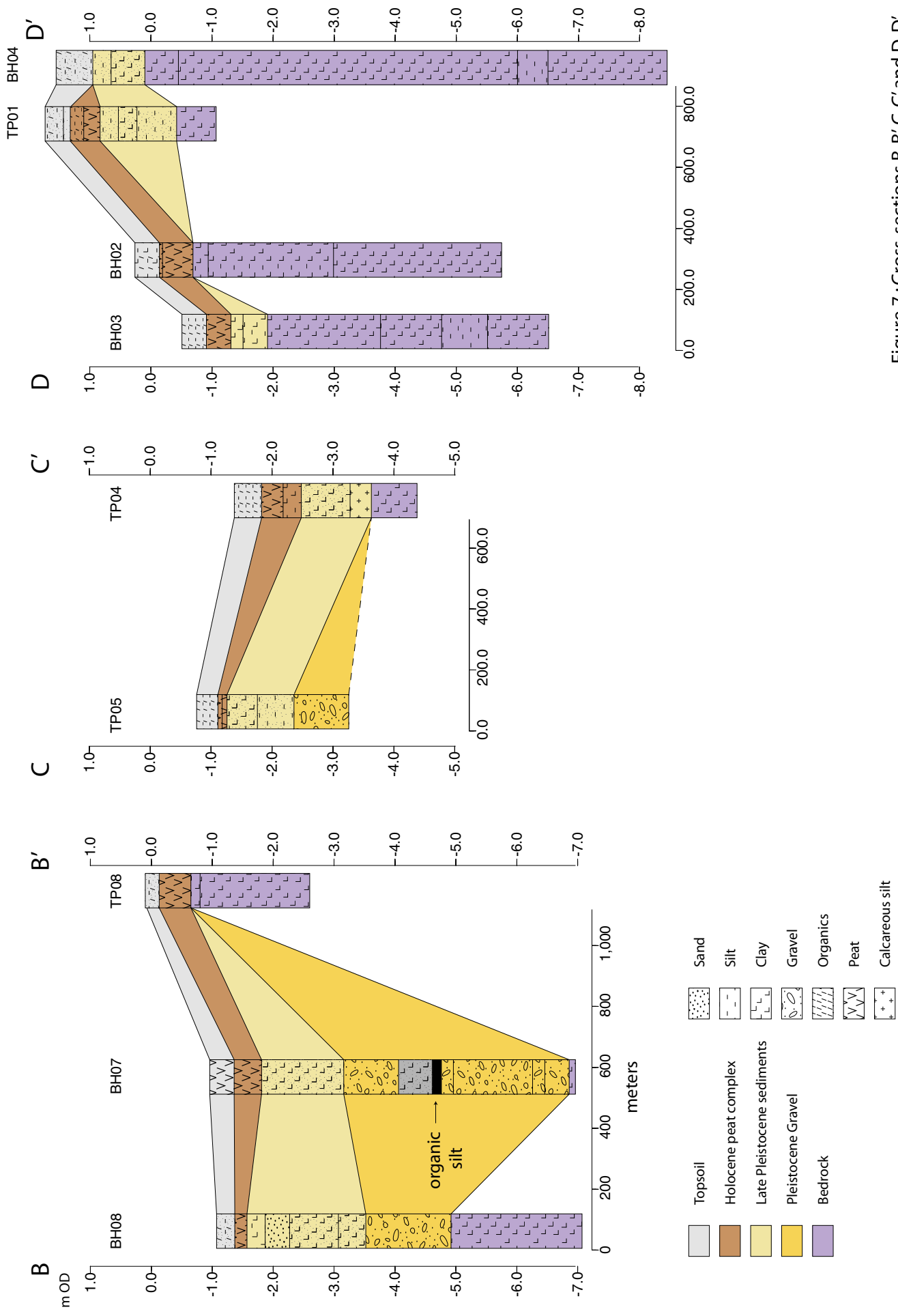


Figure 7 : Cross-sections B-B', C-C' and D-D'



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