

Half Moon Reservoir, Redmere Farm, Burnt Fen, Littleport, Cambridgeshire An Archaeological Evaluation



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**Half Moon Reservoir
An Archaeological Evaluation**

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Cambridge Archaeology Unit carried out an archaeological evaluation through a programme of test pits and trial trenching at Redmere Farm, Burnt Fen, Littleport, Cambridgeshire in August 2007. The evaluation exposed a dense network of modern clay extraction features and paleo-environmental evidence for a salt marsh and intertidal creek followed by a reed swamp, providing a context for the lack of evidence for archaeological activity.

Introduction

An archaeological evaluation was carried out as a condition of planning permission in advance of a reservoir development at Redmere Farm, Burnt Fen, Littleport, Cambridgeshire. Commissioned by J Shropshire & Sons Ltd, a program of works was undertaken by archaeologists from Cambridge Archaeology Unit between 15th and 24th August 2007. The evaluation was carried out and this report was written in accordance with an archaeological specification written by the CAU (Beadsmoore 2007), in response to a brief by Cambridgeshire Archaeology Planning Countryside Advice (CAPCA) (Gdaniec 2007), and approved and monitored by an Archaeological Officer from CAPCA.

Location, topography and geology

The development area comprises c.12.3 hectares located just to the south of the Little Ouse River and approximately seven kilometres east of Littleport, Cambridgeshire (Figure 1). The southwest corner of the development area is NGR 563789/286812.

The development area is situated on the Barroway Drove Beds underlain by Gault Clay. The site is located primarily on a low lying clay ridge. The ridge rises to a height of 0.1m OD along the western edge of site and falls away to -1.55m OD along the eastern edge. There is an abrupt shift from clay to sand along the eastern edge of the development area. A thin layer of Nordelph Peat, dated at the earliest to the Iron Age is also present above the Barroway Drove Beds (see Appendix 1).

Archaeological Background

Limited previous archaeological work has been carried out within, or in the immediate vicinity of, the development area. Stray finds dated to the Neolithic period have been recovered from along the clay ridge, whilst flints dated to the Mesolithic and Bronze Age have been recovered slightly further towards the north-west on the edge of the ridge (Gdaniec 2007).

To the south-west, between the development area and Peacock's Farm a sizable area of land is relatively higher than the surrounding fenland and would consequently have been drier, and utilised during the Mesolithic period (Smith *et al* 1989). Further afield at Plantation Farm, Peacock's Farm and Letter F Farm, some 1.5 miles to the south-west of the development area, archaeological investigations revealed Mesolithic and Early Neolithic activity on a sand ridge and within the Lower Peat horizons. Early Bronze Age activity was also noted in the Upper Peat horizons (Smith *et al* 1989).

Methodology

A two phase strategy was employed to evaluate the development area; phase one comprised a test pit survey, the results of which influenced phase two, a programme of trial trenching.

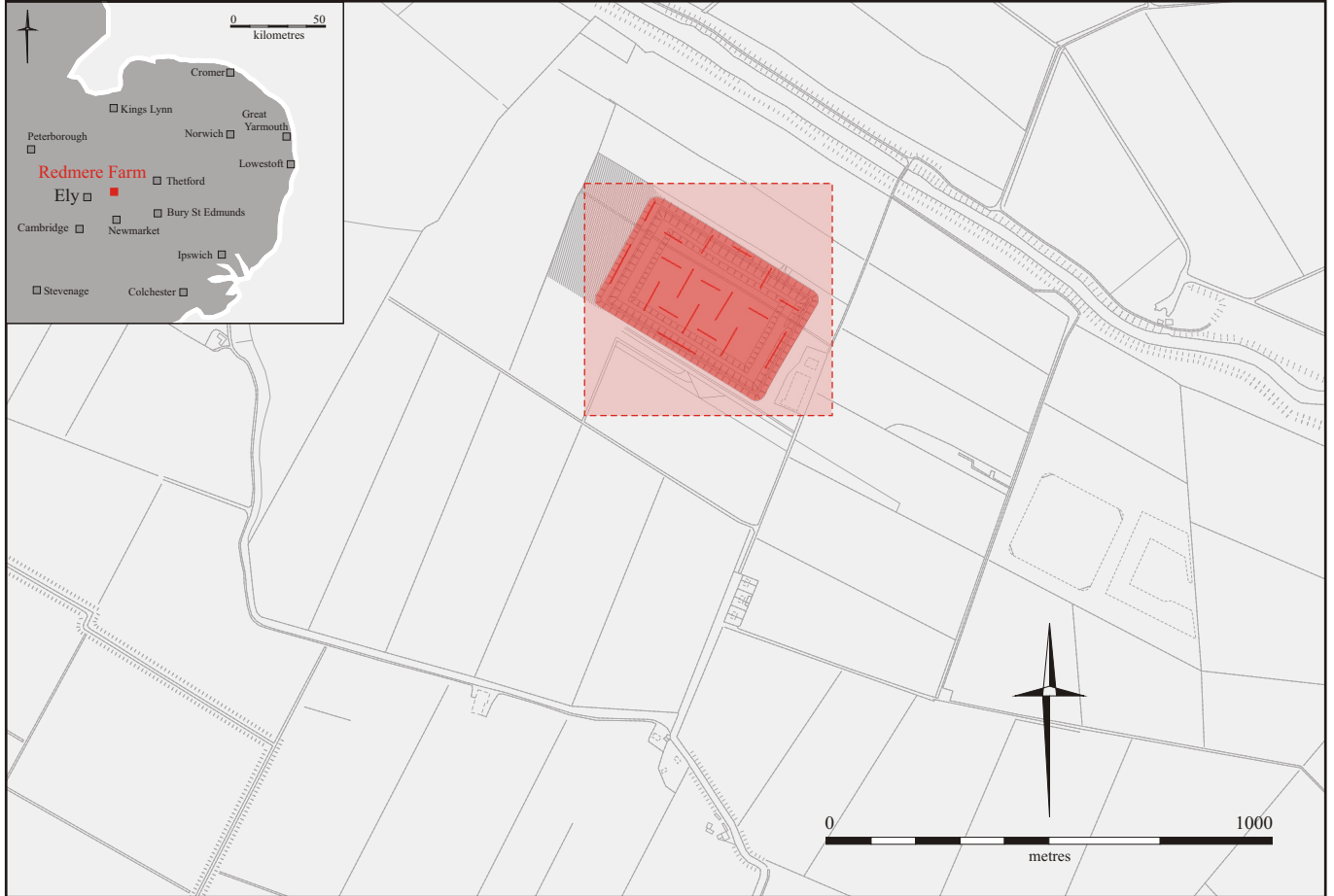
Topsoil and underlying deposits were removed with a toothless ditching bucket on a 360° tracked machine under archaeological supervision. A total of 54, 2m x 2m, test pits were machine excavated on a 50m grid. They were photographed and the sections were recorded; where buried soil deposits were present, a 90 litre sample was sifted by hand for artefacts. As a result of the test pit survey, 19 trenches totalling 1190m in length were machine excavated, giving a sample by area of 1.94%. Buried soil deposits, where located, were partially left in place so they could be sampled for artefacts in one metre squares.

Excavation of archaeological features was carried by hand. The recording followed a CAU modified MoLAS system (Spence 1990); whereby feature numbers, F. were assigned to stratigraphic events, and numbers (fill), or [cut] to individual contexts. The trench plans were drawn at 1:50, sections at 1:10. A digital photographic archive was also compiled. All work was carried out in strict accordance with statutory Health and Safety legislation and with the recommendations of SCAUM (Allen and Holt 2002). The site code is RMF 07.

The archive

A total of 16 contexts from six different features were excavated and recorded and one artefact was recovered. One bulk and one monolith tin sample were taken. The documentary records and accompanying artefact have been assembled into a catalogued archive in line with Appendix 6 of MAP2 (English Heritage 1991), and are being stored at the Cambridge Archaeology Unit offices.

562460/287622



565419/285611

Figure 1. Location Plan

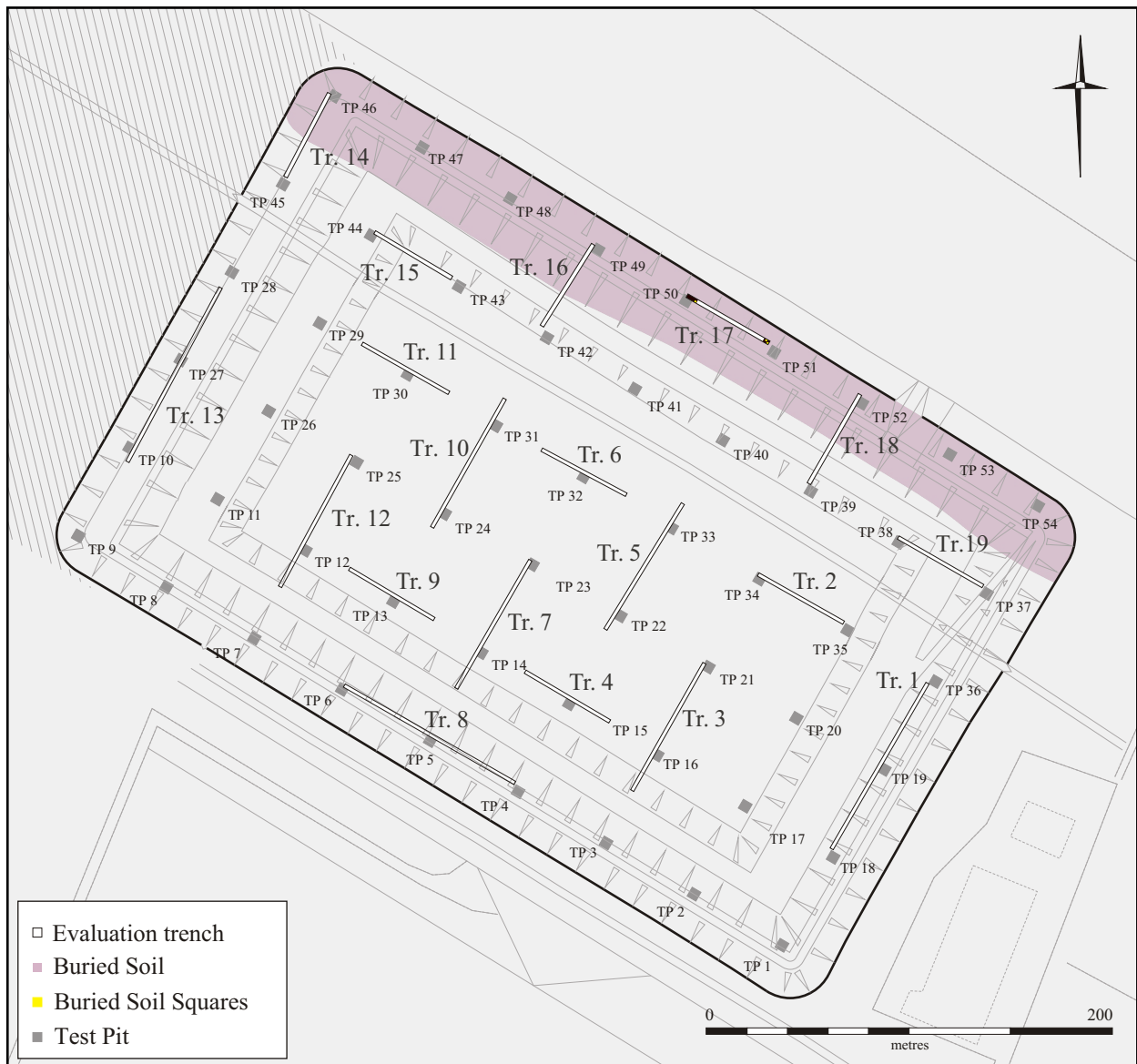


Figure 2. Trench Plan

Results

Phase One – Test Pits

Of the 54 test pits (see Figure 2), numbers 1-45 were comparatively shallow and consisted of a peaty top soil sitting directly on natural sandy clay. The topsoil depth varied between 0.28m and 0.40m. Several features were exposed but all were post-medieval or modern and are discussed in greater detail in the phase two results section. None of the test pits yielded any finds.

Test pits 46-54, located along the north eastern edge of the development area revealed a very different sequence. Topsoil depth ranged between 0.32m and 0.50m, whilst layers of peat were exposed between 0.10m and 0.30m, overlying buried soil between 0.10 and 0.20m. The natural within these test pits also differed and showed a distinct change from sandy clay to mottled orange/yellow sand. A single worked flint was recovered from the buried soil in TP 51 (see Appendix 2). However no other finds were recovered either from the test pits or from the 90 litre hand sifted samples and no features were identified.

Phase Two – Trial trenches

The 19 trenches were laid out on either a northeast–southwest or northwest–southeast alignment, following the test pit grid. An emphasis was placed upon evaluating the north eastern edge of the development area where the underlying geology appeared to shift abruptly from clay to sand, and buried soil had been exposed in the test pits (see Figure 2).

The trenches revealed the underlying clay gently sloping downwards from the southwest, from a height of 0.01m OD in trench 3, to -0.54 OD in trench 15. In trenches where underlying deposits of peat and buried soil were present above a sand natural (trenches 14, 16, 17 and 18), the height sloped down to -1.55m OD.

Trenches 1-13, 15 and 19 were all completely on sandy clay, and revealed a large number of features. However, once they were sampled, these features were identified as clay extraction features dated to the post medieval/modern period. The features were either short rectangular cut linears with vertical sides and irregular bases, generally orientated northeast-southwest or northwest south-east, or irregular shaped pits with undercutting sides and uneven bases. Furthermore, the pits were frequently aligned. The short linears and pits that were sampled all had the same black, silty peat fill, which closely resembled the top soil. No artefacts were recovered from the surface of any of the features, or the excavated slots.

Trenches 14, 16 and 18 revealed the abrupt shift from clay to sand and the more complex nature of the overlying deposits, where buried soil and peat formations were visible (see Figure 2). The only features that were exposed were located on the Gault Clay and were comparable to the features types revealed in trenches 1-13, 15 and 19.

Trench 17 was the only trench located completely on the sand. 3.5m of buried soil was left in place at each end of the trench, which was sampled in three 1 metre square

test pits (TP's 55-57) which revealed no finds. Several tree throws were identified under the buried soil layer and were sample excavated but again no material culture was recovered.

Discussion

Geological and soils evidence indicates that prior to the Iron Age the area of sandy clay Barroway Drove Beds within the development area was an intertidal mudflat or salt marsh, and the area of sand was an intertidal creek. Following the seas withdrawal, the area would have become a freshwater reed swamp, a condition that probably prevailed until the area was reclaimed for farmland some time in the post medieval period (Appendix 1). Consequently the area would probably have only been utilised for possible small-scale resource gathering, for example gathering of plant materials and hunting, (Brown and Murphy 1997); activities that left no archaeological residue.

From the post medieval period onwards the development area was quite intensely utilized for the extraction of the sandy clay. Local sources suggested this practice was carried out by farmers who wanted to mix the underlying heavier clay with the lighter peaty topsoil in order to 'weigh' it down. This would have been done because peat soils are prone to rapid erosion due to wind action, (Hutchinson 1980).

There is almost no evidence of archaeological activity within the PDA prior to the post medieval period, primarily because of the character of the environment. Despite the lack of archaeological remains, this evaluation has improved our understanding of the paleoenvironmental conditions and allowed the prehistoric landscape to be characterised at Redmere Farm.

Appendix 1

Geology – Steve Boreham

Details of the geology of the area around Redmere Farm, Cambridgeshire are available on the British Geological Survey (BGS) map for the Ely (173). A simplified geology map of the area around Redmere Farm (TL 6400 8690) is shown in Figure 3. The bedrock in this area comprises Jurassic Clays, Cretaceous Lower Greensand and Cretaceous Gault Clay, which dip towards the southeast and outcrop southwest-northeast across the district. For much of the area, the bedrock is covered by younger Quaternary deposits. The oldest Quaternary deposits represented here are the undifferentiated 1st & 2nd Terrace deposits of Late Devensian (glacial) age, which form areas of higher relief above 0m O.D. These low gravelly ‘islands’ are surrounded by Nordelph Peat that mostly dates from the Iron Age or later. In addition, there are areas of Shell Marl that represent abandoned lake beds within the peat fen. To the south, the sinuous course of the Little Ouse silt roddon also rises above the level of the peat fen. The area of Redmere Farm itself is shown straddling a low northwest-southeast trending ‘ridge’ of bare bedrock Gault Clay to the southwest, and Gault Clay overlain by peat to the northeast.

Details of the soils of the area around Redmere Farm are available from the Soil Survey map for the Ely (173). A simplified soils map of the area around Redmere Farm is shown in Figure 4. The soils comprise Fen-edge soils, Peat Fenland, Silt Fenland and Alluvial silt roddons. Areas of Shell Marl are also indicated. It is immediately clear from the soils map that a large portion of the area mapped as Nordelph Peat by the BGS (Figure 1) is underlain by the Bronze Age inter-tidal silts of the Barroway Drove Beds. It is also clear that higher ‘island’ areas of 1st & 2nd Terrace deposits and bedrock have Fen-edge soils and are surrounded by Peat Fenland. In addition, the areas of Shell Marl identified by the BGS do not coincide with the extent of Shell Marl mapped by the Soil Survey on this map. The area of Redmere Farm is shown straddling an area of Fen-edge soils to the southwest, and Peat Fenland to the northeast.

Information about the Holocene mineral deposits in the area around Redmere Farm is also available as a separate map from the Soil Survey map for the Ely (173). A simplified version of this map is shown in Figure 5. The divisions shown on this map comprise Pre-Holocene deposits, Tidal mudflat silts of the Barroway Drove Beds, Tidal creek sands of the Barroway Drove Beds, Lake bed marls (shell marls), and alluvial silt roddons. Areas of peat are not shown. Bronze Age tidal mudflat silts are shown adjacent to Redmere Farm, and the boundary of the lake marls agrees more closely with the BGS geology map. Redmere Farm itself is shown situated on an area of Pre-Holocene deposits.

Based on these three slightly conflicting sources, the expected stratigraphy at Redmere Farm would be thin or very thin peaty soils overlying Gault Clay bedrock. Figure 6 shows four borehole transects south-north across the site. These reveal c.30cm of peaty topsoil (equivalent to the Nordelph Peat), overlying up to 1.2m of sandy clay (‘clay/sand mix’) in the southern part of the site, and a similar thickness of sand in the northern edge of the site. These deposits clearly overlie Gault Clay bedrock, and in the western cross-section (12-11-10) Lower Greensand can be seen

beneath the Gault Clay at depth. Only transect 1-2-7 does not have a sand unit overlying Gault Clay in the most northerly borehole.

Field description of the deposits exposed in the archaeology trenches by the author strongly suggests that the sandy clay unit represents inter-tidal mudflat or salt marsh deposits belonging to the Barroway Drove Beds. In addition, it appears that the lower-lying sand unit (boreholes 10, 9 & 8) represents a tidal creek, perhaps with some wind-blown reworking of the upper surface. This finding is significant, since neither the geology or soils maps show inter-tidal sediments beneath peat at this location, although the Soil Survey map indicates mud-flat silts c.250m to the south of the site.

It appears that these inter-tidal deposits probably represent the absolute maximum Bronze Age marine incursion event at c.3400 years BP. The sea would have inundated a low-lying late Neolithic/early Bronze Age landscape. It is generally considered that the mudflats would have been covered by water at only the highest spring tides, and that the duration of inundation was at most several hundred years. Following the retreat of the sea, the area became a freshwater reed swamp leading to the formation of the upper layer of peat. These conditions may have persisted through the Iron Age until the late medieval period when the area was drained and reclaimed as farmland.

The absence of archaeology at Redmere Farm can be easily understood in relation to the indicated palaeoenvironments. Mudflat and salt marsh environments do not usually yield a high density of finds, and so it is unsurprising that the Bronze Age inter-tidal muds and creek sand have no associated archaeology. Unfortunately, the freshwater reed swamp environment that succeeded the marine muds is also an unpromising environment for the discovery of archaeological finds. In addition, the desiccated, oxidised and disturbed (ploughed) nature of the peaty topsoil must have reduced the preservation potential of any finds considerably.

In summary, the archaeological investigation at Redmere Farm discovered hitherto unrecorded inter-tidal mudflat and creek deposits belonging to the Bronze Age Barroway Drove Beds. The overlying peaty topsoil represents the overgrowth of reedswamp from the Iron Age onwards. The lack of archaeology is not surprising given the ancient landscapes indicated the site.

Figure 3 - Geology of the area around Redmere Farm.

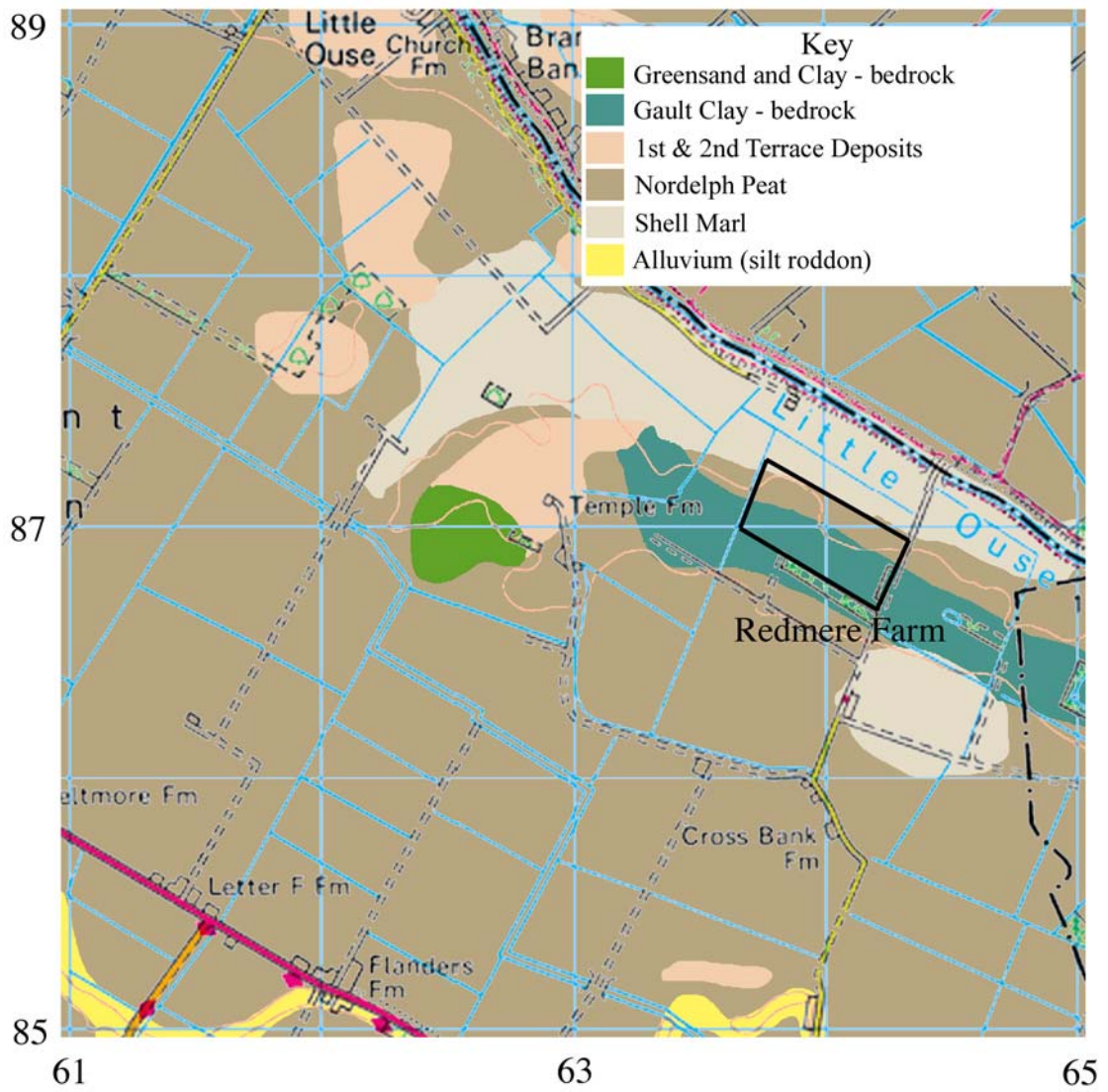


Figure 4 - Soils of the area around Redmere Farm.

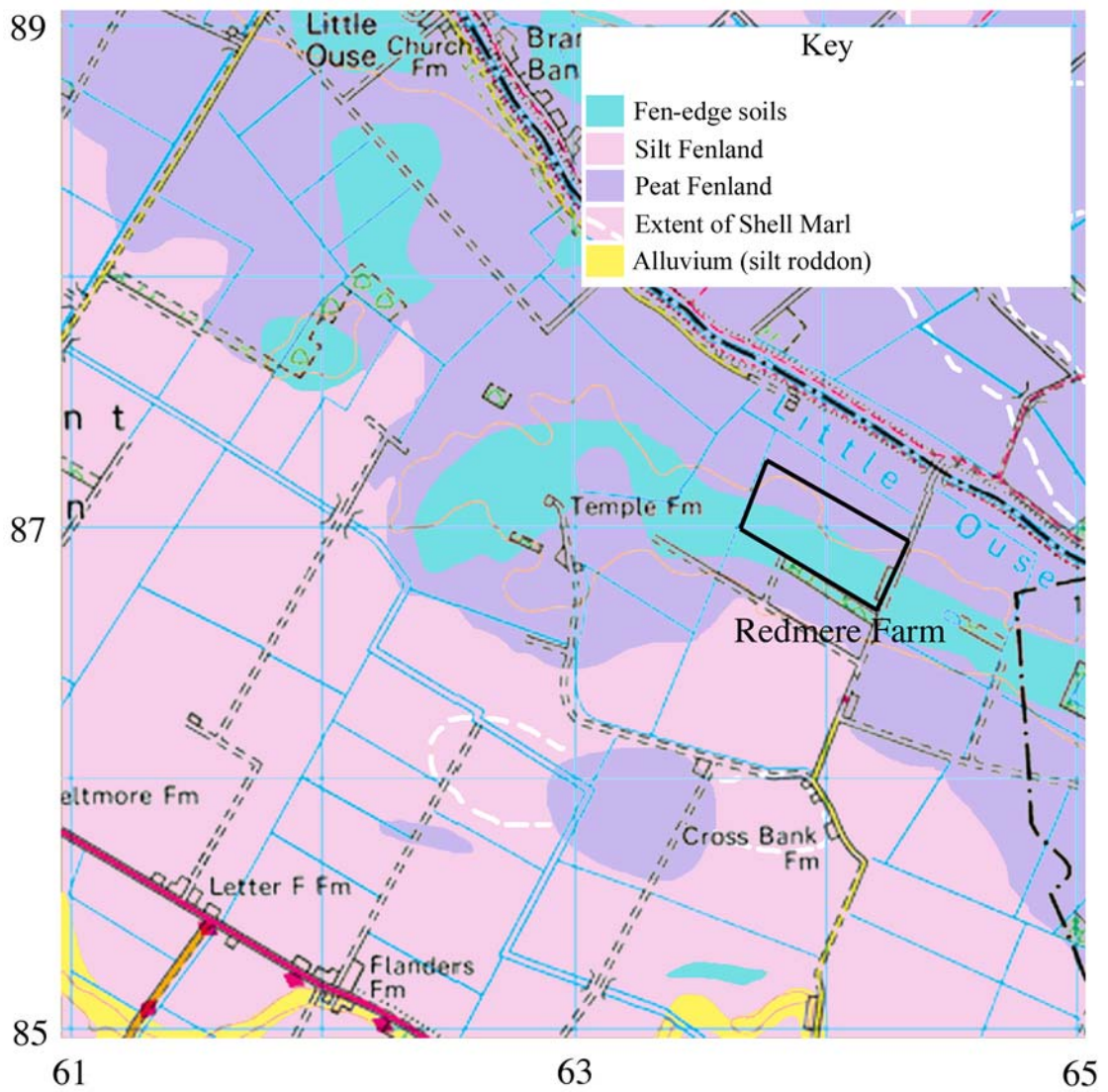


Figure 5 - Holocene mineral deposits in the area around Redmere Farm

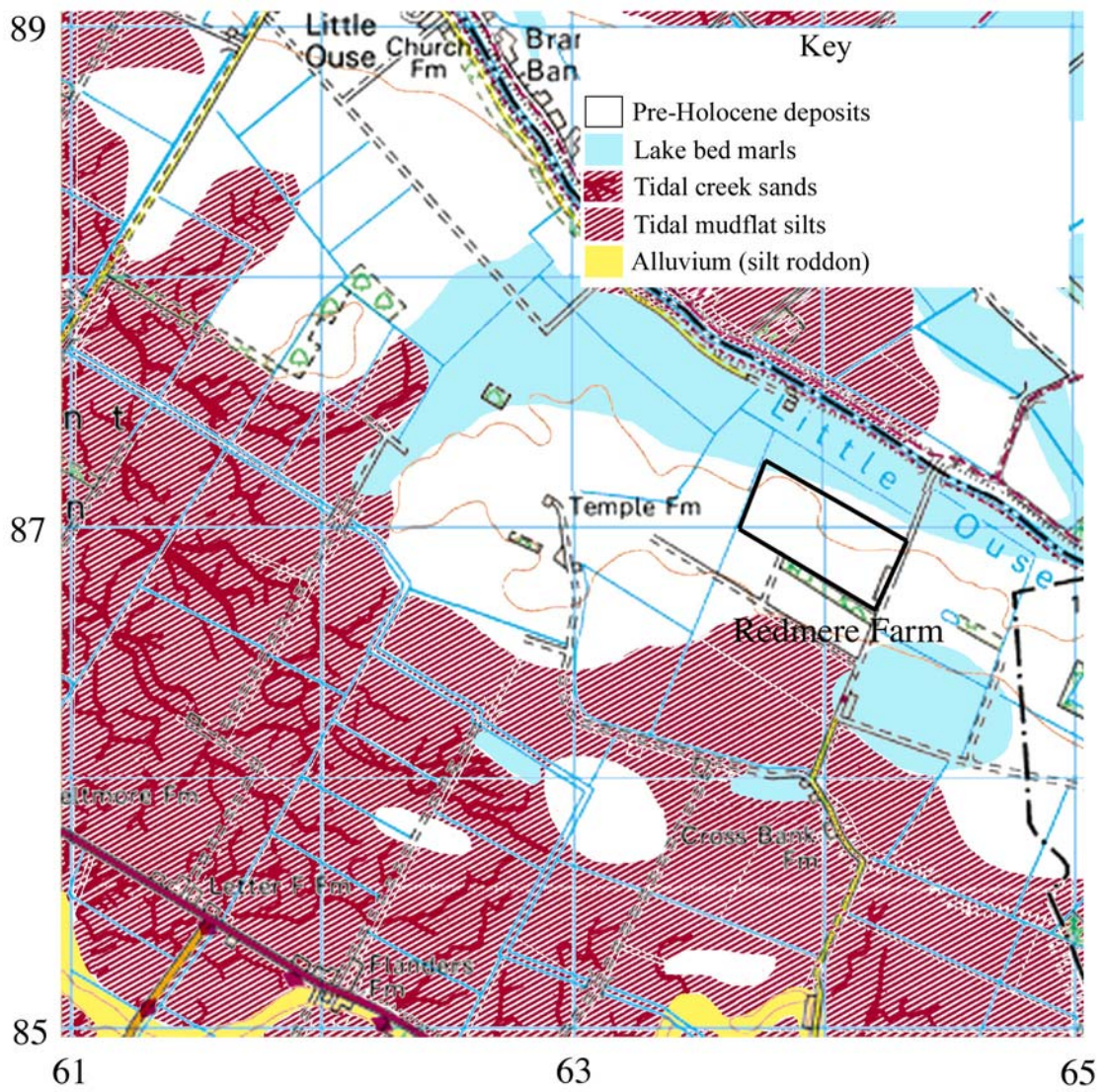
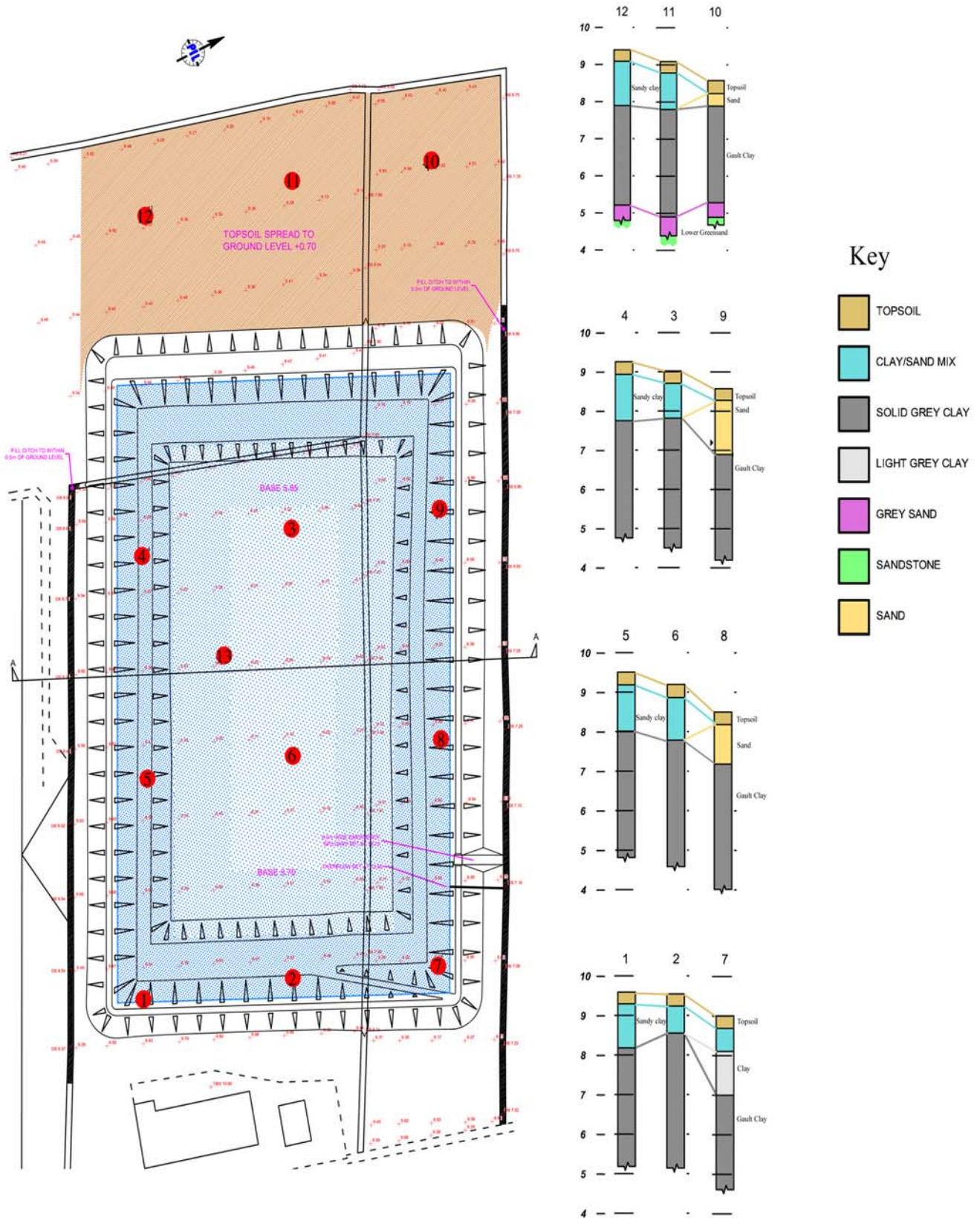


Figure 6 - Borehole investigation of development site & 4 south-north transects



Appendix 2

Flint report – Emma Beadsmoore

A single flint was recovered from the site; a secondary flake (27g) collected from the Test Pit 51 in the buried soil. The flake is chronologically non-diagnostic.

Acknowledgements

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Bryan Crossan

Vicky Herring (computer illustration)

Emma Beadsmoore (flint)

Donald Horne (surveying)

Gwladys Monteil (finds co-ordinator)

Project Management

Emma Beadsmoore

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