A POST-EXCAVATION ASSESSMENT AND UPDATED PROJECT DESIGN ON THE FORMER SYNGENTA CHEMICAL WORKS HAMPSTEAD LANE, YALDING, KENT

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Summary

This report presents the results of the phase I and II evaluations and the subsequent excavation and watching brief on the site of the former Syngenta chemical works at Hampstead Lane, Yalding, Kent. The work was commissioned by EDSR Ltd.

Additionally, a geoarchaeological survey was conducted by Chris Pine on behalf of Archaeology South-East. A report on the findings of this survey has been included in Appendix 3.

The excavations revealed new evidence of Bronze and Iron Age funerary activity, as well as finds evidence for Mesolithic occupation. The report is written and structured to conform to the standards required of post-excavation analysis work as set out in Management of Archaeological Projects (English Heritage 1991).

Provisional analysis of the stratigraphic, finds and environmental material has indicated a provisional chronology, and assessed the potential of the site archive to address the original research agenda, as well as assessing the significance of those findings. This has highlighted what further analysis work is required in order to enable dissemination of the findings of the excavation in a final publication. It is suggested that this should take the form of a short article to be published in the Kent archaeological journal, Archaeologia Cantiana.

Contents

Figures

Tables

1. INTRODUCTION

1.1 Site Location

1.1.1 The excavation took place on the former site of the Syngenta chemical works, hereafter called 'the site' (Fig. 1). The site lies on Hampstead Lane, west of Yalding. The OS National Grid Ref. for centre of site is 558951 146791. Modern ground level at the site lies at c. 12m OD. The site code is SSY07.

1.2 Geology & Topography

1.2.1 According to the British Geological Survey (1: 50,000 Scale; Sheet No. 288) Areas 1B, 2 and 4 lie on River Brickearth (overlaying Wealden Clay). Area 3 (known as the Sports Field Site) lies adjacent to the Medway River system and is superficially overlain by alluvium. The site is on level ground and is situated on the flood plain of the rivers Medway and Tiese, the confluence of which lies c. 350m to the northwest. The confluence of The River Beult with the Medway lies less than 1km to the northeast. The Sports Field is the lowest part of the site and is prone to flooding.

1.2.2 Area 1A, the small wedge of land which runs between the railway to the west and the river on its east side, is comprised of a Unit of Lower Greensand. The subsoil is therefore sand and the area supports a more typical heathland flora, with silver birch predominating.

1.2.3 Solifluction gravels were noted in a deep section through the main lagoon in Area 2. These were presumed to occur within and/or below the brickearth deposits and must therefore be glacial in origin.

1.2.4 Apart from the river terracing in Area 1A the site is relatively flat. There is a slight rise from north to south across Area 2 (the main industrial area). The western end of Area 4 (an undeveloped area) is characterised by a low lying marsh and wet area which extends to the south-west of the railway line, which bisects the landscape at this point.

1.3 The Scope of the Project

1.3.1 A desk-based Archaeological Assessment was prepared, which covered the area of the site (Duncan and Yates 2006). That assessment document should be referred to for complete background information about site geology, and the archaeological and historical background of the site, as well as for initial predictions of archaeological potential.

1.3.2 Initially, an archaeological field evaluation (Phase I) was carried out comprising of eight trial pits during February 2007 (see Fig 2). These were situated in the north and western part of the site (Swift 2007). There were no archaeological findings, or that ground was too contaminated to investigate.

1.3.3 During July 2007 a second archaeological field evaluation (Phase II) was carried out comprising ten trial trenches in Area 2B, the former pesticide testing orchard (see Figs 2 and 3). This revealed possible LBA-EIA activity (Stevenson 2007).

1.3.4 In light of the results and recommendations of the phase II evaluation, Tonbridge and Malling Council Planning Services department deemed it

necessary that an archaeological excavation and watching brief be carried out in a specific central part of Area 2B of the site (see Fig 3).

1.4 Circumstances and Dates of Fieldwork

1.4.1 The need for archaeological work arises from the planning consent for redevelopment of the former Syngenta site as a whole. Further details of the development are set out in planning application TM 06/03686/A10 and MA/06TEMP/003.

1.4.2 A specific history of all archaeological investigations at the site by ASE is as follows:

- desk-based Archaeological Impact Assessment compiled 2002
- archaeological component for an environmental impact assessment compiled 2007
- archaeological field evaluation (Phase I) February 2007
- archaeological field evaluation (Phase II) July of 2007
- archaeological excavation September to December 2007
- archaeological watching brief September 2007 to March 2008

1.5 Archaeological Methodology

1.5.1 The excavations were recorded using a single context planning system (MoLAS 1994). Precise planning was achieved using GPS digital survey equipment. The smaller cut feature were half-sectioned and then fully excavated for finds retrieval, whilst ditches were sectioned at regular intervals.

1.5.2 Features were sampled to retrieve environmental material following a strategy agreed with the Kent County Archaeologist.

1.5.3 Full details of the archaeological methodology are documented in both evaluation reports (2007) and in the KCC specification document (2007). These documents should be referred to for further detail.

1.6 Organisation of the report

1.6.1 This report presents an assessment of the findings of the excavation and watching brief, integrated with the results of the phase II evaluation, as well as a summary of the results of the archaeologically negative phase I evaluation.

1.6.2 This Post-excavation assessment and updated project design outlines the original research aims of the project; provides an interim statement on the archaeological findings; provides quantification of the finds and environmental material recovered from the site; informs as to the archaeological potential of the findings and their significance; outlines a proposed publication project, listing revised research aims, and a proposed task sequence for the programme of works.

1.6.3 The principle underlying the concept of post-excavation assessment and updated project design were established by English Heritage in the Management of Archaeological Projects 2 (MAP2), (1991).

2. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

2.1 Archaeological summary

2.1.1 This section only discusses the archaeological periods which lead up to and relate to the findings made during the excavations, for a more complete background the reader is referred to the DBA (Duncan and Yates 2006). The time scales of the archaeological periods referred to in this report are given below.

Palaeolithic	(c.500,000BC – c.10,000BC)
Mesolithic	(c.10,000BC – c.4,300BC)
Neolithic	(c.4,300BC – c.2,300BC)
Bronze Age	(c.2,300BC – c.700BC)
Iron Age	(c.700BC – c.AD.43)

2.1.2 The Palaeolithic period in Britain began around 500,000 years ago ending around 10,000 BC with the beginning of the current interglacial or Holocene era. It was characterised by a series of ice ages interspersed with temperate periods. During those periods of rising temperatures, high energy meltwaters deposited enormous gravel spreads. It is from such gravels that much evidence of early homonids is recovered. Kent is famed for Lower Palaeolithic finds (500,000BC – 250,000BC) and flint tools have been found to the north of the site, along the Medway valley around Aylesford (Scott 2004, 7). Closer to the site a small hand-axe of Middle Acheulian type was found to the West of Nettlestead Green (Stevens 1996, 2). The find spot is approximately 1km from the site. There are fewer Middle and Later Palaeolithic sites in Kent, and none known close to the site (Scott 2004, 8). The archaeological potential of the site for this period is considered to be low (Duncan and Yates 2006).

2.1.3 The Mesolithic marks the start of the current interglacial called the Holocene. It is a time when the land bridge linking Britain to the European Continent was breached by a significant rise in relative sea levels. An Earlier Mesolithic hunter-gather site was discovered down stream from the site at Ditton, north-west of Maidstone (8km away).

2.1.4 Closer Later Mesolithic sites and tools have been found at Barnes Street and Hadlow (Scott 2004, 9), and Beltinge close to the Medway (Stevens 1996, 2). All three site locations are within 4km of the site. A profusion of finds have been discovered on the greensands around Ightham, as well as occasional finds on the Chart Hills (Scott 2004, 9). The pattern of recovered Mesolithic flintwork on the Lower Greensand Ridge also occurs in Sussex. The habitat at the foot of the Greensand escarpment provides proximity to water, a rich hunting habitat for game including fish, and good access to flint resources. It was much favoured by hunter gatherers of this period (Drewett et al 1988).

2.1.5 The site is located in the Low Weald zone immediately adjacent to the River Medway. The hydrography of the Wealden Basin in the area of the site sees the Medway waters combine with the run off from the Rivers Eden, Bourne, Teise, and Beult. The raised loess ground running down to reeded marshlands is considered to have a low potential for archaeology from this period; the narrow strip of land within the site (1A) adjacent to the former Medway is comprised of Lower Greensand and has the highest potential for Mesolithic activity (Duncan and Yates 2006).

2.1.6 The Neolithic period is a time of warmer temperatures and more settled human occupation, allowing the slow development of more permanent farming in which transhumance and sporadic land clearances occur. Woodland regeneration suggests episodic arable cultivation with a growing dependence on domesticated animals. The Neolithic is characteristically an ancestral landscape – dotted with earthworks commemorating the dead and monuments such as causewayed enclosures and longbarrows. Overlooking the Medway valley there are important long barrow groups straddling the river as it cuts through the North Downs (Ashbee 2004, 10). No ancestral monuments of this nature have been found near the site. Neolithic finds are limited to axe finds from Nettlestead and Hadlow - both within 5km of the site (Ashbee 2004, 11).

2.1.7 A number of Neolithic axes have been retrieved from the Greensand Ridge between Loose and Linton to the east of the site (ibid).

2.1.8 The absence of Neolithic structures in the Low Weald during this period means that the potential of the area for containing structural remains, based on current evidence, is considered to be low (Duncan and Yates 2006).

2.1.9 Communities in Kent were ideally placed to benefit from major changes affecting Southern Britain during the late 2nd and early 1st millennium BC. The Early Bronze Age (2300-1500 BC) was still largely a monumental landscape but there is some evidence for the start of agricultural intensification (Yates 2007). Three undated ring ditches observed at East Peckham within 2km of the site might be the remains of Early Bronze Age barrows (Stevens 1996, 2). A barbed and tanged arrowhead found close to the B2016 road, 1.5 km from the site, is dateable to this period (ibid).

2.1.10 It was during the Later Bronze Age (1550-700 BC) that the Thames valley and estuary became politically and socially dominant, with a dramatic expansion in settlement. These newly established communities were increasing their wealth by farming blocks of land, chosen because they provided the best access to external trade. The resulting farming surpluses were used to compete for status objects, particularly the fabulous bronze metalwork used for ornaments and weaponry.

2.1.11 The most powerful zones in Kent and throughout South Eastern England are recognisable by the close correlation between finds of metalwork, settlement and regimented field systems. The latter two are normally only revealed in large area excavation. Bronze Age communities were seeking out the most productive ground to achieve their farming surpluses. The brickearths or loess, rich inexhaustible soils, were highly prized (Yates 2007).

2.1.12 The concentration of deliberately-placed finds in the River Medway valley signifies the importance attached to this communication route. Late Bronze Age discoveries in the Low Weald area close to Yalding have included socketed axes from Yalding, Wateringbury and West Peckham and a socketed gouge from Hadlow. This array of metalwork and the occurrence of brickearth within the site are potentially significant. Such habitats are, typically, locations for coaxial Bronze Age land division and associated settlement. Large area excavations on major tributaries of the Thames (the Lee, Wandle, Ingrebourne, Colne and Kennet) have provided evidence of late second and early first millennium BC farming intensification. In Kent the

same pattern of farming intensification along major rivers is repeated along the Middle Medway valley and the Great Stour (Yates 2004, 14).

2.1.13 The Iron Age is characterised by the evolution and spread of enlarged earthwork enclosures and by the end of the Iron Age, the re-adoption of coaxial field systems – a design-form largely abandoned at the close of the Bronze Age. Change also comes in the form of new types of monument structure, new ways of treating the dead and new metal and ceramic technologies. The development of defendable sites, in effect protected grain repositories, reflects increased tension within society.

2.1.14 Initially the start of the Iron Age suggests a diminished population and a degree of self-sufficiency at the local level. By the close of the Iron Age there was increasing contact between South-East England and the Continent.

2.1.15 No Iron Age finds are recorded in the site or its immediate locale. A putative Early Iron Age promontory hillfort is sited to the west above Nettlestead but no firm dating has been determined for the ramparts. It may be that this is a rampart structure for a post-medieval dam (Stevens 1996, 1).

2.1.16 In the Late Iron Age, the nearest proven hillforts to the site are High Rocks 20km to the SW and Quarry Wood, Loose 9km to the NE. Settlement and burials were located 4km down the River Medway, where that river cuts through the Chart Hills (Parfitt 2004, 18).

2.1.17 No Iron Age artefacts have been found at the site. However, the proximity of the above mentioned putative promontory hillfort at Milbay Wood within 2km and a cluster of burials and settlement at Teston, 4km to the north, suggest some potential for discoveries at the site (Duncan and Yates 2006).

3. ORIGINAL RESEARCH AIMS

3.1 The following eight broad research aims were identified in the KCC specification documents for the evaluations and the excavation and in the ASE WSI document.

The excavations should seek to:

- inform on the Pleistocene environment of the site including alluviation and landuse in prehistory
- identify and characterise evidence of riverside activity from the palaeolithic onwards
- improve our understanding of soil processes that took place in the brickearth and the post-depositional effects on buried remains
- contribute to an understanding of the environmental history of the Yalding area
- understand the character, form, function and date of any significant archaeological activities present on the site
- investigate, record and understand prehistoric landuse at the site in the context of the current body of knowledge concerning occupation in the upper Medway valley during the period
- include analysis of the spatial organisation of such activities on the site through examination of the distribution of artefactual and environmental assemblages

4. ARCHAEOLOGICAL RESULTS

4.1 Methodological Summary & Overview

4.1.1 In the evaluation (phase II) and main excavation phases of Area 2B excavations began with the removal of topsoil and subsoil by mechanical excavator fitted with a flat ditching bucket. A range of archaeological features were visible in the surface of the brickearth, with occasional features visible at a slightly higher level in the subsoil. Once these features had been excavated and recorded, the brickearth was removed in spits which were left to weather-out. No further archaeological features were identified within the brickearth matrix. Lastly, the remaining brickearth was removed to the underlying sand and gravel into which several other features were visible.

4.1.2 All archaeological features were excavated and sampled to determine aspects of form, date, function, diet, agriculture etc. Discreet features such as pits and postholes were hand excavated to half-section, and then fully excavated for further finds retrieval. In some cases, such as with large linear features, multiple sections were excavated along the length of the feature to the required KCC specified percentages. There was no horizontal stratigraphy, and inter-cutting features were seldom encountered.

4.1.3 The precise methodology followed in both the evaluation and excavation phases of work can be found in the KCC specification document (2007) and in the ASE WSI document for the phase II evaluation and excavation (Hart 2007).

4.1.4 The excavations revealed a typical stratigraphic sequence of 0.20m - 0.50m of topsoil, overlying 0.05-0.40m subsoil (although this deposit did not survive across much of the site), overlying 0.10-0.40m brickearth, overlying sand and gravel with frequent brickearth patches.

4.1.5 An area of slightly higher ground in the south-eastern corner of the site was visible in the modern topography and in the topographic survey conducted by ASE on the sand and gravel horizon.

4.1.6 Generally, finds retrieval from the top/subsoil and brickearth horizons revealed more prehistoric material in the eastern half of the site where occasional prehistoric pottery, post-medieval ceramic building material (CBM) and moderate amounts of charcoal, fire cracked flint and flint tools were recovered as opposed to very occasional fire cracked flint, charcoal, post-medieval and prehistoric pottery recovered in the western part of the site.

4.1.7 No archaeological features were visible in the topsoil horizon during the closely monitored machining, however, occasional features appeared in the subsoil horizon where this survived; numerous features appeared in the surface of the brickearth; and occasional natural and archaeological features appeared in the underlying sand and gravel.

4.1.8 The subsoil deposit is apparently composed of ancient topsoil mixed with the weathered surface of the brickearth to form a diverse layer. This deposit is probably the closest representation of a contemporary ground surface relating to the occupation of the site and lies at between c. 10-11m OD. Erosion of this surface and of the brickearth layer is a result of an adverse range of factors including solifluction, weathering and industrial farming.

4.1.9 Solifluction, also known as soil fluction, is a type of mass wasting where waterlogged sediment slowly moves downslope over impermeable material. It can occur in any climate where the ground is saturated by water, though it is most often found in periglacial environments where the ground is permanently frozen (permafrost). During warm seasonal periods the surface layer (active layer) melts and literally slides across the frozen underlayer, slowly moving downslope due to frost heave that occur normal to the slope. This type of mass wasting can occur on slopes as shallow as 0.5 degrees at a rate of between 0.5 and 15 cm per year (http://en.wikipedia.org/wiki/Solifluction).

4.1.10 The underlying sand and gravel layer revealed numerous brickearth pockets suggesting evidence of palaeo-bioturvation and/or geologic anomaly. Many of these naturally occurring features were investigated; none contained archaeological artefacts.

4.2 Site Sequence

4.2.1 Mesolithic

4.2.1.1 A small quantity of worked flint was recovered from the topsoil/subsoil and brickearth during machining along with c. 20th century ceramics and other finds attesting to the disturbed nature of the upper stratigraphy of the site. The worked flint assemblage is almost entirely Mesolithic in character, with just a small number of pieces possibly being later in date. The small size of the assemblage makes it is difficult to interpret beyond that a lack of microliths or debitage associated with microlith production, together with the presence of a tranchet adze-resharpening flake, would suggest that a base camp rather than a hunting camp is likely to have existed on the site.

4.2.2 Later Bronze Age/Early Iron Age

4.2.2.1 The eastern part of the site forms the remains of a Later Bronze Age to Early Iron Age cemetery or ritual area with a possible area of farmland existing to the west. Three waterholes or wells were also investigated in the western part of the site (Fig 4).

4.2.2.2 Ceramics provide the dating evidence for the main phase of occupation at the site with a majority of vessels suggesting Late Bronze Age activity *c* 11th to 9th century BC with some possible continuity from Middle Bronze Age pottery styles.

4.2.2.3 Many contexts also contained some smaller amounts of finer fabrics, with a few fineware or decorated vessel forms, suggesting that some features were filled into the Late Bronze Age/Early Iron Age transition period. Only one context was well dated to the Early Iron Age, whilst two unstratified bead-rim jars are probably of Middle or Late Iron Age date.

4.2.2.4 Review of the plan of excavated features reveals how fragmentary the surviving physical evidence was at the site. As discussed this is no doubt as a result of the partial erosion of archaeological stratum.

4.2.2.5 As was the case with the distribution of prehistoric artefacts recovered during machining of the topsoil and subsoil, there was a greater concentration and diversity of archaeological features in the eastern half of the investigated area. Here, numerous small to medium-sized pits and posthole-sized features

were recorded with evidence of burning (Fig 4: [104] [106] [108] [117] [119] [126] [134] [163] [199] [222] [224] [228] [231] [238]) and some with pottery and burnt human bone identifying some as cremations (Fig 4: [122] [221]). Many other pits contained chunks of charcoal and intensely burned residue and clay/daub. Five such contexts contained pottery with carbonised residues possibly suitable for radiocarbon dating. Several clusters of posthole-sized features may form elements of 'four-post' structures, possibly exposure burial platforms (Fig 4: [144] [146] [148] [150] [122] [124] [126] [128] [132]) and several segmented ditches following a north-northwest axis were also investigated (Fig 4: [204] [206] [193] [110] [112] [114] [187] [189] [191] [208] [210] [212]).

4.2.2.6 In the western side of the site there were fewer features. Here the incomplete remains of several very shallow ditches, interpreted as elements of an agricultural field system, laid out along an east-north-eastern alignment (Fig 4: [175] [177] [179] [181] [183] [153] [155] [157] [100] [102] [6/008] [6/006] [8/005]) and three waterholes or wells were recorded (Fig 4: [165], [159] and [8/007]).

4.2.2.7 Desk-based assessment had suggested that this site would be a likely location for Late Bronze Age activity given the fertile brickearth soil, attractive for farming, and the nearby watercourses which were undoubtedly used for trade, as a food source and for transport (Dunkin and Yates 2003). Based on the strength of the results of the excavation, it seems that the eastern part of the site in fact held some ritual significance and was actively used as a cremation cemetery; indeed its proximity to the three rivers would have undoubtedly presented the area as one of ritual significance to the Bronze Age/Iron Age population whose belief systems are frequently linked with water (Pryor 2003).

4.2.2.8 The limited correspondence between features recorded in the evaluation trenches and those in the excavation again demonstrate erosion of the subsoil, brickearth and sand/gravel horizons as a result of solifluction, weathering and industrial farming.

Type	Description	Quantity	Notes
Trench sheets	Evaluation (phase I)	8	Individual sheets
Trench sheets	Evaluation (phase II)	10	Individual sheets
Contexts	Excavation and Watching brief	146	Individual context sheets
Sections	Sections of all features	76	Permatrace sheets
Digital Plan	All phases of evaluation and excavation	3	Multi-context plans
Photos	All phases	All trenches and contexts	Black and white transparency Colour slide Digital
Environmental sample sheets	Excavation	37	

Table 1 Site archive

5. QUANTIFICATION AND ASSESSMENT: FINDS AND ENVIRONMENTAL

5.1 The worked flint

Chris Butler

5.1.1 A small assemblage of 70 pieces of worked flint weighing 1.284kg was recovered during the work, and is summarised in Table 2. Of this total, 51 pieces weighing 850gms were recovered from the topsoil and subsoil, whilst the remaining 19 pieces weighing 434gms came from individual contexts. The flint raw material comprised a number of different types, predominantly a mid to dark grey coloured flint, with a light buff coloured cortex, together with some pieces that had a blue-grey patination.

Type	Top/sub soil	Contexts	Total
Hard hammer-struck flakes	7	2	9
Soft hammer-struck flakes	21	9	30
Soft hammer-struck blades	5	0	5
Fragments	6	2	8
Bladelet fragments	1	2	3
Shattered	0	1	1
Tranchetadze-resharpening flake	1	0	1
Crested blade	1	0	1
Cores	6	1	7
Core fragment	0	1	1
End scrapers	3	0	3
Hammerstone	0	1	1
Total	51	19	70

Table 2 Prehistoric worked flint quantification

5.1.2 The majority of the assemblage comprised debitage in the form of predominantly soft hammer-struck flakes and blades, with smaller numbers of hard hammer-struck flakes, together with a few fragments, including a blade fragment and three bladelet fragments. Some of pieces had evidence of platform preparation, whilst one blade and two flakes had been retouched. There was also a single tranchet adze-resharpening flake.

5.1.3 The cores comprised three single-platform flake cores, two two-platform flake cores and a single multi-platform flake core, together with a single two-platform flake and blade core and a core fragment. Many of these had platform preparation, and most had been carefully worked down to a small size. A single crested blade was also recovered.

5.1.4 The implements comprised three end scrapers, of which two were broken fragments, and a single hammerstone.

5.1.5 This assemblage is almost entirely Mesolithic in character, with just a small number of pieces, mostly from the top/sub soil, possibly being later in date. With such a small assemblage it is difficult to say more about it; however the lack of any microliths or debitage associated with microlith production, together with the presence of a tranchet adze-resharpening flake, would suggest a base camp rather than hunting camp.

5.2 The prehistoric pottery

Anna Doherty

5.2.1 A moderate prehistoric assemblage of 837 sherds, weighing 8.63kg, was recovered from the excavation. The majority of the fabrics and forms point to activity of Late Bronze Age date but many contexts contain smaller amounts of finer fabrics with a few fineware or decorated vessel forms, suggesting that some of the features were filled towards the Late Bronze Age/ Early Iron Age transitional period. A single context is well dated to the Early Iron Age.

5.2.2 The assemblage was examined using a x20 microscope and, in the absence of a regional fabric type-series, a site specific fabric series has been created, following guidelines published by the Prehistoric Ceramics Research Group (PCRG 1995).

5.2.3 Fabrics

5.2.3.1 Fabric descriptions were defined as below and overall quantification shown in Table 3.

C1 Moderate to common amounts of flint, typically 1-2mm in size with larger examples up to 4mm in varying frequencies. The matrix is clean although there are usually sparse large red iron rich inclusions of around 1mm. There may be rare flint inclusions.

C2 Similar to C1 but more ill-sorted with very large inclusions up to 7mm erupting on surfaces.

FL1 Moderate fine flint inclusions of less than 0.5mm. The matrix is similar to Q1.

I1 Grey fabric with moderate soft black inclusions (probably iron-rich), mostly around 1mm.

Q1 Fine fabric with moderate quartz which is silt-sized up to 0.1mm (with rare larger grains). Sparse red-iron rich inclusions are sometimes present.

QG1 Common glauconite of 0.2-0.4mm and sparse quartz of 0.4-0.6mm.

SH1 Common ill-sorted voids from leeched shell, ranging from 1-7mm, in a clean, quartz-free matrix. The fabric appears low-fired and crudely made but this may be due to post-depositional factors.

Fabric	Sherds	Weight (g)	%Sherds	%Weight
C1	659	7356	78.7	85.2
C2	6	114	0.7	1.3
FL1	89	856	10.6	9.9
I1	9	56	1.1	0.6
Q1	32	128	3.8	1.5
QG1	8	22	1.0	0.3
SH1	34	98	4.1	1.1

Table 3 Quantification of prehistoric pottery fabrics

5.2.3.2 Over three-quarters of the sherds are in the coarse-tempered C1 fabric. When initially examining the pottery, the major inclusion type was uncertain because

the hard white grains are unusually rounded and lack the fine grained texture normally associated with flint. However, further research into local geology would seem to rule out other types of rock. It therefore seems likely that the flint has weathered or eroded in some way, although it is not obvious whether this process occurred before it was added to the pottery or post-depositionally. The fact that the flint is fully calcined tends to suggest the latter but the pottery itself is not particularly abraded and the rounded inclusions occur in the break as well as on surfaces. The fabric seems to become gradually finer over time and the rare C2 fabric is probably a coarse variant, possibly dating to the Middle Bronze Age, whereas the fine FL1 fabric, (which makes up around 10% of the assemblage) is usually better finished, sometimes with a slightly sandy matrix and generally fewer iron-rich inclusions: all traits more associated with later fabrics.

5.2.3.3 The other fabrics groups are also fine and primarily associated with well-finished surfaces probably from fine ware forms. These include a very fine quartz fabric (Q1) and a glauconitic fabric with coarser quartz (QG1) each accounting for a small proportion of the total. The coarse shell-tempered fabric (SH1) was found only in context [223] which was also the only context to contain Early Iron Age forms. In Essex the first appearance of shell-tempered fabrics lacking flint inclusions has been estimated to have occurred around the 6th century BC (Brown 1995, 83). A few unstratified sherds are in a greyish fabric with iron-rich inclusions which probably dates to the Late Iron Age.

5.2.4 Forms

5.2.4.1 The forms present are overwhelmingly undecorated, slack-shouldered jars. They are often thin-walled but fairly crudely formed and are typical of Late Bronze Age post Deverel-Rimbury plain ware assemblages of the 11th to 9th centuries BC. A group of this type from contexts [135]/[152] is of note as it contains, alongside plain ware forms, two barrel shaped jars: one with a plain applied cordon and another with a finger-impressed cordon on the upper mid-body. Both plain and finger-impressed cordons suggest continuity from Middle Bronze Age pottery styles although the latter may fit more within a post Deveral-Rimbury tradition.

5.2.4.2 The impressed cordon vessel is also notable because of a series of post-firing holes drilled from the exterior in a horizontal row at roughly 5cm intervals. In the same group, seven sherds from a thin-walled plain jar have similar drilled holes below the rim. None of the sherds cross-fit although the profile is similar enough to suggest that they come from the same vessel; however the holes are at varying distances from the rim, so more than one vessel may be represented. Similar horizontal perforations have been noted on cremation vessels with finger-impressed cordons from Bridge, near Canterbury with associated radiocarbon dates of 1246-1066 Cal BC, and are also known from excavations at Christ Church College in the city (Macpherson-Grant, 1992, 55-57). Macpherson-Grant (1992, 60) suggests that perforations may have been used to secure a cloth or leather covering; however, many of the examples from Yalding stop just short of fully perforating the inner wall and so may be purely decorative.

5.2.4.3 One interesting aspect of the assemblage is the lack of fine ware bowls. Although fine wares would not be expected in large numbers in Late Bronze Age assemblages, bi-partite bowls are a characteristic element of

contemporary assemblages in east and central Kent such as Highstead and the Hawkinge Canterbury Road and Aerodrome sites; unfortunately few published assemblages are available to confirm whether the picture is the same in west Kent. Only three tiny rims sherds may be from vessels of this type; one, from context [105], also features a post-firing perforation near the rim.

5.2.4.4 One context, [223], contains typical Early Iron Age decorated forms including a jar with finger-tipping along the top of the rim and another with similar decoration just below the rim. The context also contains a partial profile of an out-flaring rim possibly from a jar with an angled shoulder. Two bead-rim jars form unstratified contexts are probably of Mid or Late Iron Age date.

5.3 Ceramic Building Material
Elke Raemen

5.3.1 Most ceramic building material (CBM) is unstratified. Four roof tile fragments are of 17th to 18th century date. These are high fired with sparse fine sand-tempering as well as iron oxide inclusions to 2 mm. Most roof tile fragments however are of 18th to 19th century date with a high fired fine sand-tempered fabric with occasional iron oxide inclusions to 2 mm.

5.3.2 The only stratified piece is from [182]. The roof tile is of the same fabric as the other tiles and dates to the 18th to 19th century.

5.3.3 A single 18th to 19th century piece of brick was recovered from the topsoil. The piece is high fired with sparse fine sand-tempering, moderate slag inclusions to 11 mm, occasional chalk inclusions to 3 mm and occasional iron oxide inclusions to 1 mm. No measurements could be taken.

5.4 Clay Tobacco Pipe
Elke Raemen

5.4.1 Only two pieces of clay tobacco pipe (CTP) were recovered from the site, both from top- and subsoil. The fragments are from plain stems, one of which dates to the second half of the 18th century. The second piece is of 19th century date.

5.5 Coins
Elke Raemen

5.5.1 A single copper alloy halfpenny was recovered from the topsoil. The piece is heavily corroded and dates between 1860 and the first quarter of the 20th century.

5.6 Glass
Elke Raemen

5.6.1 All glass was recovered from the top-and subsoil. Pieces mainly consist of green wine bottle fragments of mid 19th to early 20th century date. Other fragments include a total of four sherds from cylindrical aqua mineral water bottles, a fragment of a panelled blue glass bottle for medical or household use, and a clear cut glass tumbler fragment. Again these are all of mid 19th to early 20th century date.

5.7 Fired Clay

Elke Raemen

5.7.1 A total of 302 pieces (2123 g) were recovered from 12 different contexts as well as from the topsoil. Four fabric types can be established, which are listed below:

Fabric 1: Sparse fine sand-tempered, some with rare voids/organic inclusions.

Fabric 2: Sparse fine sand-tempered with occasional iron oxide inclusions to 3 mm.

Fabric 3: Sparse fine sand-tempered with occasional voids/organic inclusions and rare iron oxide inclusions to 1 mm or rare flint pebbles/crushed flint to 5 mm.

Fabric 4: Sparse fine sand-tempered with occasional to moderate voids/organic inclusions.

5.7.2 The majority of fired clay is amorphous. However, a few pieces exhibit a flat or smooth face (i.e. [135], [201], [223]), or two parallel smooth faces (i.e. [223]). Of interest is [109], which contained a total of 238 pieces of burnt clay. The majority of pieces (191) are in fabric type 1, and exhibit typically triangular or rectangular sections or seem to be of tubular shape. However, none of the pieces are large or distinctive enough to be diagnostic. A further 33 pieces in fabric 3 were recovered from the same context. These all show at least one flat face, in a number of cases with adhering slag, suggesting a hearth or furnace lining.

5.8 Metalwork

Elke Raemen

5.8.1 The ironwork from the site consists of a bolt as well as a machine made general purpose nail, dating to the 19th to 20th century. A copper alloy four-hole button of late 19th to mid 20th century date with the letters “BEST SOLID ….” around the centre was also recovered. All metalwork was recovered from the top-and subsoil.

5.9 Slag

Elke Raemen

5.9.1 The top-and subsoil contained two pieces of 19th to 20th century clinker. A fragment of undiagnostic iron slag was recovered from [205].

5.10 Stone

Elke Raemen

5.10.1 All stone recovered from the site is of local origin. Most pieces consist of lower greensand chert (i.e. [120], [135, [154], [237]). Other fragments include a piece of ferruginous sandstone ([115]), Wealden ferruginous siltstone ([135]0, Wealden fossiliferous sandstone ([182]), sandstone, possible lower greensand ([223]) and a quartz pebble ([225]).

5.11 Shell

Elke Raemen

5.11.1 Two abraded small oyster shell fragments were recovered from top-and subsoil.

5.12 Environmental remains

Lucy Allot

5.12.1 Samples were taken during excavations at Syngenta, Yalding to recover environmental remains from features recorded as pits, postholes and ditches and to help establish evidence for the functions of these features. The assessment also aimed to obtain material that may be suitable for dating. All samples were processed using tank flotation, their flots and residues were retained on 250µm and 500µm meshes respectively and were air dried. The flots were scanned under a stereozoom microscope at x7-45 magnification and their contents recorded (Table 4). The residues were passed through graded sieves and sorted by hand for environmental and archaeological remains (Table 5). A sub-sample of charcoal fragments were fractured and viewed under a reflected light microscope at x50-200 magnification, to assess their potential for further analysis and dating. Preliminary identifications of the botanical remains have been made with reference to modern comparative material at the Institute of Archaeology, University College London and through reference to identification atlases (Cappers et al. 2006, Hather 2000, Jacomet 2006, Schoch et al. 2004, Schweingruber 1990). Nomenclature used follows Stace (1997).

5.12.2 The majority of samples contain very few environmental or archaeological remains and many of the flots are dominated by uncharred botanicals including small roots and seeds. Deposits at this site are not waterlogged and therefore these uncharred remains must be considered modern intrusive elements. Their presence suggests some post-depositional disturbance and although it does not preclude further assessment of the archaeobotanical remains that are present, the extent of disturbance within the deposits may impact upon suggestions made regarding the potential of these samples for further analysis and dating.

5.12.3 Charred macrofossils are present in small quantities in several samples. Cereal caryopses of wheat (Triticum sp.), barley (Hordeum sp.) and oat (Avena sp.) are evident however they are infrequent and too poorly preserved to enable further identification. No chaff fragments that would assist in identification are present in any of the samples. Several samples also contain small quantities of charred weed seeds including knotweed/dock (Polygonum/Rumex sp.), fat hen (Chenopodium sp.) and a plantain (Plantago sp.) seed. Hazel (Corylus avellana L.) nut shells are prominent in sample <1013>, pit fill context (135). A single, very small nut shell fragment is also present in the flot from <1018>, post hole context (186). Samples <1009>, <1012> and <1034> contain some charred plant matter that is unidentifiable as it retains no clear morphological features.

5.12.4 Small charcoal fragments are present in all samples. Moderate amounts of well preserved charcoal fragments >4mm are present in the flots and/or residues from samples, <1002>, <1006>, <1007>, <1011>, <1013>, <1014>, <1030>, <1031> and <1036>. Samples that are particularly rich are underlined. A preliminary charcoal assessment reveals that oak is present in all samples (Table 6). Rosa sp. (roses), Prunus sp. (sloe/blackthorn/wild

cherry) and taxa from the Maloideae group (eg. apple/pear/hawthorn/rowan) are also present in small quantities in samples <1007>, (120), <1013>, (135) and <1030>, (229). The oak wood fragments are all of indeterminate age and therefore hold no potential for dating however the non-oak wood taxa are relatively short lived and suitable for dating. In addition several twigs and small round wood fragments are present in sample <1014> from the small pit fill context (164). These have not been identified at present because they display immature wood anatomy however regardless of the taxa present they would be suitable for dating.

5.12.5 A small highly fragmentary cremated bone assemblage was collected from the processed samples, with the majority of fragments less than 5mm. As a result, much of it remains unidentifiable to skeletal element. However both skull and lower limb fragments were noted in (123). No fragments diagnostic of age or sex were noted.

5.12.6 A heavily abraded sheep sized rib fragment is present in context (223) (Driver pers. comm.). This piece is not cremated although it is from a context recorded as a kiln/cremation. Cremated bone fragments are present in pit fill contexts (123), (125), (129) and (225). Land snail shells present in (229) are likely to be modern and intrusive as it was noted on site that this feature was heavily rooted.

5.13 The Animal Bone

Gemma Driver

5.13.1 A small assemblage of bone, consisting of 27 fragments, was recovered from two contexts. Context [123] produced 23 small pieces of charred and calcined bone. Context [223] produced 4 fragments including 2 cattle sized long bones and two sheep sized ribs. This context is dated to the Early Iron Age and the animal bone is in a well preserved state

Table 4: Flot quantification (* = 1-10, ** = 11-50, *** = 51-250, **** = >250), preliminary identifications and an indication of further potential

Sample Number	Context	Flot volume ml	Uncharred %	sediment %	seeds uncharred	Charcoal >4mm	Charcoal <4mm	Charcoal <2mm	crop seeds charred	Identifications	Preservation	charred	Identifications	Preservation	other botanical charred	Identifications	Preservation	Land snail shells	Potential and Further work
1001	105	15	20	70	Y	*	**	***											D
1002	107	40	70	20	Y	*	***	****											D/C charcoal (see residue)
1003	115	20	35	60	Y		*	***											D
1004	116	60	35	60	Y		**	***											D
1005	118	<5	60	20	Y		*	***											D
1006	109	170	60	30	Y	**	***	****	*	Triticum sp., cf. Avena sp.	mod-good	*	cf. Plantago sp.	mod					B/C charcoal
1007	120	40	80		Y	*	***	****	*	Triticum sp. (1), Hordeum sp. (1), & indet.	mod-poor	*	cf. Bilderdykia sp.	mod					D/C Charcoal (see residue)
1008	121	25	30	60	Y		**	****	*	Triticum sp.	mod								D
1009	123	15	60		Y	*	***	****	*	indet.	poor				**	indet charred plant matter	poor		D
1010	125	30	85	10	Y		**	***	*	(1) cf. Triticum sp. & indet.	poor								D
1011	127	10	80	10	Y	*	***	***											D/C Charcoal (see residue)
1012	129	<5	75	10	Y		**	***	*	(1) poss (indet.)	poor				*	indet charred plant matter	poor		D
1013	135	30	40	30	Y	*	***	***	*	cf. Hordeum sp. & cf. Triticum sp.	poor	*	1 Chenopodium sp.	poor					D/C Charcoal (see residue)
1014	164	20	30	<5	Y	***	***	****				*	no clear morphology	mod					B/A charcoal
1015	166	<5	5	90			*	**											D
1016	174	<5	40	<5		*	**	****											D
1017	182	20	60	30	Y	*	**	***							*	1 indet.	poor		D
1018	186	30	70	20	Y		**	**							*	(1) indet. nut	mod		D

Sample Number	Context	Flot volume ml	Uncharred %	sediment %	seeds uncharred	Charcoal >4mm	Charcoal <4mm	Charcoal <2mm	crop seeds charred	Identifications	Preservation	charred	Identifications	Preservation	other botanical charred	Identifications	Preservation	Land snail shells	Potential and Further work
																shell frag.	but <2mm		
1019	188	5	30	60	Y			**											D
1020	200	<5	40	50				**											D
1021	202	30	20	70	Y		**	***							*	1 poss/ thorn/ prickle	mod-poor		D
1022	205	<5	30	65	Y			**											D
1023	207	40	15	80	Y		*	**											D
1024	214	<5	30	50	Y			**											D
1025	211	5	20	70			*	**				*	(1) Polygonum/ Rumex sp., (1) indet.	mod-poor					D
1026	216	15	30	60	Y		*	***											D
1027	218	5	20	75	Y		**	**											D
1028	225	55	50	40	Y		***	****	*	Triticum sp. & indet Cerealia frags	poor								D
1029	227	80	50	30	Y	**	****	****											D/C Charcoal
1030	229	30	30	10	Y	**	****	****										*	B/C charcoal
1031	232	20		<5	Y	**	****	****											B/C charcoal
1032	223	115	65	30	Y	**	***	****											D
1033	237	<5	90	5	Y			**											D
1034	240	40	70	15	Y	*	**	***	*	1 cf. Avena sp. & indet Cerealia	mod-poor	*	(1) Polygonum/ Rumex sp.	good	**	indeterminate charred plant matter	poor		D
1035	241	10	15	75	Y		*	***											D
1036	43	10	20	<5	Y	**	***	***											B charcoal
1037	246	5	70	20	Y		*	**											D

Table 5: Residue quantification (* = 1-10, ** = 11-50, *** = 51-250, **** = >250) and weights in grams

Sample Number	Context	Context / deposit type	Spot Date	Sample Volume litres	sub-Sample Volume litres	Charcoal >4mm	Weight (g)	Charcoal <4mm	Weight (g)	Charred botanicals (other than charcoal)	Weight (g)	Bone and Teeth	Weight (g)	Fishbone and microfauna	Weight (g)	Other (eg ind, pot, cbm)
1001	105	Pit fill	LBA-EIA	40	40	*	1	***	1							Pot*/12
1002	107	Pit fill poss hearth		40	40	***	6	***	4							
1003	115	Upper fill of linear terminus [114]	LBA?	40	40	*	1	*	1							
1004	116	Lower fill of linear terminus [114]	LBA?	40	40	EMPTY										
1005	118	Pit fill poss fire pit	LBA	8	8	**	2	**	1							Pot*/4
1006	109	Fill of hearth evidence for metal working & fuel?	LBA-EIA	40	40	***	14	****	8							Burnt Clay***/126 Pot**/74
1007	120	Secondary fill pit [119] poss refuse	LBA-EIA	40	30	***	6	***	4							Pot**/16
1008	121	Primary fill pit [119]		40	40	**	2	*	1							Pot*/18
1009	123	Pit fill cremation?	LBA-EIA?	40	30	**	6	***				*** crem	12			Pot*/4
1010	125	Small pit fill	PREHIST	10	10	*	2	**	2			* crem	6			
1011	127	Small pit fill		10	10	***	16	***	10							Burnt Clay*/10
1012	129	Small pit fill		5	5	*	1	*	1			* crem	1			Pot*/8
1013	135	Pit fill	LBA C11-9TH	40	40	****	20	****	18	**	4					Pot**/90 Daub**/30
1014	164	Small pit fill		10	10	**	4	***	6							
1015	166	Primary fill large pit [165]		10	10	EMPTY										
1016	174	Fill of post hole		5	5	*	6	*	2							Flint flake 1/4
1017	182	Fill of ditch slot		40	40	*	1	*	1							
1018	186	Fill of post hole		20	20	EMPTY										
1019	188	Ditch slot fill		10	10	EMPTY										

Sample Number	Context	Context / deposit type	Spot Date	Sample Volume litres	sub-Sample Volume litres	Charcoal >4mm	Weight (g)	Charcoal <4mm	Weight (g)	Charred botanicals (other than charcoal)	Weight (g)	Bone and Teeth	Weight (g)	Fishbone and microfauna	Weight (g)	Other (eg ind, pot, cbm)
1020	200	Lining of large unknown feature possibly industrial		10	10	EMPTY										
1021	202	Pit fill		20	20	*	1	*	1							
1022	205	Fill of ditch slot		40	40	EMPTY										
1023	207	Fill of ditch slot		40	40	*	1									
1024	214	Pit fill		10	10	EMPTY										
1025	211	Ditch fill		40	40	*	2	**	20							
1026	216	Pit fill		20	20	EMPTY										
1027	218	Pit fill		20	20	EMPTY										
1028	225	Pit fill poss refuse pit		20	20	**	2	**	1			* crem	1			Pot*/64
1029	227	Fill of N-S linear feature		20	20	***	6	***	4							
1030	229	Pit fill, poss small hearth, frequent roots		20	20	***	6	***	8							Daub***/458 Pot*/18
1031	232	Fil of post hole		10	5	**	2	***	2							
1032	223	Fill of poss kiln/cremation		60	40	*	4	*	1			*	1			Pot**/36
1033	237	Pit fill		10	10	**	2	**	2							
1034	240	Pit fill v shallow		10	10	**	4	**	1							
1035	241	Fill of post hole		10	10											Burnt Clay*/2
1036	43	Fill of post hole		10	10	****	32	****	12							
1037	246	Fill of poss. post hole		10	10	EMPTY										

Sample Number	Context	Taxa Identified (no. of fragments)	Preservation	Potential for Dating
1002	107	Quercus sp. (6)	good	fragments of undetermined age, further ids unlikely, further identifications unlikely, low dating potential
1006	109	Quercus sp. (7)	good	knotwood fragments & fragments of undetermined age, low dating potential
1007	120	Quercus sp. (2), Maloideae type (5), cf. Rosa sp. (1)	moderate	further identifications likely, moderate dating potential
1011	127	Quercus sp. (8)	moderate, although very soft	fragments of undetermined age, further identifications unlikely, low dating potential
1013	135	Quercus sp. (2), Maloideae type (4), cf. Prunus sp. (1)	moderate, although very soft	further identifications likely, moderate dating potential
1014	164	Quercus sp. (12) & unidentified twigs and very small roundwood fragments (ca. 10)	good	Oak fragments of undetermined age. Twigs, roundwood fragments have good dating potential
1030	229	Quercus sp. (1), Prunus sp. (2)	moderate, although very soft	further identifications likely, moderate dating potential
1031	232	Quercus sp. (10)	moderate	fragments of undetermined age, further identifications unlikely, low dating potential
1036	43	Quercus sp. (13)	good	knotwood fragments & fragments of undetermined age, further identifications unlikely, low dating potential

Table 6: Charcoal assessment

6. POTENTIAL AND SIGNIFICANCE OF DATA

6.1 Realisation of the original research aims

6.1.1 In this section the original eight research aims have been reframed as numbered questions (OR's) and the potential of the site archive to address them is discussed.

OR1: Can information from the excavations inform as to the Pleistocene environment of the site including alluviation and landuse in prehistory?

At all surveyed site areas the general facies model suggested for sediment deposition is generally uniform. Within Area 1B and Area 2 the presence of slightly coarser sediment fractions suggests a fluctuating episodic moderate to occasionally high fluvial energy regime was responsible for laying down sediments. Sediment characteristics in all surveyed areas suggest a braided channel facies is represented overlain by flood plain deposits. Whilst artefacts may be present the likelihood of them being in situ is low. Whilst the presence of archaeology within all sediment units should not be discounted the potential for defining areas of any sediment units with potential greater than low to moderate is not considered as high.

OR2: Can information from the excavations identify and characterise evidence of riverside activity from the palaeolithic onwards?

There is evidence for Mesolithic activity and MBA-LBA/EIA-later IA ritual activity at the site.

Samples have confirmed the presence of environmental remains including charred macrofossils, wood charcoal fragments and bone. All of the weed seeds noted are common components of disturbed or waste ground that is likely to have existed in the immediate site vicinity. Hazelnut shell fragments noted in contexts (135) and (186) could originate from human or animal food stores or represent incidental inclusions within the deposits. Although the presence of cereal seeds provides evidence for agricultural activities in the area, the scarcity of crop remains suggests that they were not a major component of the activities at this site. Robinson (1994) noted a similar lack of cereals nearby at Coldharbour Road. None of the macrobotancials are abundant and their potential to provide further information about past vegetation or land use is minimal.

Charcoal dominates the environmental remains within archaeological deposits and indicates that fuel using activities were prominent at the site. The preliminary assessment shows that oak was used repeatedly although fragments from contexts (120), (229) and (164) indicate that some hedgerow taxa were also used for fuel resources. These contexts hold the best potential for further analysis and should yield sufficient material for AMS dating. Sample <1036> from post hole fill (246) consists of wood charcoal fragments only. Within this assemblage oak including some knotwood fragments are present and it is possible that this charcoal rich deposit is a result of the post being burnt in situ.

A small highly fragmentary cremated bone assemblage was collected, with the majority of fragments less than 5mm. As a result, much of it remains unidentifiable to skeletal element. However both skull and lower limb

fragments were noted in (123). No fragments diagnostic of age or sex were noted. The potential for further analysis on this material is very limited due to the condition.

Agricultural and domestic evidence in the botanical assemblage is scarce and the wood charcoal/fuel in hearths and in other features must therefore derive from other activities. The presence of cremated bone suggests ceremonial land use. In addition it was hoped that samples from context (109), <1006>, the fill of a hearth and context (200), <1020>, the lining of a large pit feature, would reveal the functions of these features, whether related to the cremations or other industrial or metal working activities. No industrial debris was present in any of the contexts sampled and no archaeological material was present in the residue from <1020>, context (200). It is interesting to note however that some of the contexts rich in wood charcoal such as the hearth (109) and also pit fills (135), <1013> and (229), <1030> produced moderate amounts of burnt clay and daub. Fragments in the samples are very abraded and are unlikely to contribute further information to that presented in the finds report (Raemen pers. comm.).

OR3: How can information from the excavations improve our understanding of soil processes that took place in the brickearth and the post-depositional effects on buried remains?

It is clear from the excavation that extensive erosion of the brickearth and subsoil has occurred through solifluction, weathering and modern agriculture. These effects on the archaeological resource were clear during the excavation and in the results, with poorer levels of archaeological survival.

OR4: Can information from the excavations contribute to an understanding of the environmental history of the Yalding area?

The geoarchaeological observations and information from relevant environmental samples does hold the potential to describe the prehistoric natural environment.

OR5: What were the character, form, function and date of the significant archaeological activities present on the site?

Possible Mesolithic base camp typified by worked flints recovered during machining and within later features, and MBA-LBA/EIA-later IA ritual site with cremations and segmented ditching, possible farmland to the west.

OR6: How can information from the excavations add to our understanding of prehistoric landuse at the site in the context of the current body of knowledge concerning occupation in the upper Medway valley during the prehistoric period?

Further analysis and research of the Mesolithic and MBA-LBA/EIA features will contribute to understanding of the area, particularly in relation to possible burial/ritual practices.

OR7: Can examination of the distribution of artefactual and environmental assemblages shed any light on the spatial organisation of activities at the site?

The eastern part of the site may be loosely typified as ritual, with an area of probable farmland to the west.

6.2 Potential of individual datasets

6.2.1 Stratigraphic

6.2.1.1 The site archive has the potential to contribute to the limited knowledge and understanding of this part of the upper Medway valley during the MBA-LBA/EIA. The site archive also has the potential to add to our knowledge of Mesolithic occupation of the area.

6.2.2 The Prehistoric Pottery

6.2.2.1 This assemblage has the potential to contribute to our understanding of Late Bronze Age/Early Iron Age ceramic traditions in West Kent. Although the assemblage is not large, there are number of significant pottery groups from sealed stratified contexts. There is currently a lack of published assemblages from the Late Bronze Age and Early Age Iron period in Kent, meaning that basic pottery chronology is still poorly understood, particularly in west Kent (Champion 2007, 296-297). A search of both published and grey literature revealed no large contemporary assemblages from the area although a small quantity from Coldharbour Road, Gravesend has been published (Barclay 1994) and post-excavation assessments exist from Cobham Park golf course and Eynhorne Street, Hollingbourne.

6.2.3 Radiocarbon Dating

6.2.3.1 Five contexts contain sherds with residue potentially suitable for C14 dating.

6.2.4 Ceramic Building Material

6.2.4.1 The ceramic building material is not of any potential for further analysis as most of it is unstratified.

6.2.5 Fired clay

6.2.5.1 The burnt clay has limited potential for further analysis. Of interest is context [109], the fired clay fragments of which should be studied in more detail.

6.2.6 Prehistoric worked flint

6.2.6.1 This small assemblage has little potential for further study.

6.2.7 Clay tobacco pipe

6.2.7.1 The assemblage has no potential for further analysis and no further work is required.

6.2.8 Coin

6.2.8.1 The assemblage has no potential for further analysis and no further work is required.

6.2.9 Glass

6.2.9.1 The assemblage has no potential for further analysis and no further work is required.

6.2.10 Metalwork

6.2.10.1 The assemblage has no potential for further analysis and no further work is required.

6.2.11 Slag

6.2.11.1 The assemblage has no potential for further analysis and no further work is required.

6.2.12 Stone

6.2.12.1 The assemblage has no potential for further analysis and no further work is required.

6.2.13 Shell

6.2.13.1 The assemblage has no potential for further analysis and no further work is required.

6.2.14 Soil Samples and cremated bone

6.2.14.1 The lack of evidence for agricultural activity compared with an abundance of charcoal and cremated bone has the potential to interpret the site in terms of ritual.

6.2.15 Animal bone

6.2.15.1 The assemblage has no potential for further analysis and no further work is required.

6.3 Significance of the data

6.3.1 Local and regional significance

6.3.1.1 The site has local and regional importance as a Mesolithic site.

6.3.1.2 The site has local and regional importance as a MBA-LBA/EIA-later IA site, a period little known of in Western Kent. This site will add new and valuable data to the corpus of works covering the prehistory of Western Kent.

6.3.1.3 Additionally, the pottery assemblage may be of regional significance as a stand alone collection, particularly as there are a number of sherds with internal carbonised residues, suitable for C14 dating.

7. PUBLICATION PROJECT

7.1 Revised research agenda: Aims and Objectives

7.1.1 This section combines those original research aims that the site archive has the potential to address with any new research aims identified in the assessment process by stratigraphic, finds and environmental specialists to produce a set of revised research aims that will form the basis of any future research agenda. Original research aims (OR's) are referred to where there is any synthesis of subject matter to form a new set of revised research aims (RRA's) posed as questions below.

7.1.2 Geoarchaeological

- RRA1: What is the geoarchaeological and palaeoenvironmental background of the site and its locality, and did any soil processes have post-depositional effects on the buried archaeological remains? (OR1 and OR3)

7.1.3 Prehistoric

- RRA2: What were the environmental conditions at the site and its environs during the Mesolithic and MBA-LBA/EIA-later IA periods? (OR4)

- RRA3: What is the nature of archaeological activity at the site and is there any evidence for zonal differentiation of activity? (OR2, OR5 and OR7)

- RRA4: How does the pottery assemblage from the site add to our understanding of local pottery traditions in the Bronze and Iron Ages, and have C14 dates from residues surviving within on ceramics aided in tightening dating of activity at the site?

- RRA5: How does new information from the excavations fit into the existing models of the Upper Medway Valley, and into the wider model of South-East Britain during the Mesolithic and MBA-LBA/EIA-later IA periods? (OR6)

7.2 Preliminary publication synopsis

7.2.1 It is suggested that the results of the excavation should be published in a concise article of around 4000 words, in an archaeological journal such as Archaeologia Cantiana. This should attempt to address the questions posed in the revised research agenda and would follow the suggested structure:

Introduction (c 1000 words)
Dates and circumstances of fieldwork
Acknowledgements
Graphic and textual conventions
Natural geology, prehistoric topography and environment
The nature of ancient soil processes active on the site and their post-depositional effects on the buried archaeological remains

The prehistoric period (c 2000 words)
Local environment
Identification and description of activities on the site

Cemetery
Farming
The prehistoric pottery and finds
Dating

Conclusion/discussion (c 1000 words)
Comparisons, thoughts and conclusions
The site in its prehistoric setting

Bibliography

There could be up to c 4 figures, and up to c 5 photographs

7.3 Publication project: task sequence

7.3.1 Stratigraphic method statement

7.3.1.1 The major tasks to be completed by the principal stratigraphic author at the next stage of analysis and to complete the publication are shown in Table 7.

7.3.2 Prehistoric worked flint

7.3.2.1 It is recommended that no further work be undertaken on this assemblage, although the worked flint should be retained for possible further study in the future. A short summary paragraph should be included in the publication and the handwritten assessment summary retained in the archive.

7.3.3 Prehistoric pottery

7.3.3.1 The following groups would benefit from more detailed analysis; [109]; [135]/[152]; [223]; [225]. Given the lack of similar sites from the immediate vicinity, comparative work could also involve looking at both East Kent and Surrey sites such as Heathrow, Runnymede and Carshalton.

7.3.4 Radiocarbon Dating

7.3.4.1 Five contexts contain sherds with residue possibly suitable for C14 dating will be considered for dating. Roundwood fragments from (164) should be identified and these together with the non-oak wood taxa from contexts (120) and (229) will also be considered for dating if beneficial to further understanding the phases of land use and further analysis suggests these represent good single entity samples. A radiocarbon specialist (Dr Pete Marshall) will be consulted during the analysis stage to ascertain the statistical validity of submitting such samples for dating.

7.3.5 Fired clay

7.3.5.1 A summary of the fired clay will be prepared for publication and in particular material from context [109] will be considered in light of developing feature and site interpretations.

7.3.6 Charcoal

7.3.6.1 It is recommended that some charcoal analysis be undertaken. Charcoal fragments associated with the cremated bone, in contexts (123), (125), (129)

and (225) is limited but could be analysed to establish the range of taxa present and compared with charcoal assemblages from other Bronze Age sites with cremations.

7.3.7 Cremated Bone

7.3.7.1 The cremated bone will be recorded for the archive and a summary statement produced for the report.

Stratigraphic	
Define groups. The 52 subgroups created at assessment level are likely to form some 5 groups. They will be defined using stratigraphic, spatial and chronological analysis, using the subgroup matrix and dating evidence.	1 day
Describe groups. Each group will comprise a plan derived from the GIS, showing the formative subgroups, and a brief textual description including date and elevation information. An average of 5 groups can be planned and described per day.	1 day
Define landuse. The groups will be organised, through the use of GIS and dating evidence, into the various forms of landuse that they comprise (cemetery, open areas, boundaries etc.). It is estimated that perhaps 5 landuse entities will result from this task @ 5 landuses per day.	1 day
Describe landuse. Interpretative text will be written about each landuse element including a definition of the cemetery, open areas and boundaries etc., their form and function on a site-wide basis. It is estimated that perhaps 5 landuse entities will need description @ 2 landuses daily	2.5 days
Define periods. The general chronological phases of activity across the site will be identified from the group matrix and defined landuses. These periods will form chronological framework of the site. There are likely to be 4 such periods Mesolithic; MBA/LBA; LBA/EIA and IA.	1 day
Describe periods. A textual summary, built from landuse and group texts where appropriate, will be formed for each of the periods. Plots of each period will be produced using GIS and hand-annotated with conjecture.	1 day
Documentary research should be conducted prior to commencement of the final authorship of the publication text by the principal author. This should include relevant study of archaeological sites and published themes.	3 days
Prepare integrated publication report. This task comprises the combination of the stratigraphic period descriptions and the relevant portions of completed finds, environmental, documentary and integrated analytical reports. Photographic images will also be selected from the archive for publication. Completion of this task will result in the first (unedited) draft of the report.	5 days
	15.5 Days
Specialist Analysis	
Worked Flint	0.5
Prehistoric Pottery	2.5
Radiocarbon Dates and report	TBC plus 1 day PM
Fired Clay	0.5
Illustration	
5-10 selected prehistoric pottery vessels	1
Production	
Editing (pre-submission & post-ref)	2
Project Management	1
Arch Cant publication Grant	Fee

Table 7: Resource for completion of publication report

Acknowledgements

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Appendix 1: Context Information

CONTEXT	CONTEXT_TYPE	FEATURE_TYPE	PARENT_CON	SUBGROUP	COMMENTS	SAMPLE_NO
100	C	N	100	1		0
101	F	N	100	1		0
102	C	N	100	1	SAME AS 100	0
103	F	N	100	1		0
104	C	P	104	2	BURNING	0
105	F	P	104	2		1001
106	C	P	106	3	BURNING	0
107	F	P	106	3		1002
108	C	P	108	4	BURNING	0
109	F	P	108	4		1006
110	C	D	110	5		0
111	F	D	110	5		0
112	C	D	110	5		0
113	F	D	110	5		0
114	C	D	110	5		0
115	F	D	110	5		1003
116	F	D	110	5	PRIM. FILL	1004
117	C	P	117	6	BURNING	0
118	F	P	117	6		1005
119	C	P	119	7	BURNING	0
120	F	P	119	7		1007
121	F	P	119	7	PRIM. FILL	1008
122	C	CR	122	8		0
123	F	CR	122	8		1009
124	C	SP	124	9		0
125	F	SP	124	9		1010
126	C	SP	126	10	BURNING	0
127	F	SP	126	10		1011

128	C	SP	128	11		0
129	F	SP	128	11		1012
130	C	SP	130	12		0
131	F	SP	130	12		0
132	C	SP	132	13		0
133	F	SP	132	13		0
134	C	P	134	14	BURNING	0
135	F	P	134	14		1013
136	C	P	136	15		0
137	F	P	136	15		0
138	C	P	138	16		0
139	F	P	138	16		0
140	C	P	140	17		0
141	F	P	140	17		0
142	C	P	142	18		0
143	F	P	142	18		0
144	C	SP	144	19	4-POSTER?	0
145	F	SP	144	19	4-POSTER?	0
146	C	SP	146	20	4-POSTER?	0
147	F	SP	146	20	4-POSTER?	0
148	C	SP	148	21	4-POSTER?	0
149	F	SP	148	21	4-POSTER?	0
150	C	SP	150	22	4-POSTER?	0
151	F	SP	150	22	4-POSTER?	0
152	F	P	134	14	PRIM. FILL	0
153	C	N	153	23		0
154	F	N	153	23		0
155	C	N	155	24		0
156	F	N	155	24		0
157	C	N	157	25		0
158	F	N	157	25		0

159	C	N/W?	159	26		0
160	F	N/W?	159	26		0
161	C	N	161	27		0
162	F	N	161	27		0
163	C	SP/P	163	28	BURNING	0
164	F	SP/P	163	28		1014
165	C	W	165	29		0
166	F	W	165	29	PRIM. FILL S	1015
167	F	W	165	29	PRIM. FILL S	0
168	F	W	165	29	SEC. FILL SA	0
169	F	W	165	29	SEC. FILL SA	0
170	F	W	165	29		0
171	F	W	165	29	PRIM. FILL O	0
172	F	W	165	29	SEC. FILL	0
173	C	SP	173	30		0
174	F	SP	173	30	1016	
175	C	D	175	31		0
176	F	D	175	31		0
177	C	D	175	31		0
178	F	D	175	31		0
179	C	D	175	31		0
180	F	D	175	31		0
181	C	D	175	31		0
182	F	D	175	31		1017
183	C	D	175	31		0
184	F	D	175	31		0
185	C	SP	185	32		0
186	F	SP	185	32		1018
187	C	D	187	33		0
188	F	D	187	33		1019
189	C	D	187	33		0

190	F	D	187	33		0
191	C	D	187	33		0
192	F	D	187	33		0
193	C	D	193	34		0
194	F	D	193	34		0
195	C	P	195	35		0
196	F	P	195	35		0
197	C	SP	197	36		0
198	F	SP	197	36		0
199	C	P	199	37	BURNING	0
200	F	P	199	37	PRIM. FILL	1020
201	F	P	199	37	2ND FILL	0
202	F	P	203	38		1021
203	C	P	203	38		0
204	C	D	193	39		0
205	F	D	193	39		1022
206	C	D	193	39		0
207	F	D	193	39		1023
208	C	D	208	40		0
209	F	D	208	40		0
210	C	D	208	40		0
211	F	D	208	40		1025
212	C	D	208	40		0
213	F	D	208	40		0
214	F	P	215	41		1024
215	C	P	215	41		0
216	F	P	217	42		1026
217	C	P	217	42		0
218	F	P	219	43		1027
219	C	P	219	43		0
220	F	CR/P?	221	44		0

221	C	CR/P?	221	44		0
222	C	KILN/PIT	222	45	BURNING	0
223	F	KILN/PIT	222	45	BURNING	1032
224	C	P	224	46	BURNING	0
225	F	P	224	46	BURNING	1028
226	C	D	233	47		0
227	F	D	233	47		1029
228	C	P	228	48	BURNING	0
229	F	P	228	48	BURNING	1030
230	F	KILN/PIT	222	45	BURNING	0
231	C	SP	231	46	BURNING	0
232	F	SP	231	46	1031	
233	C	D	233	47		0
234	F	D	233	47		0
235	C	D	233	47		0
236	F	D	233	47		0
237	F	P	238	48	BURNING	1033
238	C	P	238	48	BURNING	0
239	C	P	239	49		0
240	F	P	239	49		1034
241	F	SP	242	50		1035
242	C	SP	242	50		0
243	F	SP	244	51		1036
244	C	SP	244	51		0
245	C	SP	245	52		0
246	F	SP	245	52		1037

(F = fill, C = cut, W = well or waterhole, D = ditch, P = pit, SP = stake or posthole, CR = cremation, N = natural feature)

Appendix 2: Bulk Finds Quantification

Context	Pot	Wt (g)	CBM	Wt (g)	Bone	Wt (g)	Shell	Wt (g)	Flint	Wt (g)	FCF	Wt (g)	Stone	Wt (g)	Fe	Wt (g)	Cu Al	Wt (g)	Slag	Wt (g)	Fired Clay	Wt (g)	Glass	Wt (g)	CTP	Wt (g)	Charcoal	Wt (g)
+	171	1820	56	1534			2	<2	51	850			2	72	2	98	2	7	2	6	7	20	13	127	2	6		
105	29	302																										
107									1	2											9	140					#	100
109	144	1527																			238	1740						
115	4	6							3	26			1	4														
116	1	6																										
118	28	168																			6	14					4	<2
120	38	184							2	12	2	12	1	208							3	6						
123	2	20			21	6																						
125	1	<2									2	16																
135	66	1272									1	10	2	30							9	88					2	<2
139	5	80																										
141	2	10																			3	4						
147	1	<2																										
152	70	1592											2	62							2	6						
164													6	44													1	<2
180									1	1																		
182			1	126					1	11			1	672														
188	1	<2																										
201																					1	4						
202	3	8							1	1																		
205																			1	12								
207									1	28																		
211	3	8																										
214	2	8							1	9																		
220	30	228																										
223	183	1528			4	12			3	226			26	1832							5	8						
225	116	1050							3	110			4	272							3	6					1	<2
229	9	28																			14	86					2	<2
232																											2	2
234	4	6							2	8																		
237													5	104														

Context	Pot	Wt (g)	CBM	Wt (g)	Bone	Wt (g)	Shell	Wt (g)	Flint	Wt (g)	FCF	Wt (g)	Stone	Wt (g)	Fe	Wt (g)	Cu Al	Wt (g)	Slag	Wt (g)	Fired Clay	Wt (g)	Glass	Wt (g)	CTP	Wt (g)	Charcoal	Wt (g)
240	9	24																										
241	10	6									1	4									2	<2						
246											1	<2																
¼	19	66	1	<2																	4	5						
1/007									1	12																		
5/006	1	4							1	<2																		
5/008																					6	12						

Appendix 3: Summary report on the results of a geoarchaeological survey

By C A Pine

+ of Contents:

List of Figures:

List of Tables:

List of Plates:

Introduction

This summary report presents details of the findings of a phased programme of geoarchaeological survey undertaken at the study site in association with remediation works for site preparation.

It is understood this geoarchaeological summary report is to form a component part of the archaeological investigation report to be submitted by Archaeology South East [ASE]. It is recommended that this summary report should be read in conjunction with the ASE's archaeological survey report.

The study site lies in the Medway Valley at the confluence of the upper River Medway, the River Teise and River Beult approximately 1km west of the village of Yalding. The approximate site centre is estimated at NGR TQ 684 502.

The geoarchaeological and archaeological survey was guided by a 'Specification' for survey works provided by Kent County Council [KCC]. Within the specification provision was made, within three site areas [Areas 1A, 1B, Area 2 and Area 3], for focused Geoarchaeological test pitting / section examination at spaced area locations to assess archaeological and palaeoenvironmental potential within these site areas.

Geoarchaeological survey / monitoring was undertaken during May through to July 2007 by C. A. Pine on behalf of Archaeology South East.

In advance of field work the following site specific data sets were reviewed:

1:5000 Geological Survey of Great Britain map. Sheet 288. Maidstone. Geology of the Country side around Maidstone.

Remediation Strategy Overarching and Areas 1, 2A B, C & 4 and Area 3 Euro Dismantling Services Ltd. EDS Ltd. Specifically appendices:

Rep001 – Phase II Soil and groundwater Investigation of Syngenta's No. 1 Site Yalding – June 2004

Rep002 –Phase II Soil and Groundwater Investigation of Syngenta's No. 2 Site Yalding – June 2004

Rep003 – Phase II Soil and groundwater Investigation of Syngenta's Sports field [No. 3 Site] Yalding – June 2004

Rep. 005 – An Archaeological Desk-Based Assessment Archaeology South East.

Aims and objectives of the survey

The primary objectives of the phased survey were to be:

- Provide an initial assessment as to the likely modes of deposition for sediment bodies/units at the site and inform on the Pleistocene environment of the site including land use in prehistory

- Assess the Geoarchaeological and palaeogeographic significance / potential of sediment bodies / units present at the site.

- Determine the presence of, or potential for, undisturbed primary context archaeological remains / artefacts in the sediments encountered.

- To assess the nature and significance of key sediment units, particularly alluvial sediments, at the site that may be under threat of impact from proposed development works.

- Summary review of regional geology & review / summary of geotechnical survey for the site areas 1a, 1b, 2 and 3.

General background

The approximate site centre is estimated at NGR TQ 687 5010.

The site lies in the Medway Valley at the confluence of the upper River Medway, the River Teise and River Beult approximately 1km west of the village of Yalding.

Regional solid geology comprises of Weald Clay [Wealden Group] overlying Hastings Beds. Within the Yalding area upper section of Weald Clay is typically 20 metres in thickness and is characterised as low permeability mottled clay. Drift geology, overlying Weald Clay, comprises of Pleistocene and more recent Drift deposits such as Brickearth and 1st Terrace River gravels.

Three specific site areas 1A, 1B 2 and 3 were selected for Geoarchaeological survey [refer to Figure 1 for specific site area locations].

Site specific areas

[Site 1] Area 1

Existing site condition: SITE 1 [consisting of AREA 1A and 1B] considered in total is a c. 250 metre long north south orientated strip of land approximately 50 metres wide at its widest southern point thinning to less than c. 10 metres in the north. See Figure 1 for location.

The main site area [Area 1B] that lies to the south of a public walkway that crosses the site was predominantly flat with surface cover of tarmac / concrete at initial site visit though subsequently upper layers were removed as part of contamination / remediation assessment. Mean surface elevation of the southern site area [1B] is estimated, in advance of removal of surface at approximately +9.50m to +10.00m OD.

The northern part of SITE 1 [Area 1A] rises to achieve a surface maximum elevation of c. +14.50m OD. Surface of the north of the site area dips rapidly to the east to form a bank meeting the Medway at an angle of c. 300 from horizontal.

A review of geotechnical data: EDS report; REP001 – Phase II Soil and groundwater Investigation of Syngenta's No. 1 Site Yalding – June 2004 allowed the following summary stratigraphic profile for the southern part [Area 1B] to be produced.

Unit	Summary description	Max. thickness	Max depth to base of Unit

Topsoil Unit 6	Silts gravels clays	0.45	0.45
Made ground Unit 5	Sand silt gravel with variable modern inclusions	2.50	2.70
Drift geology / 'natural'			
Alluvium Unit Unit 4	Fine gravels / sands / silts. Weak organic traces as rooting [modern?]	1.70	3.60
Brickearth Unit 3	Fine sandy silt	1.50	4.50
Terrace gravels Unit 2	Sands variable coarse/fine with flint gravels.	4.30	6.00
Weald Clay [bedrock] Unit 1	Brown grey-blue clay	Not proven	Not proven

Table 1: Area 1B: [North west strip] Summary stratigraphic profile based on review of geotechnical data sets

[Site 2] Area 2

This site area is subdivided into: 2A 1 to 2A 7 inclusive of 2B & 2C and includes Area 4. See Figure1 for location. [Note: Geoarchaeological survey focused on sub area 2A7 only].

Existing site conditions: The total Site 2 covers an irregular area of approximately 32.2ha in area. The site combines former main plant production areas [c. 14.5 ha] and outlying, to the south, fields and agricultural land / woodland [c. 17.5ha]. Former production areas are concreted or tarmac surface with more southerly areas having grass topsoil cover only. Estimated mean surface elevation across Site 2 is between c. +10.00- +11.00m OD.

A review of geotechnical data: EDS report; REP002 – Phase II Soil and groundwater Investigation of Syngenta's No. 1 Site Yalding – June 2004 allowed the following summary stratigraphic profile for the southern part [Area 2] to be produced.

Unit	Summary description	Max. thickness	Max depth to base of Unit [bgl]
Topsoil Unit 6	gravels sands some organics [modern]	0.20	0.20
Made ground Unit 5 [at northern site area predominantly	Concrete / tarmac over concrete rubble modern build debris	3.85	3.85
Drift geology / 'natural'			
Alluvium Unit 4	Fine gravels / sands / silts. Weak organic traces.	1.10	2.10
Brickearth	Fine sandy silt / clay	2.60	5.40

Unit 3	silt		
Terrace gravels Unit 2	Sands variable coarse/fine with flint gravels.	4.70	Not proven
Weald Clay [bedrock] Unit 1	Brown grey-blue clay	Not proven	Not proven

Table 2: SITE 2: [Central site area] Summary stratigraphic profile based on review of geotechnical data sets

Area 3

See Figure 1 for location of site area.

Existing site conditions: The Playing Field covers an area of approximately 3.4ha. The area is mainly flat and level having been used as a mixed use sports and cricket pitch. Present ground surface is predominantly grass. Estimated mean surface elevation across The Playing Field site is c. +9.50m OD. A sports pavilion occupied the approximate site centre with tennis court to the south east. The north east boundary of the site is defined by the river Medway with a canal to the southwest.

A review of geotechnical data: EDS report; REP002 – Phase II Soil and groundwater Investigation of Syngenta's No. 3 [Sports Field] Site Yalding – June 2004 allowed the following summary stratigraphic profile for the playing field [Area 3] to be produced.

Unit	Summary description	Max. thickness	Max depth to base of Unit [bgl]
Topsoil Unit 6	gravels sands some organics [modern]	0.70	0.70
Made ground Unit 5	Clays/silt /sands modern debris fill [ash metals glass etc]	1.85	2.30
Drift geology / 'natural'			
Alluvium Unit 4	Fine gravels / sands / silts. Weak organic traces. East of site only	1.60	3.00
Brickearth 3	Fine clay silt weak sandy gravely clay	2.80	3.00
Terrace gravels 2	Sands variable coarse/fine with flint gravels.	Not proven	Not proven
Weald Clay [bedrock] 1 [not proven]	Brown grey-blue clay	Not proven	Not proven

Table 3: Playing field summary stratigraphic profile based on review of geotechnical data sets

Field work methodology

Area 1A and Area 1B

At both these areas [For location see Figure 1] monitoring / recording was undertaken during initial ground work phase of site preparation [Area 1A] and post remediation removal of contaminated / disturbed silts within Area 1B. At both site areas selected representative sections were cleaned, prepared and described using standard sedimentalogical terminology and colours recorded using a standard Munsell colour chart. Selected representative sections were photographed [see Plates 1 and 2 and Figure 2 for locations of recorded sections]

Monitoring of the northern part of SITE 1 [Area 1A] was undertaken on 24th April 2007 during the initial phase of haul / access road construction and preparation works. During monitoring a series of shallow c.1 metre deep test pits were dug to maximum anticipated construction / landscaping impact depths in this area. Two deeper, c. 1.60metre test pits located within the centre of Area 1B, at the north and mid south locations were also observed and recorded. In addition two site visits were made post removal of topsoil undertaken as part of contamination / remediation assessment and selected sections prepared and recorded [see Plate 1 and 2 and Figure 2]

Area 2
Within Areas 2 a total of four Geoarchaeological test pits were excavated [GTP A-D] at spaced site locations. Locations were selected so as to give best representative record of key sediments lying at depth in this site area. Locations are shown at Figure 1.

Test pits were excavated using a c. 12 ton 3600 tracked excavator fitted with an approximately 1.80m wide toothed bucket. Machining was in less than 5cm spits.

At all test pit locations selected sections were hand trowelled to section heights of less than c.1.50metres below ground level. All observations below c. 1.50meteres were made from observations from the side of test pits and from arisings.

Recording was undertaken using standard sedimentalogical terminology and colours recorded using a standard Munsell colour chart.

Whilst no provision was made at this assessment phase for controlled sample recovery selected pinch samples [c. 1ltr] were retained for off site examination and possibly preliminary analysis.

Selected section faces at each test pit location were photographed using digital [6mgp] camera [see Plates 3 and 4] these photographs are presently held by the author and will be passed to ASE as a part of the site archive.

Area 3

A total of 3 test pits were excavated within existing archaeological Trenches. The locations are shown at Figure 1. Upper sediment / made ground units [between ground level and c. 1.20m bgl] appeared from visual inspection to be contaminated in Test Pits A and B. In the absence of contamination report for this site the author advised ASE [D. Hart] that excavation should not be undertaken at depth exceeding c. 1.20m bgl in test Pits A and B as it was considered excavation into gravels / silts anticipated to be present from review of geotechnical data for the site [see Table 3] might open up a contamination pathway to the water course lying to the north.

Test pits A-C were excavated and recorded following the same methodology as detailed for Area 2.

Results

DEPTH BGL Ground level estimated at + 11.50m OD	DESCRIPTION	Interpretation
0.00-0.10	10YR 4/2 dark grayish brown silt / granular silt. Matrix is lose and friable with moderate rooting [modern] 0.10 sharp horizontal contact	Topsoil modern [thinly developed]
0.10- 0.30	10YR 5/2 greyish brown clay silt / silt. Matrix moderately friable and supports occ. Sub angular modern brick tile / ash clinker fragments [high concentrations apparent at discrete spaced site area locations] 0.30 sharp horizontal contact	Subsoil [in part adulterated with modern debris]
0.30- 0.80	10YR 6/6 brownish yellow silt clay silt. Matrix is moderately firm and compact and supports frequent sub angular clasts with frequency cbm fragments and sand [modern] 0.80 moderately sharp undulating contact	Brick earth silts / part adulterated with modern build material / modern cbm
0.80- 1.20	10YR 6/6 brownish yellow silt clay silt. Matrix as above though supporting sparse /very sparse sub angular to sub rounded gravels. At upper contact weak 10YR 2/1 black sheen [hydrocarbon contamination/] adhering to clasts. 1.20m Moderately sharp horizontal contact	Brickearth silts reduction in disturbance down profile
1.20 – 1.65	10YR 6/6 brownish yellow silt to sandy silt becoming coarser sand silt with depth 1.65m sharp undulating contact	Alluvial sands [lower energy deposition / upper normal graded alluvial deposit]
1.65-2.00	At contact 10YR 2/2 very dark brown sheen to sub rounded to well rounded gravel clasts > 2cm diameter seen in association with 10YR 5/4 yellowish brown sharp well sorted sands] 2.00m sharp undulating contact	Upper contamination [hydrocarbon?] at contact. Moderate to episodically high energy deposition fluvial lain gravels and coarse sands
2.00-3.00	10YR 5/2 grayish brown to 2.5YR 5/2 greyish brown clay silt to silt clay. Matrix very dense firm and compact	Weald Clay

Table 4: Area 1B: Summary stratigraphic profile: [Refer also to Plates 1 and 2 and Figure 2]

DEPTH BGL Ground level estimated at + 11.75m OD	DESCRIPTION	Interpretation
0.00-0.15	10YR 6/2 Light grayish brown silt. Matrix lose and friable and moderately well rooted Sharp horizontal contact	Topsoil [modern]
0.20- 0.50	5YR 6/6 reddish yellow fine silt. Matrix moderately form and compact with no visible structure. Matrix supports rare sub angular clasts to maximum 2cm diameter 0.50 moderately sharp horizontal contact	Brickearth silt as 'B' horizon
0.50- 1.00	5YR 6/6 to 10YR 6/4 light yellowish brown medium / coarse moderately well sorted coarse silt to fine sands with frequent sub rounded clasts < 1cm in diameter. Coarser sediment exhibit weak horizontal bedding 1.00 sharp horizontal contact	Fluvial [moderately energy] sands and gravels] higher mean clast size compared to immediately underlying unit.
1.00- 1.50	5YR 6/6 to 10YR 6/4 light yellowish brown sands with very sparse sub rounded clasts so maximum 0.5cm diameter. 1.50 moderately sharp horizontal contact	Fluvial [moderate / low energy sands and gravels
1.50-2.50	10YR 4/6 dark yellowish brown coarse sands with frequent sub rounded to well rounded clast less than 2cm diameter.	Fluvial sands / gravels [variability of clast size between units indicates variable / episodic erosion / deposition all under variable hydrological depositional regimes.
2.50	Unable to progress due to side collapse and rapid water ingress [see Plate 3]	

Table 5: Area 2: Summary stratigraphic profile [Refer also to Plates 3 and 4]

DEPTH BGL Ground level estimated at + 11.50m OD	DESCRIPTION	
0.00-0.15	10YR 5/3 brown clay silt with 10YR 5/3 brown granular slt. Matrix is moderately firm and compact though with pockets that are friable. Matrix supports sparse modern debris / plastic etc. Strong hydro carbon? odour from topsoil [or from break of seal to underlying clay silt] 0.15 Moderately sharp horizontal contact	Topsoil [possibly weakly contaminated] developed on made ground
0.15- 0.50	10YR 4/3 brown silt sandy clay silt. Matrix supports frequent modern plastic debris. Becoming 10YR 3/1 very dark grey towards base of unit. 0.50 moderately sharp horizontal contact	Made ground [moderate contamination]
0.50-1.00/1.20	10YR 4/2 dark grayish brown to 10YR 5/3 brown granular silt. There are frequent areas / patches of 10YR 5/2 grayish brown to 10YR 7/1 light grey clay silt seen in association with 10YR 2/1 black to 10YR 7/6 yellow clay silts. [Heavily contaminated] 1.00 sharp horizontal contact	Made ground [heavily contaminated]
1.20-1.30 1.30-1.60 at west of site area	10YR 6/3 pale brown to 10YR 5/2 greyish brown silt to clay silt	Upper contact to alluvial silts. At east of site moderate to low energy deposition suggested with weak tendency to moderate to higher energy suggested at west of site.
		No further excavation at east of site to prevent opening of contamination pathway to adjacent water course

Table 6: Area 3: summary stratigraphic profile

Discussion: Recorded Stratigraphy

Area 1B

It is considered that observation of recorded stratigraphy within this site agrees with previous assessment based on review of geotechnical data.

Depth / extent of made ground suggests that re-grading / landscaping has taken place and contact to Brickearth has undergone disturbance. It is considered that apart from the extreme west of area 1B [see Plate 2] archaeological horizons lying at c. 0.70-1.00 metres below ground archaeological ‘natural’ levels are likely to have been truncated and disturbed.

As shown at Plate 1 the undulating nature of gravel upper surface and bedding and structure recorded within late Pleistocene Terrace Gravels indicates they have been laid down under an episodic fluctuating depositional / erosional fluvial regime. Sediment characteristics suggest an intermittent active / abandoned braided channel facies is represented. Whilst artefacts [worked lithics] may be present the likelihood of them being in situ is low.

Comparison of gravel clast characteristics and structure of sediments seen in Area 1B compared to that seen in Area 2 suggests a trend of gradual reduction in fluvial energy responsible for sediment deposition to the west of this site area.

Area 2

Recorded / observed test pits across the site area [see Figure 2 for locations of Tests Pits A, B, C and D] exhibited a broadly equivalent sequence.

Ground cover over the majority of this site area is grassland. Disturbed ground is generally absent though some isolated pockets of disturbed top soils were noted in the archaeological trench sections. These pockets of disturbance are localised and attributed to small scale agricultural / garden disturbance.

At all test pit locations sediments lying between c. 0.15 / 0.20 [lower contact of topsoil] to c.0.50/0.60, contact to brickearth natural, exhibited little evidence of anthropic activity.

At between c. 0.50 to 1.00 coarser silts and fine sands seen in association with sub rounded clasts exhibited weak horizontal bedding consistent with having been laid down under moderate to low energy episodic fluvial depositional regime. Sharp to moderately sharp contacts between bedded silts and gravels suggest truncation and erosion of fluvial lain sediments.

Between c. 1.00 metres to c. 2.50 metres [maximum excavation depth] a slight increase in sand and clast fractions is recorded with coarse sand and fine to coarse flint gravels and pebble lenses being recorded [as seen at Plate 4]. The slight increase in clast size compared to overlying units suggests a moderate to episodically high fluvial depositional regime.

As with Area 1B sediment characteristics suggest an intermittent active/abandoned braided channel facies is represented. Whilst artefacts [worked lithics] may be present the likelihood of them being in situ is low.

Area 3: [Playing Field]

Ground surface across this site area is predominantly flat and level having been used as a mixed use sports and cricket pitch. Surface cover across the site area is predominantly grass / turf. It is considered that the flat surface topography may be predominantly attributed to flood plain deposition of sediments with slight modern surface landscaping / levelling.

The north east boundary of the site is defined by the river Medway with a man made cut / canal to the southwest.

Within Area 3 purposive geoarchaeological trenching was not taken to depths in excess of 1.30m bgl due to concerns over opening up contamination pathways to the water course that defines the northern edge of this site area.

The previously undertaken review of geotechnical data for this site area: [Rep003 – Phase II Soil and groundwater Investigation of Syngenta's Sportsfield [No. 3 Site] Yalding – June 2004] shows made ground to depths of c. 2.30 metres below ground

surface within the in the east of the site area with reduction in made ground depth to c. 1.00metres below ground level recorded in the west of the site area.

Depth and extent of made ground in the east of the site suggests archaeological horizons may have been truncated / disturbed in this general site area.

In the geotechnical survey data: [Rep003 June 2004] terrace gravels are not recorded in the west of the site and in the east of the site depth of gravels was not recorded. Both these gaps in information are attributable to shallowness of purposive excavation / survey depths.

Where recorded in the reviewed geotechnical data sets descriptions for gravels, eg. 'Fine to coarse sand and fine to coarse flint gravels with clay and pebble lenses' indicate they have structure suggesting deposition and erosion under variable fluvial energy regimes. Purposive test pitting did not progress to depths sufficient to provide additional stratigraphic detail for this site area.

As with Area 2 sediment characteristics suggest an intermittent active/abandoned braided channel facies is represented across the gross site area though in the west of Area 3 sediments lying between c. 1.00 to 2.00m bgl. appear to have been deposited under a generally low to very low fluvial depositional regime so if present archaeology within alluvial deposits is likely to have only been minimally re-worked.

Summary and recommendations for further work.

At all surveyed site areas the general facies model suggested for sediment deposition is generally uniform. Within Area 1B and Area 2 the presence of slightly coarser sediment fractions suggests a fluctuating episodic moderate to occasionally high fluvial energy regime was responsible for laying down sediments. Sediment characteristics in all surveyed areas suggest a braided channel facies is represented overlain by flood plain deposits. Whilst artifacts may be present the likelihood of them being in situ is low. Whilst the presence of archaeology within all sediment units should not be discounted the potential for defining areas of any sediment units with potential greater than low to moderate is not considered as high.

In the west of Area 3 sediments lying between c. 1.00 to 2.00 m bgl appear to have been deposited under a generally low to very low fluvial depositional regime so if present archaeology within alluvial deposits is likely to have been only minimally reworked. Any significant ground works in the west of Area 3 may benefit from a watching brief though the potential for recognition of in situ archaeology is considered as moderate to low.

Bibliography and referenced works:

Munsell Soil Color Charts, 1975. Baltimore, Maryland: Munsell Color.

Museum of London Archaeological Service. 2000. An Archaeological Evaluation at Arundel Road, Fontwell West Sussex. Unpublished report commissioned by Bellway Homes. [MOLAS]

Museum of London, 1994. Archaeological Site Manual: M.O.L.A.S. Over Wallop, Hants. BAS Printers Ltd.

1:5000 Geological Survey of Great Britain map. Sheet 288. Maidstone.

Geology of the Country side around Maidstone. Explanation of geological Sheet 288

Remediation Strategy Overarching and Areas 1,2A B, C & 4 and Area 3 Euro Dismantling Services Ltd. EDS Ltd. Specifically appendices:

- Rep001 – Phase II Soil and groundwater Investigation of Syngenta's No. 1 Site Yalding – June 2004
- Rep002 –Phase II Soil and Groundwater Investigation of Syngenta's No. 2 Site Yalding – June 2004
- Rep003 – Phase II Soil and groundwater Investigation of Syngenta's Sportsfield [No. 3 Site] Yalding – June 2004
Archaeology South East
- Rep005 – An Archaeological Desk-Based Assessment

Appendix 4: OASIS archaeological report form

OASIS ID: archaeol6-50872	
Project details	
Project name	Former Syngenta works, Yalding
Short description of the project	archaeological excavation
Project dates	Start: 01-09-2007 End: 01-03-2008
Previous/future work	No / No
Any associated project reference codes	SSY07 - Sitecode
Type of project	Field evaluation
Site status	Conservation Area
Current Land use	Industry and Commerce 1 - Industrial
Monument type	flint assemblage Mesolithic
Monument type	cemetery Bronze Age
Monument type	cemetery Iron Age
Significant Finds	flints Mesolithic
Significant Finds	pottery Bronze Age
Significant Finds	pottery Iron Age
Methods & techniques	'Documentary Search','Environmental Sampling','Fieldwalking','Targeted Trenches','Test Pits'
Development type	Small-scale (e.g. single house, etc.)
Prompt	Direction from Local Planning Authority - PPG16
Position in the planning process	After full determination (eg. As a condition)
Status	Complete
Project location	
Site location	KENT TONBRIDGE AND MALLING EAST PECKHAM Former Syngenta Works, Yalding
Postcode	ME18 5
Study area	1000 Square metres
Site coordinates	LL - 672 520 (decimal) LL - 672 00 00 N 520 00 00 E (degrees) Point
Height OD / Depth	Min: 11m Max: 12m
Status	Complete
Project creators	

Name of Organisation	Archaeology South-East
Project brief originator	Kent County Council
Project design originator	Archaeology South-East
Project director/manager	Diccon Hart
Project director/manager	Darryl Palmer
Project supervisor	Dan Swift
Type of sponsor/funding body (other)	EDSR
Name of sponsor/funding body	EDSR
Status	Complete
? Project archives	
Physical Archive recipient	Local Museum
Physical Archive ID	ssy07
Physical Contents	'Animal Bones','Ceramics','Environmental','Human Bones','Worked stone/lithics'
Digital Archive recipient	Local Museum
Digital Archive ID	SSY07
Digital Contents	'Animal Bones','Ceramics','Environmental','Human Bones','Stratigraphic','Survey','Worked stone/lithics'
Digital Media available	'Database','Spreadsheets','Survey','Text'
Paper Archive recipient	Local Museum
Paper Archive ID	ssy07
Paper Contents	'Animal Bones','Ceramics','Environmental','Human Bones','Stratigraphic','Survey','Worked stone/lithics'
Paper Media available	'Context sheet','Drawing','Map','Miscellaneous Material','Photograph','Plan','Report','Section','Survey ','Unpublished Text','Unspecified Archive'
Status	Complete
? Project bibliography 1	
Publication type	Grey literature (unpublished document/manuscript)_1

Title	post ex assess rep
Author(s)/Editor(s)	d swift
Date	2008
Issuer or publisher	ase
Place of issue or publication	portslade
Description	assess text and upd
Status	Complete