Kneesworth House Hospital, Bassingbourn-cum-Kneesworth, Cambridgeshire

Archaeological Evaluation Report

Planning Application Number: S/0706/06/F National Grid Reference Number: TL 3497 4413 AOC Project no: 30452 Site Code: ECB 3209 Date: August 2009



Kneesworth House Hospital, Bassingbourn-cum-Kneesworth, Cambridgeshire:

Archaeological Evaluation Report

On Behalf of:	Partnerships in Care Ltd 2 Imperial Place Maxwell Road Borehamwood Hertfordshire WD6 1JN
National Grid Reference (NGR):	TL 3497 4413
AOC Project No:	30452
Prepared by:	Les Capon
Illustration by:	Jonathan Moller
Date of Evaluation:	1 st -8 th June 2009
Date of Report:	August 2009

This document has been prepared in accordance with AOC standard operating procedures.Author: Les CaponDate: June 2009Approved by: Andy LeonardDate: June 2009Final Report Stage:Date: August 2009

Enquiries to:	AOC Ard Unit 7 St Marg Moor Me Twicken TW1 1J	chaeology Group arets Business Centre ead Road ham S
	Tel. Fax. e-mail.	020 8843 7380 020 8892 0549 Iondon@aocarchaeology.com



Contents

		Pag	je				
Lis	t of il	lustrations	iii				
No	on-Technical Summaryiv						
1.	Intro	duction	. 1				
	1.1	Site Location	. 1				
	1.2	Planning Background	. 1				
	1.3	Geology and Topography	. 1				
2.	Histo	prical and Archaeological Background	. 2				
	Prehi	storic	. 2				
	Roma	an	. 2				
	Medi	eval	. 2				
	Post-	Medieval	. 2				
	Unda	ted Archaeology	. 2				
3.	Strat	egy	. 3				
	3.1	Aims of the Investigation	. 3				
	3.2	Methodology	. 3				
4	Resu	llts	. 4				
	4.1	Trench 1	. 4				
	4.2	Trench 2	. 4				
	4.3	Trench 3	. 5				
	4.4	Trench 4	. 5				
	4.5	Trench 5	. 7				
	4.6	Trench 6	. 8				
	4.7	Trench 7	. 9				
5.	. Finds						
6.	Discu	ussion	11				
7.	. Further work, Publication and Archiving 12						
8.	Bibli	ography	13				
Ap	pendi	ix A – Context Register	24				
Ap	pendi	ix B – Finds Reports	26				
Ар	vppendix C– OASIS Form						

List of illustrations

- Figure 1 Site Location
- Figure 2 Current Development
- Figure 3 Trench locations
- Figure 4 Trench 2: plans and sections
- Figure 5 Trench 3: plans and sections
- Figure 6 Trench 4: plans and sections
- Figure 7 Trench 5: plans and sections
- Figure 8 Trench 6: plans and sections
- Figure 9 Trench 7: plans and sections

Non-Technical Summary

A six trial-trench evaluation was undertaken at Kneesworth Hospital in Bassingbourn-Cum-Kneesworth on behalf of Partnerships in Care. Several large linear Roman features dating to the 3rd-4th centuries were identified, likely to be boundary ditches for fields. Domestic Roman pottery was collected, suggesting direct habitation on or near the site. Residual flints, probably of the Neolithic period, were retrieved from the site and several discreet features of Roman and post-medieval date were recorded.

1. Introduction

1.1 Site Location

- 1.1.1 The site is located to the southeast of Kneesworth, set back from the Old North Road and is centred on National Grid Reference (NGR) TL 3497 4413. The site covers an area of approximately 22,000m² (2.2 ha), and an area north of Kneesworth House is to be developed.
- 1.1.2 The evaluation was carried out in June 2009 and comprised the excavation of five trenches each measuring 30m by 2.2m and one trench measuring 8m by 2.2m, reduced in size due to the presence of live services and a therapeutic garden area. A seventh trench was due to be in an area that is in use as a car park, and was not excavated (Figure 2).

1.2 Planning Background

- 1.2.1 The local planning authority is South Cambridgeshire District Council. Archaeological advice to the council is provided by Kasia Gdaniec of Cambridge Archaeology Planning & Countryside Advice (CAPCA).
- 1.2.2 Planning permission to undertake the development has been granted under the Town & Country Planning Act (1990) (Ref No.: S/0706/06/F), subject to conditions. CAPCA recommended that an archaeology condition be placed on planning permission to secure a programme of archaeological work. The excavation of the evaluation trenches was carried out in accordance with a Written Scheme of Investigation (AOC 2009). This document presents the results of six excavated trenches.

1.3 Geology and Topography

- 1.3.1 The site is located on an underlying geology of West Melbury Chalk and lies at a height of approximately 28mOD (CAPCA 2009), being generally level.
- 1.3.2 The nearest town is Royston, 3km to the south, located upon higher ground at 60mOD. Bassingbourn-cum-Kneesworth is located in a wide plain north of this. A spring rises within the grounds of Kneesworth House, and feeds the Bassingbourn Brook which is a tributary of the Cam, flowing through Waddon on its route northwest.

2. Historical and Archaeological Background

2.1 The following information is drawn from the Written Scheme of Investigation (AOC 2009).

Prehistoric

2.2 Evidence for prehistoric activity within the vicinity of the site is limited, restricted to the discovery of a possible Palaeolithic flint flake, located during field walking approximately 750m to the west of the development. Also west of the site, in Bassingbourn, a Neolithic axe has been reported. South of the site, on higher ground towards Royston, aerial photography has revealed ring ditches and possible barrows.

Roman

2.3 Roman activity is more evident in the area, as the line of Ermine Street, the Roman road which runs between the settlements of Roman London and Lincoln, is thought to follow the present line of the Old North Road, 400m to the west (CAPCA 2009).

Medieval

2.4 Bassingbourn has a name of Saxon derivation; the "stream of *Bassa's* people", although there is no Saxon activity recorded in the locale. Features associated with the medieval period are present. The most significant is the remains of a moated structure near Grange Farm, approximately 750m to the north of the site. This is a common feature of the landscape, with other moated sites in the area including Waddon and Heydon. In addition to these, a series of ridge and furrow field systems lie to the north and northeast of the site. Several objects dating to this period have been discovered by metal detectorists in fields west of the Old North Road.

Post-Medieval

- 2.5 The Old North Road was clearly a focal point for development during the post-medieval period, as several Grade II Listed Buildings are adjacent to it, close to the site. The earliest structures known along this part of the Old North Road are a group of timber framed Tudor cottages dating to the late 16th or early 17th century. Close by is the timber-framed Red Lion Inn, of 17th century date, adjacent to a barn 100 years older. A slightly later 17th or 18th century cottage and barn group has also been recorded. The most substantial of the Grade II Listed Buildings is the group of structures associated with The Grange, which is centred around a former farmhouse constructed from red brick in the early to mid 18th century, associated with an earlier 17th century wing and an 18th century stable block.
- 2.6 Kneesworth House occupies the site, and was built on the site of Kneesworth Hall, dating to 1600 and reputedly on the site of an earlier building. This was sold to Lord Knutsworth in 1897. Kneesworth House is a Grade II Listed Building, originally built between 1901-1906 in a neoclassical style, by Roland Plumbe. The house is primarily constructed out of dark red brick with lighter brick dressings, with plain tiled flared mansard roofs. Internally, Kneesworth House possesses an irregular plan, comprising two storeys and attics. Surrounding the house there was once a series of formal gardens and parkland.
- 2.7 The sites more recent history saw many changes of use. During the Second World War, the RAF had an airfield 3km north of the site as an Operational Training Unit flying Blenheim bombers (No.108 Squadron) and then Wellington bombers (No.215 Squadron) took over in April 1940. From August 1942, the American 8th Airforce, 91st Bomb Group (H) took over the airbase flying B17 Flying Fortresses. The USAAF were billeted at Kneesworth House. After the War, the House was opened as a boys' approved school, which was transferred in 1967-8 to Cambridgeshire County Council (LBS 52470). Currently, the house is used for the treatment of mentally ill patients

Undated Archaeology

2.8 Two groups of undated crop marks have been identified through aerial photography, lying approximately 1km away from the site. One group to the northeast consists of a large enclosure and

linear features, whereas the second group to the southeast has been identified as a ring ditch with other linear features.

3. Strategy

3.1 Aims of the Investigation

- 3.1.1 The aims of the archaeological evaluation were defined in the Written Scheme of Investigation (AOC 2009), and are reproduced here:
 - To establish the presence/absence of archaeological remains within the site.
 - To determine the extent, condition, nature, character, quality and date of any archaeological remains encountered.
 - To record and sample excavate any archaeological remains encountered.
 - To assess the ecofactual and environmental potential of any archaeological features and deposits.
 - To determine the extent of previous truncations of the archaeological deposits.
 - To enable CAPCA to make an informed decision on the status of the condition on the planning permission, and any possible requirement for further work in order to satisfy that condition.
 - To make available to interested parties the results of the investigation in order to inform the mitigation strategy as part of the planning process.
- 3.1.2 The specific aims of the Evaluation were:
 - To determine the presence of Roman remains
 - To determine the presence of any features associated with the Edwardian Kneesworth House, or earlier hall.
- 3.1.3 The final aim is to make public the results of the investigation, subject to any confidentiality restrictions.

3.2 Methodology

- 3.2.1 Prior to the commencement of fieldwork, a unique site code & HER number (**ECB 3209**) was obtained and an OASIS online form was initiated.
- 3.2.2 The evaluation comprised the machine excavation of five trenches 30m by 2.2m at base and one shortened to 8.00m by 2.2m. All of the trenches were located as close as possible too that specified in the Written Scheme of Investigation (AOC 2008b). Trench 1 was not excavated, following discussions with CAPCA
- 3.2.3 The entire site was visually inspected before the commencement of machine excavation.
- 3.2.4 An 8 tonne 360 excavator fitted with a 1.7m wide toothless ditching bucket was used to excavate to the potential archaeological horizon. All machining was carried out under direct control of an experienced archaeologist.
- 3.2.5 On completion of the machine excavation, all trench faces that required examination or recording were recorded to the standards set out within the MoLAS Archaeological Field Manual (1994), and in accordance with the Written Scheme of Investigation. Written descriptions, comprising both factual data and interpretative elements were recorded on standardized pro–forma recording sheets. Plans

were drawn of each trench at a scale of 1:20. Short representative sample sections of trenches were drawn at 1:10. A digital photographic and black and white photographic record was made.

- 3.2.6 Excavated material was examined in order to retrieve artefacts to assist in the analysis of spatial distribution.
- 3.2.7 A Temporary Bench Mark was set up on the site transferred from a Bench Mark on Old North Road and levels were recorded for each deposit.
- 3.2.8 The evaluation work was undertaken over six days by Chris Clarke and Les Capon, under the overall project management of Andy Leonard, Project Manager.

4 Results

- 4.1 Trench 1 (Figure 3)
- 4.1.1 Trench 1 was not excavated, due to its location in an active car park area, which will not be affected by the new building.

4.2 Trench 2 (Figure 3)

4.2.1 Trench 2 was located towards the southern end of the development site, in an area earmarked for car parking. It was oriented southeast-northwest. This trench is in an area for a proposed extension to the car park. Natural chalk was not identified throughout the trench due to depth of overburden.

Тέ	able of stratigraphy						
Γ	Level (OD) of		of	Thickness	Context	Description	
	Top of Context		t				
ſ	27.83 to 28.07		0.40	201, 202	Topsoil and subsoil horizon		
ſ	27.41		1.10	205	Archaeological Horizon		
	26.44		NFE	207	West Melbury Chalk		

- 4.2.2 The naturally-lain chalk horizon was identified at a height of 26.44mOD, a depth of 1.50 below the surface, at the base of a deep feature: it is not thought that this is all made ground. This feature dominated its northern end, and was a large cut [206] up to 1.10m deep, that seems likely to be a large ditch or pit. The lower 0.45m of the feature was filled with mid-brown firm clayey silt (206) that had occasional inclusions of chalk, chert and flint. This was sealed by 0.60m depth of greyish brown clayey silt (205) that contained occasional flint and chert pieces, but also pottery of Roman date. This lay at 27.41mOD. Despite the removal of this upper layer (205) to 1.00m below the surface of the trench, no edges were visible. A sondage was excavated to prove its depth, character and date. The lack of a limit to the feature may suggest that its edges lie beyond the trench edge: possibly, this evaluation trench may have been oriented along the length of the feature rather than across it.
- 4.2.3 The upper layer was cut to the south by a large pit with an irregular edge [204]. This was greater than 1.40m deep, and was filled with a mixture of loose pieces of building material, iron pipes, fragments of plastic and wooden objects, within a soil matrix of grey silty clay (203). This was clearly a modern feature, and may represent a demolition or infilling event relating to the use of Kneesworth House during the Second World War.
- 4.2.4 The entire trench was sealed by a layer of dark brown clayey silt (202) up to 0.30m thick, which contained brick rubble and a high gravel content. This is thought to be a levelling layer, making up the ground following the filling of the pit, and generally raising ground level. Topsoil and turf sealed the trench, the current surface at 27.83mOD at the northern end of the trench, rising to 28.07mOD atop the backfilled pit.

4.3 Trench 3 (Figure 3)

4.3.1 Trench 3 was located towards the northern end of the site, adjacent to a therapeutic garden area. It was oriented northeast-southwest.

Level (OD) of Thicknes		Context	Description
Top of Context	S		
28.55 to 28.82	0.54	301, 302	Topsoil and subsoil horizon
27.76 to 28.19	Max 0.52	303-304, 306-309	Archaeological Horizon
27.76 to 28.19	NFE	305	West Melbury Chalk

Table of stratigraphy

- 4.3.2 The naturally-lain chalk horizon was present at 28.19mOD at the northeastern end of the trench, dropping to 27.76mOD at the southwestern end, a fall of 0.54m over just 8.00m.
- 4.3.3 Three features were identified in the trench, and all were sectioned. The smallest of the three had no dating evidence. This was an oval, concave hollow just 0.13m deep [307], 0.62m by 0.52m in plan, and filled with soft greyish brown clayey silt (306). With no dating evidence and only shallow depth, the origin of this feature is unknown.
- 4.3.4 In the southwestern end of the trench was part of a ditch oriented north-south [309]. Most of this lay beyond the limit of excavation, but the one side excavated revealed a steep edge and a slightly concave base. The full width was not seen, but the ditch was 0.52m deep. The fill was soft mid greyish brown clayey silt with some chalk inclusions (308). Animal bone and pottery within the fill suggest a degree of nearby habitation, and the pottery probably late Iron Age or Roman in date.
- 4.3.5 These two features were both cut by a large irregular pit [304]. This was 5m long and 0.90m wide, and continued beyond the limit of excavation. The edge of the feature sloped gradually down to the northwest, and was 0.35m deep. The fill was dark brown clayey silt (303), and contained finds that suggest a post-medieval date. Although flint was collected, black-glazed redware indicates that this feature was filled after c.1700. This may be a tree pit.
- 4.3.6 The features were sealed by mid-brown clayey silt subsoil (302) up to 0.38m deep, and this was sealed by topsoil and turf (301) 0.18m deep. The ground surface here fell from 28.82mOD in the northeast of the trench to 28.55mOD in the southwest

4.4 Trench 4 (Figure 3)

4.4.1 Trench 4 was located towards the northwest of the site, oriented northwest-southeast.

Level (OD) of Thicknes C		Context	Description
Top of Context	S		
27.55 to 28.12	0.32	401-402	Topsoil and subsoil horizon
26.87 to 27.42	Max 0.85	403-412	Archaeological Horizon
26.87 to 27.42	NFE	413	West Melbury Chalk

Table of stratigraphy

- 4.4.2 The naturally-lain chalk horizon was present at 27.42mOD in the northwest of the trench, dropping to the southeast to 26.87mOD, a gentle drop of 1 in 60. The archaeological record in this trench is dominated by ditches of Roman date.
- 4.4.3 In northwest end of the trench was a large ditch [404] running southeastwards for a distance of 12.6m. This had a v-shaped profile and was 0.84m deep with a rounded base. The full width of the ditch could not be determined at any single point, but it appears to be 3.8m wide. The fill (403) was

mid brown clayey silt, and probably the result of natural silting; bands of small chert, flint and chalk pieces indicate a gradual filling rather than a deliberate backfilling exercise. The character of the fill did not suggest that there had been a bank at either or both sides of the ditch. The finds assemblage is dominated by butchered animal bone, oyster shell and Roman pottery including Samian ware. However, there is also a small assemblage of flint flakes that may be of Neolithic date, indicating a Neolithic presence in the immediate area. One tooth in the ditch fill came form the jaw of what may be a hunting dog. The butchered animal bone appears to have come mostly from the head and lower legs of cattle. This could be random assortment of bone in a small sample, but could be evidence for the tanning industry, skins delivered to a tanner with the extremities attached.



Plate 1: Section through Ditch 404 looking northwest

4.4.4 A second ditch lies 5.4m south of the first, oriented more east-west [408]. The two ditches may converge around 15m east of the trench. This second ditch had a markedly different profile, with steep sides dropping to a wide flat base. The ditch was also shallower, at 0.60m deep. The fill (407) was greyish brown clayey silt, with occasional naturally occurring inclusions, but Roman pottery was again present, as well as animal bone from cattle and sheep or goat. Flint flakes are clearly residual in this feature.



Plate 2: Overview of Trench 4, looking east

- 4.4.5 A third feature towards the southeast end of the trench may also be part of a ditch [412]; possibly a terminus, or this may be a pit. The feature is 1.50m wide, and continued west beyond the limit of excavation. The sides of the feature are straight and the corners only slightly rounded. The edges drop at around 60°; the full depth of the feature was not determined. The fill was mid brown clayey silt (411), and one piece of Roman pottery was collected. This feature was cut by a large rectangular pit [410] just 0.21m deep with a flat base and rounded corners. This feature also continued west beyond the limit of excavation. The feature was 1.8m wide, and the fill (409) contained heavily abraded sherds of pottery of 13th-14th century date; this may be just the terminus of another shallow boundary.
- 4.4.6 The southern of the two major ditches is cut into by a later ditch running northeast-southwest [406]. This is a 2.7m wide ditch with steep sides dropping to a flat base 0.43m deep. The fill is similar to the fills of the other ditches in the trench, being mid brown clayey silt with naturally-occurring inclusions. Its late date is proven by the presence of post-medieval pottery, peg-tile and clay pipe fragments, firmly dating this to after AD 1600AD.
- 4.4.7 The features were sealed by mid-brown clayey silt subsoil (402) up to 0.20m deep, and this was sealed by topsoil and turf (401) 0.12m deep. The ground surface here fell from 28.12mOD in the northwest of the trench to 27.55mOD in the southeast.

4.5 Trench 5 (Figure 3)

4.5.1 Trench 5 was located towards the west part of the site, oriented east-west. Live services at the west end of the trench and across the middle were avoided during machine excavation.

Т	Fable of stratigraphy						
	Level (OD) of Thicknes		Context	Description			
	Top of Context	S					
	26.96 to 27.06	0.7	501, 502	Topsoil and subsoil horizon			
	26.24	Max 0.96	503-506, 508-509	Archaeological Horizon			
	26.24	NFE	507	West Melbury Chalk			

- 4.5.2 The naturally-lain chalk horizon (507) was present at 26.24mOD in the eastern end of the trench. It was not identified in untruncated form in the western end of the trench, due to archaeological features.
- 4.5.3 A single large ditch of Roman date dominates this trench, virtually running along its whole length, only slightly diverging from east-west. The ditch [506] was 0.96m deep and probably wider than 3.50m: only one edge was present in the trench. The northern edge appearing in the eastern end of the trench. A sondage cut to determine the nature of the fill became flooded with ground water immediately on excavation, so the profile of the feature is unproven. However, it appeared to be narrowing with an approximate v-shape to a flattish base. The fill was largely homogenous brown clayey silt (505). The mollusc species within the sample show the ditch to have been moist and well-vegetated. Pottery and tile of Roman date was collected, as was cattle bone with butchery marks. Teeth from a large dog were also present, hinting that this may be a hunting dog. Samples were taken at the top of the feature, 0.75m down and at the base to determine the potential for environmental remains from the fill. A second slot was excavated in the west to confirm the orientation and date of this ditch ([509] filled by (508)). Roman pottery in this slot confirmed the date of the feature to be late 3rd to mid 4th century. Food waste was evident in this slot, consisting of oyster shell.

- 4.5.4 On the northern side of the ditch at the eastern end was a small hollow [504] 0.98m by 0.43m and just 0.60m deep. This was sectioned, and is probably the base of a rabbit burrow of relatively modern date. The fill was dark greyish brown clayey silt (503)
- 4.5.5 The features were sealed by mid-brown clayey silt subsoil (502) up to 0.40m deep, and this was sealed by topsoil and turf (501) 0.18m deep. The ground surface here fell from 27.06mOD in the west of the trench to 26.96mOD in the east.

4.6 Trench 6 (Figure 3)

4.6.1 Trench 6 was located in the centre of the site. It was oriented –northwest-southeast.

T	able of stratigraphy							
Level (OD) of		Thicknes	Context	Description				
	Top of Context	S						
	27.16 to 27.39	0.40	601, 602	Topsoil and subsoil horizon				
	26.61 to 26.93	1.35	603-610, 612-613	Archaeological Horizon				
	26.61 to 26.93	NFE	611	West Melbury Chalk				

- 4.6.2 The naturally-lain chalk horizon was present at 26.93mOD in the northwest of the trench, dropping to 26.61mOD in the southeast, a drop of 1 in 90.
- 4.6.3 The earliest features in the trench are Roman ditches. One is quite large [608], and is the terminus of a ditch over 2.00m wide that continues southwest beyond the edge of the evaluation trench. This terminus is flat-ended with rounded corners. The sides of the ditch were near-vertical, and drop to a flattish base 0.55m deep. There were two fills in the terminus; the primary fill was chalk-rich silt, probably deriving from erosion of the sides of the ditch (607), and the upper fill was brown clayey silt (606). Pottery of Roman date was collected from this fill. A geoarchaeological assessment of this fill was made, following the collection of a column sample. This identified the presence of species associated with a wet environment, suggesting the ditch was wet when open, and may have been a drainage ditch. Cattle, sheep or goat, rat and mouse bones were collected: the rodent species perhaps living on the waste generated on the site. This ditch may have been deliberately backfilled.
- 4.6.4 Adjacent to this ditch is a smaller ditch, just 0.80m wide and 0.20m deep [610] that may be more properly described as a gully. The profile was concave. It was oriented east-west and had a single fill of grey clayey silt (609).
- 4.6.5 These two ditches are cut by a large feature of post-medieval date that spans some 22m, cutting to 25.36mOD, over 1.30m into the naturally-lain chalk. The feature was not fully excavated, but appeared to have a concave profile, and is a very wide, relatively shallow ditch, a pond, or even a bomb-crater. The primary fill was light grey chalky silt (612) up to 0.50m deep. This was sealed on the southeast side of the feature by a spread of very compact gravel, the surface of which sloped downwards towards the centre of the feature. The third fill was brown clayey silt (604) up to 0.50m thick, and the upper fill was dark brown clayey silt (603). A column sample was taken through the layers of fill. The fills of the feature were notably lacking in finds of any description. The cleanness of the soil may be an indication of a rapid backfilling event. There are no ponds shown on the site on Ordnance Survey maps of the site, but that does not disprove this to be a garden feature.



Plate 3: Possible pond feature 605, looking north

4.6.6 The features were sealed by mid-brown clayey silt subsoil (602) up to 0.18m deep, and this was sealed by topsoil and turf (601) 0.35m deep. The ground surface here fell from 27.39mOD in the northwest of the trench to 27.16mOD in the southeast.

4.7 Trench 7 (Figure 3)

4.7.1 Trench 7 was located towards the east of the site. It was oriented northeast-southwest.

Level (OD) of	Thicknes	Context	Description
Top of Context	S		
27.81 to 28.27	0.50	701, 702	Topsoil and subsoil horizon
27.46 to 27.81	0.65	703-708	Archaeological Horizon
27.46 to 27.81	NFE	709	West Melbury Chalk

- 4.7.2 The naturally-lain chalk horizon dropped from 27.81mOD in the northeast of the trench, dropping to 27.46m in the southwest, a drop of 1 in 90. Trench 7 contained two ditches, a tree-pit and some animal disturbance.
- 4.7.3 One ditch was oriented northwest-southeast and was 2.2m wide [706] with a concave profile and was only 0.15m deep. This was filled with mid brownish grey clayey silt and chalk erosion products (705). No finds were present that gave a date for the fill. The lack of Roman finds may suggest that this is one of only two ditches on the site that is not of Roman date.
- 4.7.4 The second ditch was on a slightly different alignment, and the two ditches may converge around 5m southeast of the trench. This ditch [704] had a stepped profile, the northeastern side falling with a concave edge to a depth of 0.37m, the southwestern side straight at 60° to a flat base 0.68m deep. The very differing profiles may suggest that this cut represents two ditches on the same alignment. However, the fill appeared consistent across the whole feature: no evidence for a recut was apparent on the fill (703), which was uniformly mid brownish grey clayey silt. Pottery from the fill showed this to be of Roman date, and, for a third time, teeth from a large dog were present. Part of a flint core was also present, probably of prehistoric date, and residual in this later ditch.



Plate 4: Ditch 704 looking northwest

Plate 5: Ditch 706 looking northwest

- 4.7.5 The tree pit [708] was in the northeast of the trench, and was an irregular hollow 0.70m by 0.68m, roughly circular, and 0.20m deep. No finds were collected to prove whether this was an ancient or modern feature of the landscape. The fill (707) was dark greyish brown clayey silt, suggesting a modern date.
- 4.7.6 The features were sealed by mid-brown clayey silt subsoil (702) up to 0.20m deep, and this was sealed by topsoil and turf (701) 0.30m deep. The ground surface here fell from 28.27mOD in the northwest of the trench to 27.81mOD in the southeast.

5. Finds

- 5.1 Finds were recovered from most of the excavated features. The assemblages are dominated by pottery of Roman date, animal bone and worked flint.
- 5.2 The Roman pottery dates from the mid 3rd century to mid 4th century, and most are likely to have been produced locally, but there are also occasional pieces from Suffolk, Horningsea, Hadham and Oxfordshire. The only imports are two Samian sherds from Gaul. The pottery forms are bowls and jars, which indicate domestic, rather than industrial, use of the site.
- 5.3 Post Roman pottery is sparse in the finds assemblage, and indicates a low level of activity since the 14th century on site, possibly agricultural.
- 5.4 The flint may date to the late Neolithic period. No tools were present, and none of the pieces had evidence for retouch or utilisation, c.5000BC. The finds and samples are currently with specialists for assessment.
- 5.5 A range of species were represented in the animal bone assemblage, from small animals such as mice and rats, to larger animals such as cattle. Other species present were pig, dog and sheep or goats. A wide range of elements was also present from rodent teeth up to large fragments of cattle long bones. Butchery marks were noted on some of the cattle bones. The dog teeth appear to derive from relatively large animals. These may merit comparison with teeth from known breeds or types of dog in order to ascertain whether these were hunting hounds.

6. Discussion

- 6.1 The topography of the site generally follows the underlying slope of West Melbury Chalk, sloping down from 28.2mOD in the north of the site to 26.2mOD in the southeast, towards the Bassingbourn Brook. This slope would have been present in the archaeological periods represented in the evaluation trenches, the Brook also a feature of the immediate landscape.
- 6.2 The flint finds indicate a presence on the site during the late Neolithic period, although none of the features are of proven Neolithic date. The only other artefactual evidence of Neolithic habitation in the vicinity prior to this evaluation is a flint axe from Bassingbourn. The relatively high numbers of flints of this date may suggest habitation directly on the site, or possibly on higher ground north and east of the area of investigation.
- 6.3 The ditches of Roman date may be of several different phases. This may be best represented by the converging ditches apparent in Trenches 4 and 7. Whether these ditches represent simple field boundaries, settlement boundaries, or defensive boundaries may not be proven without further archaeological work on the site. However, mollusc analysis shows the ditches to have been moist environments, so may have become partially filled with water and overgrown during their use.
- 6.4 There are two significantly deep ditches. The deepest is found in Trench 5, and runs east-west. At 0.95m deep, this would have been a significant feature on the landscape. It may continue in Trench 2, where the depth of the feature made detailed examination impractical. The function of such a large ditch seems likely to be defensive, although with the Bassingbourn Brook to the southeast, water management or drainage may be a possibility for the reason of this ditch. The second large ditch [404] is in Trench 4, and runs parallel to the gentle slope of the site. At 0.85m depth and 3.8m wide, this is also a significant boundary, and again a defensive measure is suggested by its size. The fill of the ditch did not suggest that there had been a bank on either or both sides of the ditch.
- 6.5 The full extent of the ditch represented by the terminus in Trench 6 may prove to be larger should further excavation be required.
- 6.6 Shallower ditches were present in Trenches 4 and 7. There was no direct relationship found in the evaluation trenches to prove a sequence of boundaries, but the finds may suggest two broad dates, one predating the other. Likewise, the small section of ditch exposed in Trench 3 may belong to either of these layouts, or possibly a third change in organisation of the site. It seems unlikely that all ditches would have been in use concurrently.
- 6.7 The activities being carried out on or near the site may are suggested by the finds. The pottery is manufactured in Suffolk, Horningsea, Hadham and Oxfordshire. The only imports are two Samian sherds from Gaul. The pottery forms are bowls and jars, which indicate domestic, rather than industrial, use of the site. The animal bones derive mostly from the food species of cattle and sheep/ goat, with many body parts present, suggesting butchery was carried out on site, and may indicate this was a farming settlement. However, one slot through a ditch in Trench 4 [404] was notable for the presence of head and hoof bones of cattle. This could be the remains of the tanning process, hides brought with the extremities attached. The dog bones are also of interest: they come form animals large enough to be hunting dogs.
- 6.8 The possibility remains that some of the boundaries may represent activity in the Saxon or early medieval periods, with Roman finds becoming deposited during later activities. The shallow pit in Trench 4 [412] almost has the form of a sunken–featured-building, although with no associated stake-holes or post-holes, may be just a shallow pit. However, without firm dating evidence otherwise, occupation on the site may not have continued beyond the Roman period, with a hiatus

until the 17th century. The site may have been agricultural prior to the establishment of Kneesworth House.

- 6.9 The post-medieval period is represented by a ditch and a tree pit. The ditch in Trench 4 cuts across one of the Roman ditches, and the tree pit in Trench 3 cuts across another. Whether this represents a boundary to the Kneesworth estate, or represents a boundary to a separate parcel of land such as a deer park or a field may be revealed by research. Also of probable post-medieval date is the large feature in Trench 6 (605). The character of the soils filling the feature suggests large-scale deliberate backfilling, with little or no cultural inclusions. The lack of modern building materials suggests that it predates the 20th century, but the fact that it cuts into the Roman horizon may suggest that it dates to the post-medieval period, and being in the grounds of a large house, be a garden feature.
- 6.10 The impact of the military use of the site is represented by the large pit filled with building material and modern waste in Trench 2. The fact that such intrusions were not found in any other trench may indicate that such truncations do not characterise the majority of the site, perhaps clustered at this southeastern end of the evaluated area.

7. Further work, Publication and Archiving

- 7.1 Any requirement for further work in the light of the results from this evaluation will depend on the foundation design of the new building, its impact on the archaeological horizon, and the importance of the archaeological resource. Any decision on this will be made by Kasia Gdaniec of Cambridge Archaeology Planning & Countryside Advice (CAPCA).
- 7.2 In the event that there is no further work, the results of the evaluation will be published, as a minimum, as a summary in the local archaeological journal and through the OASIS project. If further work is required in the light of these results, the suitable level of publication will be dependent on the significance of the further archaeological results.
- 7.3 Following completion of the full extent of the fieldwork and post-excavation analysis, the site archive will be prepared in the format agreed with Cambridge County Council Archaeological Store. The archive will be security copied and a copy deposited with the National Monument Record (NMR).
- 7.4 The site archive will comprise all artefacts, environmental samples and written and drawn records. It will be consolidated after completion of the whole project, with records and finds collated and ordered as a permanent record. The archive will be prepared in accordance with Guidelines for the preparation of excavation and watching brief archives for long-term storage (UKIC 1990) and Archaeological Archives; A guide to best practice in creation, compilation, transfer and Curation (Brown & AAF 2007). Arrangements are being made now with the Developer/Landowner for the transfer of title for the archive and artefacts, to be deposited in the Cambridge County Council Archaeological Store.

8. Bibliography

- AOC Archaeology (2009). Kneesworth House Hospital, Bassingbourn-cum-Kneesworth: Written Scheme of Investigation for an Archaeological Evaluation
- AOC Archaeology Group Ltd (2003). Fieldwork Sector On-Site Handbook.

Cambridgeshire Archaeology Planning & Countryside Advice (2009). Brief for Archaeological Evaluation.

Council for British Archaeology (1987). First Aid For Finds (Second Edition).

Department of the Environment (1990). Planning Policy Guidance: Archaeology and Planning (PPG16).

English Heritage (1991). Management of Archaeological Projects.

- English Heritage (1998a). Archaeological Guidance Paper 3: Standards and Practices in Archaeological Fieldwork. (English Heritage London Region).
- English Heritage (1998b). Archaeological Guidance Paper 4: Standards and Practices in Archaeological Reports. (English Heritage London Region).
- English Heritage (2002). Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation

Institute of Field Archaeology (1992). Standards and Guidance and Guidelines for Finds Work.

Institute of Field Archaeologists (1994, revised 2001). Standard and Guidance for an Archaeological Evaluation.

Institute of Field Archaeologists (1997). Code of Conduct.

Institute of Field Archaeologists (1999). Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology.

Museum of London (1994). Archaeological Site Manual (3rd ed).

United Kingdom Institute for Conservation (1983). Conservation Guidelines No 2.

United Kingdom Institute for Conservation (1990). Guidance for Archaeological Conservation Practice.

KNEESWORTH HOUSE HOSPITAL, BASSINGBOURN-CUM-KNEESWORTH, CAMBRIDGESHIRE: ARCHAEOLOGICAL EVALUATION REPORT















69

≻ z

Bungalow



Figure 4: Trench 2: Plan (1:125) & Section (1:40)









Figure 5: Trench 3: Plan (1:125) & Sections (1:40)



KNEESWORTH HOUSE HOSPITAL, BASSINGBOURN-CUM-KNEESWORTH, CAMBRIDGESHIRE: ARCHAEOLOGICAL EVALUATION REPORT











507

503 -504

507

L



KNEESWORTH HOUSE HOSPITAL, BASSINGBOURN-CUM-KNEESWORTH, CAMBRIDGESHIRE: ARCHAEOLOGICAL EVALUATION REPORT







Context	Description	Length/m	Width/m	Depth/m
201	Topsoil	30.00	2.20	0.10
202	Modern made ground	30.00	2.20	0.30
203	Fill of 204	12.00	2.20	1.40
204	C20 th intrusion	12.00	2.20	1.40
205	Buried soil, possibly includes ditch	18.00	1.10	Max 1.10
206	Sondage into 205	2.00	2.20	1.10
207	Natural chalk deposit	2.00	2.20	NFE
301	Topsoil	8.00	2.50	0.18
302	Subsoil	8.00	2.50	0.38
303	Fill of 304	5.00	0.90	0.35
304	Tree-pit feature	5.00	0.90	0.35
305	Natural chalk deposit	8.00	2.50	NFE
306	Fill of 307	0.62	0.58	0.13
307	Shallow pit	0.62	0.58	0.13
308	Fill of 309	2.00	1.35	0.52
309	Probable ditch	2.00	1.35	0.52
401	Topsoil	30.00	2.20	0.12
402	Subsoil	30.00	2.20	0.20
403	Fill of 404	12.60	3.80	0.85
404	Roman Ditch	12.60	3.80	0.85
405	Fill of 406	2.70	2.20	0.43
406	PM ditch	2.70	2.20	0.43
407	Fill of 408	9.00	2.50	0.60
408	Roman Ditch	9.00	2.50	0.60
409	Fill of 410	1.90	1.80	0.21
410	Shallow pit	1.90	1.80	0.21
411	Fill of 412	1.50	1.10	0.25
412	Ditch terminus or pit	1.50	1.10	0.25
413	Natural Chalk deposit	30.00	2.20	NFE
501	Topsoil	30.00	2.20	0.18
502	Subsoil	30.00	2.20	0.30
503	Fill of 504	0.98	0.43	0.06
504	Small hollow	0.98	0.43	0.06
505	Fill of 506	20.00	2.20	0.96
506	Roman Ditch	20.00	2.20	0.96
507	Natural chalk deposit	30.00	2.20	NFE
508	Sondage in 505	0.82	0.62	0.33
509	Sondage in 506	0.82	0.62	0.33
601	Topsoil	30.00	2.20	0.35
602	Subsoil	30.00	2.20	0.18
603	Top fill 605	22.50	2.20	0.52
604	Lower fill of 605	20.50	2.20	0.48
605	Pond feature	22.50	2.20	1.45

Appendix A – Context Register

Context	Description	Length/m	Width/m	Depth/m
606	Secondary fill of 608	3.00	1.00	0.45
607	Primary fill of 608	3.00	1.00	0.20
608	Ditch Terminus	3.00	1.00	0.55
609	Fill of 610	3.20	1.80	0.20
610	Roman Ditch	3.20	1.80	0.20
611	Natural chalk deposit	30.00	2.20	NFE
612	Primary fill of 605	2.50	2.20	0.50
613	Gravelly fill of 605	7.00	2.20	0.10
701	Topsoil	30.00	2.20	0.30
702	Subsoil	30.00	2.20	0.20
703	Fill of 704	2.20	2.80	0.65
704	Ditch	2.20	2.80	0.65
705	Fill of 706	2.20	2.20	0.15
706	Ditch	2.20	2.20	0.15
707	Fill of 708	0.70	0.68	0.20
708	Tree pit	0.70	0.68	0.20
709	Natural Chalk deposit	30.00	2.20	NFE

Appendix B – Finds Reports

THE ROMAN POTTERY by Anna Doherty

A small assemblage of 85 sherds weighing 802 grams (0.41 EVEs) was collected. In the interests of using a regionally consistent methodology, fabrics and forms have been defined according to the unpublished typeseries devised by Gavin Lucas for the assemblages from large scale excavations at Earith, currently undergoing analysis at Cambridge Archaeological Unit (Monteil 2003; Anderson 2004). The pottery was examined using a x20 binocular microscope and quantified by sherd count, weight and Estimated Vessel Equivalent (EVE). The pottery was spread across 9 contexts, of which 4 contain small to moderate sized groups. The pottery was mostly in relatively good condition with average sized sherds. This may suggest that some of the material is ultimately derived from settlement activity in the vicinity, rather than from purely agricultural practices. The relatively small quantity of diagnostic material prevents very close dating of individual contexts but it seems likely that the assemblage is all of a similar broad date-range: from around the mid/late 3rd to mid 4th century AD.

Unsourced reduced and oxidised sandy wares are the most common fabric types, together making up more than a third of the assemblage. These may derive from a variety of sources but are probably predominantly locally-produced. The only forms recorded in sandy coarse wares are necked jars and black-burnished style plain rim dishes. One or two finer sandy sherds may be from the Wattisfield industry in Suffolk. This type was also noted at Langdale Hale, Earith (Monteil 2003).

Shelly wares make up over 10% of the assemblage and all of the diagnostic forms are necked jars with flattened ledge rims or slightly lid-seated profiles. Sourcing and/or dating these wares is problematic, since the forms are long-lived and a number of kiln sources are known to have produced shelly wares. However, nearly all of the sherds are of a similar fabric type with moderate, quite fine, well-sorted fossil-shell, including rare punctate brachiopods. On balance they are they are probably more likely to come from Nene Valley or Fenland sources rather the South Midlands industry. Further research and comparison with fabric samples may help to clarify this point.

A distinctive coarse sandy ware, accounting for around 10% of the assemblage, which comes in buff and grey variants, is likely to be a Horningsea product. Although no rim sherds are present, the wall-thickness of the sherds suggest all are from storage jars, and one features the characteristic combing associated with this ware. Although this type is long-lived, production seems to be more intensive, with products reaching more distant markets, during the 3rd century (Cameron 1996, 452, citing J.R. Perrin pers. comm.)

Hadham red-ware sherds were found in each of the more substantial context groups, and include a footring base from a typical Samian style bowl. A bifurcated disc-neck flagon in a somewhat coarser fabric may also derive from the same industry. Oxfordshire white-slipped mortaria, including a Young (1977) type M22 rim sherd, are also present. A number of Nene Valley colour-coated sherds were recorded, although the only diagnostic sherd is a rim from a bowl derived from Dragendorff 37. The only imported wares in the assemblage are two Samian sherds, one of central Gaulish and one of east Gaulish origin. Although both are somewhat earlier than the likely date range given for the assemblage, they may well be survivals in use rather than being clear evidence of an earlier phase of activity on the site. Curation of Samian vessels was suggested to be a common practice at The Camp Ground, Earith (Anderson 2004, 125)

Significance and Potential

The small size of the assemblage makes it only of limited local importance. However, if more pottery is recovered in the event of further archaeological work, it may form part of a more significant assemblage, in which case it should be fully integrated at the publication stage. Many of the rural settlements excavated immediately around Cambridge have no late Roman activity, so there is somewhat limited scope for comparison with local assemblages, although there may be some overlap with Vicars Farm whose latest phase ends at around AD270 (Lucas, in prep). A literature search may throw up other contemporary

assemblages, but North Cambridgeshire sites like Stonea and Earith might provide better comparative material (Cameron 1996; Monteil 2003; Anderson 2004). A very brief consideration of topics like supply, function, and status, putting the site in its regional context should therefore be completed at the analysis stage.

Further Work

Comparison	with	other	Cambridgeshire	0.5 days
assemblages	includi	ng litera	ture search	
Preparation of	fshort	note for	publication	0.5 days
Total				1 dav
				·,

THE POST-ROMAN POTTERY by Luke Barber

The archaeological work recovered only four sherds of post-Roman pottery, weighing 13g from three individually numbered contexts. All of the material consists of small undiagnostic bodysherds most of which show signs of moderate abrasion suggesting some reworking. Pit [304], fill [303] produced the only post-medieval sherd, this being notably fresher than the other material (4g). It consists of a black-glazed red earthenware, possibly from a mug with external cordon, likely to be of 17th- to early 18th- century date. A number of production centres were producing such wares such in the region, including Ely (Edwards and Hall 1997, 158). Pit [410], fill [409] produced a heavily abraded unglazed fine sand tempered greyware sherd of Grimston-type (1g) and a less abraded jug sherd in fine oxidised sand tempered ware with a thin external clear glaze (6g). Both sherds are likely to be of early/mid 13th- to 14^{th-} century date. The final sherd was recovered from ditch [610], fill [609] and is more ambiguous of date. It is in a fine oxidised sand tempered fabric with rare flint inclusions to 2mm, thin walled and quite well fired. Although the ditch is of Roman date the sherd (2g) could represent 13th/early 14th century intrusion. A larger, more diagnostic sherd would be needed to be certain.

Significance and Potential

The post-Roman assemblage from the site is too small and lacking in diagnostic pieces to warrant any further analysis. A low level of 13th- to 14th- century manuring is suggested with a little early post-medieval activity. No further work is proposed.

THE CERAMIC BUILDING MATERIAL by Sarah Porteus

Ceramic building material (CBM) was examined from four contexts. In total 12 fragments were examined weighing a total of 3058g. The earliest fragment is of unidentified tile or brick in a soft under fired brown fabric with sparse red iron rich inclusions from context (505) and is possibly of Roman date. Three small brick fragments from the same context are of a coarse granular fabric with abundant calcareous inclusions mortared with hard cement mortar, these fragments are possibly intrusive to the context and may be post-medieval in date. Abraded peg tile fragments of late Medieval or early post-Medieval date were recovered from contexts (405) and (304) the peg tile is of coarse sandy fabric with a thickness of 13 to 15mm with moderate to abundant coarse quartz and sparse coarse red iron rich inclusions. The latest CBM was recovered from context (203) a thin fine sanded red brick of 45mm thickness, a fragment of red frogged brick of 69mm thickness and a yellow cream brick with sharp arises and 45mm thickness are all of probable late 18th to 20th century date. Also from context (203) two abraded, reused fragments of under fired, unfrogged, sandy orange brick with sparse coarse silt inclusions probably date from the 15th to 18th century.

Significance and Potential

The CBM assemblage holds no potential for further work. The CBM has been recorded on pro-forma sheets for the archive.

PREHISTORIC FLINTWORK by Chris Butler

Introduction

A small assemblage of 18 pieces of worked flint weighing 115gms was recovered during the fieldwork (Table 1), together with two pieces of un-worked fire-fractured flint weighing 18gms.

The assessment comprised a visual inspection of each bag, counting the number of pieces of each type of worked flint present, noting details of the range and variety of pieces, general condition, and the potential for further detailed analysis. Classification follows Butler (2005). A hand written archive of the assemblage and a summary on Excel was produced at this stage. Those pieces of flint that were obviously not worked were discarded during the assessment.

The Assemblage

The raw material comprised a light blue-grey to white patinated flint with a smooth buff cortex. This flintwork is typical of that found on a Chalk subsoil.

Hard hammer-struck flakes	8
Soft hammer-struck flakes	4
Flake/blade fragments	5
Core fragment	1
Total	18

This small assemblage of flintwork comprises entirely of debitage. The majority of the flakes are hard hammer-struck, whilst the soft hammer-struck flakes are likely to have been removed with a soft stone hammer rather than with an antler hammer. There is no evidence of platform preparation, and none of the pieces are retouched or have evidence of utilisation. Few of the pieces have any cortex remaining. The core fragment includes part of the platform of the core, and again shows no evidence for platform preparation.

This group of flintwork displays many traits of later prehistoric flintwork, however the lack of cortical pieces and the patination would suggest a date in the Later Neolithic rather than the Bronze Age.

Context	HH flake	SH flake	Fragment	Core	Total	Weight
303	1	1			2	8
403	4	2	3		9	64
405	2		1		3	15
407		1	1		2	14
409	1				1	2
505					0	0
703				1	1	12

Research potential

This assemblage is likely to be residual, and is too small for any meaningful analysis. Although most pieces of flintwork could be associated with the Neolithic activity at the site, these only occur in small numbers and from numerous individual contexts, thus making it difficult to draw any meaningful conclusions.

It is recommended that no further detailed work be undertaken on this assemblage, although the flintwork should be retained for possible further study in the future. This note should be included in the report along with the table of flintwork, and the handwritten assessment summary retained in the archive.

Animal Bone

Factual data

A total of two hundred and seventy five bone fragments retrieved from excavations in Kneesworth were submitted for assessment. Of these fragments, 55 were identifiable. This is a small sample of animal bone, which limits its potential archaeological value. The results are catalogued in Appendix 1.

Animal bones were retrieved from fourteen contexts, of which eight also contained Roman pottery remains, suggesting a Roman date (contexts 205, 308, 403, 407, 505, 508, 606, 703). Two contexts (303 and 405) are post-medieval (17th century or later), while one is modern (503). No dating evidence was present from contexts 409 and 411, though they may relate to post-medieval garden features. Bones were also retrieved from topsoil context (601). There is evidence of Neolithic activity on site, with flints and worked stone artefacts also being present in context 403. These are likely to be residual finds, possibly representing material redeposited during Roman activity on site.

The animal bone was retrieved by hand collection and by the processing of samples. Therefore, a range of species were represented, from small animals such as mice and rats, to larger animals such as cattle. Other species present were pig, dog and sheep or goats. A wide range of elements was also present from rodent teeth up to large fragments of cattle long bones. The range of sizes, and the fact that some bones were highly fragmented while others were complete, suggests the assemblage has not been biased by the collecting and sampling strategies used during excavation.

The bone was generally rated as being in fairly good condition ("c" – see below), with a few fragments being well preserved ("b") or poorly preserved ("d"). The poorly preserved material had generally experienced some form of alteration prior to burial, most often burning.

Methodology

The assemblage was examined briefly and identified to element, species and side of body with the aid of a skeletal atlas (Schmid 1972) and the reference collection held in the laboratories of AOC Archaeology Ltd. When an element could not be identified to species it was assigned to a range of species such as "ovicaprid" (sheep or goat) or "large mammal" (cattle / horse / red deer). For each identifiable fragment the following criteria were recorded: context, element, species, side, fusion state, fragmentation, state of preservation and any staining on the bone. The staining on a bone was assessed according to how much of the surface area of the bone was affected by any staining present. If no staining was present the bone was rated "0"; if some staining was present but it affected less than 25% of the bone surface then it was rated "1"; 25 - 50% surface staining rated a "2"; while 50 - 75% rated "3" and more than 75% rated a "4". A similar method was used for assessing preservation state where the degree of completeness of the bone surface was assessed by visual comparison to a reference set of bones demonstrating each preservation state. A fresh, shiny surface on the bone rated "a"; a duller, yet unabraded surface would rate "b"; while an abraded surface would rate either "c" or "d" depending on whether less or more than 50% of the inner fabric of the bone was

exposed at the surface. Each identifiable fragment was examined briefly for obvious taphonomic markers, such as large chop marks, carnivore gnawing and areas of charring.

Statement of potential

The assemblage was comprised mainly of cattle bones, with 28 of the 55 identifiable fragments being derived from cattle Other fragments were from dog (6), sheep / goat (5), rodent (3) and pig (1). Eight fragments could only be identified as large mammal and four as medium mammal.

No bones from deer or other "hunted" quarry animals were among the assemblage, so there is no direct evidence from the animal bones of the putative deer park nearby. However, the dog teeth appear to derive from relatively large animals. These may repay metrical comparison with teeth from known breeds or types of dog in order to ascertain whether they may be evidence of the presence of hunting hounds.

Four fragments of bone were butchered, all displaying several butchery marks and all but one deriving from contexts believed to be of Roman date. Fragments of burnt bone were retrieved from two contexts, again believed to be Roman. Thus the assemblage is likely to be the remains of domestic refuse, potentially of Roman date.

The butchery marks may be of value for further research into specific aspects of Roman butchery. In particular, two metapodials, from contexts 403 and 505, displayed similar, unusual, distinctive butchery marks in the form of three wide, parallel lines which may have been made with a large blade, such as cleaver. They were not particularly deep markings, however, and there was not a "successful" cut edge parallel to them, as is generally the case with cleaver chop marks.

The assemblage does not raise any new research questions as it is not strikingly unusual and most probably represents waste from domestic sources. The small size of the assemblage limits its research potential. Therefore, it is not recommended that further analysis is undertaken.

The assemblage may, however, be of interest to other researchers studying specific aspects of Roman cultural activities, particularly hunting and butchery. Alternatively, the animal bone may be of further interest if other environmental research is undertaken, on this site or in the immediate area. It is therefore recommended that the material be retained.

Storage and curation

The bones are clean and dry and have been labelled and packed for archiving. All the material should be retained within the site archive. On completion of the project, the Developer/Landowner will discuss arrangements for the archive to be deposited with Cambridge County Council Archaeological Store.

		5						
con	element	species	side	fusion	frag	pres	stn	Taphonomic
								indicators
303	carpal	cattle			complete	С	0	
308	tibia	pig	r		ends missing	С	0	
403	mandible	cattle	r		2 x fragments	С	0	
403	mandible	cattle	r		fragment with	С	0	
					M1 - 2			
403	mandibular 3 rd	cattle	I		complete	b	0	
	molar							
403	maxillary	cattle			fragments of 2	b	0	

Table 1: The identifiable fragments

con	element	species	side	fusion	frag	pres	stn	Taphonomic indicators
403	molars x 2 mandibular	ovicaprid	1		complete	b	0	
403	mandible	cattle	r		fragment	b	0	
403	mandible frgment	cattle	1		fragment	b	0	
403	tibia	dog	r	fused	distal end	С	0	
403	mandibular 1 st molar	dog	r		complete	b	0	
403	scapula	cattle	I	fused	fragment of prox end	С	0	
403	humerus	cattle	r		distal fragment	b	0	
403	metapodial	cattle			shaft fragment	С	0	3 cleaver marks
403	metatarsus	cattle	r	fused	proximal half	С	0	
403	long bone	medium mammal			shaft fragment	С	0	
403	metapodial	cattle			distal condyle	d	0	
403	femur	large			fragment of	С	0	
		mammal			distal epiphysis			
403	metacarpal	ovicaprid	r	unfused	proximal end	b	0	
407	tibia	cattle	Ι	fused	distal end	С	0	
407	tibia	cattle	Ι	unfused	distal end	С	0	
409	pelvis	cattle	I	fused	ischium/acet fragment	b	0	
505	metatarsal	cattle	I	proximal fused	distal end missing	С	0	3 cleaver marks mid shaft; other butchery marks.
505	metapodial	cattle			1 distal condyle	d	0	
505	ulna	cattle	r		fragment	С	0	
505	femur	large	1	prox	proximal end	С	0	
(SF 2)		mammal		unfused				
505 (SF 2)	tibia	cattle	r	p fused	proximal end	b	0	
505 (SF 1)	mandibular 1 st molar	dog	r		complete	b	0	
508	mandibular molar	ovicaprid			fragment	b	0	
601	femur	cattle	I	distal fused	in 3 pieces – recent break	С	0	
601	femur	cattle	1	prox fused	fragment of proximal end	С	0	
601	femur	cattle	I	prox unfused	frag of proximal end	С	0	
601	calcaneum	cattle	1	fused	fragment	С	0	6 knife marks
601	tibia	cattle	I	both ends	complete	С	0	
606	tibio	lorac	1	lused	oboft froemost	•	0	10 20 hutchers
000	แมเล	laige	1		snan nagment,	U	U	10 - 20 butchery

con	element	species	side	fusion	frag	pres	stn	Taphonomic indicators
		mammal			both ends missing			marks
606	femur	ovicaprid	r		shaft fragment	С	0	
606	humerus	ovicaprid	I		distal shaft fragment	С	1	
606	maxilla & skull	rodent (rat- sized)			teeth rows	С	0	
606	pelvis	rodent (mouse- sized)			fragment - illium	С	0	
606	ulna	rodent (mouse- sized)			complete	С	0	
703	1 st mandibular molar	dog	r		complete	b	0	recently broken in 2
703	mandible	medium mammal			fragment	С	0	
703	phalanx	dog		fused	complete	С	0	
703	mandible	dog			hinge	С	0	

Table 2: Ribs and vertebrae

con	size	R/V	pres	stn	taphonomy	frag
205	L	rib	С	1	10 – 15 butchery marks	fragment
303	М	vert	С	0	Unfused epiphs	complete
403	L	vert	С	0		3 x fragments
405	М	rib	С	0		fragment
409	L	vert	С	0		Fragment of spinal process

Table 3: The unidentifiable assemblage

context	No of	preservation	stain	taphonomy
	frags			
303	1	С	0	
403	73	С	0	
403	2	d	0	
407	6	С	0	
409	6	С	0	
411	7	С	0	
503	4	С	0	
505	3	С	0	
505 (SF 2)	11	С	0	
505 (SF 2)	2	d	0	
505	3	С	0	
505	8	С	0	several are very small fragments
505	1	С	4	burnt - white

505 (SF 2)	20	С	0	
505 (SF 2)	12	С	0	
505 (SF 2)	2	С	4	burnt - white
508	6	С	0	
601	1	С	0	
601	1	d	0	
606	4	С	0	
606	12	d	4	burnt - white
606	4	С	0	
606	1	С	4	burnt black
703	30	С	0	

Other Finds by Elke Raemen

Overview

Three fragments of fired clay were recovered from two individually numbered contexts. Included are two pieces from pit [304] (fill [303]), both in a moderate fine sand-tempered fabric with occasional voids/organic temper and rare iron oxide inclusions to 1 mm. A fragment from ditch [509] (fill [508]) is in a sparse fine sand-tempered fabric containing rare iron oxide inclusions to 1 mm. Pieces are all amorphous.

Ditch [406] (fill [405]) contained a plain clay tobacco pipe stem fragment. The stem dates to the mid 18th to 19th century.

In addition, a single, possibly intrusive, Welsh slate fragment was recovered from ditch [506] (fill [505]).

Significance and Potential

The assemblages are too small to warrant any further analysis. All have been recorded on pro forma sheets for archive and no further work is required.

References

Anderson, K. 2004. 'Roman Pottery' in Regan, R. Evans, C. Webley, L. The Camp Ground Excavations, Colne Fen, Earith. (CAU report 654).

Published online http://www-cau.arch.cam.ac.uk/earithcampgroundmaintext.pdf Accessed 23/07/09

- Butler, C. 2005 Prehistoric Flintwork, Stroud, Tempus Publishing Ltd
- Cameron, F. 1996. 'Other Roman Pottery' in Jackson, R.P.J. and Potter, T.W. Excavations at Stonea, Cambridgeshire 1980-85. British Museum Press: London. 440-477
- Edwards, D. and Hall, D. 1997. 'Medieval Pottery from Cambridge: Sites in the Bene's Street Market area' Proceedings of the Cambridge Antiquarian Society **86**, 153-168.
- Lucas, G. The Roman Settlement at Vicar's Farm, Cambridge. Draft of monograph, CAU.
- Monteil, G. 2003. 'Roman Pottery', in Regan, R. An Archaeological Excavation at Colne Fen, Earith, Sites V and VI (CAU Report 537). Unpublished Assessment
- Young, C.J. 1977. *The Roman Pottery Industry of the Oxford Region,* British Archaeological Reports. 43. Oxford.

Appendix C – Geoarchaeological Assessment

C.P. Green and D.S. Young

Introduction

This report summarises the findings arising out of the fieldwork and environmental archaeological assessment undertaken by Quaternary Scientific (QUEST), University of Reading in connection with the development of land at Kneesworth House Hospital, Bassingbourn-cum-Kneesworth, Cambridgeshire.

Site Context

The site is in an area of low relief on the outcrop of the Upper Chalk and in the valley of the Bassingbourn Brook, a minor right-bank tributary of the River Cam. The floor of the valley adjacent to the brook is at a level of c.27.0m OD; the ground surface at the site is at c.28.0m OD rising eastward to 36.0m OD on the crest of the low spur separating the valley of the Bassingbourn Brook from the adjacent valley of another minor tributary.

METHODS

Lithostratigraphic descriptions

Three column samples measuring 0.5m in length were retained from trench 6. The lithostratigraphy of these was described in the laboratory using standard procedures for recording unconsolidated sediment and peat, noting the physical properties (colour), composition (gravel, sand, clay, silt and organic matter) and inclusions (e.g. artefacts). The procedure involved: (1) cleaning the samples with a spatula or scalpel blade and distilled water to remove surface contaminants; (2) recording the physical properties, most notably colour using a Munsell Soil Colour Chart; (3) recording the composition e.g. gravel, fine sand, silt and clay; (4) recording the degree of peat humification, and (5) recording the unit boundaries e.g. sharp or diffuse.

Mollusca assessment

Flot and residue samples were examined from two contexts (505 and 606) and individual specimens from four contexts (403, 505, 508, 606). Flot had been separated into two size ranges (>1mm and 300μ -1mm). Sixteen separate samples were examined in total to obtain a general impression of abundance and condition and to identify the principal species or taxa. The mollusc remains were examined under a low powered stereo-microscope with a magnification range of 10 to 40x. Identification was based on reference to Kerney (1999) and Kerney & Cameron (1979).

Results

Lithostratigraphic Descriptions

Column sample <3>; Trench 6

Depth (m OD)	Unit Number	Description
26.77-26.32	6	7.5YR4/2 brown with weakly developed iron-staining of some structural surfaces in the lower half of the unit; moderately sorted slightly sandy silt with scattered granules and fine gravel - flint, chalk and quartz (up to 15mm); crumby; scattered root channels and root remains; very scattered small plant remains; common mollusc remains - whole and broken shells; very

26.32-26.27 5 7.5YR5/2 brown and 7.5YR4/4 brown and weakly develope iron-staining on some structural surfaces and root channel			strong acid reaction; well-marked transition to:
poorly sorted very sandy silt with numerous clasts of chalk (u to 12mm); very crumby; scattered root channels and ro remains; broken mollusc shell; very strong acid reaction.	26.32-26.27	5	7.5YR5/2 brown and 7.5YR4/4 brown and weakly developed iron-staining on some structural surfaces and root channels; poorly sorted very sandy silt with numerous clasts of chalk (up to 12mm); very crumby; scattered root channels and root remains; broken mollusc shell; very strong acid reaction.

60mm overlap between column samples

Column sample <2>; Trench 6

Depth (m OD)	Unit Number	Description
26.27-26.23	6	as above
26.23-26.19	5	as above
26.19-25.83	4	7.5YR5/2 brown and 7.5YR5/6 strong brown forming weakly defined mottles; moderately sorted slightly sandy silt; crumby; very common root channels and faunal burrows with patchy strongly coloured botryoidal iron-rich coatings; very scattered root and finely divided plant remains; common mollusc remains; very strong acid reaction

90mm overlap between column samples

Column sample <1>; Trench 6

Depth (m OD)	Unit Number	Description
25.92-25.74	3	10YR6/2 light brownish grey and 2.5YR3/6 dark red; well sorted silt with scattered coarse sand and granules and clasts of chalk (cluster at 25.90-25.88) and sharply angular flint (up to 25mm); crumby; root and faunal channels; scattered plant remains; scattered mollusc remains, whole and broken shells; very scattered small charcoal particles (<1mm); very strong acid reaction; gradual transition to:
25.74-25.57	2	10YR6/1 grey; moderately sorted silt with scattered coarse sand and granules; slightly blocky to massive; root channels with patchy and weakly developed iron staining; scattered root and plant remains; chips and twigs of wood (10mm Ø); scattered mollusc remains, including small bivalves (<i>Pisidium</i> spp.); a single small abraded piece of CBM (<2mm); very strong acid reaction; gradual transition to:
25.57-25.42	1	10YR6/1 grey; very well sorted silt; massive; scattered root channels with patchy and weakly developed iron staining; scattered root and plant remains; scattered mollusc remains; very strong acid reaction.

Mollusca

Mollusc remains were most numerous and most diverse in the >1mm flot. There are many complete shells in good condition in all the flot and residue samples.

- (505) <Oyster> Ostrea edulis upper valve : an edible species food refuse
- (403) <Oyster> Ostrea edulis lower valve : as above
- (508) <Oyster> Ostrea edulis lower valve : as above
- (606) <Snail> *Helix aspersa* and *Cepaea nemoralis* : Both species adapted to a wide range of habitats; *H. aspersa* often associated with nearby human occupation
- (606) <4> snail Helix aspersa and Cepaea nemoralis : as above
- (606) <4> flot >1mm Anisus leucostoma; Planorbids; Cochlicopa; Pupilla; Vallonia; Cecilioides acicula; Trichia. The Planorbids and A. leucostoma especially are typical of swampy ditches. The other taxa are usually associated with open terrestrial habitats
- (606) <4> flot 300µ Numerous examples of *C. acicula* a species that burrows, sometimes deeply, in calcareous soils.
- (606) <4> Residue Similar assemblage to >1mm flot plus *Limnaea* spp., Succineids and *Discus rotundatus*, *D. rotundatus* is generally regarded as a woodland species. *Limnaea* spp.and the Succineids prefer moist habitats.

(505) <1> flot >1mm acicula; Trichia	Planorbis planorbis; Limnaea; Succineids; Cochlicopa; Pupilla; Vallonia; Cecilioides
(505) <1> flot 300µ	Contained the same species
(505) <1> Residue perman	Contained the same species plus <i>Bithynia tentaculata</i> which is an inhabitant of ent water bodies, including well vegetated ditches.
(505) <2> >1mm flot	Planorbis planorbi;s Anisus leucostoma; Limnaea; Cochlicopa; Pupilla; Vallonia; Discus rotundatus; Trichia
(505) <2> 300µ flot and	the residue contained the same species plus the tiny burrowing snail C. acicula.
(505) <3> 1mm flot	Anisus leucostoma; Trichia; Cochlicopa; Pupilla; Vallonia; Discus rotundatus
(505) <3> 300µ flot and	the residue contained the same species plus the tiny burrowing snail C. acicula

Interpretation

Lithostratigraphic sequence

This sediment sequence consists of calcareous silty deposits incorporating small amounts of coarser material, mainly as scattered sand grains and larger clasts, but with clusters of fine chalk gravel at two levels (26.77-26.32m and 25.90-25.88m OD). Apart from these clusters of fine gravel, the six units that are recognised are separated from one another by subtle variations of texture, colour and structure. The sequence was separated from the bedrock chalk by a bed of chalky gravel.

There is some indication in the sediment sequence recorded here of soil-forming processes and some of the units recognised may in fact represent soil horizonisation, e.g. the development of brightly coloured botryoidal coatings on root channels and structural surfaces between 26.19m and 25.83m OD.

Evidence of nearby human occupation is limited to a few small particles of charcoal and a single small particle of CBM and there is no positive evidence that these deposits are other than the natural infill of a small (22m \emptyset) depression of unknown origin in the surface of the bedrock Chalk. The sequence of sediments is orderly with no irregular juxtapositions of sediments with different characteristics.

Mollusca

Context (606) is a secondary ditch fill. The mollusc assemblage appears to represent the inhabitants of the ditch together with terrestrial species from nearby mainly open but locally shady habitats.

Context (505) formed the infill of cut [506] which was recognised as a Roman ditch. Three samples were taken from context (505) - at the base of the infill <1>, in the middle <2> and at the top <3>. In context (505) P. *planorbis* appeared to be the most common species. It lives typically in moist well vegetated ditches. *Limnaea* and the Succineids also prefer moist habitats. The other taxa are usually associated with open terrestrial habitats.

The mollusc assemblages in this sequential set of samples record differences in the dominant species that dwelt in the ditch itself but suggests that the nearby terrestrial conditions remained essentially unchanged as a mainly open area with localised shady habitats.

RECOMMENDATIONS

There are fairly numerous mollusc remains throughout the sediment sequence and there is a hint of changing environmental conditions in the recognition of small bivalves towards the bottom of the sequence but not higher up. A more detailed examination of the Mollusca might give additional insights into the depositional processes responsible for the infilling of this depression.

The individual mollusc remains studied in this assessment are sufficiently numerous and well preserved and the assemblages are sufficiently diverse to allow a more detailed examination of the Mollusca from context (505). However the general impression arising from the present rapid examination is that no very significant changes in the local environmental conditions are likely to be revealed by further analysis of the samples already obtained; this may also be true of the sediment sequences from the other trenches at this site.

Only food refuse was recovered from contexts (403) and (508) and no further investigation of Mollusca from these contexts is necessary.

In context (505), the individual mollusc remains are sufficiently numerous and well preserved and the assemblages are sufficiently diverse to allow a more detailed examination of the Mollusca However the general impression arising from the present rapid examination is that no very significant changes in the local environmental conditions are likely to be revealed. The mollusc remains from context (606) appear generally similar to those from context (505), representing the inhabitants of the ditch itself and taxa dwelling in mainly open habitats nearby. A more detailed examination of the mollusc remains is unlikely to refine significantly this general understanding and is not recommended unless there is scope for the recovery of additional sequential samples, of similar diversity and condition and relating to successive archaeological phases, which might reflect changes of local habitat and land-use.

REFERENCES

Kerney, M.P. (1999) Atlas of the Land and Freshwater Mollusca of Britain and Ireland. Harley Books, Colchester.

Kerney, M.P. & Cameron, R.A.D. (1979) *A Field Guide to the Land Snails of Britain and North west Europe*. Collins, London.

Appendix D– OASIS Form

OASIS ID: aocarcha1-59733

Project details	
Project name	Kneesworth House Hospital, Bassingbourn-cum-Kneesworth
Short description of the project	Several large linear Roman features dating to the 3rd-4th centuries were identified, likely to be boundary ditches for fields. Domestic Roman pottery was collected, suggesting direct habitation on or near the site. Residual flints, probably of the Neolithic period, were retrieved from the site and several discreet features of Roman and post-medieval date were recorded.
Project dates	Start: 01-06-2009 End: 08-06-2009
Previous/future work	No / Not known
Any associated project reference codes	30452 - Contracting Unit No.
Any associated project reference codes	ECB 3209 - Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Residential 2 - Institutional and communal accommodation
Monument type	BOUNDARY DITCH Roman
Significant Finds	JUGS Roman
Significant Finds	BOWLS Roman
Methods & techniques	'Sample Trenches'

Development type	Public building (e.g. school, church, hospital, medical centre, law courts etc.)
Prompt	Direction from Local Planning Authority - PPG16
Position in the planning process	After full determination (eg. As a condition)
Project location	
Country	England
Site location	CAMBRIDGESHIRE SOUTH CAMBRIDGESHIRE BASSINGBOURN CUM KNEESWORTH Kneesworth House Hospital
Postcode	SG8 5JP
Study area	2.20 Hectares
Site coordinates	TL 3497 4413 52.0786208008 -0.03021842904190 52 04 43 N 000 01 48 W Point
Height OD / Depth	Min: 26.20m Max: 28.20m
Project creators	
Name of Organisation	AOC Archaeology
Project brief originator	CAPCA
Project design originator	AOC Archaeology
Project director/manager	Andy Leonard
Type of sponsor/funding body	Developer
Project archives	

Physical recipient	Archive	Cambridgeshire County Council Archaeology Store
Physical ID	Archive	ECB 3209
Physical C	ontents	'Animal Bones', 'Ceramics', 'Environmental', 'Worked stone/ lithics'
Physical notes	Archive	held at AOC until transfer
Digital recipient	Archive	Cambridgeshire County Archaeological Store
Digital Arcl	hive ID	ECB 3209
Digital Cor	ntents	'Animal Bones', 'Ceramics', 'Environmental', 'Stratigraphic', 'Survey', 'Worked stone/ lithics'
Digital available	Media	'Database', 'Images raster / digital photography', 'Images vector', 'Spreadsheets', 'Text'
Digital notes	Archive	held at AOC until transfer
Paper recipient	Archive	Cambridgeshire County Council Archaeology Store
Paper Arch	nive ID	ECB 3209
Paper Con	tents	'Animal Bones', 'Ceramics', 'Environmental', 'Stratigraphic', 'Survey', 'Worked stone/ lithics'
Paper available	Media	'Context sheet','Drawing','Matrices','Photograph','Plan','Report','Section','Unpublished Text'
Paper notes	Archive	held at AOC until transfer
Project		

© AOC Archaeology 2009 | PAGE 40 | www.aocarchaeology.com

bibliography 1	
Publication type	Grey literature (unpublished document/manuscript)
Title	KNEESWORTH HOUSE HOSPITAL, BASSINGBOURN-CUM-KNEESWORTH, CAMBRIDGESHIRE A WRITTEN SCHEME OF INVESTIGATION FOR AN ARCHAEOLOGICAL EVALUATION
Author(s)/Editor(s)	Clarke, C.
Date	2009
lssuer or publisher	AOC Archaeology
Place of issue or publication	London
Description	A4 text, two illustrations, 25 pages, thermally bound between plastic covers
Project bibliography 2	
Project bibliography 2 Publication type	Grey literature (unpublished document/manuscript)
Project bibliography 2 Publication type Title	Grey literature (unpublished document/manuscript) KNEESWORTH HOUSE HOSPITAL, BASSINGBOURN-CUM-KNEESWORTH, CAMBRIDGESHIRE
Project bibliography 2 Publication type Title Author(s)/Editor(s)	Grey literature (unpublished document/manuscript) KNEESWORTH HOUSE HOSPITAL, BASSINGBOURN-CUM-KNEESWORTH, CAMBRIDGESHIRE Capon, L.
Project bibliography 2 Publication type Title Author(s)/Editor(s) Date	Grey literature (unpublished document/manuscript) KNEESWORTH HOUSE HOSPITAL, BASSINGBOURN-CUM-KNEESWORTH, CAMBRIDGESHIRE Capon, L. 2009
Project bibliography 2 Publication type Title Author(s)/Editor(s) Date Place of issue or publication	Grey literature (unpublished document/manuscript) KNEESWORTH HOUSE HOSPITAL, BASSINGBOURN-CUM-KNEESWORTH, CAMBRIDGESHIRE Capon, L. 2009 London
Project bibliography 2 Publication type Title Author(s)/Editor(s) Date Place of issue or publication Description	Grey literature (unpublished document/manuscript) KNEESWORTH HOUSE HOSPITAL, BASSINGBOURN-CUM-KNEESWORTH, CAMBRIDGESHIRE Capon, L. 2009 London
Project bibliography 2 Publication type Title Author(s)/Editor(s) Date Place of issue or publication Description	Grey literature (unpublished document/manuscript) KNEESWORTH HOUSE HOSPITAL, BASSINGBOURN-CUM-KNEESWORTH, CAMBRIDGESHIRE Capon, L. 2009 London A4, 40 pages, 9 illustrations, five plates
Project bibliography 2 Publication type Title Author(s)/Editor(s) Date Date Place of issue or publication Description	Grey literature (unpublished document/manuscript) KNEESWORTH HOUSE HOSPITAL, BASSINGBOURN-CUM-KNEESWORTH, CAMBRIDGESHIRE Capon, L. 2009 London A4, 40 pages, 9 illustrations, five plates Jes capon (Jescapon@aocarchaeology.com)

