

# **ARCHAEOLOGICAL EXCAVATIONS AT CBC CAMBRIDGE: SITE 2 THE BOULEVARD**

## **An interim Report**



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An Interim Report

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## Introduction

The initial phase of excavation at the CBC Boulevard site was undertaken between the 17<sup>th</sup> of November 2008 and the 30<sup>th</sup> of January 2009. At this time, a north-south aligned area measuring 302m in length and 30m in width (covering 8684m<sup>2</sup>) was investigated; towards its southern end, this area was bisected by a high pressure gas pipeline, resulting in the establishment of an unexcavated baulk some 12m in width. Subsequently, between the 22<sup>nd</sup> of June and the 2<sup>nd</sup> of July 2009, a second area – lying immediately to the north of the first – was also excavated. This measured 45m by 25m in extent (and covered 1210m<sup>2</sup>). The site code for both phases was ATT08.

Overall, a relatively high density of archaeological features was encountered during the course of both of these investigations, although the majority of activity appears to have been focused around the southern end of the site (Figure 2). During the first phase of the excavation, 233 features were investigated via the insertion of 362 ‘interventions’ (or individually dug slots). During the second phase, a further 35 features were identified and 49 additional interventions excavated, resulting in a combined total of 268 features and 411 interventions.

## Results

The following section presents an amalgamated summary of the results recovered during the two phases of excavation. In order to elucidate any potential changes between the patterns of activity which occurred during different periods, the principal features are discussed in broad chronological order. In addition, to further facilitate this approach, the site has also been sub-divided into three spatial ‘zones’, each of which is rendered distinct by the nature of its underlying topography. To the north, the first zone consists of a ridge of higher ground – lying at *c.* 13m OD – upon which features of primarily later prehistoric date were identified. Further to the south, the ground rises to about 15m OD from where the second zone consists of a gentle south-facing slope, which falls from around 15m to 14m OD, upon which only a small number of features were present. Finally, at the southern end of the site, the third zone comprises a shallow east-west aligned depression (perhaps representing the course of a relict palaeochannel). This area, which lies at *c.* 14m OD, formed the focus of the highest levels of activity at the site, and contained features spanning the later Prehistoric to Early Roman periods.

As is typical on sites of this type, the most commonly encountered feature-types comprised ditches, gullies, pits (including *Pit Clusters 1-4*), postholes and wells (see tables 1a-1e). In addition, the remains of up to five buildings (*Structures 1-5*) were also identified, as well as a relatively well preserved midden. Significantly, however, the degree of archaeological preservation varied widely between the three zones. In the first instance, the northern ridge area was heavily denuded by later agricultural activity, with the result that little or no sub-soil material survived. Indeed, a number of the shallower features situated in this zone had clearly been heavily plough-damaged. To the south, the deposits located upon the south-facing slope – although less heavily truncated – were also relatively poorly preserved, primarily as a result of natural processes of erosion and downward slope soil movement. But in the third zone, in contrast, colluvial deposits up to 0.42m thick had accumulated within the shallow



Figure 1. Location map



depression. As a result, the degree of preservation in this area was unusually high, with up to 0.28m of upstanding deposits (such as banks) surviving.

### **Pre-Bronze Age**

The earliest activity to have been identified at the site is represented by the presence of a small quantity of Mesolithic and earlier Neolithic worked flint, which occurred residually within a number of later features. No clear pattern could be discerned in the distribution of these artefacts, however, and the quantity of activity they represent appears to have been relatively low.

### **Bronze Age**

The earliest stratified features to have been identified are Middle Bronze Age in date; in the Phase 2 area these were situated towards the northern limit of Zone 1 with the pottery assemblage dominated by Deverel-Rimbury. Two small pits, **F.391** and **F.392**, both contained Deverel-Rimbury pottery and were 100 percent excavated. They were probably related to the small cluster of pits and postholes (**F.393-F.400**, **F.418** and **F.412**), although none of these features contained any dating evidence. It is possible this cluster of features represented an area of settlement activity related to the Deverel-Rimbury period.

Of the same date were two substantial, intercutting pits/wells; **F.412** and **F.417**. These features, measuring up to 3.5m meters in diameter and up to 1.60m deep, contained small quantities of Deverel-Rimbury pot as well as antler, burnt stone, worked flint and a substantial amount of animal bone. A substantial NW-SE orientated ditch, **F.401**, clipped **F.417**, but the relationship (affected by a modern field drain) was too ambiguous to draw firm conclusions at this stage, and this ditch remains undated.

Around the edges of the two large pit/wells were several smaller pits (**F.411**, **F.413-F.416** and **F.420-F.421**). These appeared to be an earlier phase of pitting as all were cut by the two larger features. None contained any dating evidence.

Ditches **F.220** and **F.408** crossed the site on a NE-SW orientation and three interventions were excavated in each. These two features had very similar profiles and fill types suggesting a similar date, although no dating evidence was recovered. Ditch **F.399** and parallel ditch segment **F.402** were on a NW-SE orientation towards the west end of site and two interventions were excavated in each. These two features also appeared to share the same fill types as ditches **F.220** and **F.408**, suggesting they all formed part of the same field system. Taking into account their profile, fill types, relationships with other features and alignments with other features within this landscape, these ditches are almost certainly prehistoric and, more specifically, are probably Bronze Age.

Several undated treethrows were identified and test excavated but none yielded any finds and the fills were quite sterile.

The only other features on this part of site were three modern land drains and two geotechnical test pits.

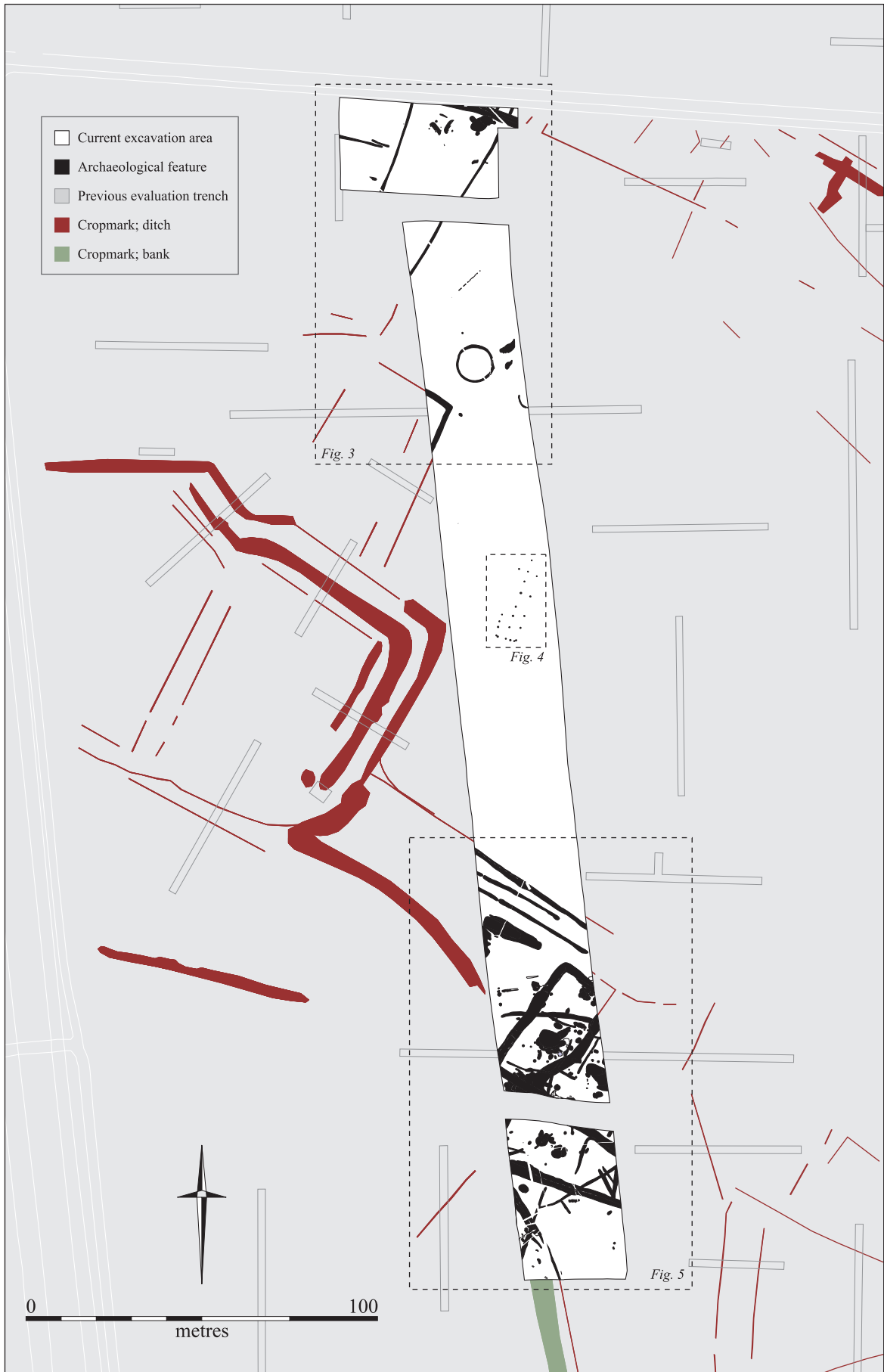


Figure 2. Excavated areas

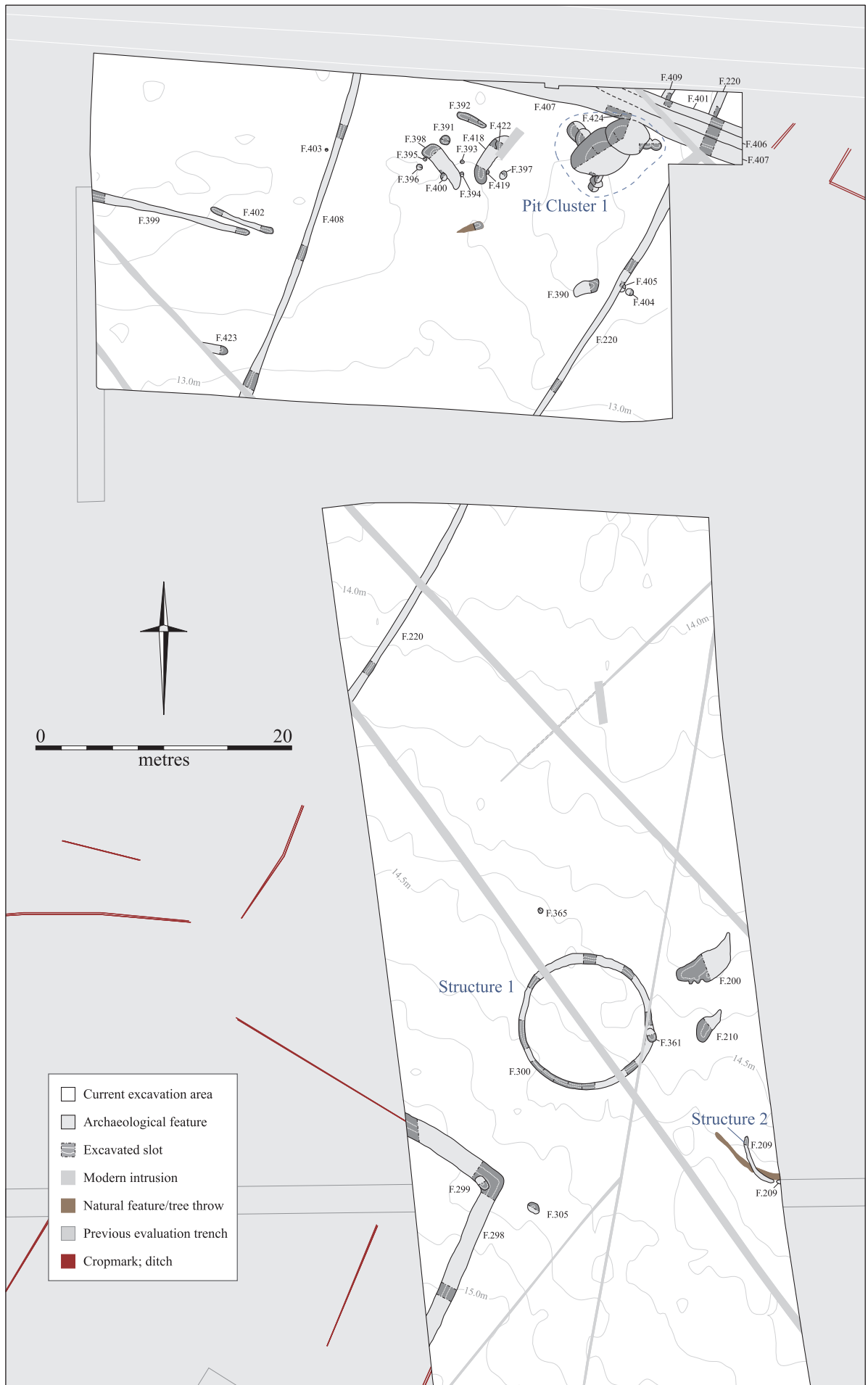


Figure 3. Zone 1 features

A short distance to the south of the Phase 2 area, two ring-ditches – **F.300** and **F.209** – were identified. Of this pair, the former example, which measured *c.* 10m in diameter, contained sherds of Late Bronze Age/Early Iron Age pottery, whilst the latter, which was heavily plough-damaged, is undated (although almost certainly contemporary). Given their size – and despite the absence of any associated postholes – both features appear most likely to have been structural as opposed to funerary in origin; they are thus referred to as *Structures 1* and *2* in Figure 3. Based upon the present evidence, however, it is not yet clear whether these buildings were directly associated with the area of activity previously discussed to the north. In addition to the structures, two nearby tree-throws – **F.200** and **F.210** – both of which were heavily burnt, are also likely to have originated during this phase.

<i>Pits</i>				<i>Ditches</i>			<i>Structures</i>			
Feature	Width	Depth	Cluster	Feature	Width	Depth	Feature	Width	Depth	Structure
391	0.78	0.23	1	181	0.47	0.12	209	0.22	0.12	2
392	0.51	0.13	1	195	0.66	0.21	300	0.46	0.39	1
398	0.90	0.20	1	195	1.30	0.55	300	0.76	0.51	1
410	15.00	1.50	1	220	0.65	0.25				
411	0.49	0.16	1	220	0.50	0.27				
412	0.77	0.27	1							
413	0.90	0.14	1							
415	0.79	0.24	1							
416	0.75	0.23	1							
417	0.45	0.28	1							
418	0.75	0.23	1							
420	0.90	0.25	1							
421	0.83	0.35	1							
185	1.30	0.09	3							
249	0.92	0.23	3							
252	0.89	1.08	3							
254	1.90	0.71	3							
258	1.19	0.08	3							
262	1.25	0.45	3							
527	0.87	0.59	3							

**Table 1a:** Bronze Age features

Elsewhere on the site, activity of this date also occurred in Zone 3 (Figure 5). Here, during the Late Bronze Age/Early Iron Age, east-west aligned ditch **F.195** was established. This feature appears to have demarcated the northern edge of the depression within which many of the later features in this zone were to be located. Indeed, only a short distance to the south, a discrete group of inter-cutting features was identified (*Pit Cluster 3*). The earliest features in this group consisted of a series of tree-throws (**F.249**, **F.250** and **F.258**), one of which – **F.249** – contained a later Neolithic/Early Bronze Age flint core. These features were then truncated by a sequence of ten pits – **F.199**, **F.248**, **F.251-F.257** and **F.260** – one of the latest of which (**F.256**) contained Late Iron Age pottery. A probable watering-hole was then established, **F.247**, which was finally replaced by a more formal well containing a revetted central shaft (**F.198**). Although the latter feature contained several sherds of Late Bronze Age/Early Iron Age pottery, it is most probably Late Iron Age in date on morphological similarity to wells of this period. The nature of this sequence is indicative of a pattern of gradually increasing activity, beginning with the initial clearance of the site (perhaps during the later Neolithic/Early Bronze Age) and

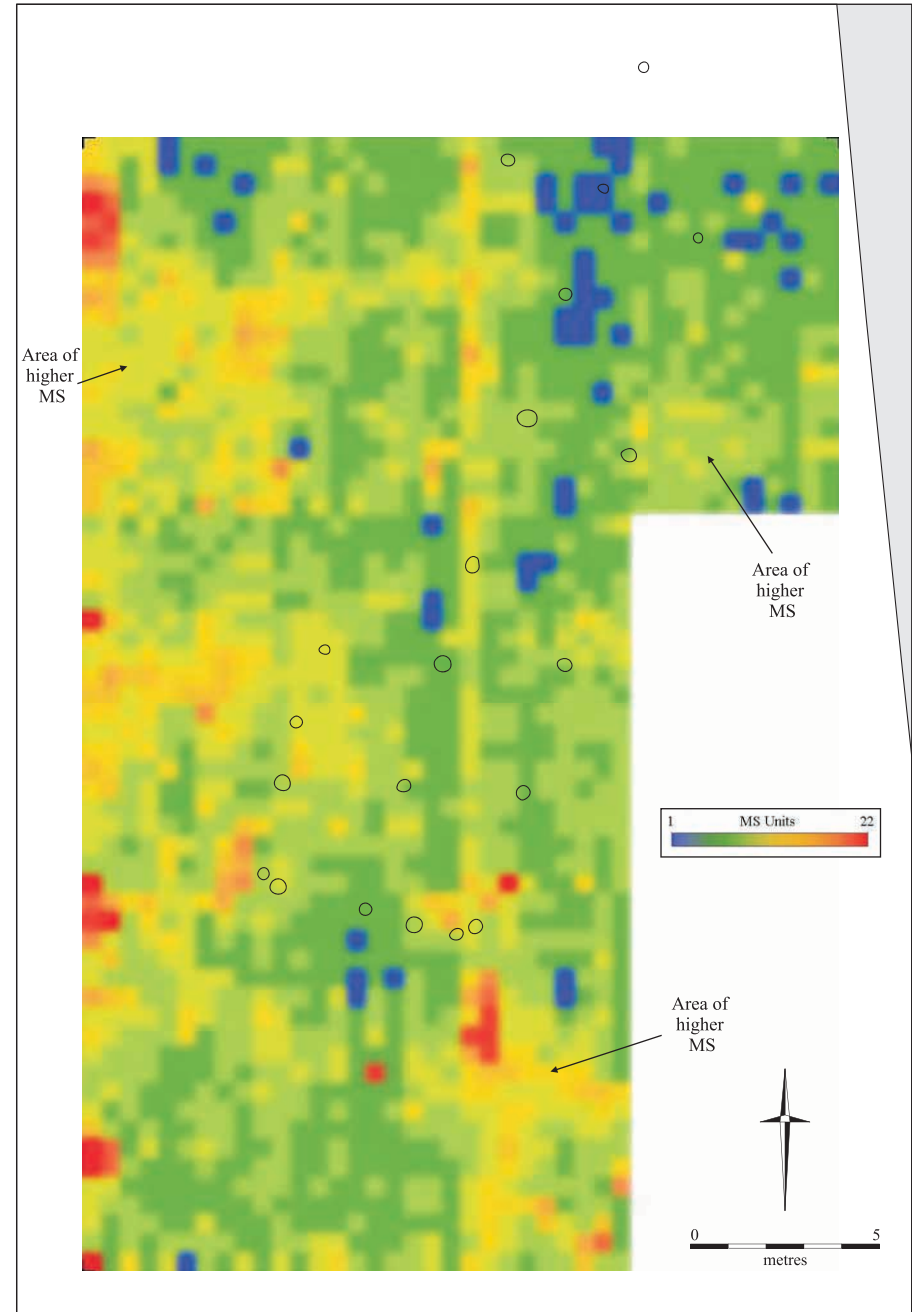
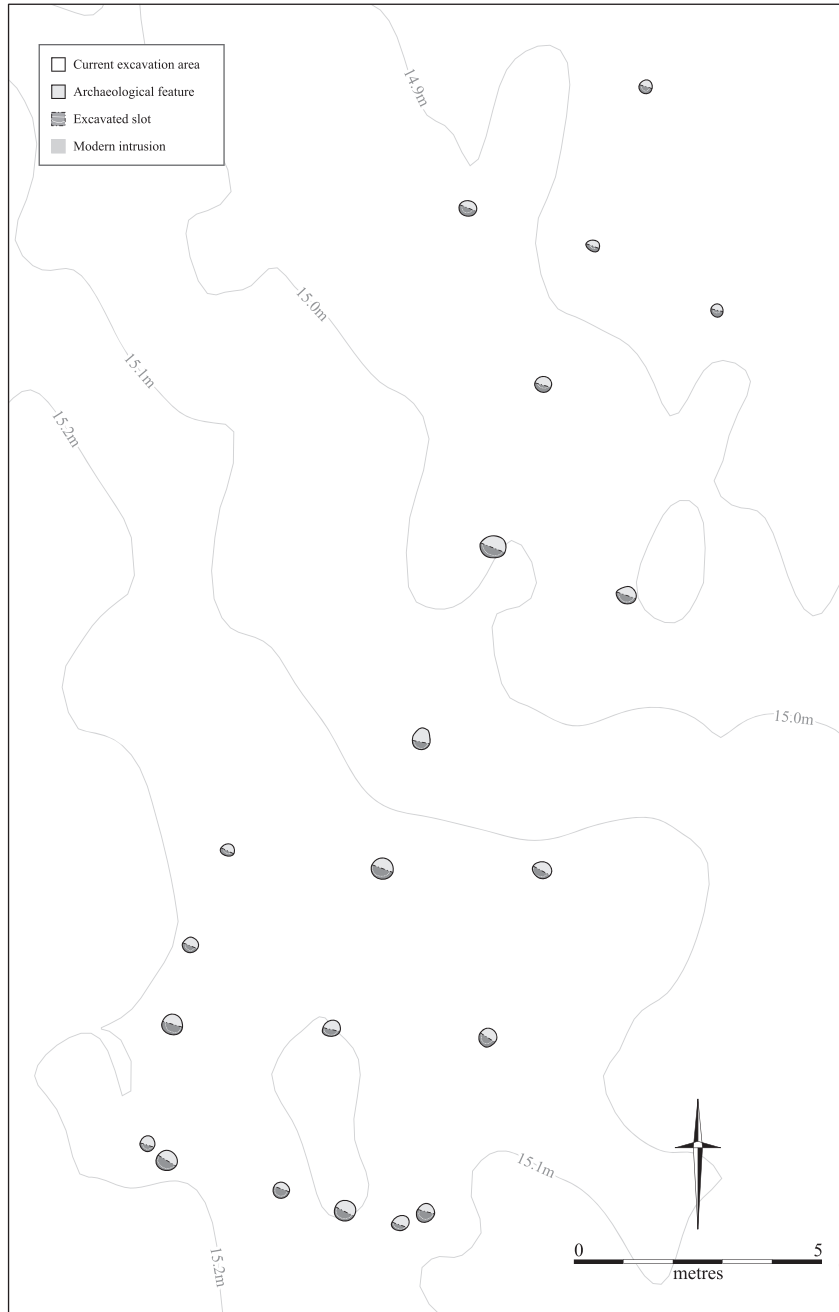


Figure 4. Posthole building Structure 3 (F.296) in Zone 2, with magnetic susceptibility survey results



culminating with the establishment of a carefully constructed well. This complements very closely the wider pattern revealed by the nature of many of the surrounding features.

## Iron Age

During the Middle to Late Iron Age a ditched enclosure was created immediately to the west of *Pit Cluster 3*. This is represented archaeologically by ditch **F.297**. Although aligned broadly northeast-southwest, the ditch is markedly sinuous in form and the extent of the enclosure of which it formed a part has not yet been fully established. Notably, however, F.297 truncated Middle to Late Iron Age pit/well **F.366**, which then appears to have been replaced by pond well **F.357** (itself later re-cut as **F.360**). The presence of features such as these in the near vicinity at this time indicates that the enclosure is likely to have formed part of a contemporary settlement. Subsequently, during the Late Iron Age, the scale of that settlement appears to have expanded markedly. The earlier, sinuous boundary ditch was replaced by a substantial northwest-southeast oriented rectilinear enclosure – comprised of ditches **F.227**, **F.275**, **F.334**, **F.335** and **F.367** – which measured 33m across and exposed for at least 30m (Figure 5). At its northwest end a formal entrance was established, demarcated by substantial post settings **F.232-F.235**. At least two wells – F.198 and **F.350** – also appear to have been established during this period. Although no contemporary structures have yet been identified, the material culture of this date recovered during the excavation – which included sherds derived from four large pedestal based jars – is indicative of relatively high-status occupation.

<i>Pits</i>				<i>Ditches</i>		
Feature	Width	Depth	Cluster	Feature	Width	Depth
198	2.49	0.40	3	297	3.00	1.05
198	2.58	0.41	3	226/227	1.45	0.83
198	2.02	1.32	3	275	2.74	1.11
247	2.67	0.85	3	279	0.45	0.12
350	2.90	1.70	4	317	0.50	0.06
342	0.80	0.24		333-335	2.85	1.07
357	1.30	0.85		338	1.94	0.90
365	1.29	0.53		338	1.94	0.90
377	0.80	0.37				

**Table 1b:** Iron Age features

## Late Iron Age/Early Roman (Conquest)

It was during the Conquest period, however, (c. 43-60 AD) that the level of activity being undertaken in Zone 3 was to reach its apogee. At this time, the former entrance to the Late Iron Age enclosure was blocked off, whilst the associated boundary ditches were re-cut on several occasions (**F.226**, **F.229-31**, **F.293**, **F.319**, **F.331**, **F.332** and **F.338**). The extent of the enclosed area was also expanded via the addition of a further west-northwest by east-southeast aligned ditch to the south (**F.169**, which was later re-cut by **F.177**, **F.178** and **F.180**). Perhaps most significantly, however, at least one – and probably two – structures were established at the site during this period. The most clearly defined of this pair, *Structure 4*, was represented by beamslots **F.323**, **F.325**, **F.326**, **F.328** and **F.380** and posthole **F.324**. It was aligned

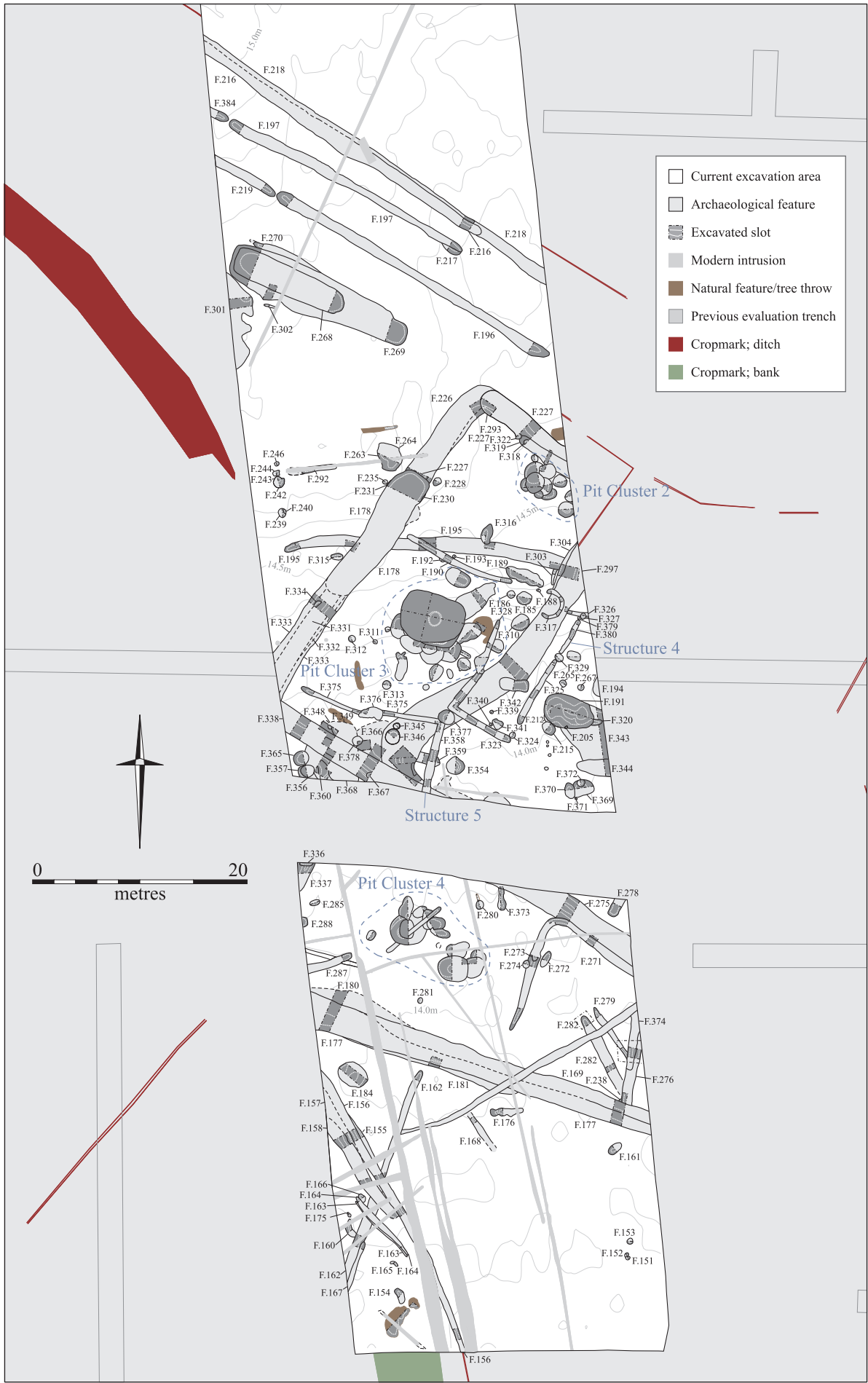


Figure 5. Zone 3 features

northeast-southwest, and measured 5m wide by 12m+ long (Figure 5). Lying almost immediately to the south of this building, and oriented at roughly ninety degrees to its central axis, was a second probable structure (*Structure 5*) which was comprised of beamslots **F.358** and **F.375**. Interestingly, although F.358 contained exclusively Late Iron Age pottery within its backfill, it stratigraphically overlay Early Roman ditch F.338. It is therefore likely that this building – which measured up to 13m long (and a minimum of 6m wide) – was broadly contemporary with *Structure 4*, whose beamslots also contained Early Roman material. (In addition, the location of *Structure 5* implies that boundary ditch F.338 went out of use when the enclosed area was enlarged by the introduction of F.178).

<i>Pits</i>				<i>Ditches</i>			<i>Structures</i>			
Feature	Width	Depth	Cluster	Feature	Width	Depth	Feature	Width	Depth	Structure
202	0.67	0.80	2	177	1.13	0.48	190	0.76	0.21	4
203	1.70	0.25	2	268	2.30	0.22	323	372.00	0.29	4
204	0.85	0.30	2	269	3.80	0.58	325	0.55	0.15	4
221	0.60	0.29	2	269	2.37	0.17	358	0.95	0.30	5
222	-	0.65	2	271	0.80	0.15	375	0.40	0.05	5
223	1.02	0.32	2	276	0.40	0.20	380	0.38	0.12	4
307	0.60	0.20	2	298	1.50	0.40	<i>Midden F.194</i>			
308	0.35	1.30	2	298	1.50	0.65	194	4.60	-	
277	2.51	1.52	4	298	1.00	1.10	191	0.30	0.14	
280	0.70	0.15	4	353	0.39	0.14	215	0.81	0.13	
284	0.80	0.18	4	374	0.80	0.30	343	-	-	
286	0.60	0.60	4				369	2.05	0.05	
290	0.82	0.54	4				370	-	0.15	
291	0.65	0.23	4				371	-	-	
306	1.10	0.15	4							
351	0.80	0.30	4							
362	0.90	0.14	4							
363	1.14	0.11	4							
364	0.55	0.10	4							
373	0.90	0.10	4							

**Table 1c:** Conquest period features and midden *F.194*

Also situated in this area, and lying in close proximity to *Structure 4*, was midden **F.194** (Figure 8). This feature, which appears to have been closely contemporary with the two buildings, overlay a group of ten undated pits (**F.206**, **F.207**, **F.212-F.214**, **F.236-F.238**, **F.320** and **F.321**). In addition to a large quantity of Early Roman pottery, the midden contained three copper alloy artefacts: a virtually complete serving platter or dish, typologically similar to *Terra Nigra* platters of the Augustan to Flavian period (*c.* 27 BC – 90 AD); a brooch of Nauheim-derivative type; and a small penannular brooch and pin. Notably, these items are very similar to grave goods that have been found associated with burials of the Aylesford-Swarling tradition, thereby raising the possibility that a burial (or burials) had been disturbed in close proximity to F.194, but outside the area of excavation. Overall, a relatively large quantity of material (including 1149 sherds of pottery, weighing 10.2kg) was recovered from a wide range of Late Iron Age/Early Roman features. This included at least two groups of inter-cutting pits. The first of these – *Pit Cluster 2*, which is situated towards the northern edge of the settlement – consisted of ten rubbish pits (**F.201-F.204**, **F.208**, **F.221-F.224** and **F.295**). The sequence of the second group, meanwhile – *Pit Cluster 4*, which is located to the south of the unexcavated baulk – commenced with the



Figure 6. Zone 1 phasing

creation of a large Late Iron Age well with a central revetted shaft (F.350; Figure 10). Once out of use and backfilled, this feature was truncated by a sequence of seven Late Iron Age/Early Roman pits (F.284, F.351-F.353 and F.362-F.364). A further well containing Early Roman pottery, F.277, was also situated nearby. Finally, a number of gullies of this date, including F.190, F.271 and F.276, were utilised to sub-divide the large enclosure into smaller areas.

Whilst the level of activity being undertaken in Zone 3 during the Late Iron Age/Early Roman period was clearly intense, it was also short-lived. No material post-dating the 1<sup>st</sup> century AD was recovered, and it appears probable that this portion of the settlement, at least, had been abandoned by c. 70 AD. A very similar pattern was also replicated elsewhere at the site. Immediately to the north of the settlement, for example, elements of a probable Early Roman in-field system were encountered (in the form of ditches F.268 and F.269). These features closely followed the alignment of an adjacent series of undated segmented gullies, which are most probably later Prehistoric in date (Figure 5); no evidence of later Roman activity was encountered, however. Similarly, in Zone 1, the corner of a northeast-southwest oriented enclosure – F.298 – was investigated, and was again revealed to be Early Roman in origin. Finally, perhaps the most enigmatic feature of comparable date was encountered on the south-facing slope of Zone 2. Here, a series of 21 postholes (F.296) comprised elements of a north-northeast by south-southwest oriented aisled building (*Structure 3*), which measured 24m long by 6m wide. A single posthole in this structure – [553] – was found to contain two small sherds of Early Roman pottery. This indicates that the building – which, given its apparent isolation in the landscape, was most probably agricultural in function – may have been Early Roman in origin, although it is also possible that it is Medieval in date. In an attempt to enhance the visible data a Magnetic Susceptibility survey was carried out across this structure (see appendices) however the results were inconclusive (Figure 4).

<i>Pits</i>				<i>Ditches</i>		
Feature	Width	Depth	Cluster	Feature	Width	Depth
352	2.30	0.12	4	268	2.30	0.22
				180	1.20	10.00
				168	0.50	0.06

**Table 1d:** Mid 1<sup>st</sup> to Late 1<sup>st</sup> century AD period features

### Archaeological potential

The results of this fieldwork programme have revealed an area at the southern end of the open area to be a zone with dense multi-period features. In considering the stripped area as a large, albeit ‘unusual’, evaluation trench, these results when combined with the fieldwork elsewhere in the immediate Addenbrooke’s environs demonstrate a spatial and chronological distribution of settlement and agricultural activity spanning the Middle Bronze Age to Romano-British periods. It is thus within the framework of this extensively investigated landscape (see Evans *et al.* 2008 for a general overview of the Addenbrooke’s environs) that the archaeological potential of the 2020 lands can be (re)assessed, particularly the nature of the Bronze Age to Iron Age transition and the utilisation and reorganisation of the landscape between the late





Figure 7. Zone 3 phasing

1<sup>st</sup> century AD and the 2<sup>nd</sup> century AD. The subsequent phases of fieldwork should thus seek to determine the following:

- the relationship of Middle Bronze Age – Early Iron Age settlement activity to the nearby triple-ditched enclosure.
- the pattern of settlement dispersal across contemporary landscapes; are these sites co-existing (e.g. Hutchison, 2020), continual, re-establishment or new settlements?
- the full extent of Late Iron Age and Early Roman settlement, and reason for abandonment, or relocation.
- the distinction between the Early Roman and later Roman pattern of land-use; does the latter represent the establishment of a ‘villa’-type economy and establishment of new drove and trackways?
- the significance/impact of the *Via Devana* and minor roads on the orientation of the Roman and later landscape.
- the nature of post-Roman land-use (Saxon and Medieval).

## **Conclusion**

This first main phase of fieldwork as part of the CBC/2020 Addenbrooke’s scheme has provided important data which has both enhanced the conclusions drawn from the evaluation work, but also served to refine some of those earlier conclusions. Better understanding of the distribution of activity in different periods is emerging, but perhaps most importantly the exceptional nature of survival in the area of the Late Iron Age/Conquest period settlement at the south end of the Boulevard is recognised, with evidence of middening and structures, both rare for the period. These findings should also inform the next stage of work in that whilst standard machining techniques are adequate, and entirely appropriate for most of the site area, great care must be taken in this colluvially protected zone (Figure 9). Machining here may need to proceed in stages or even pass to hand clearance should the level of preservation warrant it. It is also essential that an acceptable methodology is found to allow excavation closer to the gas main which runs down the length of the likely extent of the settlement.

Taken in conjunction with the evaluation results and subsequent fieldwork in the vicinity (noticeably for the Guided Bus Scheme and the LBC/MRC site some broader conclusions for the landscape can be drawn (Figure 11):

- The area is part of an extensive Bronze Age landscape, with the triple-ditched enclosure to the west and increasing evidence of less focussed activity to the north and east.
- The early Roman (Conquest Period) site could be quite extensive in the narrow zone to the east of the Boulevard, perhaps with a central droveway as suggested by aerial photograph evidence.
- The intervening 2<sup>nd</sup>-3<sup>rd</sup> century settlement revealed by the Guided Bus evaluation suggests a major landscape reorganisation, perhaps related to the establishment of villas to the north and south.



Figure 8. West facing view of midden F.194 (foreground), Structure 4 and F.198 (rear) pre-excavation





Figure 9. Northwest facing view showing slope pre-excitation





Figure 10. Late Iron Age 'well', F.350





Figure 11. Predicted areas of settlement related activity

## Appendix Specialist Reports

### *The Flint* - Lawrence Billington

A total of 64 worked flints and 13 un-worked burnt flints (106.8) were recovered from the excavations (table 2). No discreet assemblages were found; the flints were recovered in low numbers from a large number of interventions. All of the flint-work appears to represent residual material caught up in the fills of later features. Indeed, there is very little in the assemblage that suggests a date later than the third millennium BC.

feature number	Chip	chunk	flake	narrow flake	blade	bladelet	irregular core	opposed platform core	flaked piece	end scraper	side scraper	scraper on thermal flake	total worked	unworked burnt flints	unworked burnt flint weight (g)
154													7		54.3
160	2												2	1	2.2
166														1	14.5
185			1										1		
189					1								1		
194														1	7.6
195			2	1									3		
196		1	3	1									5		
197			1	2									3	1	1.2
198												1	1		
201			1										1		
202			1										1	1	9.9
203	1												1		
216	1												1		
219	2												2		
220														1	17.1
226			1										1		
231			1										1		
249								1					1		
254			1										1		
256			1		1								2		
257			1										1		
260			1		1		1				1		4		
268	1												1		
271				1									1		
293					1								1		
298			6		1				1				8		
300			3	2	1	1				1			8		
305			2										2		
325					1								1		
338			1										1		
347			1										1		
357				1									1		
360			1		1				1				3		
410			2		1								3		
<b>totals</b>	<b>7</b>	<b>1</b>	<b>31</b>	<b>8</b>	<b>9</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>64</b>	<b>13</b>	<b>106.8</b>

**Table 2:** Raw Material and Condition

The worked flints are invariably made on very high quality, fine grained flint. A medium to heavy patination (cortication) has masked the colour of 94% of the flints, but a few modern breaks all show a dark vitreous interior colour. Cortex varies from a few pieces with abraded and stained cortex suggestive of a gravel terrace source to a more common fresh white cortex, varying in thickness from under a millimetre to almost 10mm. Some large flakes retain nodular protuberances. The characteristics of the majority of the material suggest a primary chalk source, or possibly an origin in till deposits that have protected the nodules. Considering the sites location so close to the chalk the former seems to be most likely. In light of the potential abundance of high quality chalk flint in the wider landscape it is interesting that small amounts of gravel flint are present in the assemblage, perhaps hinting at patterns of mobility and raw material scheduling linked to larger river valleys with gravel terrace deposits. Interestingly, the flint assemblage recovered from the Hutchinson site, Addenbrooke's, consisted almost exclusively of gravel derived flint (McLaren and Edmonds 2008). Flint from the chalk deposits could have been obtained from surface grubbing or natural exposures of the bedrock and evidence of flint extraction from the chalk of probable Mesolithic/earlier Neolithic date has been recorded at several locations in South Cambridgeshire (see Evans 2008: 187).

#### *Mesolithic and earlier Neolithic*

Mesolithic/earlier Neolithic technologies, as represented by evidence of structured blade and narrow flake production are well represented in the assemblage. True blades and bladelets make up 20% of the un-retouched flakes from the assemblage, suggesting a high proportion of the total assemblage derives from Mesolithic and earlier Neolithic technologies (see Ford 1987: 73). This view is reinforced by the large number of narrow, blade like, flakes, and the frequency of platform trimming and soft hammer percussion in the assemblage. Bladelets (blades with a width equal to or less than 10mm) are rare; represented by a single example from F. 300, perhaps suggesting a Neolithic date is most appropriate for much of the blade based debitage. This said the single blade core, an opposed platform core from F. 249 is a type more common in Mesolithic assemblages. No retouched pieces could be confidentially dated to this period. The scrapers, although not strongly diagnostic are thought to better reflect later Neolithic or Early Bronze Age technologies. Many of the un-retouched blades and flakes could have been used in an unmodified state; macroscopic use wear is visible on several pieces, including a fine blade from F. 298 and flakes from F. 260 and F. 295.

#### *Later Neolithic and Bronze Age*

A smaller proportion of the assemblage shows technological traits quite distinct from the earlier material. Squat flakes struck from large striking platforms by hard hammer percussion were recovered from several features including F. 195, F.196 and F. 298. These pieces are probably the products of later Neolithic or Early Bronze Age core reduction, although some may represent the less refined component of earlier flint working. An irregular core from F. 249 and two flaked pieces from F. 298 and F. 360 probably reflect expedient flake production in this period. The three retouched pieces from the assemblage, all scrapers, are best associated with later flake based technologies. A short end scraper with a large faceted platform from F. 300 may be a product of later Neolithic prepared core technologies (Saville 1981: 6-7), whilst a boldly retouched side scraper from F. 260 is probably later Neolithic or Early Bronze Age. A thermal (natural) flake retouched as a scraper was recovered from F. 198.

The small assemblage from the excavations is dominated by evidence for Mesolithic/Earlier Neolithic flint work, occurring at relatively low densities in the fills of later features. Lithics of this date are a common feature of the wider Addenbrooke's landscape. Discreet earlier Neolithic flint assemblages have been recovered from pits at the Hutchinson site and from tree throws excavated in advance of development on Robinson Way. Later features at both sites produced residual Mesolithic and earlier Neolithic flint assemblages (McLaren and Edmonds 2008, Collins 2009). Later flint-work is represented by unspecialised flake-based technology, probably of later Neolithic/Early Bronze Age date. There is nothing in the assemblage that strongly suggests later prehistoric flint-working, although some of the

cruder flake based material could be Middle Bronze Age or later. The excavation of the large Middle Bronze Age enclosure on Robinson Way produced very few potentially contemporary lithics (Collins 2009). This might suggest a marked decline in the use of flint from the Middle Bronze age onwards in this area were it not for the identification of technologically later prehistoric flintwork in association with later Bronze Age pottery at the Hutchison site (McLaren and Edmonds 2008; 33). In line with the well documented decline in the importance of flint resources at a national scale during this period (e.g. Ford *et al.* 1984), it may be that working flint in the later Bronze Age Addenbrooke's landscape became more restricted, being undertaken at certain places and perhaps on a less routine basis than in earlier prehistory.

### ***Prehistoric Pottery*** - Mark Knight

The site produced a small assemblage of 20 earlier prehistoric pottery sherds weighing 465g. The majority of the pieces were large (MSW 23.2g) and in good condition. Feature sherds included three different rim fragments and four refitting pieces that made up a small diameter (7.5cm) base of a diminutive flat bottomed vessel (F.392). Decoration was restricted to a single rim sherd (F.391) which had finger-tip impressions along its top and a row of (pre-firing) perforations just below the rim. Two main fabric types were identified and these included medium hard with finely crushed shell (Fabric 1) and hard with common burnt flint (Fabric 2). A combination of form and fabric suggested that the assemblage was made up almost exclusively of Middle Bronze Age wares of Deverel-Rimbury type.

<b>Feature</b>	<b>Intervention</b>	<b>Number</b>	<b>Weight</b>	<b>MSWc</b>	<b>Fabric</b>
298	562.1	4	226	56.5g	1
391	723.1	4	67	16.7g	2
392	732.2	4	127	31.7g	1
417	768.4	1	2	2.0g	1
410	769.1	1	6	6.0g	1
410	769.2	1	33	33.0g	1
410	769.5	5	4	0.8g	1
<i>Totals: 5</i>	<i>7</i>	<i>20</i>	<i>465</i>	<i>23.2g</i>	

**Table 3:** Assemblage Breakdown

The assemblage comprised fragments from at least four different Deverel-Rimbury Urns including a large diameter (c. 28cm) bucket shaped vessel with a flattened and heavy T-shaped rim from F.298. A simple flattened rim sherd of a similar fabric came from F.410 whilst the aforementioned decorated rim from F.391 also had a simple flattened profile. Its pre-firing perforations included one example that did not penetrate all the way through the sherd and can therefore be interpreted as another kind of decoration. Small plain crumbs of Fabric 1 were present in F.410 and F.417. A single hard, burnt flint-rich body sherd from F.410 represented the only ambiguous prehistoric fragment.

### ***Pottery*** - Katie Anderson

The assemblage yielded a total of 1304 sherds of later Prehistoric and Roman pottery, weighing 13555g and representing 18.66 EVEs. All of the material was analysed and

details of fabric, form, use-wear, decoration and date were recorded, along with any other information deemed significant. This report comprises a brief outline of the nature and composition of the pottery assemblage.

The pottery dated from the Late Bronze Age/Early Iron Age to the early Roman period; albeit in varying quantities (see table 4). A small number of sherds dating to the Late Bronze Age/Early Iron Age were identified, including nine flint-tempered sherds from Feature 198. Vessels dating to the Middle Iron Age were also poorly represented, totalling ten sherds.

Date	No.	Wt(g)
Late Bronze Age/Early Iron Age	13	61
Middle Iron Age	1	39
Middle Iron Age/Late Iron Age	9	97
Late Iron Age	126	3068
Late Iron Age/Early Roman	589	6624
Early Roman	483	3019
Mid-Late 1st AD	77	597
Undated	6	48
<b>TOTAL</b>	<b>1304</b>	<b>13553</b>

**Table 4:** All pottery by period

The bulk of the pottery dated to the Late Iron Age/early Roman and the early Roman period, broadly dating 1-70 AD. The Late Iron Age/early Roman pottery comprised material which was primarily wheel-finished or wheel-thrown, although a small number of sherds from this period were handmade. A range of vessel fabrics were identified, with reduced sandy wares and coarse sandy grey wares dominating the assemblage.

Early Roman pottery comprised fully ‘Romanised’ sherds, which are Roman in both fabric and form. This is the only period which has evidence of non-local wares, the most significant being nine South Gaulish Samian sherds (58g) and one possible Central Gaulish colour-coated sherd, dating mid-late 1<sup>st</sup> century AD. There was also a Verulamium whiteware sherd, dating mid-late 1<sup>st</sup> century AD. Locally made sandy sherds were however, the most dominant fabric. Within this group, two vessels were identified as being possible kiln products from the Addenbrooke’s kilns (Webley in Evans *et al.* 2008). Given the close proximity of this site to the kilns, a larger quantity of kiln products would be expected. It is therefore possible that this site was occupied prior to when the Hutchison site began to produce pottery.

Fabric	No.	Wt(g)
?Central Gaulish CC	1	2
Buff sandy ware	68	533
Chalk tempered sandy	36	348
Coarse sandy greyware	631	5194
Fine sandy greyware	25	134
Flint temp	13	61
Grog and shell	9	301
Grog tempered	41	1336
Imitation BB	1	10
Iron ore	1	13
Oxidised sandy ware	134	2150
Reduced sandy ware	192	2389
Sandy	25	190
South Gaulish Samian	9	58
Shell tempered	14	261
Soft sandy greyware	55	255
Veg tempered	2	5



Verulamium WW	1	39
White slipped	1	3
Whiteware	45	271
<b>TOTAL</b>	<b>1304</b>	<b>13553</b>

**Table 5:** All pottery by fabric

The range of vessel forms was very limited, which is somewhat surprising given the quantity of material recovered and the relatively high EVEs total. Jars were the most commonly occurring vessel form, with a maximum of 105 vessels identified. All other vessel forms were poorly represented, comprising nine beakers/jars, five flagons, three bowls, one dish, one lid and one platter. There was a range of jar types, which ranged in size from small cooking type pots, to large storage jars. There were also four large pedestal bases from Late Iron Age jars (Features 187, 194, 227 and 342), which are not a common component of Late Iron Age assemblages from Cambridgeshire.

The pottery assemblage has evidence of activity from the Late Bronze Age/Early Iron Age to the early Roman period, although this is unlikely to have been continuous given the small quantity of Middle Iron Age pottery. Instead, it appears that the site peaked between 1-70 AD, with a peak in occupation between AD 30-60 cautiously suggested. The range of vessel forms and fabrics, albeit somewhat limited, does reflect a slightly ‘higher status’ site than others in the vicinity, including sites on Clay Farm (Anderson in Timberlake 2007), in particular the Samian and the Late Iron Age pedestal jars.

The lack of any definite Flavian vessels, suggests that the site had begun to decline by the mid/late 1<sup>st</sup> century AD, with no evidence of activity from the 2<sup>nd</sup> century AD onwards. Overall, the pottery evidence implies that the peak of the site was fairly short-lived, although within this period there was a high level of activity.

### ***Fired Clay*** - Grahame Appleby

A total of 132 fragments of fired clay, totalling 1611g, were recovered from 10 features (table 6), with seven retrieved from the top-soil or were unstratified. The vast majority of the fragments consist of partially fired or baked clay and are of varying degrees of hardness (biscuit to ceramic). Mainly brown, buff or pale orange, and pale to dark grey in colour, the fragments have been tempered with straw and flint. Several fragments, such as three fragments from F.794 ([405.1]), possess flat, presumably outer surfaces. The largest fragment from F.194 ([404.1]; 78.42mm x 65.62mm, weight 90g) also has a flat surface with a possible child’s palm print very slightly impressed upon it, although this interpretation is based on the presence of two very small finger impressions and a slight concavity in the surface. All the fragments, with the exception of the following piece, are most likely to be daub.

The largest single fragment from F.397 (126mm x 66.3mm, weight 296g) possesses a right-angled, rounded corner and is possibly part of a hearth or oven lining; the fabric is distinctly different to the rest of the assemblage

Feature	169	194	202	231	269	323	329	369	370	397	Top-spoil/ unstrat.	Total
No.	1	96	1	5	2	2	3	2	12	3	5	132
Wt. (g)	35	1105	3	28	2	2	6	14	82	300	34	1611

**Table 6:** Fired clay quantification by feature

## ***Metalwork*** - Grahame Appleby and Andrew Hall

A total of 54 metal objects were recovered from eight features and during metal detecting of the site. The assemblage consists of 45 iron objects and fragments, one lead item and eight copper alloy objects, including a near complete bowl and two brooches.

### *Copper alloy*

<827> Midden F.194. SF 32. 6022.6E/4747.2N. Simple one piece copper alloy brooch of Nauheim derivative type, with solid integral catch-plate. The tapering bow is intact; however, half of the spring is missing. The pin is intact, but detached. The brooch dates from c. 10 BC to the mid 1<sup>st</sup> century AD.

<828> Midden F.194. SF 33. 6023.9E/4745.2N. Small penannular brooch and pin, very degraded with a pale green, powdery patina. Diameter 34.2mm, weight 1g. The brooch may have been burnt and is somewhat fragile and potentially dates from the Late Iron Age to early Medieval period, although a Late Iron Age/Romano-British period is more likely (similar brooches are among the most common finds from similar period sites).

<830> Midden F.194. SF 20. 6020.75E/4745.9N. Virtually complete copper alloy bowl with raised central convex omphalos with stepped edge and concaved/bevelled rim, flat plain outer rim with raised vertical lip and concentric circled foot-ring. Typologically similar to *Terra Nigra* platters of the Augustan to Flavian period. Omphalos diameter 65.6mm, foot-ring diameter 74.24mm-76.77mm, outer rim diameter 194mm. Weight 267g. Four fragments and smaller bowl wall pieces were also recovered – SF 32, SF 34 and SF 35 – the latter pieces found a short distance away. The bowl has been conserved (see report below); damage from earlier disturbance has resulted in deep scratches to the underside of the outer rim. The non-conserved fragments also require similar stabilisation to the vessel.

<837> SF 24. 6013.75E/4714.4N. Irregular shaped lump of copper alloy with a dark reddish brown surface (requires cleaning) and pale green patina where observable; length 21.4mm, weight 3g.

### *Lead*

<831> SF 37. Small rectangular shaped lead object, I-shaped in cross-section, 11.5mm long and 3.86mm wide; transverse grooves are present on both planar surfaces, suggesting the piece was clamped into place; weight 1g. Of unknown function.

### *Iron*

Of the 45 iron objects, 40 of these were either nails, nail fragments or unidentifiable lumps in varying states of degradation and concretions, with a total weight of 84g. The remaining five objects are described below.

<834> SF 21. 6026.8E/4717.4N. Small, badly corroded and broken triangular tanged knife 77.33mm long, weighing 22g. This form of knife dates from the Late Iron Age into the post-Medieval period; undated.

<844> SF 38. F.178 (5998.75E/4720.75N). Very corroded, delaminating and fragmented D-shaped buckle measuring 32.95mm x 33.5mm; weight 14g. Post-Medieval.

<845> SF 27. 6021.9E/4729.8N. Corroded and concreted narrow, rectangular cross-sectioned curving bar (four pieces) c. 251mm long, 17.8mm wide, weighing 133g. Possibly a bucket handle or similar. Better preserved than most of the iron recovered during excavation, this piece is most likely post-Medieval in date.

<846> SF 39. F.224 (6020.5E/4769.25N). Broken (two refitting fragments) of a short, flat triangular tanged object missing its tip 72mm long, weighing 26g. Corroded and concreted this is possibly a blade fragment that has reached the end of its functional use as a knife or similar. It is unlikely to be a spearhead. Romano-British.

<848> F.187 [395.5] (6012.8E/4759.2N). Complete small spade or hoe-like shoe, heavily concreted and corroded 65.56mm wide *c.* 55mm long with internal groove for inseting the implement; weight 55g. Implements such as these were used in agricultural and horticultural activities, although this example is at the extreme small size end of the range. Conquest period.

This is a small assemblage. What it lacks in size, it more than makes up in composition. The two brooches and the bowl, strictly speaking a serving platter or dish, from F.194 are very similar to grave goods that have been found associated with burials of the Aylesford-Swarling tradition. There thus exists the distinct possibility that the area from which these items were recovered included a disturbed burial; the bowl displaying similarities to Terra Nigra platters of the Augustan to Flavian periods (*c.* 27 BC – 90 AD). This inference is lent credence by the discovery of a small cremation cemetery of the Late Pre-Roman Iron Age/Conquest period at Clay Farm (Evans *et al.* 2008), located less than two kilometres away to the northwest of the site. The iron work is very poorly preserved and the items described above require stabilisation to prevent further deterioration.

### ***Remedial Conservation of Copper Alloy Bowl (SF 20)*** - M. Felter, York Archaeological Trust Conservation Laboratories

This report describes the remedial conservation of a copper alloy dish/bowl (SF 20). The work carried out to date has involved the removal of the object from its soil block, corrosion removal and stabilisation.

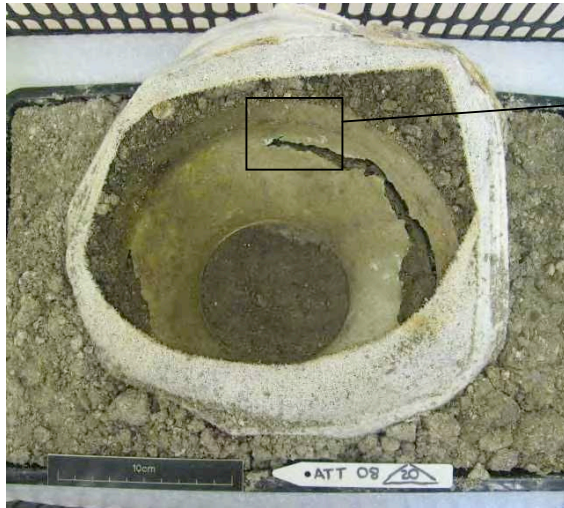
#### *Description*

The object arrived at the lab in a soil block and wrapped with stretch bandage. It was found to be fairly extensively damaged, and upon removal of the bandage and some soil, active corrosion could be seen in several places. Cracking was also evident, spreading out from larger areas of loss. The majority of the surface, however, was found to be stable, with a light covering of encrusted soil.

#### *Methodology*

The object was X-rayed whilst still supported by the soil block (X7097-99) and it was possible to see that the dish had a foot made up of concentric rings of copper alloy and which curved inwards making a raised area in the centre of the dish. The sheet from which the dish is made is fairly thin but is more substantial around the edges.

After radiography, the dish was ready for removal from its soil block. To stabilise the object during this process, squares of bandage were attached to the surface around the missing areas with Cyclododecane, an inert hydrocarbon wax which was brushed over the bandage in a molten state and when dry formed a rigid support (see image below). This wax gradually sublimates away, leaving no residue. The area of the foot was also



SF20 on arrival at the lab, note cracking and active corrosion

covered with wax. Once this facing had been attached, the dish was removed from the soil block by gently excavating around the rim (the object was placed face down at the top of the soil block). The object came away fairly easily as it is shallow and was only loosely attached to the soil. The soil was retained for sieving or further analysis if required.



Cyclododecane supports in place

While the object was still supported by the Cyclododecane covered bandage squares the corrosion removal process was started. This was done mechanically under magnification, using a scalpel and wooden cocktail stick. The bandage squares were removed as necessary to allow access to the surface beneath.

During corrosion removal, substantial areas of active bronze disease were revealed, especially at the base and it proved necessary to stabilise the dish chemically. This was done using 3% Benzotriazole w/v in Industrial Methylated Spirits, by immersion over three days. After this the object was coated with a 15% solution of Incralac v/v in toluene with Santocel fumed silica added as a matting agent.

Once chemically stable the object was given some facing supports to reduce the amount of movement of the rim. For this, the non-woven fabric Remay was used, with 10% Paraloid B72 (methyl methacrylate co-polymer) w/v in acetone being used to adhere it to the surface. Excess adhesive was removed with acetone. Cracks were consolidated using 10% Paraloid B72 w/v in acetone applied with a pipette.

### *Technology*

During corrosion removal and removal of the supportive bandages, a small overlapping piece of copper alloy was revealed with two rivets attached. Further examination of the surface of the dish itself showed that this piece may have been soldered or brazed as the surface showed evidence of a silver metal (see images below). Perhaps this piece is evidence of a past repair or patch.



Images showing overlapping piece with rivets and the surface of the dish where it may have been attached



SF20 after treatment (note Remay™ supports)

## *Recommendations*

The object is now stable but should be stored in a dry environment of less than 15% Relative Humidity to avoid further outbreaks of active corrosion. Due to the chemical stabilisation treatment with Benzotriazole, gloves should be worn when handling the object as some limited studies have shown this chemical to be a potential carcinogen. The object should be handled with care due to the fragile nature of the edges.

## ***Worked stone*** - Simon Timberlake

### *Rotary quern*

<780> [707.1] SF no.47. x2 fragments of puddingstone quern: 120mm (radial diameter) x 120mm (circumferential diameter) x 150mm height. Weight 2.05kg.

Two adjoining fragments of the rim of the upper (rotating) stone a Romano-British type beehive puddingstone quern. The location of the fracture in this discarded and broken up stone has not preserved any of the original grinding surface, although almost a complete section through the upper hopper funnel (60-70mm diameter and 100mm deep) and short lower feed pipe and spindle hole (25mm in diameter and approx. 50mm deep) is preserved. From this it has been possible to calculate that the top of the upper quern stone would probably originally have stood at approx. 170mm above the surface of the lower stone, and that the quern was about 240mm in diameter – thus a rather small quern for domestic use. The steep-sided form of this stone without any sign of a carinated basal lip and with its concave funnel and distinctive (grain) feed pipe section most closely relates to one of the examples illustrated by Curwen (1941) in the collections of the Luton Museum (p.21; figure 14). On the basis of the form, the likely date for the production of such querns is first to early second century (AD 50 – 150). The flint pebble clasts of this Hertfordshire Puddingstone are slightly agatized and reddened on the exterior. It seems most likely that this is a phenomenon of heating, and that possibly the presumably worn and already discarded stone was fractured and broken up deliberately, perhaps for use as rubble hardcore. Such material is occasionally found incorporated in the *agger* of tracks or roadway sections, such as was found locally during the excavation of a section of Akeman Street on the Manor Farm site in North Arbury by John Alexander in the 1960s (Alexander *et al.* 1968; Timberlake 2006, 16).

<633> F.274 [505.1] SF no.40. Approx. half of the lower stone of a puddingstone quern: 280mm diameter, with a width of approx. 120mm, and a depth of 110mm. Weight 5.094kg

The recovery of this large fragment of lower quern stone allows a fairly accurate reconstruction of its original shape and form. The faint impression of a very small area of section through the basal spindle hole survives in the break across this stone. The surviving section of the latter is quite deep at 50mm, this is approx. 15-20mm in diameter, narrowing to a point. The depth of this suggests that the counterpart upper stone was fairly substantial. The form of this lower stone matches, fairly accurately, that of the section figured by Curwen (1941) from Thetford in Norfolk, the latter example also within the collections of the Luton Museum (p.21, figure 24). The width and depth of the latter (24 inches diameter by 4 inches deep) in fact is exactly the same, though the spindle pivot in the Addenbrooke's example is longer. The slight differences in radius from the spindle hole to the circumference seems to suggest that this basal stone was slightly asymmetric (sub-round) in shape. Alternatively, we are looking at a spindle hole which was not quite centrally placed. The lower grinding surface is more or less flat (a very distinctive feature of many of these puddingstone querns), although a very slight convexity is detectable. The carefully worked and rounded hemispherical bottom is also a distinctive feature of puddingstone querns of this period, and was perhaps a means to embed and anchor the querns in clay up to the level of the grinding surface (*ibid.* 20). This form differentiates these from many of the Iron Age flat-bottomed Hunsbury types. In fact this round base and anchor of the Romano-British puddingstone querns reflects a much more economic use of stone, as well as a more efficient means of anchoring them, the latter with the versatility of being able to tip the quern in a stable way in order to recover the milled flour on one particular side or another. Once again, with this particular example, there is some suggestion of burning following disposal, though here this is much less evident, and the fracture break less fresh. This suggests some exposure, and possibly weathering, before burial.



<751> F.360 [668.1]. A fairly non-diagnostic fragment of rotary quern: 90mm (radial width) x 100mm (circumferential width) and 45mm (height). Weight 452g.

This consists of a very small detached fragment with a flat (but very slightly convex) surviving grind surface area of approx. 64 sq cms, with about 80mm of the outer crudely faced rim preserved. Given the possible rim shape, depth, and slight camber to this stone it seems likely, though by no means certain, that this fragment is from the lower stone of a rotary quern. The angle of curvature would thus suggest a stone of at least 200mm in diameter. The rock type is of a pebbly gritty sandstone with a pale green matrix and carbonate cement. The clasts are predominantly of sub-rounded water rolled quartz pebbles, but with some larger clasts of feldspar, and also a darker fine-grained silicic rock or chert (lydite?). The matrix includes some fine grained flakes of white mica (detrital?), traces of iron (hematite) and rare glauconite. The rock is clearly not a Millstone Grit, such as is typical of the later Romano-British gritstone querns, but is most likely to be a Cretaceous Greensand. If from a standard quarried quernstone source, one possibility being Lodsworth in West Sussex (Peacock 1987), an important industry competing with the production of Millstone Grit and Old Red Sandstone querns from the first century onwards (Shaffrey 2006). Another possibility is that this stone comes from the Upper Greensand of southwest England (Blackdown Hills, Devon etc.). Without time to examine suitable reference collections, the exact source for can not be determined; however, the use of this sort of quern stone is likely to have been superseded by the second century AD with increase in production of the better cemented forms of sandstone grits suitable for quern manufacture from the Millstone Grit quarries of the Southern Pennines. These would have been preferable in terms of the reduction in overall grit input into the flour, and thus the problems of excessive wear to the teeth.

<809> TP1 Top-soil. A fragment of lava, possibly a fragment of quern? Weight 68g.

A small fragment of vesicular basaltic lava recovered from the topsoil. Originally this had been labelled as slag; however, small drusy crusts of zeolite? minerals are visible within some of the gas bubbles in the rock – confirming the identity of this as a volcanic. The rock is not obviously of the Niedermendig lava type from the Mayen region of the Eifel, though such a source cannot be completely excluded. Such a rock type, however, would also be extremely rare as a glacial erratic; for instance, there seems to be little similarity between this and the Tertiary basalts of either the Inner Hebrides or else the Antrim plateau. As such, the identity of this as a non-descript fragment of lava quern of some description seems by far the most likely explanation.

Hertfordshire pudding-stone quern appears to have pre-Roman origins to its production, as has been noted at Hunsbury hillfort in Central England (Peacock 1987) where utilisation of gritstone querns was predominant. Typically, however, we find this type of quern appearing in greater numbers post-Conquest, the use of it persisting in East Anglia, and parts of rural Cambridgeshire, well into the first half of the second century. This is particularly the case in those rural communities such as Babraham (Timberlake & Armour *forthcoming*) which lie close to traditional trading routes such as the Icknield Way that pass not too far distant from the Hertfordshire sources of this stone. At Babraham we see the use of this material co-existing with querns of Millstone Grit (see Timberlake in Armour 2007). The latter compares with the almost universal assemblage of beehive type puddingstone quern found at the Conquest Period Hutchison site under Addenbrooke's Hospital (see Timberlake in Evans *et al.* 2008), the latter lying less than 500m to the north-east of this site. The source(s) of Hertfordshire puddingstone, and thus the possible locations of the first century AD or earlier quarries, will have been extremely limited. Abington Piggotts in Hertfordshire, seems to have been one of the sources for the beehive querns which start to be produced at the very end of the Iron Age. This industry continued on into the Early Roman period (Wilkes and Elrington 1978), perhaps operating still under local control, but clearly with an expanding market difficult to satisfy on account of the much more labour intensive methods of production involved in its production,

particular the work involved in carefully finishing (knapping) the exteriors of the stones.

The make-up of this small quernstone assemblage from Addenbrooke's (ATT 08) is certainly consistent with that recovered from the Hutchison site, which suggests that we are looking at a rather similar date for its use, and the import of rather similarly fashioned stones.

***Other*** - Simon Timberlake

<697> and <820> recovered from F.307 and from the subsoil within Test Pit 40 respectively have both been identified as cinder, and as such are probably Post-medieval to Modern in date.

***Miscellaneous finds*** - Grahame Appleby

A total of 150 other miscellaneous finds were recovered from the top-soil and 22 features. These include post-Medieval glass, clay tobacco pipe fragments and a small quantity of tile (4 four fragments; a further nine fragments of undiagnostic brick or tile were also recovered), four pieces of shell and four small pieces of charcoal (F.216). A quantity of burnt stone was also recovered (115 pieces), with 22 pieces (4591g) recovered from midden F.194 and 14 pieces (2272g) recovered from ditch F.408.

***Human Bone*** - Natasha Dodwell

An adult-sized right femur shaft was recovered from ditch F.407 in the northeast of the site. The ditch is undated. The distal shaft was found in [746.4], the proximal part of the shaft in [746.5]. Both ends (the head and the distal condyles) have been lost post-mortem and the distal part of the shaft has suffered several recent, post-mortem breaks. The cortical bone has been etched by rootlets.

***Faunal*** - Vida Rajkovača

Excavations at the Addenbrooke's 2020 site resulted in the recovery of an assemblage totalling 363 fragments and weighing 12581g. The assemblage is comprised of faunal remains which were recovered during the normal course of hand-excavation.

<b>Phase</b>	<b>Contexts</b>	<b>NISP</b>	<b>%NISP</b>
1st Phase: Middle Bronze Age	10	128	35
2nd Phase: Late Bronze Age/ Early Iron Age	6	38	10
3rd Phase: Middle Iron Age/ Late Iron Age	3	17	5
4th Phase: Late Iron Age/ Early Roman	45	141	39
5th Phase: Undated	17	39	11
<b>Total</b>	<b>81</b>	<b>363</b>	<b>100</b>

**Table 7:** Quantity and provenance of faunal remains



The material has been recovered from features that range in date from the Middle Bronze Age and through to the Romano-British period followed with a number of contexts with no pottery-dating evidence (table 7). Faunal material from these sub-sets have been quantified and considered separately.

The zooarchaeological investigation followed the system implemented by Bournemouth University with all identifiable elements recorded (NISP: Number of Identifiable Specimens) and diagnostic zoning (amended from Dobney & Reilly 1988) used to calculate MNE (Minimum Number of Elements) from which MNI (Minimum Number of Individuals) was derived. Identification of the assemblage was undertaken with the aid of Schmid (1972), Hillson (1999) and reference material from the Cambridge Archaeological Unit, Cambridge. Most, but not all, caprine bones are difficult to identify to species; however, it was possible to identify a selective set of elements as sheep or goat from the assemblage, using the criteria of Boessneck (1969) and Halstead (Halstead *et al.* 2002). Unidentifiable fragments were assigned to general size categories where possible. This information is presented in order to provide a complete fragment count.

Ageing of the assemblage employed both mandibular tooth wear (Grant 1982; Payne 1973) and fusion of proximal and distal epiphyses (Silver 1969). Where possible, the measurements have been taken (Von den Driesch 1976) and withers height calculations followed the conversion factors of Kiesewalter for horse (see Von den Driesch and Boessneck 1974). Taphonomic criteria including indications of butchery, pathology, gnawing activity and surface modifications as a result of weathering were also recorded when evident.

Of 81 contexts, only five demonstrated quite good state of preservation. The majority of the assemblage was severely weathered with the bones that have lost zones of cortical bone due to exfoliation. High numbers of bones also have deep longitudinal cracks and round edges due to abrasion. Most likely owing to the brittle texture of the bone, the third of the assemblage has modern breaks (109 fragments). In addition to the poor preservation, high fragmentation could also be observed in loose teeth counts. For each of the two main livestock species (cattle and ovicaprids), loose teeth have accounted for *c.* 40% of the overall element count.

Overall, the assemblage showed relatively varied range of species present. Cattle is the predominant species in all phases of occupation (table 8). Cervid remains include red and roe deer, both of which are represented by three and two antlers respectively. Red deer scapula and tibia were also identified, indicating that red deer meat was also utilised. Two phases in particular produced greater quantities of bone and those are Middle Bronze Age and Late Iron Age/ Early Roman. Both sub-sets showed the prevalence of cattle remains, followed by ovicaprids and other livestock species. Within the Late Iron Age/ Early Roman sub-set, both sheep and goat were positively identified. The complete absence of small mammals, fish and birds could be due to the poor overall preservation of the assemblage. Remains of large vertebrates showed surface erosion, flaking and root etching.

#### *Middle Bronze Age contexts*

Middle Bronze Age faunal record is heavily eroded and highly fragmented. The most common species are cattle. Skeletal element representation shows that all parts of beef carcass are present, with a slight over-representation of loose teeth and mandibular elements. This fact, coupled with the high numbers of cattle-sized elements is suggestive of the economy which favours beef.

Taxon	Phase					Total
	MBA	LBA/EIA	MIA/LIA	LIA/ER	Undated	
Cattle	57	16	9	42	15	<b>139</b>
Ovicaprid	5		1	29	4	<b>39</b>
Sheep				1		<b>1</b>
Goat				1		<b>1</b>
Horse	2	3	2	8	5	<b>20</b>
Pig	1	1		3		<b>5</b>
Dog	1	1		1		<b>3</b>
Red deer	4				1	<b>5</b>
Roe deer		1			1	<b>2</b>
Cattle-sized	34	8	4	26	9	<b>81</b>
Sheep-sized	15	8	1	29	3	<b>56</b>
Mammal n.f.i.	9			1	1	<b>11</b>
<b>Total</b>	<b>128</b>	<b>38</b>	<b>17</b>	<b>141</b>	<b>39</b>	<b>363</b>

**Table 8:** Number of specimens identified to species (or NISP) by phase

Of 70 fragments identified to species, 46 (66%) were recorded as heavily eroded. Large pit F. 410 yielded large number of cattle remains, as well as other species making up *c.* 75% of the sub-set. Butchery was observed on three specimens only.

#### *Late Bronze Age/ Early Iron Age*

A small sub-set of animal bone was recovered from two features dated to the Late Bronze Age/ Early Iron Age. Points of interest include three cattle specimens showing signs of butchery and two which were aged to two and four years of age. Based on a complete horse tibia, shoulder height estimates were derived. This horse stood 14 hands high which is within the size range of a modern pony, although the difference between horse and pony includes other aspects of appearance, not just height.

#### *Middle Iron Age/ Late Iron Age*

This small sub-set is again dominated by the remains of cattle. Two cattle specimens, mandible and metatarsus showed non-metrical trait and a case of trauma respectively. Cattle mandibles demonstrated variation in mental foramen which is usually indicative of restricted gene pools of local cattle (Dobney *et al.* 1996: 34). Evidence of trauma in cattle was evident from a metatarsus with abnormally splayed medial condyles, which is more common in later periods (Dobney *et al.* 1996: 39) and is indicative of possible stress as a result of ploughing or cart pulling.

#### *Late Iron Age/ Early Roman*

The largest sub-set of bone was recovered from the Late Iron Age/ Early Roman period. Cattle (NISP=42) are slightly more common than ovicapra (NISP=31). Unidentified mammal count also shows relatively high numbers for both categories of mammals (cattle-sized and sheep-sized). When MNI (Minimum Number of Individuals) is taken into account, both cohorts have accounted for three individual animals on site. Skeletal body part distribution for cattle demonstrated that all parts of beef carcass are present in the assemblage, indicating local slaughter and consumption. The ovicaprid cohort has an under-representation of meat-bearing joints and particularly hind limbs. This pattern could be suggestive of the export of dressed joints of meat; however this is based on a small number of specimens and should be taken with caution. Butchery and gnawing were rare, observed on five and four specimens respectively.

#### *Undated*

A small quantity of highly fragmented faunal material was recovered from undated contexts, which is again dominated by the remains of domesticates. In addition, red and roe deer elements were identified. No measuring or ageing data was available from this sub-set.

The prevalence of cattle in the Middle Bronze Age sub-set is in keeping with the majority of domestic assemblages recovered in Britain. There are two similarly dated

assemblages from the immediate locale showing similar representation of species (Rajkovača 2007, 2008b). Middle Bronze Age contexts excavated on the Addenbrooke's Link Road site in 2007 produced relatively important faunal record comprised of cattle (74%), ovicapra (19%), horse, pig and red deer (Rajkovača 2007). Evaluations carried out in 2008 at the Clay Farm site yielded an assemblage which included the identical list of species to the one found on Addenbrooke's Link Road site: cattle, ovicapra, horse, pig and red deer (Rajkovača 2008b). The great majority of this assemblage originated from the Middle Bronze Age features. Further comparisons could be made with the sites across East Anglia, part of continuous work that is being carried out by Cambridge Archaeological Unit. Sites such as Bradley Fen (Swaysland and Serjeantson 2006), West Deeping (Rajkovača forthcoming) and Langtoft Whitfield Site (Rajkovača 2008a) have all revealed similar economical patterns to the one observed here.

Cattle bones are usually second to ovicaprids on Iron Age sites; however, that is not the case here. Late Bronze Age, Early Iron Age and Middle Iron Age faunal records are quantitatively inadequate to support the interpretations about the site's economical practices; however, the results showed the continuity in the range of species present. This could be suggestive of the self-sufficient community embracing the traditional husbandry regimes.

Late Iron Age/ Early Roman faunal record is also somewhat typical for the period. It has been suggested that the preference for beef has come from the continent with the Roman legions populating Britain (King 1999). In addition, sites with the predominant cattle component would be considered Romanised, whereas sites with the predominant ovicaprid populations would still be viewed as continuing with the Iron Age tradition. Addenbrooke's 2020 Late Iron Age/ Early Roman faunal record therefore fits very well with this view. One of the comparable assemblages from the area is again the Addenbrooke's Link Road site where the cattle cohort accounted for c. 80% of the identified species (Rajkovača 2007). A more complete picture could be gained if this faunal record is incorporated into the body of evidence for Early Roman and Romano-British assemblages from south Cambridge area. Moreover, similarly dated assemblages from central and west Cambridge would also be an important comparative. Continuous work in the area over the last two decades has produced sufficient information for potential models for the Roman socio-economic practices to be built.

### *Assessment of Bulk Environmental Samples – Anne deVarielles*

#### *Methodology*

Sixteen samples from 11 Late Bronze Age to early Romano-British features were chosen for analysis and processed using an Ankara-type flotation machine. The flots were collected in 300µm aperture meshes and the remaining heavy residues washed over a 1mm mesh. Both the flots and heavy residues were dried indoors prior to analysis. Sorting of the flots and identification of macro remains were carried out under a low power binocular microscope (6x-40x magnification). Identifications were made using the reference collection of the G. Pitt-Rivers Laboratory, university of Cambridge. Nomenclature follows Zohary and Hopf (2000) for cereals, Stace (1997)

for all other flora and an updated version of Beedham (1972) for molluscs. All environmental remains are listed in Table 9.

### *Preservation*

The overall preservation of plant macro-remains is poor. Samples with cereal grains have a high proportion of unidentified broken grains and a large category of small (<2mm) fragments of parenchyma, that are probably from cereal grains. Most of the samples had some plant remains but no large, distinctive assemblage was recovered. Charcoal and seeds are covered with a fine grey clay making identification to species difficult. Conversely, snail shells have survived in abundance and good physical conditions, indicating basic soils and ground water. Occasional dried waterlogged seeds were found that probably survived in pockets of wet, anaerobic clay. Intrusive rootlets and the blind burrowing snail *Ceciloides acicula* show that a low level of bioturbation has affected most of the samples.

### *Results*

#### *Bronze Age/Iron Age Well, F.198 [418.5]*

The only plant remains recovered were a light dusting of fine charcoal. The molluscs included three fresh-water species that indicate the well contained standing water. The dominant species, *Anisus leucostama*, however, shows that the well did occasionally, perhaps even seasonally, dry out. The absence of any waterlogged seeds supports this interpretation.

#### *Middle - LIA large Pit F.366 [683.4]*

A tiny amount of charcoal and 13 waterlogged duckweed seeds (*Lemna* sp.) were found, along with a diverse array of snail shells. The evidence suggests the pit was deep enough to hold a seasonal shallow layer of standing water.

#### *LIA Well, F.350 [657.3] and possibly LIA Pond or Well, F.357 [669.1]*

F.350 had very little charcoal, one wild grass seed and one waterlogged elder seed (*Sambucus nigra*). F.357 also contained a wild grass seed; however, no waterlogged seeds were found and charcoal quantities were relatively high. Neither of the features seems to have been permanently waterlogged, although standing water was held on occasion.

#### *LIA/ER Beam slot, F.325 [624.1]*

Some charcoal, one fragment of spelt or emmer wheat chaff (*Triticum spelta/dicoccum* glume base) and six or seven wild plant weeds were recovered. These remains were probably scattered on the surface before slipping into the beam slot. The snail assemblage is the smallest from all the samples, probably because the pit was never left open long enough for communities to establish. Strangely, the snails include one shell of a small fresh water bivalve (*Sphaerium* sp.).

#### *LIA/ER Pit, F.202 [422.4]*

This pit was the negative feature with the most plant remains, suggesting it may have been closer to cereal processing activities than the other features sampled. One grain, 13 wheat glume bases and 16 wild plant seeds represent a little crop processing waste that was probably burnt locally and randomly dispersed. As with the previous features, the snail shells show that the interior of the pit was damp and occasionally wet. For the first time, however, there are species indicative of an open, dry land surface.

#### *LIA/ER Enclosure or Boundary Ditches, F.227 [448.4] and [448.1] and F.297 [671.6]*

The ditch slots contained very little charcoal and a total of two carbonised seeds. Snails and waterlogged seeds suggest the linears were deep enough to contain a permanent layer of still water. [448.1] was particularly wet and a favourable habitat to at least six fresh water species. The woodland species *Ena obscura* suggest the ditches were marked with a hedge or occasional shrubs/trees. Other dry-land species that occurred in fewer numbers indicate that the surrounding landscape was dry, open grassland.

*LIA/ER possible Midden, F.194 [404.1]*

The four samples taken from different locations within the context were very similar. They had a little charcoal and some whole cereal grains of barley (*Hordeum vulgare* sl.) and spelt and/or emmer. Many more grain fragments were recorded in the parenchyma category, but were so broken they could not be described as unmistakably cereal. Interestingly, almost no chaff was found whilst wild plant seeds are in similar proportions to the cereal grains. This correlation indicates that the burnt waste originates from cooking and eating rather than crop processing debris. The snails suggest that the midden was quite wet, wetter than the wells described above. Five of the snails appear burnt, suggesting that snails were added to the deposit from elsewhere - since the midden showed no other signs of a conflagration. The environment of the midden might be explained by its specific geographical position within a landscape prone to flooding. The exact location of the assemblages needs to be confirmed for a clear interpretation to be reached.

*Mid to Late 1<sup>st</sup> century A.D. Ditch, F.169 [371.1] and [371.4]*

Both samples had almost no plant remains; they contained a little charcoal and a total of one goosefoot seed (*Chenopodium* sp.). The snail assemblages are also similar although denser than [371.1]. The latter was clearly wet whereas [371.4] seems to have only had seasonal flooding.

*Undated Midden, F.215 [443.1]*

This sample was not too dissimilar from those of the possible midden F.194 in that it contained more plant remains than non midden features (albeit quantities are still low), and a burnt land snail. This midden, however, was not particularly wet with snails of damp and shady environments predominating.

The paucity of plant remains and the absence of any large, *in situ* assemblage are a little unusual, especially for the Roman period, and is probably not a simple, direct reflection of poor preservation conditions. Nearby archaeological evaluation at Clay Farm revealed that, although the majority of features only contained a sparse array of plant remains randomly scattered across the site, some assemblages were plentiful in carbonised, *in situ* crop processing waste. Future excavations at Addenbrooke's 2020 should use a systematic approach to sampling in order to generate statistically viable data on the distribution of plant remains. Despite there being no waterlogged assemblages environmental information is available through the excellent survival of snail shells. Most of the features sampled appear to have remained open long enough for snail communities to establish and thrive. Features dug to the water-table level had seasonal if not permanent standing water. A hedge or localised areas of shrubs/trees may have bordered the large enclosure ditch. The ground surface seems to have been mostly dry and open, and probably covered in grassland or vegetation typical of disturbed areas. The wells do not appear to have contained much water, whereas the possible midden F.194 has evidence of regular flooding. This data must be used with caution until the location of samples can be included and the environmental sequencing confirmed in light of the local geology. The snail shells and further samples of at least 10 litres should be examined by a malacologist for a more detailed interpretation of the site's environmental history.

Sample number	65	104	92	90	61	63	62
Context	418.5	683.4	657.3	624.1	422.4	448.4	448.1
Feature	198	366	350	325	202	227	227
Feature type	well	large pit	well	beam slot	pit	enclosure ? ditch	
Phase/Date	LBA/EIA	Middle/LIA	LIA	LIA/ER	LIA/ER	LIA/ER	
Sample volume - litres	7	18	20	14	17	18	18
Charcoal volume - millilitres, estimates	<1	<1	<1	1	<1	<1	<1
Flot fraction examined - %	100	100	100	100	100	100	100
large charcoal (>4mm)				+		-	
med. charcoal (2-4mm)	-		-	+	-	-	-
small charcoal (<2mm)	++	+	++	+++	++	++	++
vitrified charcoal	-			-	+		
parenchyma frags - undifferentiated plant storage tissue	-			-	++	-	
<b>Cereal grains and chaff</b>							
indet. cereal grain fragments					1		
<i>Triticum spelta</i> L. glume base - spelt wheat chaff					1		
<i>T. spelta/dicoccum</i> glume base - spelt / emmer chaff				1	12		
<i>Triticum</i> sp. spikelet fork - glumed wheat chaff							
<b>Non Cereal seeds</b>							
<i>Chenopodium</i> sp. Goosefoot					2		
<i>Sambucus nigra</i> L. Elder			1 wl			1 wl	
<i>Lemna</i> sp. Duckweeds		13 wl					
Large Poaceae large wild grass seed			1		2		
Medium Poaceae medium wild grass seed					8		
Small Poaceae small wild grass seed				5			1
Indet. Poaceae fragment - wild or cultivated seed				1			
Indet. seed				1	4		
<b>Fresh water Bilvaves</b>							
<i>Sphaerium</i> sp				-			
<b>Fresh water mollusca</b>							
<i>Valvata piscinalis</i> Müller		-					
<i>Valvata cristata</i> Müller		-					
<i>Lymnaea peregra</i> Müller		++					++
<i>Lymnaea truncatula</i> Müller	++	+	+	-		+++	++
<i>Physa fontinalis</i> L.							+
<i>Planorbis corneus</i> L.						+	+++
<i>Planorbis planorbis</i> L.	+	+	+			+	+++
<i>Anisus leucostama</i> Millet	+++	++	++	+	++	+++	+++
<i>Carychium minimum</i> Müller - inhabits marshes	++				+		-
<b>Damp / Shade loving species</b>							
<i>Vallonia excentrica / pulchella</i>	++	++	++		+	+	++
<i>Era obscura</i> Müller - in woods and hedges			-				++
<i>Carychium tridentatum</i> Risso	++	+	+	-		+	
<i>Cochlicopa lubrica/ lubricella</i>	+		+	-	+	-	+
<i>Oxychilus / Aegopinella</i> sp.			+	-			
<b>Open, dryer landscapes</b>							
<i>Vallonia costata</i> Müller	++			+	++	++	++
<i>Helicella itala</i> L.					++	++	+
<b>Catholic species / Unkown habitats</b>							
<i>Vertigo</i> sp.	++	++	++	+	+	-	+
<i>Vertigo cf. pusilla</i> Müller				-			
<i>Lauria cylindraceae</i> da Costa	++	+	++		++	++	++
<i>Helix</i> sp.							
<i>Trichia</i> sp.	++	++	+	+	+++	++	+++
<i>Ceciloides acicula</i> -Blind burrowing snail				+	++	+	++
bone fragments	+		-	-			
burnt bone fragments							-
Pottery sherds							
chalk loom weight/spindle whorl							
baked clay							
coal?							
Modern rootlets	P	P	P	P	P	P	P

Key: '-' 1 or 2, '+' <10, '++' 10-50, '+++>50 items. P = present.

wl = waterlogged, c = charred. The snail shells are untransformed

**Table 9: Plant Macro-Remains and Mollusca from the Bulk Soil Samples**

***Magnetic Susceptibility Survey – Adrian Challands***

A magnetic Susceptibility Survey was carried out over the area of the post hole building towards the northern end of the site (Figure 4). Due to subsequent plough action the old land surface had been removed. Although magnetic enhancement to occupation activities can remain in these circumstances, here the results are generally inconclusive. Three areas of slightly higher magnetic susceptibility were noted; however all lie outside the footprint of the building.

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# OASIS DATA COLLECTION FORM: England

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**OASIS ID: cambridg3-75350**

## Project details

Project name	Excavations at CBC Addenbrooke's: Site 2 The Boulevard: Interim Report
Short description of the project	The initial phase of excavation at the CBC Boulevard site was undertaken between the 17th of November 2008 and the 30th of January 2009. At this time, a north-south aligned area measuring 302m in length and 30m in width (covering 8684m <sup>2</sup> ) was investigated; towards its southern end, this area was bisected by a high pressure gas pipeline, resulting in the establishment of an unexcavated baulk some 12m in width. Subsequently, between the 22nd of June and the 2nd of July 2009, a second area - lying immediately to the north of the first - was also excavated. This measured 45m by 25m in extent (and covered 1210m <sup>2</sup> ). The site code for both phases was ATT08. Overall, a relatively high density of archaeological features was encountered during the course of both of these investigations, although the majority of activity appears to have been focused around the southern end of the site (Figure 2). During the first phase of the excavation, 233 features were investigated via the insertion of 362 'interventions' (or individually dug slots). During the second phase, a further 35 features were identified and 49 additional interventions excavated, resulting in a combined total of 268 features and 411 interventions.
Project dates	Start: 17-11-2008 End: 02-07-2009
Previous/future work	Yes / Yes
Any associated project reference codes	ECB3039 - HER event no.
Type of project	Field evaluation
Site status	None
Current Land use	Cultivated Land 4 - Character Undetermined
Monument type	ENCLOSURE Bronze Age
Monument type	ENCLOSURE Iron Age
Monument type	ENCLOSURE Roman
Monument type	MIDDEN Roman
Monument type	ROUND HOUSE Bronze Age
Monument type	BUILDING Late Iron Age
Monument type	BUILDING Roman
Monument type	BUILDING Uncertain
Significant Finds	FLINT Late Prehistoric
Significant Finds	BONE Late Prehistoric
Significant Finds	POTTERY Late Prehistoric
Significant Finds	METALWORK Roman
Significant Finds	POTTERY Roman
Significant Finds	TILE Roman
Methods & techniques	'Aerial Photography - interpretation','Environmental Sampling','Measured Survey','Metal Detectors','Phosphate Survey','Targeted Trenches','Topographic Survey','Visual Inspection'
Development type	Road scheme (new and widening)
Prompt	Planning condition
Position in the planning process	Not known / Not recorded

## Project location

Country	England
Site location	CAMBRIDGESHIRE CAMBRIDGE CAMBRIDGE Addenbrooke's CBC Boulevard
Postcode	CB2 5
Study area	9894.00 Square metres
Site coordinates	TL 46 54 52.1645000989 0.134874904142 52 09 52 N 000 08 05 E Point
Height OD / Depth	Min: 13.00m Max: 15.00m

## Project creators

Name of Organisation	Cambridge Archaeological Unit
Project brief originator	Contractor (design and execute)

Project design originator	Alison Dickens
Project director/manager	Alison Dickens
Project supervisor	Richard Newman
Type of sponsor/funding body	Developer
Name of sponsor/funding body	Developer

#### Project archives

Physical Archive recipient	Cambridge Archaeological Unit
Physical Contents	'Animal Bones','Ceramics','Environmental','Human Bones','Industrial','Metal','Worked stone/lithics','other'
Digital Archive recipient	Cambridge Archaeological Unit
Digital Contents	'Animal Bones','Ceramics','Environmental','Human Bones','Industrial','Metal','Stratigraphic','Survey','Worked stone/lithics','other'
Digital Media available	'Database','GIS','Spreadsheets','Survey','Text'
Paper Archive recipient	Cambridge Archaeological Unit
Paper Contents	'Animal Bones','Ceramics','Human Bones','Metal','Stratigraphic','Survey','Worked stone/lithics','other'
Paper Media available	'Context sheet','Drawing','Map','Plan','Report','Section','Survey'

#### Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Excavations at CBC Addenbrooke's, Site 2 The Boulevard: Interim Report
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