Archaeological Field Unit

Roman, Saxon and Medieval Occupation at the site of the former Red, White and Blue Public House, Chiefs Street, Ely

S Kenney

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Roman, Saxon and Medieval Occupation at the site of the former Red, White and Blue Public House, Chiefs Street, Ely

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SUMMARY

In December 1999, the Archaeological Field Unit of Cambridgeshire County Council conducted an archaeological excavation on land at the former Red, White and Blue public house, Chiefs Street, Ely, Cambridgeshire (TL5356/8042). The work was carried out at the request of Cambridge Housing Association. A watching brief was carried out in 2000 on demolition works and the construction of a new roadway on the site.

Archaeology was found in each of the three open areas excavated, dating to a broad range of periods from Roman to post-medieval. There were also a number of undated pre-Roman features in one corner of the site. A wide variety of feature types were encountered, including postholes, wells, ditches and gullies.

The earliest phase was represented by gullies and pits in the south-west corner of the site. The Roman phase consisted of fencelines of postholes and other boundary features, probably relating to settlement adjacent to the Roman road that ran across the summit of the Ely Island. In the Middle Saxon period, pits, wells, and an oven were in use on the site, possibly for some small-scale industrial process. Usage of the site changed in the Saxo-Norman period, with a large boundary ditch being established on the west of the site, and other ditches and gullies dug elsewhere. A small wooden structure of just four posts was also constructed at this time, as well as a fence. During the twelfth to fourteenth centuries, ditches and a fenceline were established parallel and adjacent to the line of Chiefs Street, while the remainder of the site was waste ground with several rubbish pits. After the medieval period, the site continued to be used for the disposal of rubbish until the construction of the first public house.

The environmental evidence shows the changing diet and surroundings of the people who lived nearby, and indicates the extensive exploitation of the nearby claylands. Flax appears for the first time in the Middle Saxon period, while the greatest exploitation of fish happens in Saxo-Norman times. Eels formed a large part of the diet in the twelfth to fourteenth centuries, and these were presumably caught locally.

This site has also contributed to the growing understanding of local settlement patterns during the Middle and Late Saxon periods. Along with work carried out recently at the bottom of West Fen Road, at West End, and St John's Road, this site is helping to shape the picture of pre-Conquest Ely. It now seems likely that there was continuous settlement strung out along West Fen Road from the top of the island to the fen at the bottom during these periods. This is a very different pattern from the one which has long been accepted, where settlement is nucleated around Etheldreda's monastery somewhere close to the site of the present Cathedral.

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1 INTRODUCTION

Between 2nd and 9th December 1999, the Archaeological Field Unit of Cambridgeshire County Council (AFU) carried out an archaeological excavation on the former site of the Red, White and Blue Public House on the corner of Chiefs Street and West Fen Road, in Ely, Cambridgeshire (TL5356/8042). The work was carried out at the request of Cambridge Housing Association, in advance of a proposed residential development, and was in response to a brief set by the County Archaeology Office (CAO).

The site is irregular, 0.26ha in area, and consists of the grounds of the Red, White and Blue Public House, including the beer garden, now much overgrown, and the carpark. It lies on the western side of the centre of Ely, within 500m of the Cathedral.

The presence of archaeological remains was considered certain by the CAO on the basis of the location of the site close to the heart of medieval Ely, and specifically due to the results of the evaluation carried out on the site by Hertfordshire Archaeological Trust (HAT), which revealed postholes and a horse burial, both of uncertain date.

Three areas totalling 430m^2 were opened by machine, and subsequently hand cleaned, photographed, and planned. A considerable density of archaeological features were present, concentrated at the western and northern extremes of the site.

During the subsequent demolition of the public house and removal of its footings in 2000, an archaeological watching brief was carried out to fill in some of the gaps left in the picture of the site. Further observation was necessary during excavations for the route of the new road and several additional features were identified at this stage.

2 GEOLOGY AND TOPOGRAPHY

2.1 Geology

According to the British Geological Survey, the centre of the city lies on the Lower Greensand which caps the Ely island, the bulk of which is composed of Kimmeridge Clay (BGS Sheet 173, 1980). As has been observed on numerous occasions on the

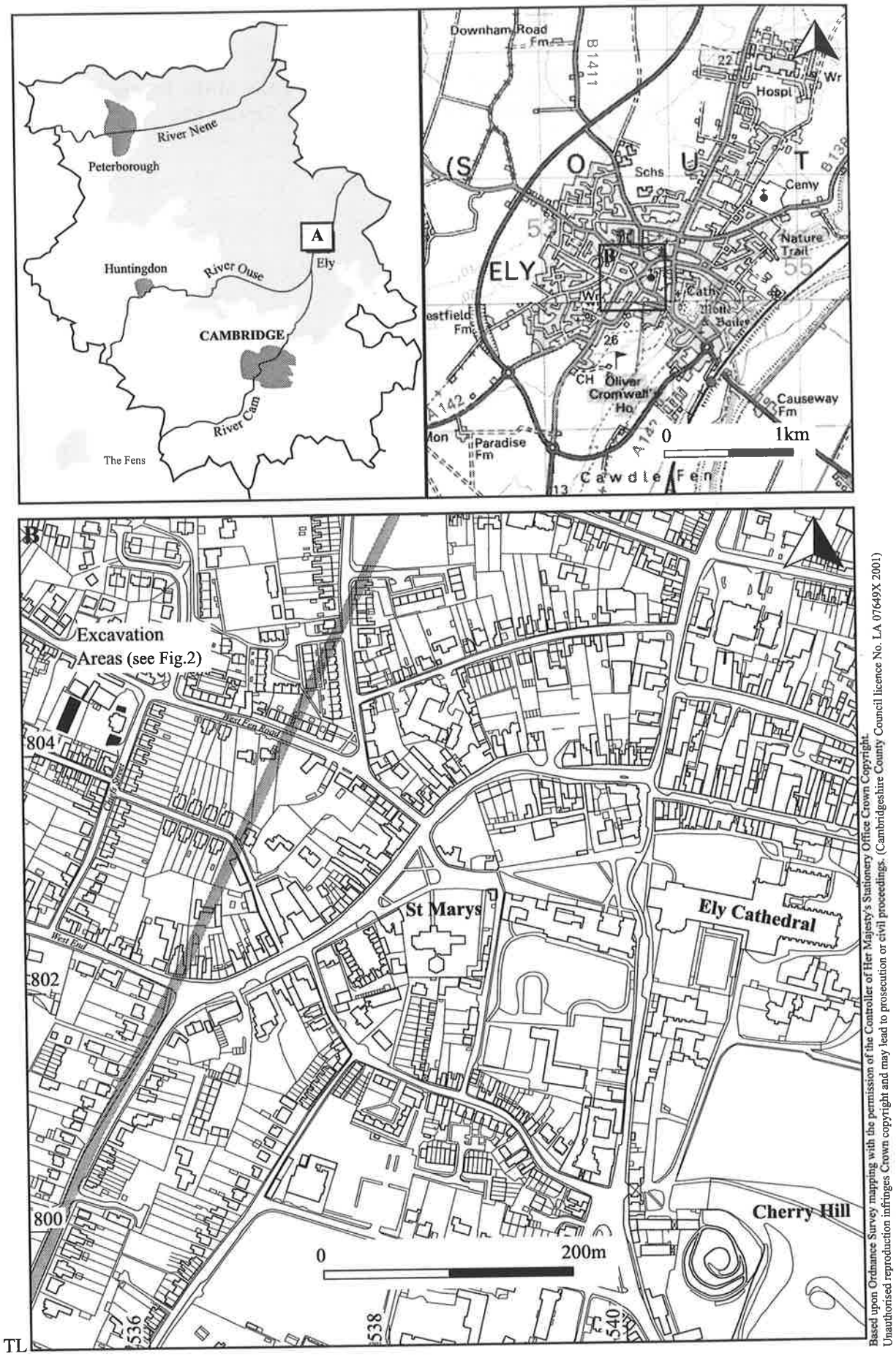


Figure 1 *Site Location Map. Excavation areas are shown in black. The probable course of the Roman road is shown in tone*

island, a layer of stone exists just below the top of the Greensand and some features have this stone as their base, while others are cut through it.

2.2 Topography

The site is located on the highest ground on the island of Ely, a plateau at about 20.5m OD. To the north-west of the site, the land falls away towards the Ely Bypass where the land is at slightly less than 6m OD. The benchmark used during this evaluation has a value of 20.00m OD and is situated on a building opposite No 42 West Fen Road, just around the corner from the site.

3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

3.1 Historical Background

Lying 23km north-northeast of Cambridge on the river Great Ouse, Ely was mentioned in Domesday Book as a small agricultural settlement, however, its origins are much earlier and archaeological work has shown that occupation on the island begins as early as the Neolithic (VCH 1967). The name is derived from the Old English *ael-ge*, or "eel-district"(Reaney 1943).

The 'history' of the early development of Ely, as recorded in medieval texts including the *Liber Eliensis* is as follows:

Ethelbert I, (who reigned from 560-616) founded a church at the instigation of St Augustine in 607 at a village named Cratendune. Later that church was destroyed in the war between Anna, the Christian King of East Anglia, and Penda, the Pagan King of Mercia. Anna's daughter, Etheldreda, while wishing to adopt a religious life, was forced by political expediency to marry Tonbert, Prince of the South Gyrvii, whose territory bordered East Anglia. As a dowry, she received the lands and Royal rights of the Isle of Ely. When she was widowed some three years later, Etheldreda was able to take up the religious life she had longed for, but this was cut short by another political marriage, this time to Egfrith, the young heir to the Kingdom of Bernicia in the north of England. She maintained her chastity throughout this second marriage, and after twelve years was given leave by her husband to retire from worldly affairs. A year later in 673 she founded a monastery for both monks and nuns on a site about a mile north of Cratendune. This site later became the town of Ely, when the people of Cratendune abandoned their village and rebuilt it around the monastery. Etheldreda died in 679.

The religious house founded by Etheldreda was laid waste by the Danes in 870, refounded by Ethelwold, Bishop of Winchester, as a Benedictine Abbey in 970, and dedicated to St Peter and the Blessed Virgin by Dunstan in 974. Nothing now remains of the church and conventual buildings of Etheldreda's foundations and even their site

in relation to the present Cathedral is uncertain. The site of Cratendune has not been established, although several candidate sites have been proposed over the decades.
Ely's development as an important medieval town began after the construction of the Cathedral, made possible by the canalisation and diversion of the river, which probably occurred between 974 and 1035. This new transport route provided important trade links with Cambridge and Littleport, and by extension, to the seaport at Lynn when that was established some time before 1180. Abbot Simeon began the task of rebuilding the monastic church around 1081 and this was continued by his successor Richard, who moved the relics of St Etheldreda to a new shrine in 1106. The status of the town was further enhanced when the Bishopric was created in 1108/9, which brought the Episcopal establishment and its attendant bureaucracy, and elevated the status of the monastic church to that of a Cathedral (Owen 1993).

In the later twelfth century, a castle was constructed on the orders of King Stephen during the chaotic civil wars known as the "Anarchy", and traces of it survive at Cherry Hill, to the south of the Cathedral. A further castle earthwork may also have been constructed at this time, close to the waterfront (Owen 1993).

The hospitals of St John the Baptist and St Mary, parts of which still survive at the top of St John's Road, were constructed in the twelfth and thirteenth centuries respectively. They probably lay outside the medieval town, and were most likely to have been leper hospitals, but their use would have changed with the decline of leprosy in the later medieval period (Cobbett & Palmer 1936).

The town continued to thrive throughout the medieval period and beyond, with even the dissolution of the priory in the 1530s having little effect upon the burgeoning commercial trade which continued to dominate its financial fortunes (Owen 1993).

West Fen road runs into Cambridge Road, which then becomes St Mary's Street to the east. Cambridge Road is recorded as *Stanweye* in 1319, and a section of it is part of the probable course of a Roman road. West Fen Road was formerly known as "Cow Lane" and Chiefs Street is known as "Tisse Lane" at the time of John Speed's map in 1610. He shows orchards and paddocks on both sides of Tisse Lane, and further east, what may be ridge and furrow (Reaney 1943, Speed 1610).

The first recorded building to occupy the site of the later public house was constructed before 1814, when William Cropley owned a property there called West Fen House, and held a license to sell beer. This is probably the same building which appears in a photograph, standing near the corner of Chiefs Street and clearly showing a stone structure with gable ends. The building was demolished in 1965 with little or no recording and the modern pub built in its place (Holmes 1984).

3.2 Archaeological Background

The earliest evidence for occupation on the summit of the Ely island is in the form of Neolithic flint artefacts from the Bray's Lane excavation (SMR 10475a). Bronze Age features were also found on the same site (SMR 10475b). Later occupation from the Iron Age was uncovered just southeast of the Cathedral (Hunter 1991). There is

presently little evidence for Roman occupation on the summit of the Ely Island, however, it is thought that Akeman Street did cross it. (Margary 1967).
Late Saxon pottery and a single sherd of Middle Saxon Ipswich ware were found at St Mary's Lodge in St Mary's Street (Robinson 2000). At 2 West End a larger Late Saxon pottery component was accompanied by a significant amount of Middle Saxon material (Kenney 1999). The exact extent and form of Middle and Late Saxon Ely is not known, however, recent work within the city has revealed a Middle Saxon presence on the western side, and the excavations at West Fen Road are also producing substantial evidence of this period.

Notwithstanding the known medieval buildings in the town, such as the Cathedral, evidence has been found in several other locations of surviving fragments of medieval structures within extensively reconstructed buildings. A good example are the farm buildings at the northern end of St John's road, formerly the hospitals of St John the Baptist and St Mary Magdelene (SMR 07342, a, b, c, SMR 08435). Numerous excavations over the last decade have produced large quantities of medieval pottery and other finds of the period.

The location of the site near to the heart of the ancient city, adjacent to one of the main through routes, and only 200m from two medieval hospitals suggested an area with high archaeological potential. Ely has in recent years become known as a pottery production centre in the medieval and post-medieval periods, and quantities of the local wares have been recovered from sites all over the city. Following recovery of some waster material, the local wares are currently the subject of detailed analysis (Spoerry forthcoming).

4 METHODOLOGY

During the excavation, three areas were opened using a mechanical excavator with a 1.8m toothless ditching bucket, under the supervision of an archaeologist (see fig. 1). The first, Area 1, consisted of a rectangle 10m by 29m. The second, Area 2, consisted of a rectangle 4.5m by 7.5m. Area 3 should also have been rectangular, 9.5m by 10.5m, but had to be truncated due to the presence of drains and the need for access from Chiefs Street. The areas were positioned in order to excavate only the footprints of the proposed new buildings. Since some of the development proposals included the area still occupied by the public house, Areas 2 and 3 had to be substantially truncated in order to comply with Health and Safety regulations regarding proximity of excavations to standing buildings.

The trenches were cleaned by hand, photographed, and base planned using a Zeiss RecElta 15 Total Station Theodolite with an internal data logger. The survey data was downloaded to AIC's ProSurveyor v3.35, then transferred to and edited in AutoCAD Map 2000 and the resulting drawings plotted.

Features were excavated by hand, and recorded using the AFU's standard single context recording system, including colour print, colour slide, and monochrome photography, plans at 1:20 or 1:50, and sections at 1:10.

The observation phase involved rapid excavation and recording of a number of additional features revealed by demolition works and the creation of the new site access.

5 RESULTS AND PHASING

5.1 General comments

Area 1 measured approximately 10m by 29m. The topsoil was 0.2m deep, and the subsoil was 0.6m deep. Area 1 produced the greatest density and variety of archaeological features, and the majority of datable material. The density was not even across the area, however, and the distribution of features revealed some interesting trends.

Area 2 measured approximately 4.5m by 7.5m. The topsoil was 0.2m deep, and the subsoil was 0.7m deep. Area 2 produced the majority of Roman material. The features consisted mostly of ditches, in contrast to the pits and postholes of Area 1.

Area 3 measured approximately 10m by 11m with the south corner truncated. The tarmac and hardcore overburden was 0.5m deep. Area 3 produced a variety of features, with the majority of them on the south-eastern side, closest to Chiefs Street. It also had the lowest finds density of all three areas.

The area of new roadway to the west of Area 1 revealed further pits, and the demolition and removal of the public house confirmed the continuity of the N-S ditch seen in Areas 2 and 3.

The dating of the archaeological features is based upon pottery spotdates, and although the assemblage is not large, it is considered sufficient to be able to reliably sort them into periods. There is a low degree of residuality amongst the assemblage, generally, a context contained only finds of a single period. On this basis, and from the relative degree of abrasion present, it was decided that several contexts could be assigned to the Roman period and some were believed to be prehistoric in date.

5.2 Phase 1: Undated pre-Roman see Figure 2 upper

The distinction between this phase and the next, the Roman features, is based entirely upon stratigraphy and orientation, since no dating evidence was recovered from this group. Although the gullies bear some resemblance to those in Group 2, it was clear from their differing alignments and the lack of finds in their fills that they were not merely an earlier Roman phase. The gullies suggest an enclosure system and the

irregular pit may have been a small quarry, extracting the clay-rich natural. No finds of any type were recovered from the fills of the features in this phase.

Group 1 (35, 162, 164, 166)
This group consists of two gullies and two pits.

Ditch **35** was 0.15m deep, 0.35-0.7m wide and at least 5.7m long. It was straight in plan, oriented E-W and terminated to the east. It cut the fills of pits **164** and **166**. The fill, 34, was a brown silty clay and was cut by gully **13** and posthole **33**.

Gully **162** was 0.18m deep, 0.5-0.6m wide and at least 1.8m long. It was straight in plan, oriented N-S and terminated to the south. The fill, 161, was a brown silty clay and was cut by gully **31** and pit **25**.

Pit **164** was 0.25m deep, 2.5m wide and at least 2.5m long. It was quite irregular in plan, and may have originally been more than one feature, however it was not possible to distinguish separate cuts or fills. The fill, 163, was a greyish brown silty clay and was cut by the terminal of ditch **35**.

Pit **166** was 0.15m deep, 0.8m wide and at least 1.1m long. It was oval in plan, with its long axis oriented roughly NE-SW. The fill, 165, was a greyish brown silty clay and was cut by ditch **35**.

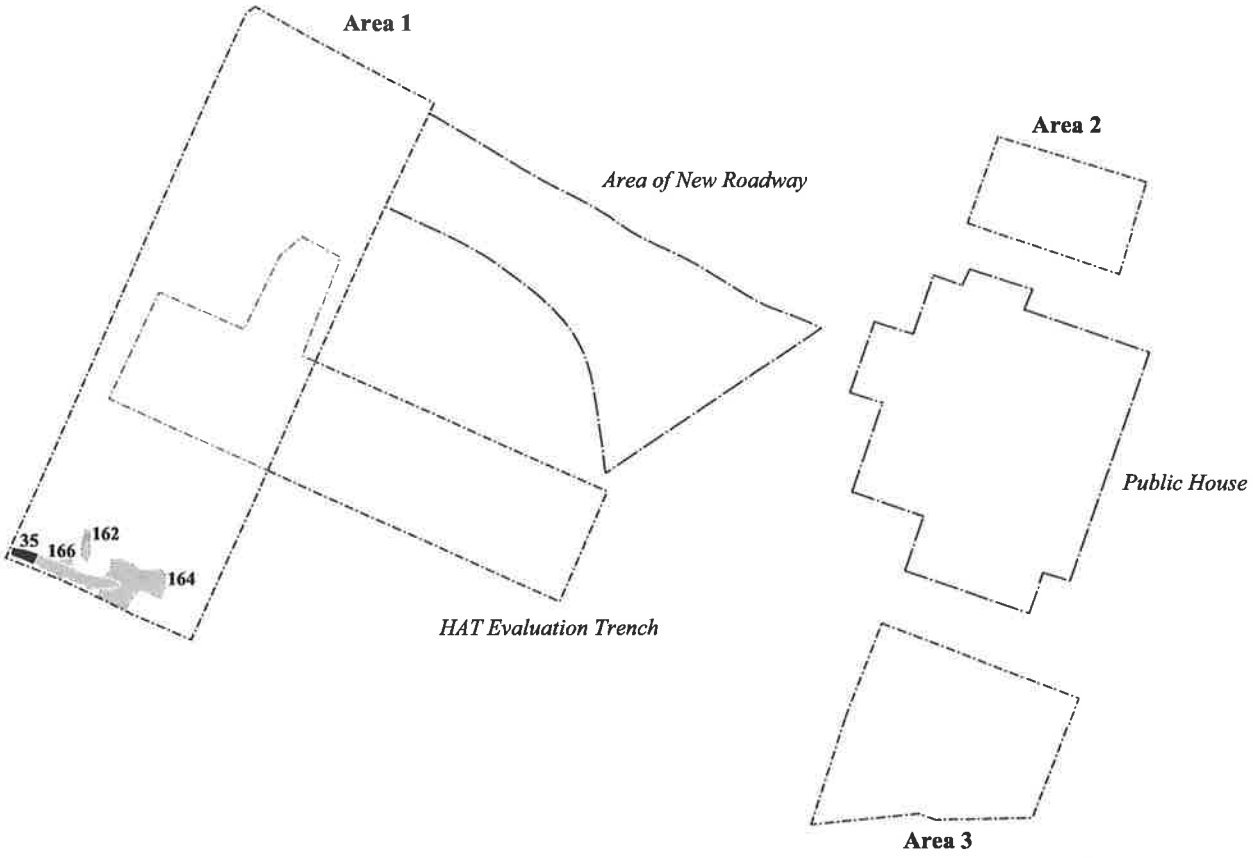
5.3 Phase 2: Roman see Figure 2 lower

This phase was represented by a series of boundary features, some of them quite extensive, which may have once defined parts of a Roman paddock or field system. Ditch **55** and the line of postholes, Group 3, appear as if they would converge just beyond the western edge of the site, and in this case it would be unlikely that they were contemporary. It is not possible to say, however, what happens to either the ditch or the fenceline beyond the limits of excavation, since neither feature appears straight, both curving away to the east at their northern and southern limit. Both may be more irregular, as the spacing and placement of the postholes might suggest. Extrapolating the line of ditch **55** to the south, beyond where it is truncated by ditch **9**, would indicate that the earlier feature should be traceable on the far side, but it is not. This again suggests a change of direction in **55**, which would only need to be slight to achieve the observed divergence from the fenceline. Perhaps the fence was erected as a re-emphasis of the boundary at a later date.

The two short gullies, **13** and **31**, as well as the longer gully **122** may represent parts of structures or secondary smaller enclosures within the main field system.

These features are common, typologically speaking, on the periphery of Roman settlement, and the relatively low finds density points to the focus being elsewhere. 100m to the west, the putative course of the Akeman Street passes across the Ely island, and any occupation associated with this route would have probably been set

Undated pre-Roman



Roman

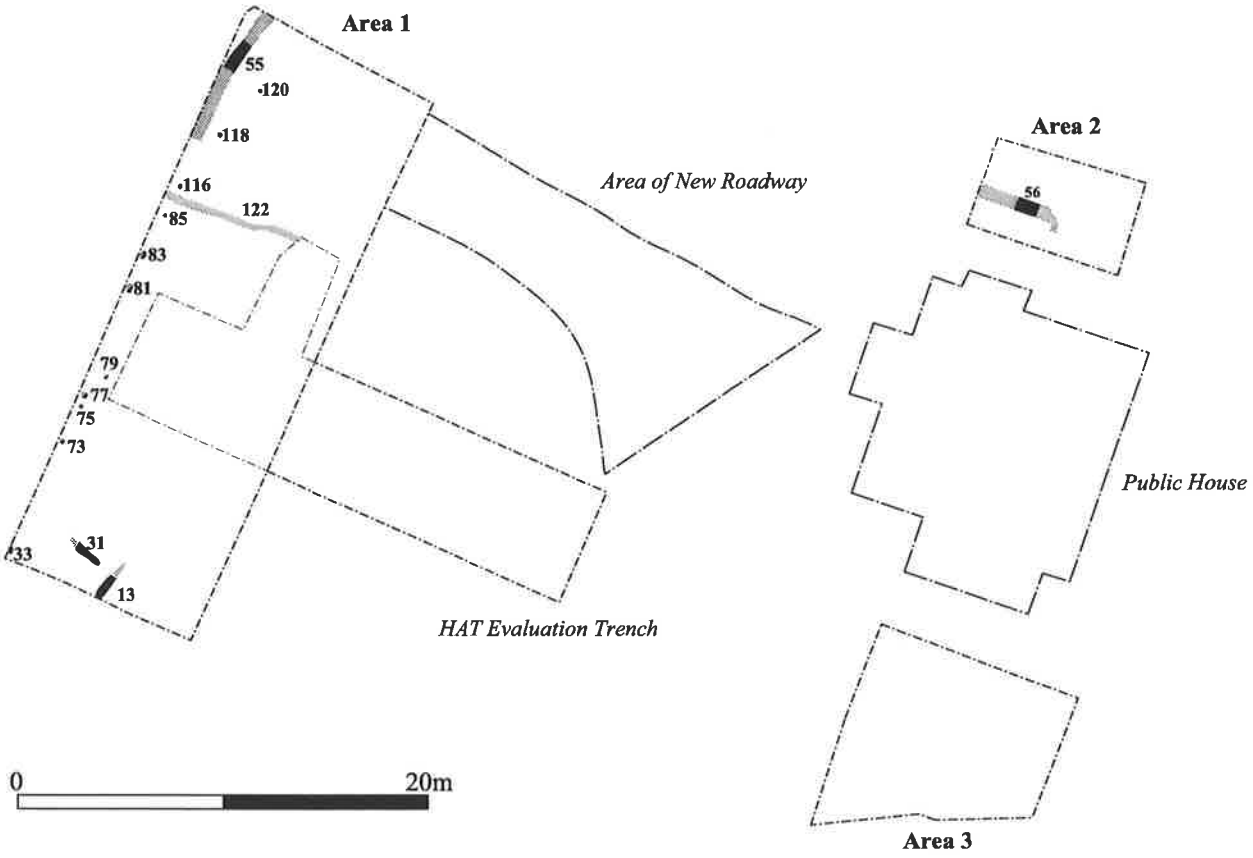


Figure 2 *Undated pre-Roman (above) and Roman features (below)*

back from it, with accompanying fields behind. This is precisely the kind of sparse occupation which would be expected for this zone.

The environmental evidence suggests that crops such as wheat, barley and peas were being grown, some of them on heavy clay soils. Possibly this was taking place nearby on the clays known to be at the bottom of West Fen Road, although such soils also exist right on the top of the island where there is a patchy capping of Boulder Clay. Other species indicate that grassland was also nearby within the area being exploited by the Roman occupants. The meat portion of the local diet appears to have largely comprised cattle and sheep, although a single pike bone was recovered from the fill of ditch **56**.

Group 2 (13, 31, 55, 56, 122)
This group consists of five linears.

Gully **13** was 1.8m long, 0.27m deep and 0.25-0.45m wide. It was straight in plan, tapering to the north, oriented NE-SW and had rounded terminals. The fill, 12, was a dark greyish brown sandy clay silt. Pottery dating to the Roman period was recovered from this fill, as well as sheep and cattle bones.

Gully **31** was 0.15m deep, 0.35-0.7m wide and at least 5.7m long. It was straight in plan, oriented SE-NW and terminated to the east. It cut pits **164** and **166**. The fill, 30, was a brown clay silt. Animal bone was recovered from this fill.

Ditch **55** was 0.25m deep, 0.5-0.7 m wide and at least 7.0m long. It was slightly curved in plan, oriented N-S and curving away to the east. The fill, 54, was a very dark greyish brown silty clay and was cut by well **104**. Pottery dating to the Roman period was recovered from this fill.

Ditch **56** was 0.25m deep, 0.4-0.8 m wide and at least 4.3m long. It was straight in plan, oriented roughly E-W and turned south within the excavation area at the east end. The fill, 57, was a dark yellowish brown sandy silt and was cut by ditch **58** to the south. Pottery dating to the Roman period was recovered from this fill.

Gully **122** was 0.30-0.35 m wide and at least 7.1m long. It was mostly straight in plan, oriented roughly E-W, with a terminal to the east within Area 1. The fill, 121, was a yellowish brown sandy silt which was not excavated and no artefacts were recovered from this fill.

Group 3 (33, 73, 75, 77, 79, 81, 83, 85, 116, 118, 120)
This group consists of a fenceline of eleven postholes.

Posthole **33** was 0.42m long, 0.13m deep and at least 0.32m wide. It was probably oval in plan. The fill, 32, was a dark greyish brown sandy clay silt.

Posthole **73** was circular in plan, 0.25m in diameter and 0.15m deep. The fill, 72, was a dark greyish brown sandy silt.

Posthole **75** was circular in plan, 0.22m in diameter and 0.06m deep. The fill, 74, was a dark greyish brown sandy silt.

Posthole **77** was circular in plan, 0.30m in diameter and 0.13m deep. The fill, 76, was a dark greyish brown sandy silt.

Posthole **79** was 0.28m long, 0.23m wide and 0.13m deep. It was oval in plan. The fill, 78, was a dark greyish brown sandy silt.

Posthole **81** was 0.45m long, 0.35m wide and 0.23m deep. It was irregular in plan. The fill, 80, was a dark greyish brown sandy silt.

Posthole **83** was 0.43m long, 0.32m wide and 0.17m deep. It was oval in plan. The fill, 82, was a dark greyish brown sandy clay silt. Pottery dating to the Roman period was recovered from this fill.

Posthole **85** was 0.28m long, 0.23m wide and 0.10m deep. It was oval in plan. The fill, 84, was a dark greyish brown sandy clay silt.

Posthole **116** was 0.26m long, 0.22m wide and 0.15m deep. It was oval in plan. The fill, 115, was a dark greyish brown sandy clay silt.

Posthole **118** was 0.30m long, 0.26m wide and 0.12m deep. It was oval in plan. The fill, 117, was a dark greyish brown sandy clay silt.

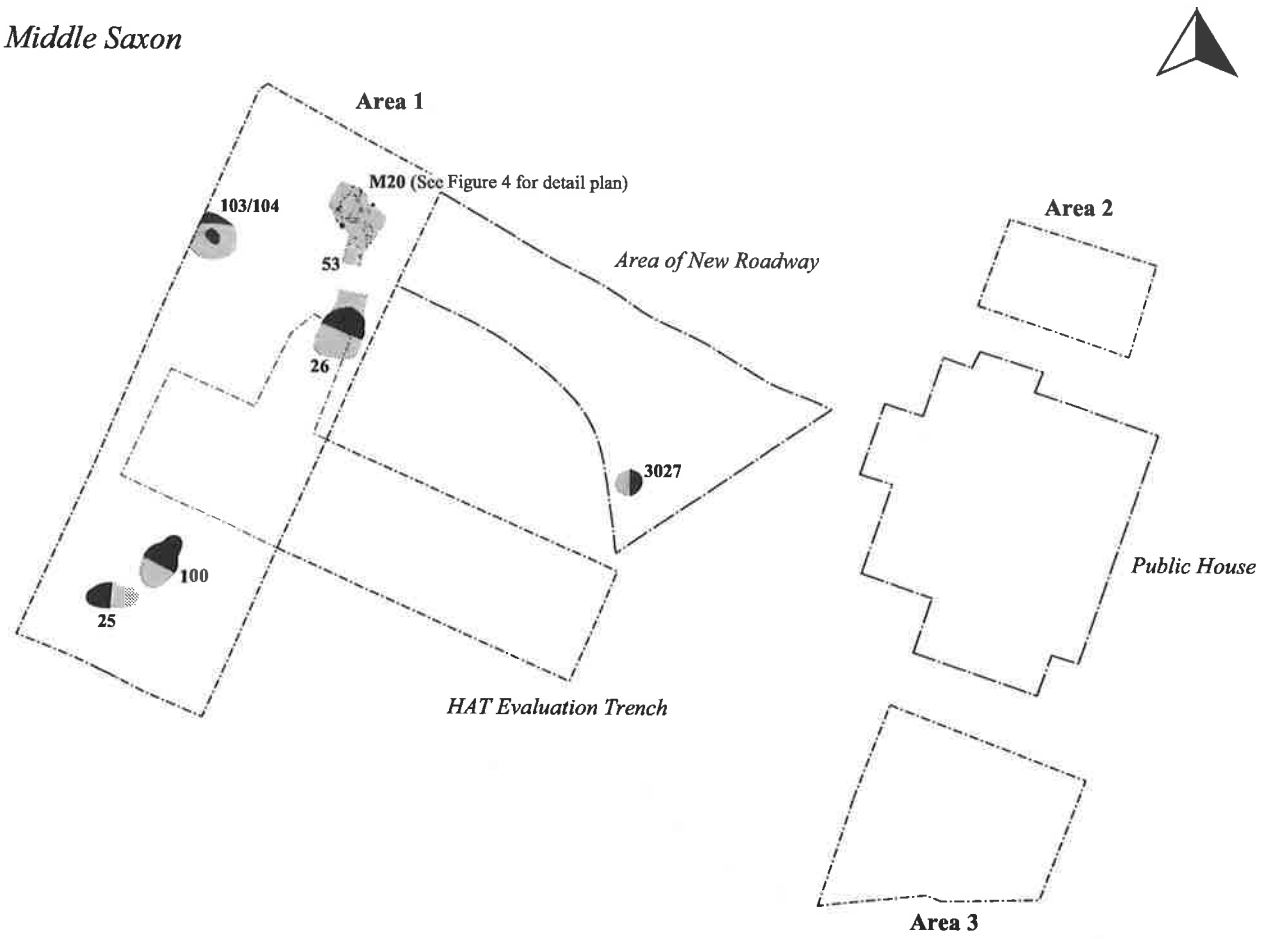
Posthole **120** was 0.24m long, 0.20m wide and 0.20m deep. It was oval in plan. The fill, 119, was a dark greyish brown sandy clay silt.

5.4 Phase 3: Possible Middle Saxon see Figure 3 upper

This phase probably dates to the same period as the following phase and consists of a single feature interpreted as an oven. This feature is much more complex than for example early Saxon hearths found outside buildings at West Stow (West 1985), and is also wholly unlike simple hearths found within Late Saxon buildings at Hinxton Hall (Leith & Spoerry forthcoming). It bears some resemblance to ovens or hearths from Middle to Late Saxon sites such as North Elmham (Wade-Martins 1980), Goltho (Beresford 1987) and Writtle (Rahtz 1969), although unlike all of these, there is no evidence for an enclosure or structure surrounding it. There may have been an enclosure which has left no trace if the elements of it were shallow and above the limits of subsequent truncation. The paired arrangement of stakeholes is similar to ovens found in Stafford which have been radiocarbon dated to the early ninth century (Moffett 1994). Stratigraphically and morphologically, then, the feature bears greater similarities to later Saxon ovens than to earlier ones, but probably has most in common with the later Middle Saxon examples found elsewhere.

This phase is considered to be distinct from Phase 4a because of the stratigraphic relationship where pit **53** cuts **M20**.

Middle Saxon



Saxo-Norman

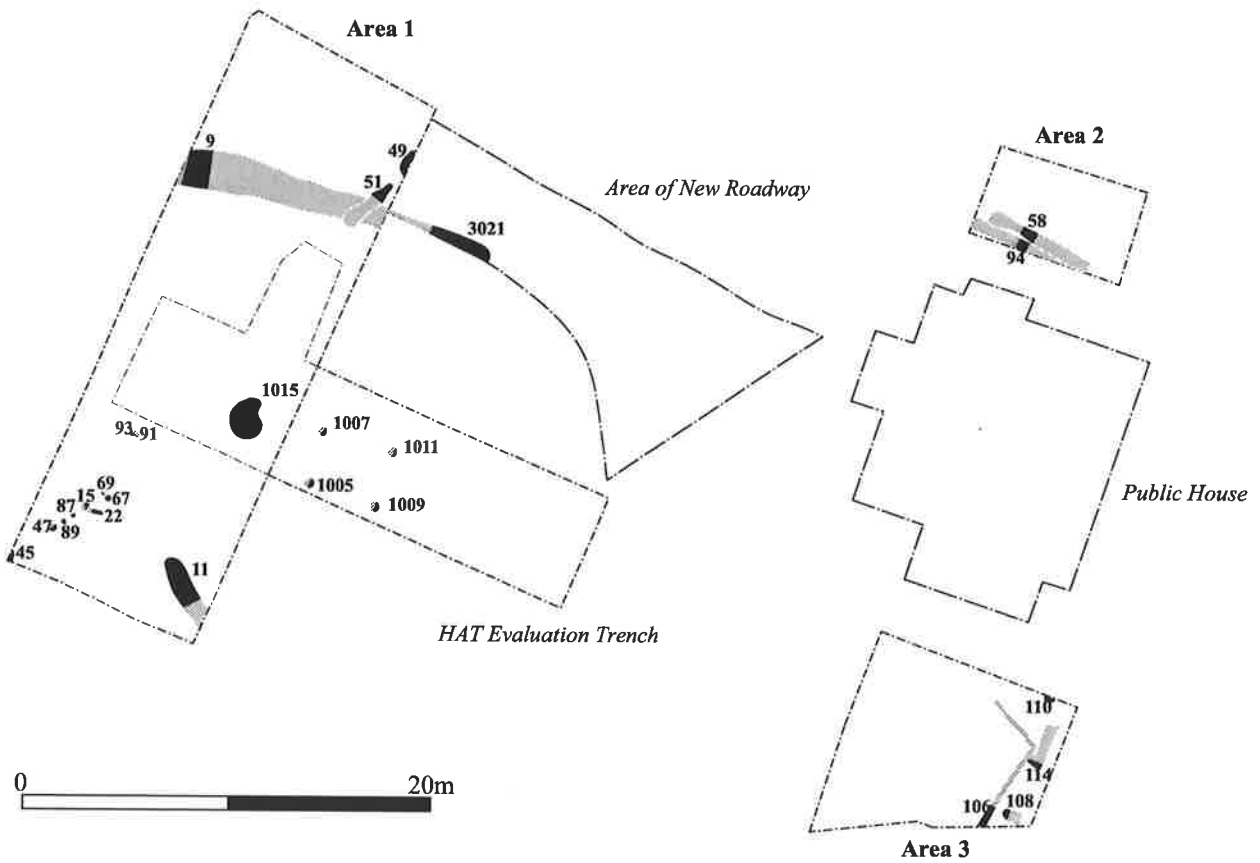


Figure 3 *Middle Saxon (above) and Saxo-Norman features (below)*

Group 4 (M20) see Figures 3, 4 and Plate 1
This group consists of an oven or hearth with associated postholes, stakeholes and surfaces.

The feature consisted of a burnt surface 18 into which was cut a possible flue **127** where the heat alteration of the natural ground was most pronounced. Three postholes **124**, **126**, and **128** were also cut into this surface, as well as twenty-nine stakeholes (**129-158**) of varying sizes and depths. Most of the stakeholes were paired, although they did not form an obvious pattern. Several other less typologically straightforward structural elements were also recorded, including four possible post impressions.

Burnt surface 18 was vaguely subrectangular with a narrower 1.0m wide arm running off to the south where it was cut by pit **53**. It measured a maximum of 3.70m N-S and 2.94m E-W. The depth of heat alteration of the natural ground varied across 18, and was far deeper, up to 0.1m, in the immediate vicinity of flue **127**. The change in colour was also more pronounced with increasing proximity to the flue, shading from reddish orange at the edges to a purplish black in the centre. At the very edge of 18, the change to unaltered natural was very sharp and the shape of the perimeter was fairly smooth. When first exposed by machine, there was a thin and patchy layer covering 18 that was distinct from the subsoil. This layer, 19, was removed by hand where it survived to reveal the burnt surface of 18. It was an olive brown sandy silty clay with occasional charcoal flecks and identical in all respects to 17, the fill of flue **127**.

Flue **127** was on the western side of 18 and contiguous with its northern edge. It was 1.66m long, 0.56m wide and 0.10m deep, aligned roughly N-S. It was filled by 17, an olive brown sandy silty clay with occasional charcoal flecks

Posthole **124** was 0.26m long, 0.24m wide and 0.20m deep. It was oval in plan. The fill, 123, was a very dark greyish brown sandy clay silt.

Posthole **126** was 0.30m long, 0.26m wide and 0.15m deep. It was oval in plan. The fill, 125, was a very dark greyish brown sandy clay silt.

Posthole **128** was circular, 0.20m in diameter and 0.06m deep. The fill, 127, was an olive brown sandy clay silt.

Stakeholes **129**, **130**, **131**, **132**, **133**, **134**, **135**, **139**, **142**, **144**, **145**, **146**, **152**, **153**, **154**, **157** and **158** were circular.

Stakeholes **136**, **137**, **138**, **140**, **141**, **149**, **155**, and **156** were oval.

Stakeholes **143**, **150**, and **151** were triangular.

Stakeholes **147**, and **148** were irregular.

The majority of the stakeholes were confined to the eastern side of 18. They varied between 0.04m and 0.08m in diameter and between 0.6m and 0.15m in depth. Generally, the larger stakeholes tended to be the deepest.
Two stakeholes did not fit these general rules.

Stakehole **159** was 0.18m long, 0.10m wide and 0.12m deep. It was quite an elongated oval in plan.

Stakehole **160** was 0.18m long, 0.09m wide and 0.10m deep. It was an elongated oval in plan like **159**, however it also had a 'spur' about halfway along its length on the northern side, as if a split or forked stake or plank had been driven in.

All of the stakeholes appeared to be filled by 17/19, and without exception were heat-hardened around the full depth of the cut, which made their excavation surprisingly simple once they had been identified and their significance realised.

5.5 **Phases 4a and 4b: Middle Saxon** see Figure 3 upper

This period is represented by all three of the wells on site and some of the smaller or more ephemeral pits. The two phases are divided between the pits, Group 5 (Phase 4a), and the wells, Group 6 (Phase 4b), because of the stratigraphic relationship where well **26** cuts pit **53**.

Since there is obviously occupation nearby in previous and subsequent periods, we must consider why there are apparently no wells here from these other periods. The feature types during the other periods are more indicative of land division and occasional use, whereas during the Middle Saxon, it would appear that greater activity was taking place on the site itself, certainly in Area 1. This might suggest a shift in settlement pattern during the Middle Saxon, perhaps when the occupation focus at the bottom of West Fen Road spread uphill as ribbon development towards the ecclesiastical centre on top of the island.

Most of the slag recovered from the site is derived from features of this period, which suggests that some small-scale smithing was taking place quite nearby (Wall pers. comm.), although there is unfortunately no direct evidence on the site for this type of activity. The wells are not deep, but all penetrate the thin rock layer in the upper part of the Lower Greensand, which is all that is required on the top of the Ely island in order to obtain water. Similarly-sized features on this and other sites in the centre of Ely often utilise this layer of stone as their base, and while it is not entirely impermeable, water does well up when the layer is compromised. It would seem, therefore, that deliberately digging through it signals an intent to find water. While they may have been used primarily for drinking, there are many industrial processes which require copious amounts of water, although it is perhaps unlikely that two might have been in use simultaneously. The other pits belonging to this period may have been small rubbish pits, or in some way associated with the industrial processes that may have been taking place at the time. The finds assemblages are relatively

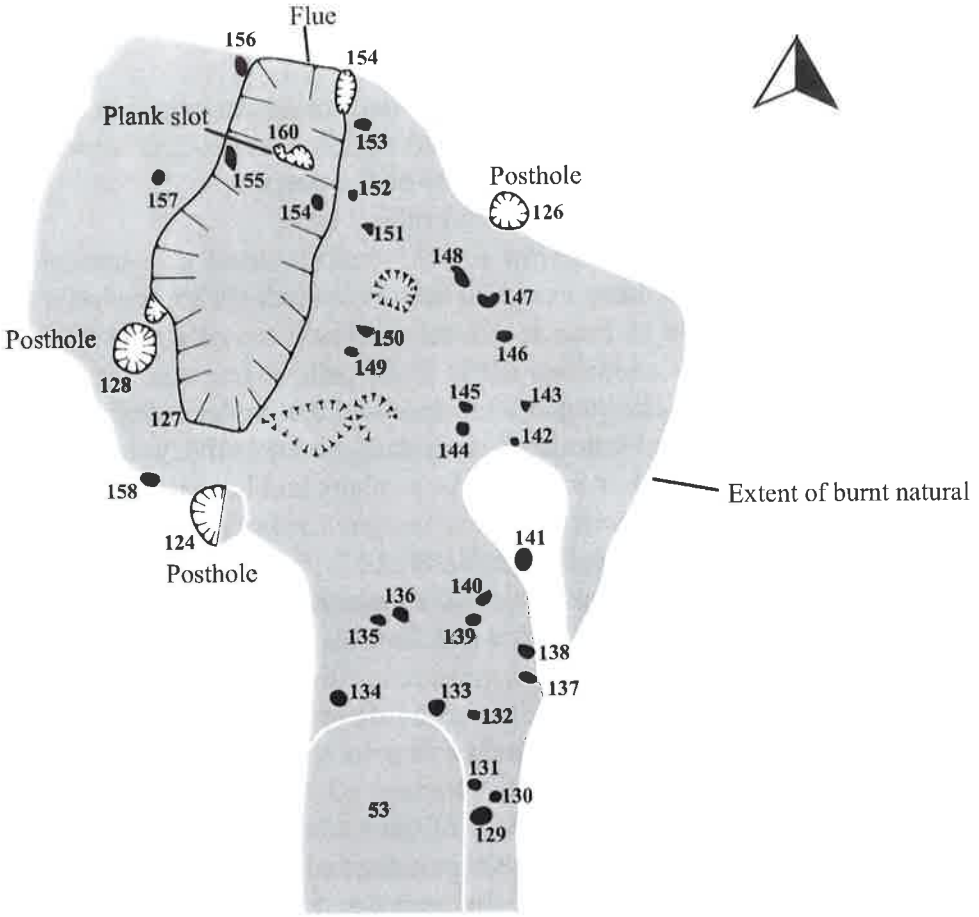


Figure 4 *Detail plan of oven M20*

Plate 1 *Detail of oven M20 from the north*

small, however, and do not give much of a clue as to the nature of activities during this period, hence the need for speculation.

The environmental evidence from this period suggests that crops such as wheat, barley and peas were still being grown, some of them on heavy clay soils. This also marks the first appearance of flax, which may have been used for oil, fibre or both. Other species continue to indicate that grassland was also nearby within the area being exploited by the Middle Saxon occupants. The meat portion of the local diet seems to have again largely comprised cattle and sheep, although pig and goose also appear in the assemblage at this time. Several herring bones were recovered from fill 97 of well **100**. A single leg bone from a crane was found in fill 96 of well **100**. The goose and crane may indicate that some wildfowling was taking place at this time.

Phase 4a
Group 5 (25, 53, 3027)
This group consists of three pits.

Pit **25** was 2.6m long, 0.08m deep and 1.3m wide. It was suboval in plan, oriented E-W. The fill, 24, was a yellowish brown sandy silt and was cut by short gully **22**. Pottery dating to the Middle Saxon period was recovered from this fill.

Pit **53** was 0.1m deep, 0.6m wide and at least 0.8m long. It was straight in plan, oriented N-S, with a rounded terminal to the north. The fill, 52, was a dark greyish brown sandy clay silt and was cut by gully **31** and pit **25**. Pottery dating to the Middle Saxon period was recovered from this fill.

Pit **3027** was circular in plan, 1.0m in diameter and 0.16m deep. The fill, 3028, was a dark greyish brown sandy silt. Pottery dating to the Middle Saxon period was recovered from this fill.

Phase 4b
Group 6 (26, 100, 103/104) see Figure 5 for sections
This group consists of three wells.

Well **26** was 2.8m long, 2.2m wide and 1.35m deep. It was suboval in plan, oriented roughly N-S. Upper fill 29, was a dark yellowish brown sandy silt. Middle fill 28 was a dark brown sandy silt with occasional small flints and moderate charcoal flecks towards the base. Lower fill 27 was a dark yellowish brown silty clay sand with occasional small flints. Pottery dating to the Middle Saxon period was recovered from fill 29, Roman pottery was recovered from fill 28 and a fragment of tegula tile was found in 27. A plano-convex hearth bottom weighing 1931g was found in fill 28 along with small fragments of smithing slag.

Well **100** was 2.6m long, 0.08m deep and 1.3m wide. It was suboval in plan, oriented roughly N-S. Upper fill 96, was a dark greyish brown clay silt with occasional small flints and chalk flecks. Middle fill 97 was an olive brown sandy clay silt with occasional small flints. Slump 98 was a yellow silty sand. Lower fill 99 was a greyish brown silty clay sand. Pottery dating to the Middle Saxon period was recovered from

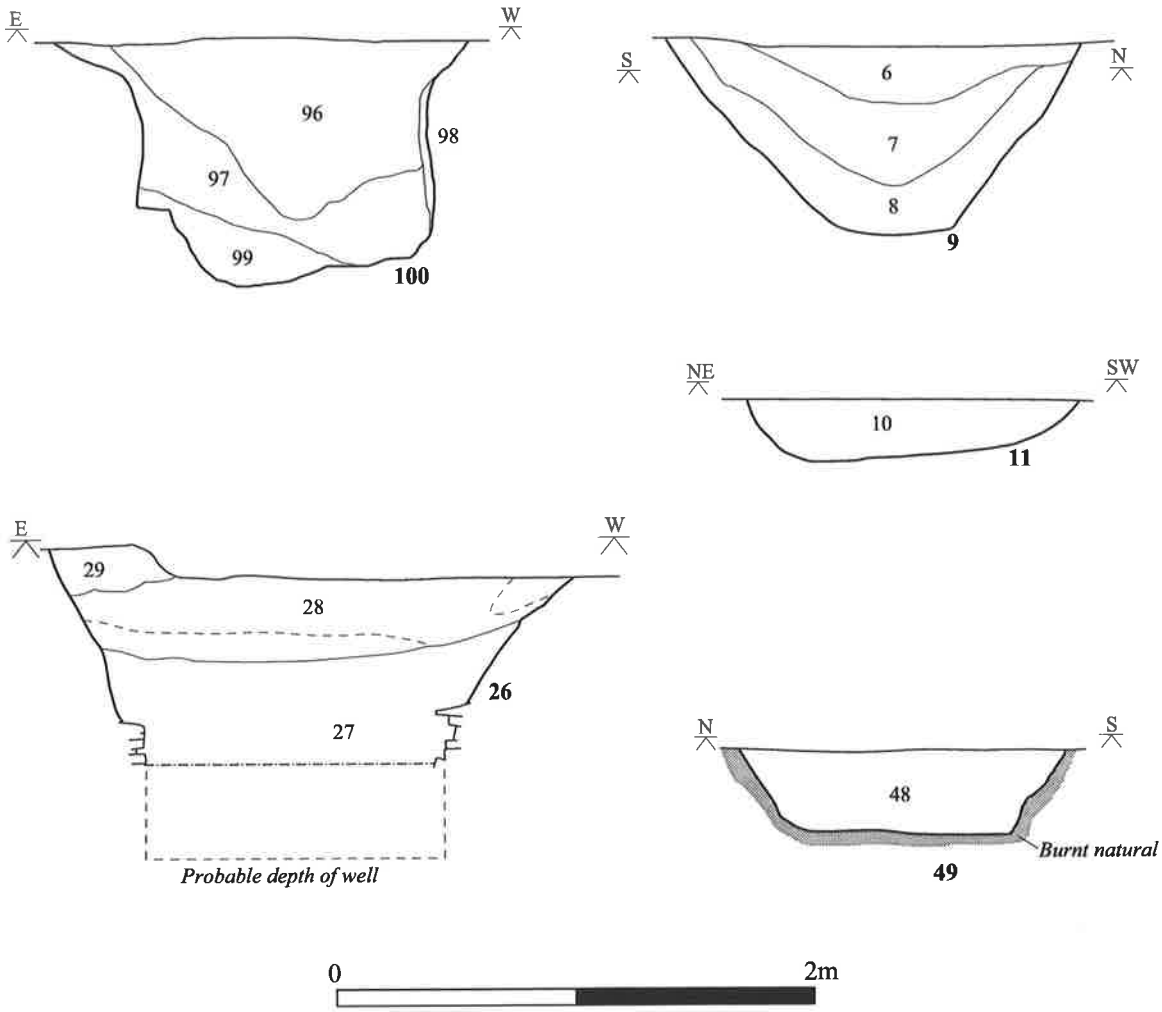


Figure 5 *Sections*

fills 96, 97 and 99, along with animal bone; Roman tile was also recovered from fill 96. Fills 96 and 99 contained small fragments of smithing slag.

Well **103/104** was at least 1.5m deep, 1.6m wide and 2.2m long. It was oval in plan, oriented roughly E-W. Upper fill 101 was a dark greyish brown sandy clay silt and was cut by ditch **9**. Lower fill 102, which only survived within the well shaft **104**, was a grey sandy clay silt with moderate shells and occasional charcoal flecks.

5.6 Phases 5, 5a and 5b: Saxo-Norman see Figure 3 lower

This period is perhaps the most varied of all, since it includes linears of various sizes and alignments, pits and an arrangement of postholes. There are at least two distinct phases of activity during this period, the second of which (5b) is most unusual for this site, because it involves a drastic alteration in the alignments of the features. The only definite evidence of the earlier phase (5a) is the large boundary ditch (Group 9). No other boundary elements of the same period fit with the arrangement of this feature, although it is possible that the postholes found during the evaluation also belong to this phase, since they appear to share its alignment. The horse burial (Group 7) and the burnt pit (Group 8) have been placed in a general Phase 5 since they do not fall easily into either of the sub-phases, yet they appear to date to the same period. In the

evaluation report, the excavator speculated upon an Iron Age origin for these latter two groups, but acknowledged that there is no direct evidence to support this (Doel 1999).

Several features in Area 3 could not be dated absolutely, but they probably also belong to this period, representing the earlier phase. The second phase seems to suggest that whatever activity was occurring at this time, either did not align in a perpendicular arrangement with one of the nearby roads, or these routes were not in use at this particular point, and the features were arranged more randomly. The latter explanation is quite weak, however, as it seems highly likely that West Fen Road has existed as a route since at least Middle Saxon times. Chiefs Street itself may be a later imposition, and not formalised until the medieval period.

The environmental evidence indicates the widest variety of food sources during this period. Crops such as wheat, barley, rye, oats, peas, beans and flax were being grown, alongside flavourings such as celery seed and parsley. While some of them may have been grown on heavy clay soils as in previous periods, there is also greater use of the grassy local habitats as well as the first exploitation of the fen. It is possible that the use of peat as a fuel was occurring at this time The meat portion of the local diet appears to have once more largely comprised cattle, sheep and pig. No goose bones were found, but a cat bone was recovered from pit **51**. Eel, herring, pike and perch bones were recovered from a fill of ditch **10**.

Phase 5
Group 7 (1015)
This group consists of a single pit which contained an articulated horse burial. It was found and described during the evaluation stage (Doel 1999).

Pit **1015** was 0.15m deep, 2.0m wide and 2.3m long. It was irregular in plan, with no clear orientation. It contained a single fill, 1016, which was a pale brownish grey sandy clay with occasional small flints. Apart from the horse skeleton, a single piece of pottery datable to the 10th to 14th centuries was recovered from the fill.

Group 8 (49)
This group consists of a single pit.

Pit **49** was 0.36m deep, 1.38m long and at least 0.42m wide. It was probably oval in plan, with steep, flat sides and a flat base, both of which had been extensively heat altered to a dark reddish-purple. The fill, 48, was a very dark grey sandy clay silt which contained pottery dated to the Saxo-Norman period.

Phase 5a
Group 9 (1005, 1007, 1009, 1011)
This group consists of four postholes in a rectangular arrangement 3m N-S by 4m E-W. They were found and described during the evaluation stage (Doel 1999).

All four were very similar in size and subcircular, with **1005** being the largest at 0.25m deep, 0.5m wide and 0.6m long. They all contained identical fills, which were

grey clay sandy silts with occasional charcoal flecks and rare burnt flints. No finds were recovered from any of the fills.

Group 10 (9/3021) see Figure 5 for section
This group consists of a large boundary ditch.
Ditch **9** was 0.8m deep, 1.4-1.9m wide and at least 15.8m long. It was straight in plan, oriented E-W and probably terminating to the east. It cut the upper fill of well **104**. Upper fill 6 was a very dark greyish brown sandy clay silt. Middle fill 7 was a black clay sandy silt with occasional small flints and frequent charcoal lumps throughout, and particularly towards the base. Lower fill 8 was an olive brown sandy silty clay with occasional small flints. Pottery dated to the Saxo-Norman period was recovered from fills 6, 7, and 8, along with animal bone; shell was also found in fills 6 and 7. Fill 6 also contained small fragments of smithing slag.

Group 11 (108, 110, 114)
This group consists of a gully and two pits located close to the modern line of Chiefs Street. These may represent the first evidence for occupation along this frontage, thus implying the establishment of the routeway.

Gully **108** was 0.16m deep, 0.55m wide and at least 1.1m long. It was straight in plan, oriented E-W, with a rounded terminal to the west. The fill, 107, was a very dark greyish brown sandy silt and was cut by ditch **112**.

Pit **110** was 0.1m deep, 0.5m wide and at least 0.3m long. It was straight in plan, oriented N-S, with a rounded terminal to the north. The fill, 109, was a dark greyish brown sandy clay silt.

Pit **114** was 2.2m long, 0.25m deep and at least 1.0m wide. It was irregular in plan. The fill, 113, was a dark greyish brown sandy silt and was cut by linears **106** and **112**.

Phase 5b
Group 12 (11, 22, 51, 58, 94, 106) see Figure 5 for section of **11**
This group consists of five linears and a rectilinear gully.

Ditch **11** (Area 1) was 0.18m deep, 0.9-10m wide and at least 3.7m long. It was slightly curved in plan, oriented NW-SE and terminated to the east. The fill, 10, was a dark greyish brown sandy silt, from which pottery dated to the Saxo-Norman period was recovered, along with a small fragment of smithing slag.

Gully **22** (Area 1) was 0.10m deep, 0.26m wide and at least 0.9m long. It was straight in plan, oriented E-W and terminated to the east. It cut the fill of pit **25**. The fill, 21, was a brown clay silt and was cut by posthole **15**.

Gully **51** (Area 1) was 0.20m deep, 0.84m wide at maximum and 3.0m long. It was straight in plan, oriented E-W and terminated to the east. It cut the upper fill of ditch **9**. The fill, 50, was a very dark grey sandy clay silt, from which pottery dated to the Saxo-Norman period was recovered.

Ditch **58** (Area 2) was 0.07m deep, 0.46-0.90m wide and at least 5.4m long. It was straight in plan, oriented NW-SE and terminated to the north-west. It cut the fills of ditches **56** and **94**. The fill, 59, was a dark yellowish brown sandy clay silt and was cut by ditch **60**.

Ditch **94** (Area 2) was 0.30m deep, at least 0.54m wide and 5.7m long. It was straight in plan, oriented NW-SE. The fill, 95, was a dark yellowish brown sandy clay silt and was cut by ditch **58**.

Rectilinear gully **106** (Area 3) was 0.15m deep, 0.34m wide, 3.0m long on the NW-SE arm, and at least 5.0m long on the NE-SW arm. It cut the fill of pit **114**. The fill, 105, was a dark brown sandy clay silt.

Group 13 (15, 45, 47, 67, 69, 71, 87, 89, 91, 93)
This group consists of ten postholes.

Posthole **15** was 0.43m long, 0.32m wide and 0.30m deep. It was oval in plan. Upper fill 14 was a dark greyish brown sandy clay silt. Lower fill 23 was a dark brown sandy clay silt.

Posthole **45** was at least 0.4m long, 0.2m wide and 0.09m deep. It was only partially visible within the excavation area, but was probably an elongated oval in plan. The fill, 44, was a dark brown sandy silt.

Posthole **47** was 0.40m long, 0.38m wide and 0.25m deep. It was oval in plan. The fill, 46, was a dark greyish brown sandy clay silt.

Posthole **67** was circular in plan, 0.30m in diameter and 0.30m deep. The fill, 66, was a dark greyish brown sandy silt.

Posthole **69** was circular in plan, 0.20m in diameter and 0.06m deep. The fill, 68, was a brown sandy silt.

Posthole **71** was 0.40m long, 0.32m wide and 0.13m deep. It was oval in plan. The fill, 70, was a dark greyish brown sandy clay silt.

Posthole **87** was 0.26m long, 0.23m wide and 0.15m deep. It was oval in plan. The fill, 86, was a brown sandy clay silt.

Posthole **89** was 0.36m long, 0.26m wide and 0.06m deep. It was oval in plan. The fill, 88, was a brown sandy clay silt.

Posthole **91** was 0.20m long, 0.18m wide and 0.16m deep. It was oval in plan. The fill, 90, was a brown sandy clay silt.

Posthole **93** was 0.36m long, 0.28m wide and 0.20m deep. It was oval in plan. The fill, 92, was a brown sandy clay silt.

5.7 Phase 6: Late Twelfth to Fourteenth Centuries see Figure 6 upper

The two major changes that occur in the medieval period are the formalisation and realignment of Chiefs Street as a route and the use of the site as an area for refuse disposal. Prior to this period, the way through from West End to West Fen Road may have been only an informal shortcut, however, it was fixed enough for the features in Group 11 to be placed alongside it. These may represent small, insubstantial timber buildings.

The two ditches which form Group 14 may represent the early roadside drainage and indicate the original line of Chiefs Street, which is seen to exhibit a slight kink at its southern end, possibly indicating a realignment during some later period. The pits contain classic Ely Ware assemblages alongside domestic rubbish including animal bones.

The environmental evidence indicates the widest variety of food sources during this period. Crops such as wheat, barley, rye, oats, peas, and flax were being grown. While some of them may have been grown on heavy clay soils as in previous periods, there is also greater use of the grassy local habitats as well as continued exploitation of the fen, possibly as agricultural land by this time. The meat portion of the local diet appears to have largely comprised sheep. No cattle, pig or goose bones were found. Sample <2> from layer 16 contained none of the larger mammal species, but had the greatest abundance of eel and herring bones from any period, along with almost the same number of indeterminate fishbones.

Group 14 (38/60/3005/3013, 112)
This group consists of two ditches.

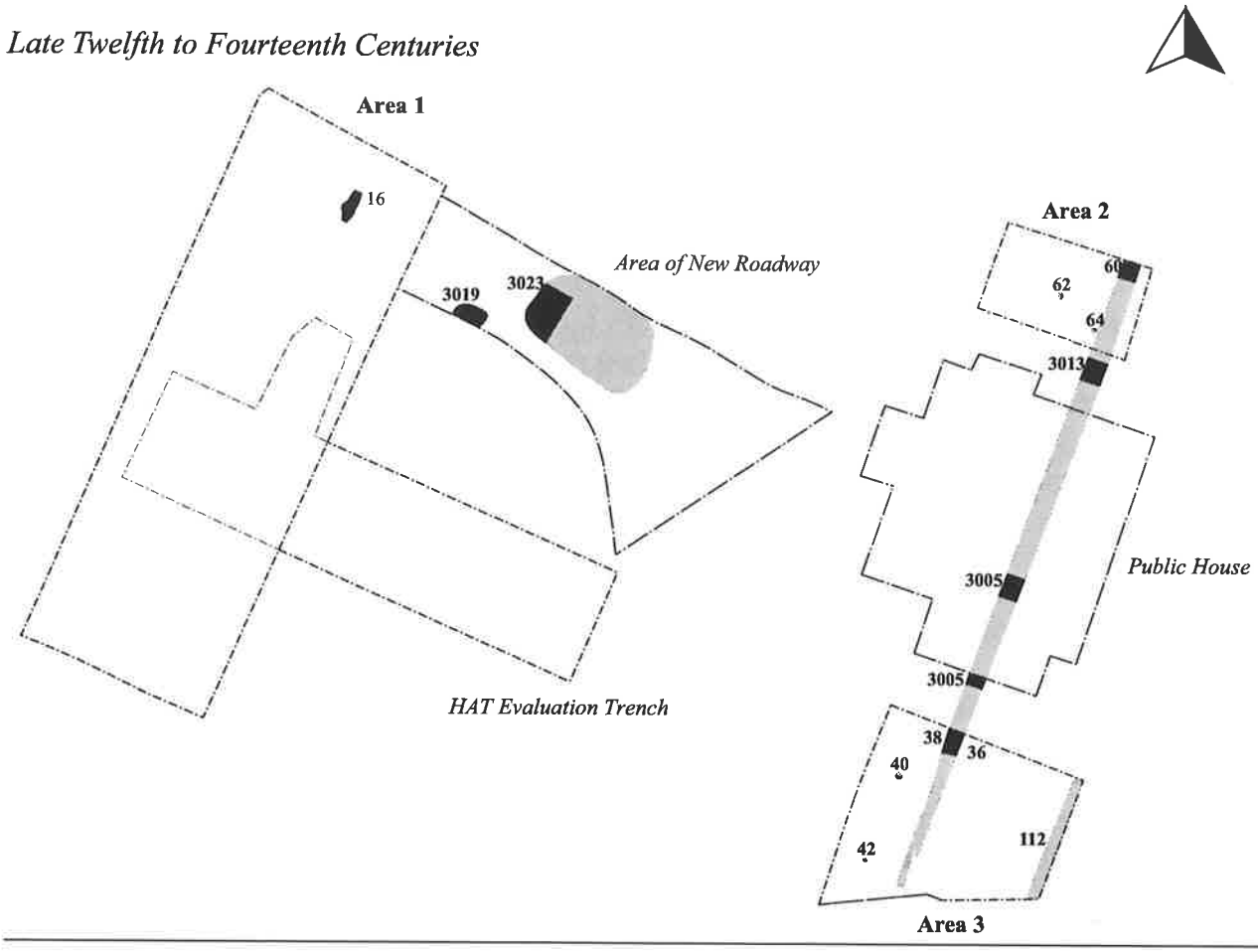
Ditch **38/60/3005/3013** was the same feature observed separately in Areas 2 and 3 and confirmed as a single feature during the demolition phase. It was 0.18m deep, 0.9-1.0m wide and at least 3.7m long. It was straight in plan, oriented NNE-SSW. The fill, 39/61/3006/3012, was a dark greyish brown sandy silt, from which pottery dated to the medieval period was recovered.

Ditch **112** was 0.18m deep, 0.9-1.0m wide and at least 3.7m long. It was slightly curved in plan, oriented NW-SE and terminated to the east. The fill, 111, was a dark greyish brown sandy silt, from which pottery dated to the medieval period was recovered.

Group 15 (16, 3019, 3023)
This group consists of a layer and two pits.

Layer **16** survived only as a small irregular patch in a depression in the top of oven/hearth **M20**. Its original extent is impossible to determine, but its remaining dimensions were 0.9m by 0.6m and 0.1m deep. It was a black sandy silty clay with occasional charcoal flecks, small ashy patches and small stones. Pottery dated to the medieval period was recovered from this deposit.

Late Twelfth to Fourteenth Centuries



Post-Medieval

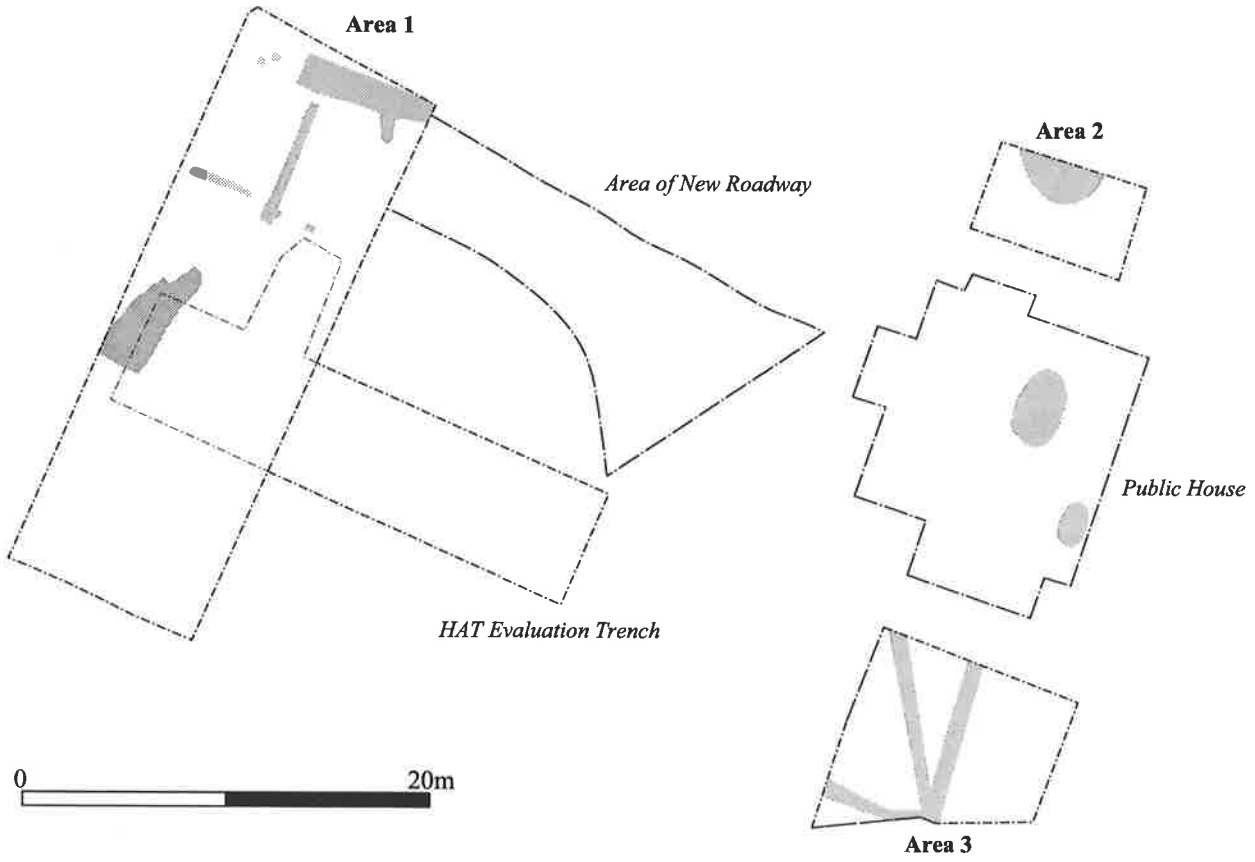


Figure 6 *Late Twelfth to Fourteenth Centuries (above) and Post-Medieval features (below)*

Pit **3019** was 1.9m long, 0.45m deep and at least 0.9m wide. It was probably suboval in plan. Upper fill 3016, was a dark yellowish brown sandy silt. Middle fill 3017 was a yellowish brown sandy clay with occasional small flints and moderate charcoal flecks towards the base. Lower fill 3018 was an olive clay silty sand. Pottery dated to the medieval period was recovered from fill 3018.

Pit **3023** was 7.0m long, 5.0m wide and 0.75m deep. It was suboval in plan, oriented E-W. Upper fill 3026, was an olive brown sandy clay silt. Middle fill 3025 was a greyish brown sandy clay silt with occasional small flints and moderate charcoal flecks towards the base. Lower fill 3024 was a brown clay sandy silt with occasional small flints. Pottery dated to the medieval period was recovered from fills 3025 and 3026.

Group 16 (40, 42, 62, 64)
This group consists of four postholes.

Posthole **40** was 0.40m long, 0.38m wide and 0.14m deep. It was oval in plan. The fill, 41, was a brown sandy clay silt.

Posthole **42** was 0.28m long, 0.24m wide and 0.08m deep. It was oval in plan. The fill, 43, was a brown sandy clay silt.

Posthole **62** was 0.36m long, 0.33m wide and 0.13m deep. It was oval in plan. The fill, 63, was a brown sandy clay silt.

Posthole **64** was 0.30m long, 0.28m wide and 0.09m deep. It was oval in plan. The fill, 65, was a brown sandy clay silt.

5.8 Phase 7: Post-Medieval see Figure 6 lower

Group 17 (No numbers assigned)
This group consists of several post-medieval and modern rubbish pits, a possible quarry pit and a long shallow rectangular feature. The site appears to have been waste ground right up until the construction of the first public house.

6 DISCUSSION

It appears that the site has been largely backplots for most of its history, possibly starting as fields or paddocks behind a farmstead off Akeman Street, although their orientation would not have been perpendicular to it. Later, the development of West Fen Road as a routeway and subsequent building along it would have produced similar zonation to the north and south of the road, away from the frontage.

The majority of the features from all periods are boundaries of one form or another, and on a variety of scales, although in the Middle Saxon period there are none at all.

There is certainly little evidence to suggest domestic occupation in the immediate area of the site, certainly not in the form of timber or stone buildings, and thus it seems likely that it was peripheral to settlement.

Undated Pre-Roman

This period is characterised by a concentration of small linear and irregular features, which imply that a focus of activity lies nearby, presumably to the south of Area 1. The lack of finds makes defining these activities difficult, but it seems unlikely that there was a field system in place when these features were created. There is no evidence from this site for environmental conditions or diet at this time.

Roman

A field system is created for the first time during this period, and the evidence is contained within the linear features and fenceline which form parts of a recognisable enclosure arrangement. Within this, in the southwest corner of Area 1 was a possible structure. These features are common, typologically speaking, on the periphery of Roman settlement, and the relatively low finds density points to the focus being elsewhere. 100m to the east, the putative course of Akeman Street passes across the Ely island, and any occupation associated with this route would have probably been set back from it, with accompanying fields behind. This is precisely the kind of sparse occupation which would be expected for this zone. Common crops and domestic animal species form the major dietary components at this time.

Middle Saxon

There is no further archaeological activity on the site until the pits, wells and oven of the Middle Saxon period. There are no land divisions to suggest to which routeway the features might be related, but it seems most likely that they would be behind structures along West Fen Road, which was probably established by this time. The wells are not deep, but all penetrate the thin rock layer in the upper part of the Lower Greensand, which is all that is required on the top of the Ely island in order to obtain water. Similarly-sized features on this and other sites in the centre of Ely often utilise this layer of stone as their base, and while it is not entirely impermeable, water does well up when the layer is compromised. It would seem, therefore, that deliberately digging through it signals an intent to find water. While they may have been used primarily for drinking, there are many industrial processes which require copious amounts of water, although it is perhaps unlikely that two might have been in use simultaneously. The number of wells suggests longevity of whatever activities were taking place here, and the size and complexity of the oven feature hint at more than simple domestic tasks. It is possible that this feature was associated with a larger than average dwelling or with a more commercial venture. There is also the presence of smithing slag during this period, a product of a process which requires water in large amounts. All of the evidence points to occupation close by at this time. Grassland

nearby seems more abundant at this time and a similar variety of crops is being grown, with the inclusion of flax. Some wildfowling appears to be taking place.

Saxo-Norman

After the dearth of boundaries during the previous period, there are two distinctly different alignments of features which follow it. They are probably arranged off West Fen Road as in the previous period. The largest ditched feature on the site forms part of the first arrangement, with the four-post structure found during the evaluation possibly lying within or just outside of the putative enclosure. A heavily burnt pit lay to the north of this large ditch, which again may be within or outside the enclosure, since no other elements were discovered to define this further. Also at some point in this period, the first features appear which indicate a frontage onto Chiefs Street itself, and these small pits show that there was a way through from West End to West Fen Road. Later in this period, the entire enclosure system was re-aligned in an orientation wholly unlike any previous or subsequent pattern. The second Saxo-Norman phase is comprised of smaller, more ephemeral linear features and appears to contain a structure in Area 3 which may have been a small wooden building set alongside the still informal route of Chiefs Street. The variety of crops being grown is much greater than previously, while the animal species are as diverse as at any other time, and the evidence for the exploitation of fish is at its greatest.

Late Twelfth to Fourteenth Centuries

This seems to be the point at which the existing route of Chiefs Street is finally formalised with the cutting of ditches on either side of a narrow road. If this is indeed the very first formal layout of the street, it would appear that at some later date the road was re-aligned, as indicated by the slight kink at the southern end where it meets West End. On the west of the westernmost of the two ditches, three postholes might imply the existence of a fence, although whether it was contemporary with the ditch is not possible to determine. Further west still lay pits and a spread, again probably related to properties along West Fen Road. The largest pit may have originally been dug as a small quarry to extract the clay-rich natural and subsequently backfilled with material similar to the fill of the other small pit and the spread which overlay the Middle Saxon oven. The food crops were slightly less varied than in the Saxo-Norman period, and sheep was the only meat animal for which remains were found. Eels, presumably from local sources, formed a large component of the diet.

In Conclusion

As work progresses on sites at the bottom of West Fen Road, it is becoming increasingly clear that there is almost continual occupation in the area at the foot of the hill from the Late Iron Age onwards. This area of settlement is only abandoned in the early medieval period, when trade moves to the new docks on the east of the Ely Island. Up to this point, it appears that the two settlement foci coexisted, with at least three parallel routes running between them, with further development happening

along these roads and field systems filling in the final blank areas. Although collectively they may not have been "Ely", it seems likely that they would have had strong links, with the lower settlement perhaps being the larger of the two for some time, only being overtaken in size and importance in the post-Conquest period.

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Maps consulted

John Speed's map of 1610

Ordnance Survey of Cambridgeshire, Draft 1", 1811

Ordnance Survey 1:25000 Pathfinder sheet 941, Ely (North) and Littleport, 1988

Ordnance Survey 1:25000 Pathfinder sheet 941, Ely (South), Haddenham and Soham, 1986

Ordnance Survey 1:2500 digital maps, TL5380, TL5379, TL 5479, TL5480

British Geological Survey 1:50000, sheet 173, Ely, Solid and Drift Edition, 1980

Appendix A

Ely, Chiefs Street 1999-2000 (ELYCS99 ELYCS00)

Pottery Assessment by Paul Spoerry PhD

A total of 111 sherds, 1,331g, of pottery were recovered from the excavations and observation in 1999 and observation in 2000, at the site of the former Red White and Blue Public House, Chiefs Street, Ely. The pottery spans the Roman to post-Conquest medieval periods, including period assemblages that can be defined and quantified as shown on Table 1.

Table 1 Period assemblage totals

Period	General date-range	No.sherd	Weight	No. as %	Wt. as %
Roman	100-400	23	264g	21%	20%
Middle Saxon	700-850	11	251g	10%	19%
Late Saxon/Saxo Norman	875-1150	53	600g	48%	45%
Post-Con. Med.	1150-1350	23	213g	21%	16%
Totals		111	1331g	100%	100%

The ceramic groups from this small excavation are of a surprisingly wide date-range, which has helped to demonstrate phases of activity from the pre-Roman to the modern. The only residuality of note appears to be in the form of Roman sherds present in later contexts, but this still represents only part of the Roman material, with some Roman features certainly present. The Middle Saxon pottery is mostly Ipswich ware, but a few sherds of other types do exist (Table 2). The Middle Saxon sherds are generally unabraded and larger than in all other phases and this is probably indicative of these contexts being relatively undisturbed, but may also reflect the thick-walled, hand-made vessels of the period. The Ipswich ware appears to be represented by jar-type cooking vessels, perhaps implying domestic activities. The Late Saxon pottery is more fragmentary, with St Neots type ware jar-shaped cooking vessels and larger Thetford ware storage jars and/or pitchers present. In the post-Conquest medieval period the assemblage is again fragmentary and the small amount of pottery from this phase, especially in comparison to other similarly dated sites elsewhere in Ely, tends to suggest that the site does not contain primary occupation in this period. There is no pottery dating to after 1350 or thereabouts.

This assemblage is too small to provide any further statistical analysis on its own, and the individual vessels fragments are too small to warrant detailed study or illustration. The data presented in Tables 1 and 2, plus archived pottery sherds, may provide useful comparisons with the much large assemblages of the Middle to Late Saxon period that have recently been excavated from the West Fen Road part of town (Hall, Mortimer and Regan pers. comm.). For the purposes of this report, however, no further work is warranted.

Ely Chief Street 99-00, Pottery assessment statistics

Context	Roman		IPSW		M Sax Q		Maxey		NEOT		THET		Shell		MEL		HEDI		MSW		Unk	
	n	w	n	w	n	w	n	w	n	w	n	w	n	w	n	w	n	w	n	w	n	w
6									5	42	6	104	1	19								
7									8	52	1	1	5	39								
8									5	84	1	20										
10									1	5												
12	3	18																				
16															3	49						
24	1	8			2	37																
28	2	32																				
29	1	11	2	49																		
37									1	1					1	11						
39									1	5	7	55					3	12				
46																					1	3
48	1	3							2	20												
50											1	42										
52			1	18																		
54	3	44																				
57	5	83																				
61	3	22																				
82	1	6																				
96	1	7	2	22			1	5														
97	1	24	1	62																		
99	1	6	1	35																		
3006																			2	4		
3015									5	44												
3016									3	45												
3018									2	20												
3025													1	3	4	63						
3026									1	3	3	57			2	8			1	5		
3028			1	23																		
Totals	23	264	8	209	2	37	1	5	34	321	19	279	7	61	10	131	3	12	3	9	1	3

APPENDIX B

Report on the mammal, bird and amphibian bones from Chiefs Street, Ely

Ian L. Baxter BA (Hons) MIFA

Introduction

A total weight of just over 8Kg of animal bones was recovered from the site. Of this total, 93 "countable" (see below) bones came from the hand-collected material and 34 from the samples (Table 1). All the bones originate from features dated to the mid-late Saxon period and were found in boundary ditches, quarry pits and disused bread ovens. The preservation of the bone is generally good.

This is a very small assemblage of animal bones and its usefulness regarding the economy of the site and town, and local husbandry regimes in the mid-late Saxon period, is consequently rather limited. However, very little is presently known or published, of the archaeozoology of Ely at any period. This site has particular importance in line with major research objectives outlined by English Heritage (1991) concerning "The origins and development of the small town and rural markets" (*ibid*: 40) and "Patterns of industry and craftmanship" (*ibid*: 42).

Methods

Most of the animal bones from Chiefs Street were hand-collected. However, six contexts were also sampled representing 33% of total contexts containing recordable bone fragments. This should correct any bias against small bones from the domestic species and from smaller mammal, bird, amphibian and fish species present in the deposits.

The mammal bones were recorded following a modified version of the method described in Davis (1992) and Albarella and Davis (1994). In brief, all teeth (lower and upper) and a restricted suite of parts of the skeleton was recorded and used in counts. These are: horncores (if measurable), skull (zygomaticus), atlas, axis, scapula (glenoid articulation), distal humerus, distal radius, proximal ulna, carpal 2+3, distal metacarpal, pelvis (ischial part of acetabulum), distal femur, distal tibia, calcaneum (sustenaculum), astragalus (lateral side), centrotarsal, distal metatarsal, proximal parts of the 1st, 2nd and 3rd phalanges. At least 50% of a given part had to be present for it to be counted. The presence of large (cattle/horse size), medium (sheep/pig size) and small (cat/dog size) vertebrae and ribs was recorded for each context, although these were not counted.

For birds the following were always recorded: scapula (articular end), proximal coracoid, distal humerus, proximal ulna, proximal carpometacarpus, distal femur, distal tibiotarsus.

"Non-countable" elements of particular interest were recorded but not included in the counts.

The separation of sheep and goat was attempted on the following elements: dP_3, dP_4, distal humerus, distal metapodials (both fused and unfused), distal tibia, astragalus, and calcaneum using the criteria described in Boessneck (1969), Kratochvil (1969) and Payne (1969 and 1985).

The closely related galliforms – domestic fowl (*Gallus gallus*), guinea fowl (*Numida meleagris*) and pheasant (*Phasianus colchicus*) – are difficult to distinguish. The presence of a spur on tarsometatarsi was considered a diagnostic character of male domestic fowl/pheasant (being absent from guinea fowl), whereas the lack of a continuous posterior keel on the tarsometatarsus was considered a diagnostic character for distinguishing between pheasant and domestic fowl/guinea fowl. Therefore a spurred tarsometatarsus lacking the posterior continuous keel was securely identified as domestic fowl. The presence or absence of an air-sac foramen on the proximal end of the femur was used to distinguish between pheasant and domestic fowl/guinea fowl. MacDonald's (1992) criteria for the scapula and carpometacarpus were used to distinguish domestic fowl/pheasant from guinea fowl.

Wear stages were recorded for all P_4s and dP_4s as well as for the lower molars of cattle, sheep/goat and pig, both isolated and in mandibles. Tooth wear stages follow Grant (1982).

Measurements are listed in Appendix 2. These in general follow von den Driesch (1976). All pig measurements follow Payne and Bull (1988). Humerus HTC and BT and tibia Bd measurements were taken for all species as suggested by Payne and Bull (1988) for pigs. The width of sheep/goat teeth represents the "maximum" width.

Provenance and preservation

The animal bones originate from the fills of boundary ditches, quarry pits and disused bread ovens. The preservation of the bone is generally good, with one context recorded as "fair to good" and one as "poor". Residuality does not seem to be a problem at this site.

Frequency of species

As with all European urban sites of any period the animal bone assemblage from Chiefs Street is dominated by the bones of the main domestic species – cattle, sheep and pig (Table 1). Domestic fowl and goose are also present. Wild species are rare which suggests that hunting and wildfowling played a negligible role in the food provision of the town.

Sheep is the most common taxon according to the number of identified specimens (NISP), with cattle second and pig third (Table 1 and Figure 1). No goat bones were identified, compared to 52% of sheep/goat remains certainly identified as sheep.

The much larger size of the cattle carcass leaves little doubt that the most commonly eaten meat at Chiefs Street was beef, followed by mutton and then pork. Domestic birds (chicken and goose), were also a significant element of diet.

Although the assemblage is very small, interesting comparisons may be tentatively made with other Saxon and medieval sites in the region and beyond. The relative frequency of the main domestic species at Chiefs Street is much closer to earlier rural sites such as Cardinal Distribution Park (Baxter forthcoming a), Hinxton Hall (Gidney forthcoming) and Stonea Grange (Stallibrass 1996) than contemporary or later urban Saxon sites such as Thetford, Mill Lane, (Albarella 1999), or even early to middle Saxon rural sites like West Stowe. Suffolk (Crabtree 1989), Lordship Farm, Hinxton (Baxter forthcoming b), Hillside Meadow, Fordham (Baxter forthcoming c), and High Street, Willingham (Higbee unpublished). It is also similar in the relative frequency of cattle, sheep/goat and pig to Saxo-Norman sites at Railway Street, Hertford (Baxter work in progress), and Harrison Street, Hereford (Baxter unpublished a).

Lynn Road, Ely is perhaps not a good comparison, as the high proportion of pig remains from the medieval deposits there may indicate a close relationship to the ecclesiastical foundation in the city (Baxter unpublished b), although the remains of sheep are much more frequent than those of cattle. To summarise, the contention of Albarella and Davis (1996; also Albarella 1999) that the tendency to have a higher frequency of cattle on urban sites and of sheep/goat on rural sites is a general phenomenon in Saxon and medieval times is perhaps simplistic and that the reality was rather more complex and perhaps regionally variable.

Cattle

The remains of cattle account for 34% of the main domestic species. A poleaxed cranium was recovered from context (10). This has two depressed fractures at the level of the orbits and a third on the left frontal below the horncore base. The latter blow has penetrated the frontal sinus. The animal was an old adult (Armitage 1982) shorthorned ox with forward facing horns aged over ten years. The frontal profile seen from above is flat and there is a single arch on the intercornual ridge or frontal profile seen from the front (Grigson 1976). Subadult (2-3 years) and juvenile (1-2 years) horncores were found in contexts (27) and (29) respectively. The only mandible recovered for which a mandible wear stage (Grant 1982) could be calculated came from a subadult (Table 2). Postcrania include specimens with both fused and unfused epiphyses, but too few to construct an age profile. The ilium of a neonate was recovered from (96) suggesting that cattle were being bred in close proximity to the site. Cattle sized vertebrae and ribs were found in most contexts. A humerus from (29) has been split. A metatarsal from (29) came from a beast approximately 122 cm high at the shoulder based on the multiplication factors of Matolcsi (1970). The ischial part of a male, presumably ox, acetabulum from (97) is eburnated with some bone destruction (osteoarthritic) suggestive of an animal used for traction.

Sheep/Goat

Sheep account for 54% of the main domestic species. No remains attributable to goat were seen and of "countable" ovicaprid fragments 52% could be identified with confidence as sheep. The eight mandibles recovered from which mandible wear stages could be calculated mostly derive from very young animals less than six months old (50%), most probably natural mortalities, with the rest divided into equal numbers of yearlings slaughtered for meat and older breeding stock, milch and wool animals (Table 2). All the horncores recovered are of female form and derive from ewes and possibly wethers. Some crania have been split, presumably to use the brain for brawn, and horncores cut off to facilitate the use of the horn by craftworkers. Sheep sized vertebrae and rib fragments occurred in most contexts. In common with cattle sized vertebrae, none of the sheep sized vertebrae were split, suggesting that the carcass was not suspended during butchery.

Bones from which withers heights can be calculated, based on the multiplication factors of Teichert (1975), produce values of between 61cm to 54 cm with a mean of 57 cm. This is within the range for the earlier rural settlement at Cardinal Distribution Park, Godmanchester, and slightly below the mean for that site (Baxter forthcoming a).

Deposits of metallic calculus were noted on the teeth of two out of eight sheep mandibles. This is believed to be related to diet and has been observed on sheep, and occasionally cattle teeth, from both prehistoric and historic sites in the region. Its precise causes are presently unknown (K. Dobney pers. comm.).

Pig

Pig remains account for 12% of the main domestic species. Young animals are in a majority and include the partial skeleton of a juvenile found in (28). A very large adult distal humerus from the same context may belong to wild boar as its measurements are at the top of the range for the Durrington Walls Neolithic sample (Albarella and Payne in prep.) and within that of a modern wild boar sample from Turkey (Payne and Bull 1988).

Other domestic mammals

Remains of the minor domestic mammals were infrequent. The calcaneum of a horse was found in (96) and a juvenile cat tibia in (50).

Domestic birds

The remains of domestic chickens and geese occur at similar frequency and together account for 5½% of the domestic food species. Both of the "countable" goose bones are from the wing and were found in contexts (28) and (52). Goose pinion feathers were particularly valuable for fletching arrows.

Wild species

The remains of wild species are scarce. A large crane (*Grus grus*) ulna was found in (96), possibly suggesting that wildfowling may have been practised. However, although young cranes were considered a delicacy in medieval times, adults were considered to be, "tough, gross, sinewy and engendering a melancholic blood " (Muffet 1655 cited in Albarella 1997). It is also possible that the goose bones originate from wild greylag geese (*Anser anser*), although they are of domestic size. The crane is now only a rare passage migrant but was originally native to Britain, with the last breeding birds recorded in the fenland area (Reid-Henry and Harrison 1988). Medieval crane occurrences include Southampton, York and King's Lynn, Norfolk (Boisseau and Yalden 1998). A small passerine humerus, from a bird slightly smaller than a sparrow was found in a sample from (16).

Evidence of small rodents was found in the sample residues comprising gnathic elements from house mouse (*Mus* sp.) and field vole (*Microtus agrestis*). Small frogs (*Rana* sp.) also seem to have become trapped in some of the features, with at least three in (16).

Summary and conclusions

This is a tiny assemblage and any conclusions to be drawn from it are necessarily tentative. It is of some importance, however, as the first Saxon assemblage to be described from Ely. Sheep were the most numerous domestic animals followed by cattle. Beef will have been the main meat eaten due to the much greater carcass weight of cattle compared to sheep and pig. There is some evidence for the use of oxen as draught animals and of sheep horn for craftworking. Many of the sheep appear to have been juvenile natural mortalities. Some of the pigs may have been wild and a limited amount of, probably seasonal, wildfowling practised.

Acknowledgements

The author would like to thank Sheila Hamilton-Dyer for identifying the crane ulna, her comments thereupon, other small bird bones from the samples and the fish bone report, Umberto Albarella and Sebastian Payne, Louisa Gidney, and Lorraine Higbee for permission to cite unpublished work.

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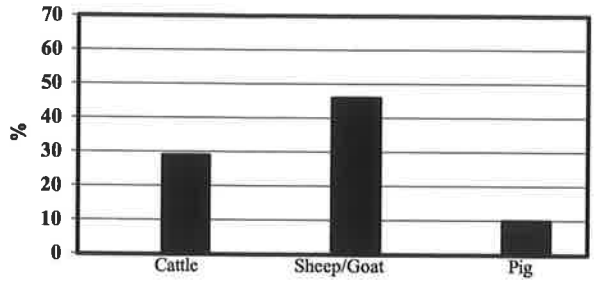
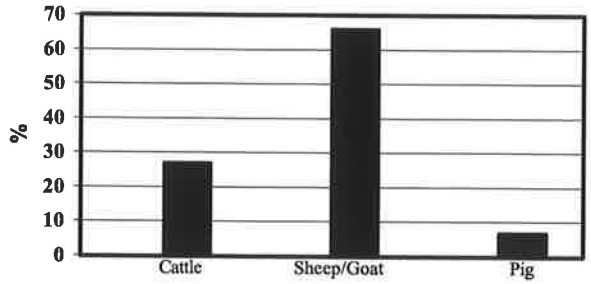
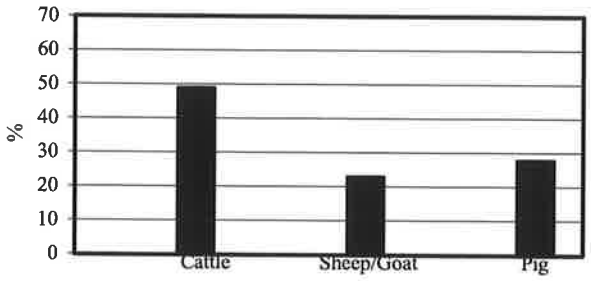
Figure 1. Chiefs Street, Ely compared with other Saxon and Medieval sites in the region.
(Cardinal Distribution Park after Baxter forthcoming; Thetford, Mill Lane after Albarella 1999; Lynn Road, Ely after Baxter unpublished).



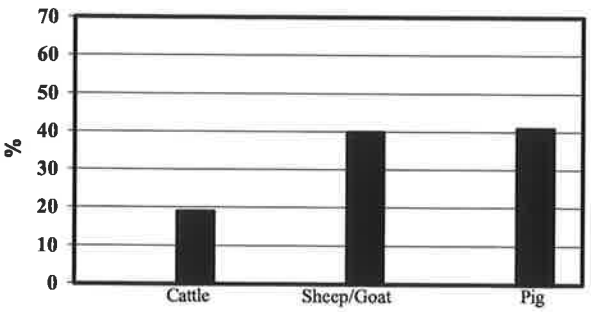
Chiefs Street, Ely.
Mid-Late Saxon
Tot NISP = 85



Cardinal Distribution Park,
Godmanchester.
Early Saxon (5th-7th AD)
Tot NISP = 618.5



Thetford, Mill Lane, Norfolk.
Late Saxon (10th-11th AD)
Tot NISP = 1126



Lynn Road, Ely.
Medieval (12th-late 14th AD)
Tot NISP = 37.5

Table 1. Chiefs Street Ely. Mid-Late Saxon. **Number of mammal, bird and amphibian bones (NISP).**

Taxon	hand-collected	Total	samples	Total
Cattle (*Bos* f. domestic)	29	29	-	-
Sheep/Goat (*Ovis/Capra* f. domestic)	46	46	-	-
Sheep (*Ovis* f. domestic)	(24)	(24)	-	-
Pig (*Sus* f. domestic)	10[1]	10	-	-
Horse (*Equus caballus*)	1	1	-	-
Cat (*Felis catus*)	1	1	-	-
Small Rodent (*Rodentia*)	-	-	8	8
House Mouse (*Mus* sp.)	-	-	(2)	(2)
Field Vole (*Microtus agrestis*)	-	-	(3)	(3)
Domestic Fowl (*Gallus* f. domestic)	3	3	-	-
Domestic Goose (*Anser* f. domestic)	2	2	-	-
Crane (*Grus grus*)	1	1	-	-
Small Passerine species	-	-	1	1
Indeterminate Bird (*Aves*)	-	-	+	+
Amphibian (*Amphibia*)	-	-	25	25
Frog (*Rana* sp.)	-	-	(6)	(6)
Total		93		34

"Sheep/Goat", "Small Rodent" and "Amphibian" also include the specimens identified to species or genus. Numbers in parentheses are not included in the total of the period. "+" means that the taxon is present but no specimens could be "counted" (see text).

[1] six bones from a partial skeleton

Table 2. Chiefs Street, Ely. Mid-Late Saxon. **Mandibular wear stages** (following Crabtree 1989 and O'Connor 1988). See APPENDIX 1 for a complete list of individual mandibles. Only mandibles with two or more teeth (with recordable wear stages) in the $dP_4/P_4 - M_3$ row are considered.

Taxon	Mandibular wear stages												
	A		B		C		D		E		F		Total
	n	%	n	%	n	%	n	%	n	%	n	%	n
Sheep/Goat	4	50	2	25	-	0	-	0	2	25	-	0	8

Taxon	Mandibular wear stages										
	Juvenile		Immature		Subadult		Adult		Elderly		Total
	n	%	n	%	n	%	n	%	n	%	n
Cattle	-	0	-	0	1	100	-	0	-	0	1
Pig	-	0	-	0	1	100	-	0	-	0	1

Appendix 1
Chiefs Street, Ely. **Mandibular wear stages for the main species.**

Tooth wear stages for cattle, sheep/goat and pig follow Grant (1982). Mandibular wear stages for cattle and pig follow O'Connor (1988), for sheep/goat follow Crabtree (1989). Only mandibles with two or more teeth (with recordable wear stage) in the dP4/P4-M3 row are given.

TAXA:

B	cattle
OVA	sheep
O	sheep/goat
S	pig

Mandibular wear stage:

Cattle & Pig:

J	Juvenile	M1 not in wear
I	Immature	M1 in wear, M2 not in wear
S	Sub-adult	M2 in wear, M3 not in wear
A	Adult	M3 in wear
E	Elderly	M3 at j+

Sheep/Goat:

			Payne (1973) equivalent
A	c.0-6 months	M1 unworn	A-B
B	c.6-12 months	M2 unworn	C
C	c.1-2 years	M3 unworn	D
D	c.2-4 years	M3 coming into wear	E-F
E	c.4-8 years	M3 in full wear	G-H
F	c.8-10 years	M3 in heavy wear	I

Period:
Mid-Late Saxon

Taxon	**P4**	**dP4**	**M1**	**M2**	**M3**	**Mandibular wear stage**
B				b	C	S
OVA		c	E			A
OVA		c	E			A
OVA		c	E			A
OVA		f	b	C		B
OVA		f	U	C		A
OVA		j	g	E		B
O	j		m	k	g	E
O	j			g		E
S	b		f	b		S

Appendix 2.
Chief's Street, Ely. **Measurements of animal bones and teeth, arranged by taxon and part of the skeleton.**
All measurements are in tenths of a millimetre. See text for an explanation of how measurements are taken. Measurements are given in the following order: horncores, teeth, postcranial bones.

Key:

Taxa are coded as follows

B	*Bos* (cattle)
OVA	*Ovis* (sheep)
O	*Ovis/Capra* (sheep/goat)
S	*Sus* (pig)
EQ	*Equidae* (equid)
GN	*Gallus/Numida* (domestic fowl/ guinea fowl)
GNP	*Gallus/Numida/Phasianus* (domestic fowl/guinea fowl/pheasant

The presence/absence of a spur on a bird tarsometatarsus is coded as follows:

A	absent
P	present
S	scar

Approximate measurements are designated:

c - within 0.2 mm
e - within 0.5 mm

Parts of skeleton (Element) are coded as follows:

AS	astragalus
CA	calcaneum
HU	humerus
MC1	complete distal metacarpal
MC2	half distal metacarpal
MT1	complete distal metatarsal
MT2	half distal metatarsal
PE	pelvis
RA	radius
FE	femur
TI	tibia (tibiotarsus in birds)
TMT	tarsometatarsus

Epiphyseal fusion/age is coded as follows:

F	fused
H	fused/fusing
G	fusing
UM	unfused diaphysis
UE	unfused epiphysis
UX	unfused diaphysis+epiphysis

Horncore Measurements

Taxon	L	Wmax	Wmin
B	1700	555	418
B		e500	428
OVA		308	159
OVA		378	232
OVA		373	271

Lower Tooth Measurements

Taxon	dP4W	M1W	M1WA	M1WP	M2W	M3W
OVA	61					
OVA	67					
OVA	62					
OVA	67					
OVA	63					
OVA	64					
OVA	60	68				
O		81			87	91
O					95	
S			111	114		

Bone Measurements

Taxon	Element	Bd
B	AS	356

Taxon	Element	Fusion	GL
EQ	CA	F	1112

Taxon	Element	Fusion	BT	HTC
OVA	HU	F	286	140
S	HU	F	360	223

Taxon	Element	Fusion	GL	Bd	SD	WC	WT	DV	Index (WT.100/DV)	
OVA	MC1	F	1157	259	149	120	104	160	65	
OVA	MC1	UE		239		112	106	141	75	
OVA	MC1	F		253	136	117	110	154	71	
O	MC	UM	804							*unfused diaphysis*

Taxon	Element	Fusion	GL	Bd	3	SD	BatF	a	b
B	MT1	F	2240	508	277	255	480	245	238

Taxon	Element	Fusion	GL	Bd	SD	WT	DV	Index (WT.100/DV)
OVA	MT1	F	1351	262	133	106	168	63

Taxon	Element	Fusion	LA	Rim Height	
B	PE	F	688	116	*dip*
B	PE	F	575	134	
O	PE	F	262		

Taxon	Element	Fusion	GL	SD
OVA	RA	F	1408	152
OVA	RA	F	1342	155

Taxon	Element	Fusion	GL	
S	FE	UM	795	*unfused diaphysis*

Taxon	Element	Fusion	GL	Bd	
B	TI	F		e579	
OVA	TI	F		242	
OVA	TI	F		246	
S	TI	F		335	
S	TI	UM	729		*unfused diaphysis*

Taxon	Element	Bd	Dd
GN	FE	156	120

Taxon	Element	Spur	Bd	SC
GNP	TMT	S	137	70

APPENDIX C

Chiefs Street, Ely (ELY CS 99).

Report on the Fish Bones by Sheila Hamilton-Dyer

As expected, over half of the 112 fish remains are of undiagnostic fin rays and other fragments. The identified bones are of four species; eel, herring, pike and perch. All are from small fish. The herring is an obligate marine species, pike and perch freshwater. Eel may be found in both, but the small size of these specimens points to a local origin. Eel and herring are extremely common in sieved material and were found together with cyprinids and a salmonid in Saxo-Norman contexts at Huntingdon (Smith 1996). Finds of pike and perch are less common from this period but were identified in medieval contexts at Norwich (Jones & Scott 1985), and an extensive medieval pike fishery is known from Wittlesea Mere (Lucas *et al* 1998).

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Jones A. & Scott S. (1985) The fish bones, in (Atkin M., Carter A. & Evans D.H.) Excavations in Norwich 1971-1978 Part II. **East Anglian Archaeology Rep, 26**. Norwich Gressenhall pp 223-228

Lucas G. with Hall D., Fryer V., Irving B., and French C. (1998) A medieval Fishery on Wittlesea Mere, Cambs. **Medieval Archaeology Vol XLII**

Smith P. (1996) The fish bone, in (Oakey N. and Spoerry P.) Excavations at Orchard Lane, Huntingdon, 1994 **Proceedings of the Cambridge Antiquarian Society LXXXV** pp 123-158 (149)

Table 1. Chiefs street, Ely. **Fish bones from the samples.**

Context number	Sample	Eel (*Anguilla anguilla*)	Herring (*Clutea harengus*)	Pike (*Esox lucias*)	Perch (*Perca fluviatilias*)	Ideterminate	
7	3	8	6	1	5	24	44
16	2	25	6	-	-	30	61
57	6	-	-	1	-	2	3
97	5	-	3	-	-	1	4
Total		**33**	**15**	**2**	**5**	**57**	112
Percentage		*29.5*	*13.4*	*1.8*	*4.5*	*50.9*	

APPENDIX D

The charred plant remains from the Roman, Saxon and Medieval Occupation at the site of the former Red, White and Blue Public House, Chiefs Street, Ely TL5356/8042

by

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Introduction

A total of six samples were sorted and analysed for charred plant remains. The preliminary sorting of the samples was performed by Rachel Fosberry, and the final analyses were carried out within the George Pitt-Rivers laboratory, department of Archaeology, University of Cambridge.

In general, the charred plant remains contained within the samples were well preserved allowing in most cases full identifications to species level. Two samples were from the Roman occupation of the site, two from the mid-Saxon and one each from the Saxo-Norman and Early Medieval occupations, see table 1.

Period	Roman	Middle Saxon	Saxo-Norman	Early Medieval
Sample number	<1> , <6>	<4> , <5>	<3>	<2>
Context number	12 , 57	102 , 97	7	16

Table 1: Table showing the distribution of the samples across the different periods of occupation at Chiefs Street, Ely

The samples were considered to be rich both in terms of the numbers of seeds recovered and the number of taxa recovered which can be seen in chart 1. The results of the analyses can be seen in tables 2, 3, and 4 where each table records the charred plant remains from each of the occupation periods.

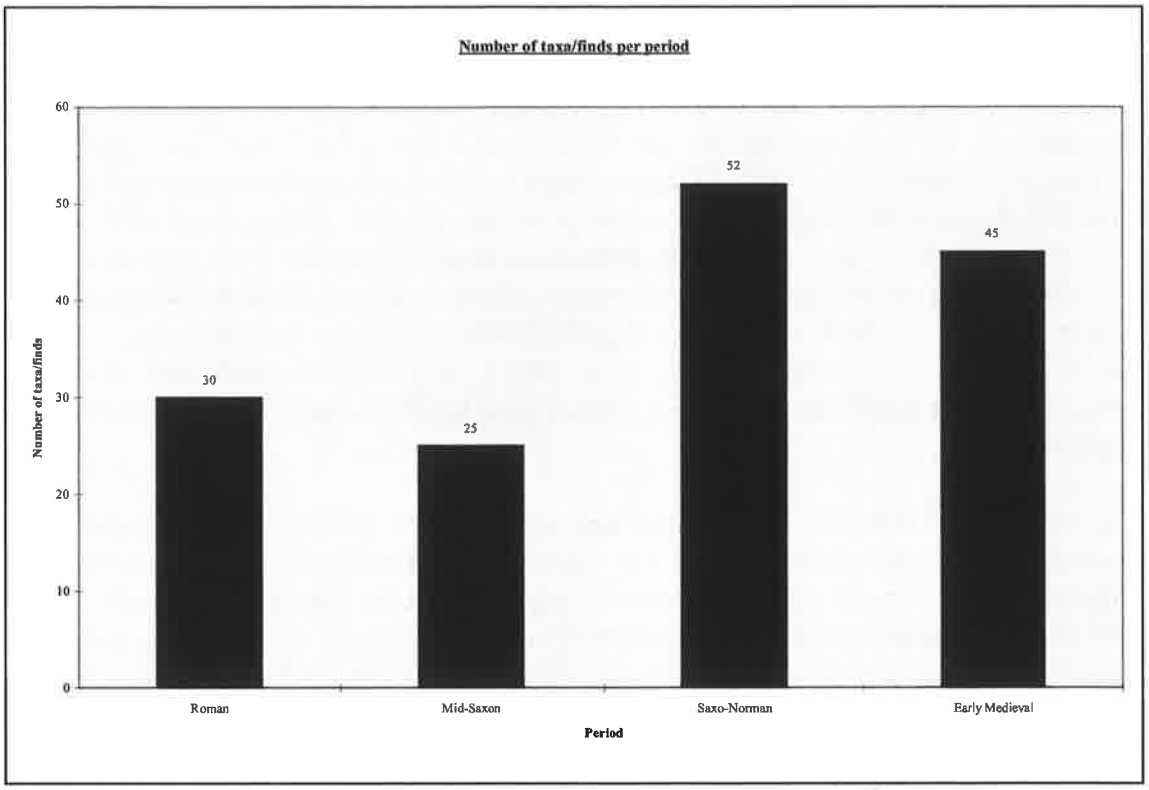

Chart 1: Graph showing the distribution of taxa/finds per period recovered from each of the occupation phases at Chiefs Street, Ely

Methodology

The charred plant remains were extracted from the six samples using the standard flotation procedure adopted by the Archaeological Field Unit of Cambridge County Council. The floated material was caught on 300 micron mesh and the heavy residue was retained on 1mm mesh within the flotation tank. Both the flot and the heavy residue were dried at the headquarters of the AFU before being stored in dry, clean plastic bags. Initial sorting of the flots, in order to extract the seeds and other identifiable charred plant material was carried out by Rachel Fosberry of the AFU. The charred material found to be present within the heavy residue was also extracted prior to being sent to the author.

The charred plant remains were identified using a low-power stereomicroscope (6-40x magnification) and critical taxa were identified using the modern plant reference collections housed in the George Pitt-Rivers Laboratory, department of Archaeology, University of Cambridge.

The nomenclature of the non-cultivated species follows that of Stace, 1997.

Results

As mentioned above all six samples contained charred plant remains, and as can be seen from chart 1, the richest samples were those from the later periods of occupation, whilst the Roman and Middle Saxon were considerably poorer in the number of plant taxa identified. The results from each period can be seen in tables 2, 3, and 4.

The Roman Occupation
Two samples from the Roman occupation were analysed, sample <1>, context 12 and sample <6> from context 57. Both of these samples were from linear features, 13 and 56 respectively.

Linear feature 13 contained the fill 12 which was sampled (<1>), this fill consisted of dark greyish brown sandy clay silt and was dated to the Roman period by the pottery contained within.

The plant remains contained within this fill consisted of remains of charred glume wheat grains, these could be either the tetraploid emmer (*Triticum dicoccum*) or hexaploid spelt (*Triticum spelta*) wheat, but due to the lack of any diagnostic chaff fragments (e.g. glume bases or rachis fragments) it is not possible to distinguish the different wheat types on grain morphology alone. Other cereal grain recovered from this context include hulled barley (*Hordeum sativum*) grains, but the dominant cereal remain was that of fragments of indeterminate cereal grains. The only other crop to be identified from this sample was that of pea (*Pisum sativum*).

The weed species recovered from this sample included lesser celandine (*Ranunculus ficaria*), fat hen (*Chenopodium album*), ribwort plantain (*Plantago lanceolata*), stinking mayweed (*Anthemis cotula*), thistle (*Cirsium* sp.), woodrush (*Luzula* sp.) and oats/brome grass (*Avena/Bromus* sp.). Burnt fishbone was also recovered from this sample.

The majority of the weed species found in this sample can be found in disturbed or bare ground, such as that associated with agriculture and may well have been deposited in this linear feature along with the cereal remains, lesser celandine is usually found in damp places such as those that may be found near ditches. The presence of stinking mayweed indicates that some of the crops were grown on heavy clay soils.

Linear feature 56 contained the fill 57 which consisted of a dark yellowish brown sandy silt, this fill also contained charred plant remains, including; spelt wheat glume bases, indeterminate wheat grains, glume bases, rachis fragments and embryo. Due to the poor preservation of the wheat grains it was not possible to designate whether they were glume or free-threshing wheats, but the presence in this sample of glume bases of spelt wheat suggests that they are most likely of spelt. Other cereals recovered from this sample included hulled barley grains, it was not possible to determine in either of these samples if they belonged to the six or two-rowed variety as no diagnostic rachis fragments were recovered. No other cultivated species were identified from this sample.

Weed species identified from this context include fat hen, sheep's sorrel (*Rumex acetosella*), dock (*Rumex* sp.), gold-of-pleasure (*Camelina sativa*), charlock (*Sinapis arvensis*), vetches (*Vicia/ Lathyrus* sp.), ribwort plantain, chamomile (*Chamaemelum nobile*), stinking mayweed, ox-eye daisy (*Leucanthemum vulgare*), scentless mayweed (*Tripleurospermum inodorum*), and oats/brome grass (*Avena/Bromus* sp.).
Again the majority of the weed species identified in this sample are indicative of arable cultivation or disturbed ground and again some of that cultivated ground consisted of a heavy clay soil. Two species, chamomile and ox-eye daisy are more likely to be found in grassy places. Chamomile tends to be found in short grasslands on sandy soils whilst ox-eye daisy is found on richer soils. This would seem to indicate that there is possibly a mosaic of grassland types represented in this sample.

Overall, the Roman period is represented by the growing of wheat (of which some was spelt) and barley along with peas, the soil types that were used were heavy clays as indicated by the presence of stinking mayweed. The presence of chamomile and ox-eye daisy suggest that grassy places were also present within the areas exploited by the Roman occupants of the area.

The Middle Saxon Occupation
Two samples from the Middle Saxon occupation were analysed for charred plant remains and the results can be seen in table 3. Both samples were taken from wells.

The lower fill of well 104 (102) consisted of a grey sandy silt with moderate shells and occasional charcoal flecks. Charred cereal grains were recovered from this sample (<4>) which included grains of a glume wheat and hulled barley, although in small quantities, the only other cereal find was that of fragments of indeterminate cereal grains. The only other crop identified from the sample was that of flax (*Linum usitatissimum*). Whether this crop was used for oil or for fibre is not possible to determine, although it may be possible that it could have been used for both purposes.

The majority of the other charred plant remains found in this sample were of weed species such as, poppy (*Papaver* sp.), fat hen, dock, common mallow (*Malva sylvestris*), gold-of-pleasure, (which could have been either a weed of the flax crop or grown as a crop in its own right), red bartsia (*Odontites vernus*), (this weed can be found both as a species of open bare ground or in short grasslands were it is semi-parasitic on grasses), stinking mayweed and scentless mayweed. Other plant species recorded from this sample include ox-eye daisy, and perennial ryegrass (*Lolium perenne*) these species can usually be found growing in grassy areas.

Sample <5> was taken from the middle fill, 97, of well 100 and consisted of an olive brown sandy clay silt with occasional small flints. The cereal remains recovered from this sample included grains of both a free-threshing and a glume wheat and grains of hulled barley. The majority of the cereal finds were those of fragments of indeterminate cereal grains. Other crops found within the sample peas and flax.

Weed seeds identified from this sample were fewer than the previous sample but included a capsule fragment of wild radish (*Raphanus raphanistrum*), a seed head and seeds of stinking mayweed

and a root/culm of false oat-grass (*Arrhenatherum elatius*), all these species can be considered to be weeds of agricultural land.

Therefore, in the middle Saxon period there appears to be very little difference from the earlier Roman period, where the plant remains mainly consist of cereal and other crops with their associated weeds. Again the presence of stinking mayweed suggests that the majority of the soils exploited were heavy in nature.

The Saxo-Norman Occupation

One sample, <3> was taken from the middle fill of boundary ditch 9, which consisted of a black clay sandy silt with occasional flints and frequent charcoal lumps. The results of the analysis can be seen in table 4. This sample, in terms of charred plant remains was very rich indeed. Cereals identified from this sample included a free-threshing wheat, which with the presence of bread wheat (*Triticum aestivum*), rachis fragments can be assumed to be bread wheat, hulled barley and rye (*Secale cereale*). The sample was dominated by the large number of fragments of indeterminate cereal grains, although those grains that were identifiable were dominated by the wheat. The large number of oat grains (*Avena* sp.), suggests that this was grown as a crop rather than being present as a weed of cultivation. Other crops recorded from this sample include peas, field beans (*Vicia faba*) and flax. Other possible foodstuffs found within this sample include hazel (*Corylus avellana*) and the flavourings, celery seed (*Apium graveloens*) and parsley (*Petroselinum sativum*).

Weed species found in this sample were more numerous than in the previous ones. They include, buttercups (*Ranunculus* subgenus *Ranunculus*), fat hen, orache (*Atriplex* sp.), corncockle (*Agrostemma githago*), knotgrass (*Polygonum aviculare*), black bindweed (*Fallopia convolvulus*), dock, common mallow, charlock, vetches, dwarf spurge (*Euphorbia exigua*), shepherd's needle (*Scandix pecten-veneris*), corn gromwell (*Lithospermum arvense*), cleavers (*Galium aparine*), stinking mayweed, scentless mayweed, perennial ryegrass and barren brome (*Anisantha sterilis*).

A grassy habitat was represented by finds of, medick (*Medicago* sp.), clover (*Trifoilum* sp.), self-heal (*Prunella vulgaris*), ribwort plantain (*Plantago lanceolata*), red bartsia, common knapweed (*Centaurea nigra*), and the numerous grasses (Poaceae indeterminate).

A third habitat type was represented by fen species these include hemlock (*Conium maculatum*), cotton grass (*Eriophorum* sp.), black bog-rush (*Schoenus nigricans*), fen sedge (*Cladium mariscus*), common sedge (*Carex nigra*) and other indeterminate sedges (*Carex* sp.). A scrub element was also present as indicated by elder (*Sambucus nigra*).

Overall, this period of occupation is far richer than any of the previous occupation periods and includes a wider variety of habitats that have been exploited, such as grasslands and for the first time it is evident that the fens surrounding the island of Ely have also been exploited. whether this exploitation is via the use of the peat as a fuel or the presence of the fen species indicates that agricultural land has been expanded to

include the use of the wetter fenland edge is difficult to determine, but the increase in the number of crops being grown may suggest that the later scenario may be the case.

Early Medieval Occupation

The sample from the Early Medieval period was taken from Layer 16, which was an irregular patch in a depression in the top of oven/hearth M20. It consisted of a black sandy, silty clay with occasional charcoal flecks, small ashy patches and small stones. Again this sample was rich in charred plant remains and the results of the analysis can be seen in table 4. This sample was also dominated by the presence of large numbers of a free-threshing wheat and again the presence of the bread wheat rachis fragments the wheat can be assumed to be bread wheat. A single grain of a glume wheat was also recovered but this is likely to have been an intrusive. Hulled barley was also present as were the rachis fragments. Rye was also identified. Although, the dominant cereal remain was that of indeterminate cereal grain fragments. The high numbers of oat grains in the sample suggest that its presence in the sample is that as a crop rather than as a weed. Other crops found within the sample include peas and flax. Celery seed was also identified.

Weed species present within this sample were similar to those found in the sample from the Saxo-Norman occupation and included, buttercups, fat hen, corncockle, knotgrass, black bindweed, dock, common mallow, charlock, corn gromwell, cleavers, narrow-fruited cornsalad (*Valerianella dentata*), cornflower (*Centaurea cyanus*),stinking mayweed, scentless mayweed, perennial ryegrass and brome grass (*Bromus* sp.).

Grassland species were also recovered from this sample and included medicks and ribwort plantain. Scrubbby areas were represented by elder. Again, fen species were present and included, cowbane (*Cicuta virosa*), today, this species is restricted to the East Anglian region, common spike-rush, common club-rush, fen sedge and sedges (*Carex* spp.).

As with the previous sample, it can be seen in this sample that a variety of habitats are being exploited, and a wider variety of crops grown than in the previous occupation phases. The presence of the cowbane suggests that the marshier areas were being exploited for agriculture as this species is found in marshy fields today.

Conclusions

In general, the six samples examined were found to contain charred plant remains which were well preserved. The richest samples were those from the later periods of occupation. Table five shows the presence and absence of species throughout the occupations studied at Chief Street.

From examining the data obtained from the samples a trend can be seen to be developing, in which the number of crops grown, (and the number of associated weed species), increases through time. Wheat and barley are present throughout, in the Roman period, glume wheats were the main cereal, but in later occupations bread

wheat and perhaps other free-threshing wheats were grown. In later periods other crops were introduced, such as flax, peas (which were present in the Roman period, but were lacking from the Middle Saxon), field beans, and rye and oats were all identified from the later Saxo-Norman and early Medieval periods. Flavourings such as celery and parsley seed were also found in these later periods. The presence of the weed species suggests that the crops were grown locally, and that through the passage of time different soil types were exploited. In the early periods he heavy clays seem to have been exploited but in the later ones, the marshier fens soils were utilised as indicated by the presence of wetland/fen species and cowbane, which tends to grow in marshy fields. The exploitation of these other less favourable soils may have been due to the population increase on the island of Ely. The later periods (the Saxo-Norman and Early Medieval), also show that other habitats were being exploited such as scrubland and grassland. The presence of the hazel nutshell in the Saxo-Norman sample suggests that wild food sources were still being exploited at this time.

Bibliography

Stace, C., 1997. **New Flora of the British Isles**. 2nd Edition. Cambridge University Press.

Sample	1	6
Context	12	57
Feature	Linear 13	Linear 56
Period	Roman	Roman
Triticum sp. grain (4x/6x glume)	10	
Triticum spelta glume bases		4
Triticum sp. grain	7	6
Triticum sp. glume base	1	1
Triticum sp. rachis fragments		1
Triticum sp. embryo		1
Hordeum sativum grain (hulled)	4	5+2f
Cerealia indet	65f	56f
Pisum sativum	1	
Ranunculus ficaria tuber	1	
Chenopodium album		10
Rumex acetosella		1
Rumex sp.		1
Camelina sativa		1
Sinapsis arvensis silicula fragment		1
Vicia/Lathyrus sp.		4+1f
Plantago lanceolata	1	1
Cirsium sp.	1	
Chamaemelum nobile (ray floret cypsela)		1
Anthemis cotula cypselas	1	23
Leucanthemum vulgare		3
Tripleurospermum inodorum		5+2f
Luzula sp.	1	
Carex sp.		1
Arrhenatherum elatius root/culm		2
Avena/Bromus sp.	1+2f	3+1f
Small Poaceae </= 1mm		3
Parenchyma	1f	
Shoot/sprout		1
Indeterminate	2f	
Burnt fishbone	common	

Table 2: The charred plant remains from the Roman Occupation at Chiefs Street, Ely, ELYCS99

Sample	4	5
Context	102	97
Feature	Well 104	Well 100
Period	Middle Saxon	Middle Saxon
Triticum sp. grain (4x/6x glume)	4	13
Triticum sp. grain (4x/6x free-threshing)		13
Triticum sp. grain		5f
Hordeum sativum grain (hulled)	2+1f	14
Hordeum sativum tail grain (hulled)		1
Cerealia indet	26f	80f
Pisum sativum		4f
Linum usitatissimum	2f	1f
Papaver sp.	1	
Chenopodium album	2	
Rumex sp.	1	
Malva sylvestris	1	
Camelina sativa	2	
Raphanus raphanistrum capsule fragments		1
Odontities vernus	2	
Anthemis cotula seed head		1
Anthemis cotula cypselas	10	6
Leucanthemum vulgare	3	
Tripleurospermum inodorum	4	
Lolium perenne	1+1f	
Arrhenatherum elatius root/culm		1
Avena sp.		1
Avena/Bromus sp.	2f	5
Culm node		1
Indeterminate	1	

Table 3: The charred plant remains from the Middle Saxon Occupation at Chiefs Street, Ely, ELYCS99

Sample	3	2
Context	7	16
Feature	Ditch 9	Layer 16
Period	Saxo-Norman	Early Medieval
Triticum sp. grain (4x/6x glume)		1
Triticum sp. grain (4x/6x free-threshing)	100+	187
Triticum sp. tailgrain (4x/6x free-thresh)		10
Triticum aestivum rachis fragments	14	11
Triticum sp. rachis fragments		3
Triticum sp. embryo		1
Hordeum sativum grain (hulled)	110+3f	26+3f
Hordeum sativum tail grain (hulled)		6
Hordeum sp. rachis fragments	2	6
Secale cereale grain	16	6
Secale cereale rachis fragments	1	
Cerealia indet	1000+f	1000+f
Pisum sativum	56+24cots	5+8cots
Vicia faba	1+10cots	
Linum usitatissimum	5+1f	3
Ranunculus subgenus *Ranunculus*	3+1f	3
Corylus avellana nutshell fragments	1	
Chenopodium album	61	23
Atriplex sp.	7	
Agrostemma githago	2	2
Polygonum aviculare	5	2
Fallopia convolvulus	2+1f	2
Rumex sp.	15	5
Malva sylvestris	6+1f	5
Sinapis arvensis silicula fragment	2+3stems	2 + 1stem
Brassicaceae indet		3
Vicia/Lathyrus sp.	67+24cots	26+7cots
Medicago sp.	28	10
Trifolium sp.	8	
Euphorbia exigua	2	
Sandix pecten-verenis	2f	
Conium maculatum	1	
Apium graveloens	1	1
Petroselinum sativum	3	
Cicuta virosa		1
Apiaceae indet	7	
Lithospermum arvense	25+23f	12+4f
Prunella vulgaris	4	
Plantago lanceolata	1	4
Odontities vernus	6	
Galium aparine	5	6+1f
Sambucus nigra	11	5+1f
Valerianella dentata		1
Centaurea cyanus		4+2f
Centaurea nigra	5	
Anthemis cotula seed head	1	1

Anthemis cotula cypselas	254	73
Tripleurospermum inodorum	21	4
Juncus sp. fruit		1
Eriophorum sp.	2	
Eleocharis palustris	5	3
Schoenoplectus lacustris		1
Schoenus nigricans	2	
Cladium mariscus	14	9
Carex nigra	5	
Carex sp.	10	14
Lolium perenne	4	6
Avena sp.	100+	99
Anisantha sterilis type	3f	
Bromus sp.		1
Small Poaceae </= 1mm	6	12
Large Poaceae (>2mm)	2+26f	
Culm node	21	9
Indeterminate		10
Fish scale	3	

Table 4: The charred plant remains from the Saxo-Norman and Early Medieval Occupations at Chiefs Street, Ely, ELYCS99

Period	Roman	Mid-Saxon	Saxo-Norman	Early Medieval
Triticum sp. grain (4x/6x glume)	■	■		■
Triticum spelta glume bases	■			
Triticum sp. grain (4x/6x free-threshing)		■	■	■
Triticum sp. tailgrain (4x/6x free-threshing)				■
Triticum aestivum rachis fragments			■	■
Triticum sp. grain	■	■		
Triticum sp. glume base	■			
Triticum sp. rachis fragments	■			■
Triticum sp. embryo	■			■
Hordeum sativum grain (hulled)	■	■	■	■
Hordeum sativum tail grain (hulled)		■		■
Hordeum sp. rachis fragments			■	■
Secale cereale grain			■	■
Secale cereale rachis fragments			■	
Cerealia indet	■	■	■	■
Pisum sativum	■	■	■	■
Vicia faba			■	
Linum usitatissimum		■	■	■
Ranunculus subgenus *Ranunculus*			■	■
Ranunculus ficaria tuber				
Papaver sp.		■		
Corylus avellana nutshell fragments			■	
Chenopodium album	■	■	■	■
Atriplex sp.			■	
Agrostemma githago			■	■
Polygonum aviculare			■	■
Fallopia convolvulus			■	■
Rumex acetosella	■			
Rumex sp.	■	■	■	■
Malva sylvestris		■	■	■
Camelina sativa	■	■		
Sinapsis arvensis silicula fragment	■		■	■
Raphanus raphanistrum capsule fragments		■		
Brassicaceae indet				■
Vicia/Lathyrus sp.	■		■	■
Medicago sp.			■	■
Trifolium sp.			■	
Euphorbia exigua			■	
Sandix pecten-verenis			■	
Conium maculatum			■	
Apium graveloens			■	■
Petroselinum sativum			■	
Circuta virosa				■
Apiaceae indet			■	
Lithospermum arvense			■	■
Prunella vulgaris			■	
Plantago lanceolata	■		■	■
Odontities vernus		■	■	
Galium aparine			■	■
Sambucus nigra			■	■
Valerianella dentata				■
Cirsium sp.	■			
Centaurea cyanus				■
Centaurea nigra			■	
Chamaemelum nobile (ray floret cypsela)	■			
Anthemis cotula seed head		■	■	■
Anthemis cotula cypselas	■	■	■	■
Leucanthemum vulgare	■	■		
Tripleurospermum inodorum	■	■	■	■
Juncus sp. fruit				
Luzula sp.	■			
Eriophorum sp.			■	
Eleocharis palustris			■	■
Schoenoplectus lacustris				■

Schoenus nigricans			■	
Cladium mariscus			■	■
Carex nigra			■	
Carex sp.	■		■	■
Lolium perenne		■	■	■
Arrhenatherum elatius root/culm	■	■		
Avena sp.		■	■	■
Bromus sterilis type			■	
Bromus sp.				■
Avena/Bromus sp.	■	■		
Small Poaceae </= 1mm	■		■	■
Large Poaceae (>2mm)			■	
Culm node		■	■	■
Parenchyma	■			
Shoot/sprout	■			
Indeterminate	■	■		■
Burnt fishbone	■			
Fish scale			■	
Total no. of taxa/finds	30	25	52	45

Table 5: Table showing the presence and absence of charred plant remains and species throughout the occupation of the Ely, Chiefs Street site, ELYCS99

APPENDIX E

Finds Quantification

Context no.	Material Type	Artefact category	Weight (g)
0	Ceramic	Brick or tile	72
0	Ceramic	Pottery	20
0	Lithic	Stone	5
6	Ceramic	Pottery	166
6	Lithic	Stone	38
6	Lithic	Stone	40
6	Metallic	Slag	49
6	Organic	Animal bone	24
6	Other	Fired clay	39
6	Other	Shell	2
7	Ceramic	Pottery	111
7	Lithic	Stone	231
7	Metallic	Industrial residues	182
7	Organic	Animal bone	17
7	Other	Shell	11
8	Ceramic	Pottery	102
8	Organic	Animal bone	169
8	Other	Fired clay	12
10	Ceramic	Pottery	7
10	Metallic	Slag	7
10	Organic	Animal bone	1163
12	Ceramic	Pottery	17
12	Organic	Animal bone	108
16	Ceramic	Pottery	49
16	Metallic	Industrial residues	153
20	Ceramic	Pottery	20
21	Organic	Animal bone	1
24	Ceramic	Pottery	44
24	Organic	Animal bone	203
27	Ceramic	Brick or tile	94
27	Lithic	Stone	663
27	Metallic	Industrial residues	83
27	Metallic	Metalwork Fe	2
27	Organic	Animal bone	543
27	Other	Fired clay	158
28	Ceramic	Pottery	32
28	Lithic	Stone	238
28	Lithic	Stone	244
28	Metallic	Slag	1931
28	Organic	Animal bone	1281
29	Ceramic	Pottery	60
29	Organic	Animal bone	1472
29	Other	Fired clay	159
30	Organic	Animal bone	64
37	Ceramic	Pottery	12
39	Ceramic	Pottery	72
39	Organic	Animal bone	11
44	Organic	Animal bone	31
46	Ceramic	Pottery	3
46	Organic	Animal bone	1

Context no.	Material Type	Artefact category	Weight (g)
48	Ceramic	Pottery	23
48	Lithic	Quern stone	263
48	Organic	Animal bone	5
50	Ceramic	Pottery	42
50	Lithic	Flint	2
50	Lithic	Stone	114
50	Organic	Animal bone	23
52	Ceramic	Pottery	18
52	Organic	Animal bone	48
54	Ceramic	Pottery	44
54	Organic	Animal bone	152
57	Ceramic	Pottery	71
61	Ceramic	Pottery	21
61	Organic	Animal bone	15
82	Ceramic	Pottery	6
82	Organic	Animal bone	6
96	Ceramic	Brick or tile	135
96	Ceramic	Pottery	43
96	Lithic	Stone	297
96	Metallic	Slag	325
96	Organic	Animal bone	1374
96	Organic	Organics	6
97	Ceramic	Pottery	85
97	Organic	Animal bone	402
97	Organic	Organics	1
99	Ceramic	Pottery	41
99	Lithic	Stone	238
99	Metallic	Slag	25
99	Organic	Animal bone	41
3006	Ceramic	Pottery	3
3015	Ceramic	Pottery	44
3015	Organic	Animal bone	17
3015	Other	Shell	56
3016	Ceramic	Pottery	45
3016	Metallic	Metalwork Fe	6
3016	Organic	Animal bone	21
3018	Organic	Animal bone	33
3025	Ceramic	Pottery	67
3025	Organic	Animal bone	8
3026	Ceramic	Pottery	73
3026	Organic	Animal bone	23
3028	Ceramic	Daub	45
3028	Ceramic	Pottery	23
3028	Organic	Animal bone	32

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