

The Lordship Campus, Writtle Agricultural College, Essex

An Archaeological Desk Based Assessment



Matthew Brudenell

CAMBRIDGE ARCHAEOLOGICAL UNIT
UNIVERSITY OF CAMBRIDGE



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Cambridge Archaeological Unit
University of Cambridge
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Summary

This archaeological desk based assessment was commissioned by Writtle Agricultural College. It relates to an area of 4.16 hectares within the Lordship Campus. The proposed development area lies on the northern outskirts of Writtle Village, centred TL 679 062. The study reveals the potential for encountering archaeology of the Prehistoric, Roman, medieval, and post-medieval periods, the latter two associated with the manorial complex at King Johns Hunting Lodge, 200m west of the campus. Post-medieval quarrying, recent ploughing, and the construction of semi-permanent standing buildings may have disturbed any archaeology on the site.

Introduction

The purpose of this report is to collate and summarise the existing information relating to the archaeology and history of the proposed development area and a surrounding study zone of 1km², as defined in Figure 2. This will be used to assess the likely character, extent, and potential preservation of the archaeological resource.

Sources

A number of sources were consulted in the production of this report, the most important being the Sites and Monuments Record (SMR), and the Writtle Historic Settlement Assessment Report (WHSR 2001). Valuable information was obtained from recent archaeological reports by Essex County Council Field Archaeology Unit and Hertfordshire Archaeological Trust, and from a number of parish histories. The principle historical maps consulted at the Essex Record Office included the 1777 Andre & Chapman map of Essex, the 1783 Lordship estate map, the 1843 Writtle Tithe map, and the Ordnance Survey Series from 1874 through to the present day. In addition the 1975 OS 1: 50,000 Drift & Solid Geological Map of Chelmsford was employed in the discussion. A survey of aerial photographic evidence relating to the PDA was also commissioned, and is included within this report as an appendix (Palmer Appendix II). A site visit was made on 18th February 2004.

Geology and Topography

Writtle is located within the borough of Chelmsford, and covers an area of 4463 acres (Figure 1). The underlying bedrock is chalky boulder clay, the Essex till. Overlying this, and dominating the surface geology of the study zone, are head deposits, a form of locally derived sandy hillwash lying on the valley sides. Alluvium covers the valley bases, deriving from the rivers Can and Wid, which bisect the study zone from the west and south. These rivers primarily conditioned the topography of the area, with the height of the land rising from 30m OD at the confluence of the two rivers in the northeast, to just over 50m OD in the south –west.

The proposed development area (PDA) is situated on the northern outskirts of Writtle on the east side of Lordship Lane. Covering an area of 4.16ha, the site is within the Lordship Campus of Writtle Agricultural College, and is currently occupied by a series of glasshouses, with experimental arable plots to the east and north. In the northwest there are a series of semi permanent structures and one standing building. The PDA is bounded to the east by an orchard, to the north and south by arable land, and to the west by Lordship road. The site lies at approximately 30m OD

Historical Background

As Writtle is a village with a rich and varied history, only a brief outline of its development can be offered in the following section. For more detailed information on the history of Writtle, the reader is referred to the parish histories in the bibliography.

The historic evidence for pre-conquest settlement at Writtle is fragmentary, being confined to the records in the Little Domesday Book of 1086 (Newton 1970, 1). The book suggests that in the late Saxon/early medieval period Writtle was a high status



Figure 1. Location Map

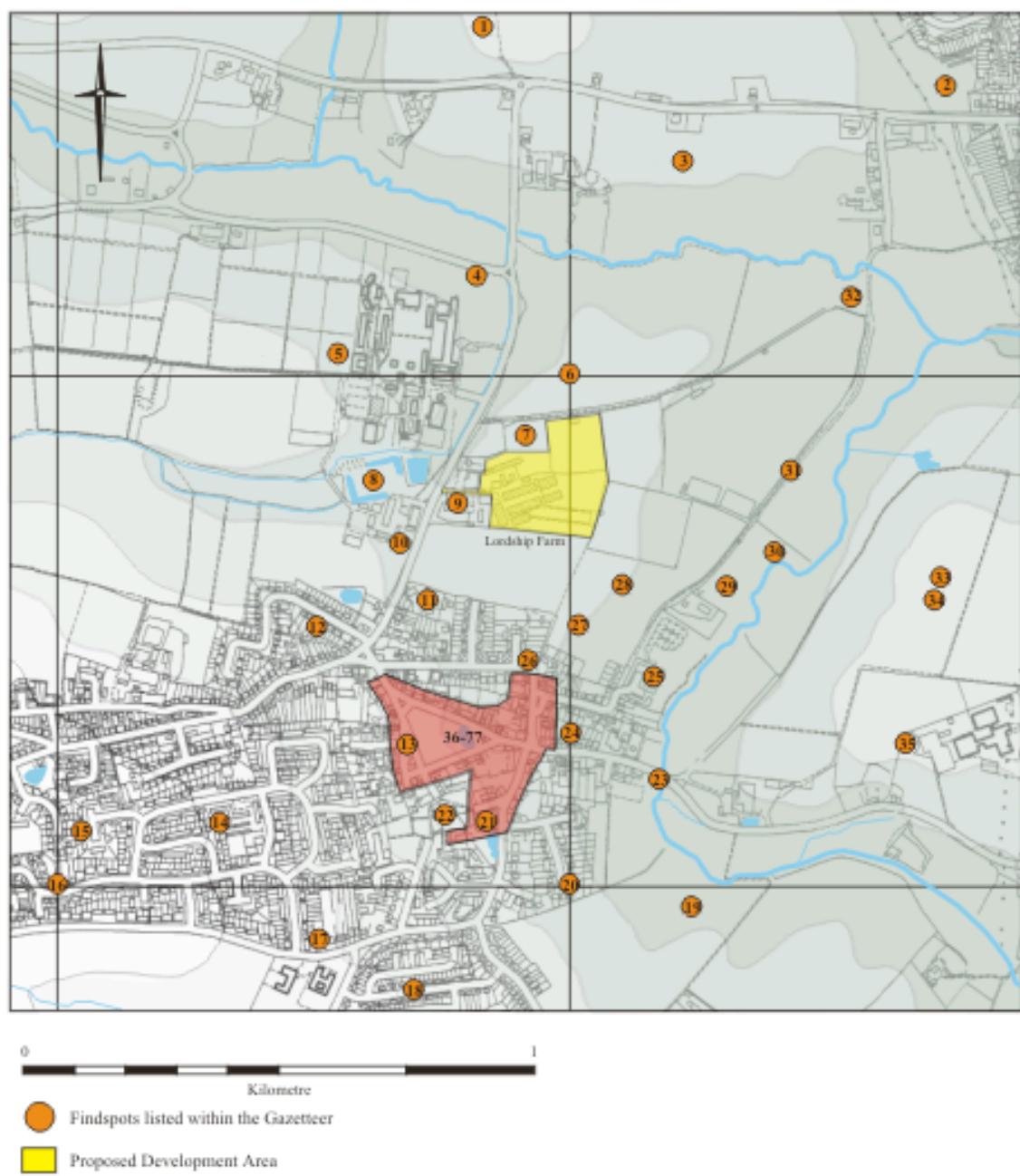


Figure 2. Study zone with Gazetteer points

royal manor, belonging to Harold prior to 1066. The extensive Domesday entry demonstrates that Writtle was one of the largest manors in Essex, both in population and territory. Its size and royal ownership suggests that Writtle may have been of administrative importance for the Hundred of Chelmsford (Newton 1970, 3).

The historic settlement pattern for Writtle is typical for that of Essex, and is characterised by dispersed settlement with pockets of nucleation around the common grazing land (WHSAs 2001). The principle settlement for Writtle was probably centred on the village green, which from the thirteenth century is found recorded as Greenbury. The site of the old manor probably lies near to the green, close to All Saints Church. Its exact location remains unknown, but the building may have served as the home of the brethren of the Church Hospital from 1218, by which time a new manor had been constructed at King John's Hunting Lodge (Newton 1970, 12).

In 1211 'King John's Hunting Lodge' was built in the north of the parish, and comprised of a series of structures enclosed by a moat. The 'hunting lodge' is a term frequently used for early medieval royal residences (Hunter 1993, 122), and was one of many lodges built in the later twelfth and thirteenth centuries (Rahtz 1969, 5). Occasionally referred to as 'the king's house' or 'King John's Palace', the lodge continued in use as a royal residence until 1241, when it was sold to Isabel de Bruce. Henry III made numerous visits to the lodge from 1229 - 1256, and a series of royal writs are dated here in 1229, 1235, and 1238. Edward I was also known to have visited on two occasions in 1277 and 1305 (Rahtz 1969, 6).

In 1306 the estate was passed to Humphrey de Bohun, following the forfeiture of Robert de Bruce. A survey in 1419 lists in detail the layout of the principle buildings within and around the moat (Rahtz 1969, 9). Pertinent to this report is the mention of farm buildings around a court south of the moat, where a fifteenth century aisled barn still stands today. The Bohun tenure lasted until 1521, when the estate was seized after Buckingham's execution. A survey conducted in the same year found the lodge in neglect. Following 1521 the estate declined, and by 1566 little except the moat and barn remained upstanding.

By the post-medieval period, Writtle's status as a royal estate had declined, with the lands of the royal demesne being divided up amongst several sub-manors of Moor Hall, Lordships Farm, Reeds Farm, Rollestons, Montpeliers, and Shakestons. Lordships Farm, immediately adjacent to the redundant Palace, remained the principle manor in the parish (WHSAs 2001). The overall settlement pattern in Writtle appears to have changed little from the eighteenth to nineteenth centuries, which has aided the preservation of numerous historic buildings. The 1777 Andre and Chapman map (Figure 3) shows that settlement in Writtle continued to cluster around the common greens of Greenbury, Oxney, Newney and Edney. The tithe map of 1843 indicates little development from 1777, primarily due to the continuing rise of Chelmsford as the county town.

By the twentieth century expansion by Marconi and the opening of the Agricultural College in 1938 brought employment and new development to the village. The 1960s were a period of rapid expansion in Writtle, with housing development in Rollerstones, off Lodge Road and along the Ongar Road (WHSAs 2001).

Previous archaeological work in the area

Although there has been no previous archaeological work within the PDA, a number of excavations and field evaluations have taken place in the immediate vicinity. The most notable investigation was the large-scale research excavation on the platform of King John's Hunting Lodge, 200m west of the PDA (Rahtz 1969).

The Royal Hunting Lodge is perhaps the most important site in Writtle, both historically and archaeologically. Excavated between 1955-57 three phases of building were identified, providing important information on the medieval economy, diet, and status of a royal manor house (Rahtz 1969). The first phase, 1211 to c. 1306, comprised the timber chapel, hall kitchen, and gatehouse. The second phase (c. 1306-c. 1425), associated with the tenure of the de Bohun family, saw the basic layout of the buildings retained. The gatehouse was enlarged and extended, and it is likely that the hall and kitchen were rebuilt. The final period of building, between c. 1425-1521, marked an almost complete break with the earlier layout of the site. Buildings were now concentrated in the north and west of the site, and included new additions, such as a porter's lodge, ewery and counting house.

A handful of smaller archaeological projects have taken place immediately adjacent to the PDA. To the west, on the site of the current Agronomy centre, a small archaeological evaluation and watching brief was conducted prior to development (Reidy, 1993a, 1993b). Trenching revealed twenty-one archaeological features, the majority of which could not be dated. Features included a cluster of sixteenth and seventeenth century post-medieval pits, a ditch, gully, and undated postholes. One tree bowl contained fourteen sherds of thirteenth century Mill Green Ware pottery, suggesting that the tree had destroyed a shallow medieval feature.

Immediately to the north of the PDA, an archaeological field evaluation was conducted, prior to the construction of the Day Nursery (Vaughan 2000). The two trenches excavated revealed no archaeological features, and the underlying natural was observed to be disturbed by both ploughing and tree roots. A small number of finds were recovered from the thin topsoil, and included eleven struck flints of possible Neolithic to Bronze Age date, four abraded Prehistoric and Roman pot sherds, four post-medieval tile fragments, and a single piece of burnt flint and slag. Similarly, no archaeological features were recovered from a watching brief carried out during foundation construction for a new hall of residence at the Agricultural College (Gibson 1999) 400m to the north west of the PDA.

300m to the south the PDA, an Archaeological evaluation occurred at Kitts Croft, Lordship Road (Robertson 1998). The two trenches and test pits, revealed post-medieval pits, postholes and a gully, probably all relating to the creation of a garden in the 1880s. Residual Prehistoric, Roman, and medieval pottery was recovered.

Known Archaeology within the Study Zone

The report examines a study area of one square kilometre centred on the PDA (TL 679 062). Gazetteer points are shown on Figure 2, and are listed in Appendix I. Throughout the report gazetteer numbers are referenced in the text in bold e.g. (1). The data is considered in chronological order i.e. Prehistoric, Roman, Saxon, medieval, post-medieval, modern.

Prehistoric (to AD 43)

There is significant evidence for prehistoric activity within the study zone. Sporadic archaeological finds dating from the Palaeolithic to Iron Age have been recorded since the nineteenth century. The earliest finds are represented by a group of Palaeolithic ovate flakes (16) and a Palaeolithic Levallois flake (12), found in the early part of the twentieth century. Stray finds of Mesolithic and Neolithic axes, picks and flakes have also been found at two separate locations (16, 20) in the south of the study zone, some of which form part of the Mothersole collection in Colchester Museum (Mothersole 1899, 305).

150m north of the PDA, Neolithic worked and burnt flint, including two arrowheads, were collected from a depth of three feet below the surface in the Can Valley (6). Residual flint work and abraded prehistoric pot sherds dating from the Neolithic to Bronze Age have also been recovered from the topsoil from recent Archaeological field evaluations around Writtle Agricultural College (7, 9, 11) (Reidy 1993a; 1993b; Robertson 1998; Vaughan 2000)

The only prehistoric features thus far revealed and excavated in the study zone are a ditch, hearth and post-hole (8) (Rahtz 1969, 18). Sealed beneath the up-cast from the moat at King John's Hunting Lodge, the features attest to Iron Age settlement in the vicinity of the PDA. As in the recent field evaluations, prehistoric flints were also found scattered over the moat interior (Rahtz 1969, 26).

Roman (AD 43 - c. 450)

There are no confirmed Roman settlement sites in the study zone, although finds made in the area indicate a Roman presence. In the heart of Writtle village Roman pottery was found at several spots during the nineteenth century, the most important being the discovery of two burial urns in the old walled garden of the vicarage in c. 1840 (21) (Hull 1963, 203). Roman pottery was also found in the area of Rectory Road (18), and an amphora handle was discovered at a depth of four feet in Longmeads c. 1870 (15). Housing now covers both sites.

Roman brick is contained within the structure of All Saints Church (22), and in 1953, Mr J. W. Anstee excavated brick and pottery fragments immediately east of the churchyard (Hull, 1963, 203). Excavations at All Saints Church in 1974 uncovered further Roman brickwork in the make up of the floor in the chancel (Couchman 1976, 169).

In the area around the Agricultural College, a metalled road surface six inches thick and ten feet wide was observed by Major J. Brinson on the bank of a lane to the west of the Lordship Road (4) (Hull 1963: 203). The road, possibly Roman, was projected by Brinson to run from Great Waltham to Writtle. Further evidence for Roman activity in the immediate vicinity of the PDA is attested to by sherds of abraded Roman pottery found in the topsoil of trenches stripped during field evaluations at the Day Nursery (7) (Vaughan 2000), and at Kitts Croft (11) (Robertson 1998). Roman brick and tile were found to be incorporated into the phase I structures at King John's Hunting Lodge (8) (Rahtz 1969).

Saxon and Medieval (c. 450 - 1485)

No Saxon sites are listed in the gazetteer, although the Domesday Book suggests Writtle was a very wealthy royal estate, with one of the largest populations in Essex (186 households).

In contrast to the paucity of the Saxon record, there are numerous entries on the SMR relating to medieval Writtle. The most important site being King John's Hunting lodge (8), a royal manor built in 1211. The lodge comprised of series of buildings surrounded by a moat, with three adjacent fish pound to the east, and an external farm based around a court to the south. The complete excavation of the platform interior between 1955-57 uncovered three stratified phases of building from the thirteenth to the fifteenth century, together with an important assemblage of medieval finds (Rahtz 1969). Two of the fish ponds immediately to the north west of the PDA are now filled in, the other having been converted into a reservoir.

Although the moat still exists as an earthwork, the only other upstanding remains of the former Lodge is a fifteenth century barn built in 1478 (10). The barn is associated with the final phase of occupation at the Lodge, and is a large timber framed aisled barn with six bays. The barn is currently a Scheduled Ancient Monument (SAM 94).

A further entry in the gazetteer is Lawford Lane (31). The lane was known as 'The King's Highway' in 1292, and ran from Writtle to Chelmsford, forming part of the old route to London. The Lane was downgraded to its current use as a bridle path in 1871, but survives in parts as a twelve-foot wide path with remains of flanking ditches (Newton 1970).

Archaeological work in the immediate vicinity of both the PDA and King John's Hunting Lodge (7, 9, 11), has recovered small quantities of residual thirteenth century pottery and tile, although no intact medieval features have been discovered. The presence of sherds hints at medieval activity in the surrounding landscape of the Lodge, although these may merely result from manuring practices.

In the centre of Writtle, several of the listed buildings are known to have medieval origins. These include number 23 The Green (51), a large two storey medieval timber framed building, number 14 Bridge Street (73), a single ended timber framed house built c. 1400, and numbers 27-29 The Green (52), a fifteenth century timber framed house. All cluster around 'Greenbury' Green (Writtle Green), a surviving common, which formed one of the focal centres of medieval Writtle (Newton 1970).

The earliest medieval building in Writtle is the All Saints church (22). The church probably has a Saxon origin, as there is mention of a church and priest in the Domesday survey (Newton 1970). However, the earliest direct evidence for construction comes from possible eleventh century foundations uncovered in a test pit dug by the tower footing in 1994 (Andrews 1994). The current nave and chancel were constructed in around 1230, with alterations throughout the medieval period. The excavation of a trench in the chancel in 1974, uncovered a fourteenth century floor tile, pieces of carved stone, a Purbeck stone mortar, and human burials (Couchman 1976).

Other medieval spot finds in Writtle include a small group of 'Essex Red Ware' sherds (24) found by Mr. M. J. Lucas from a five metre wide channel revealed during construction of a garage. In 1963 the site of a probably twelfth to fourteenth century mill mound (14) was trial trenched by the Ministry of Public Buildings and Works. The feature, which proved to be natural, was heavily disturbed, but sherds were found down the side of the mound.

Post-Medieval (1485 - 1900)

The majority of post-medieval entries in the gazetteer are historic buildings (36-77). There are a total of fifty-five listed buildings in Writtle, forty-one of which lie within

200m of Writtle' historic centre, 'Greenbury' Green. These buildings are predominately timber framed houses dating from the sixteenth to eighteenth century, together with a small number of building relating to Writtle's nineteenth century industry. For further information regarding these building, the reader should refer to the Writtle Historic Settlement Assessment Report at Essex County Hall.

A number of post-medieval features have been uncovered through excavation. A field evaluation at the Agronomy Centre (9) revealed a series of sixteenth and seventeenth pits (Reidy 1993a; 1993b). Post-medieval features were also encountered at Kitts Croft (11), although these related to the creation of a garden in the late nineteenth century (Robertson 1998).

There have been several spot finds of post-medieval pottery in the study zone. Near the confluence of the Can and Wid (32), two kilograms of pottery were collected from a finds scatter in a ploughed field. This area is not known to be part of the historic settlement of Writtle, and may be the site of a farm midden or dump. Two other minor post-medieval finds have been made in the historic centre of Writtle (33, 17), and a small group of pottery was collected from a field in the far east of the study zone (33).

200m to the south east of the PDA is the former site of a Napoleonic camp (28). The 1876 OS map shows the camp to be located on 'Hop Gardens' and 'Loam Pit Fields'. The camp was part of a network of defences in Chelmsford, although no physical remains are extant. (WHSA 2001). In the south east of the study zone stands the remains of a mill mound (35). The mound is shown on the 1777 Andre & Chapman map (Figure 3), and currently stands 2cm high.

Modern (1900 - present)

Four sites in the study zone are listed as modern, and relate to World War I and II defences and early Marconi buildings. Located on 22 acres of fields to the west of Lawford Lane (27), Writtle airfield was established in 1914 as a temporary landing ground for No. 1 Reserve Aeroplane Squadron RFC. The airfield was based at Writtle in order to counter the anticipated threat from Zeppelin incursions over East Anglia. The site was used infrequently and was eventually closed in 1916. No buildings remain on the site.

Three of the sites designated as modern related to early Marconi buildings. After expansion in Chelmsford, Marconi established new premises in Writtle. To the south of Lawford Lane, Marconi established a small experimental station in 1919 to investigate the use of radios in aircraft (25). In the early 1920s the site developed as a radio station, and from 1922 the first regular public entertainment broadcasts were made from a timber hut on this site. During WWII the station was used for the development of radar navigation for bombers. The only trace of the former wireless station is a section of wire mesh fencing supported by concrete posts along its northern perimeter.

Located 250m west from (26), Marconi Specialised Components Division occupied a small engineering works at Guy's farm Writtle until 1965, when its production was moved to a new site at Billericay. The site has been cleared and it is now covered by a small housing estate.

In the far north of the study zone is the site of another small Marconi experimental station established during WWII (1). This comprised an operations building and a sunken concrete well that housed the radar's transmitter and receiver equipment. During the early 1950s, Marconi was commissioned to develop a radar system for the

RAF. The first experimental model of this device was installed on the site, but was relocated in 1954. The Bedell's End test station nevertheless continued in use, and in the mid-1950s was used for moving target indicator experiments. Some of the structures remained in place on aerial photographs taken in 1970 but all had been removed by 1981.

Undated

A number of sites in the study zone remain undated. The majority of these sites are cropmarks recorded from aerial photography, and without further investigation their significance is difficult to access.

In the north east corner of the study zone (2) an earthwork with a clear bank on the western and southern sides was observed, but with no signs of a ditch. This feature is possibly no more than a lynchet, and has now been encroached upon by housing. 600m to the north of the PDA (3) various cropmark features including areas of quarrying, linear features, and a square macula feature, c. 20 by 20m have been observed. Superficially the square macula resembles a Roman temple, although the feature could equally be the remains of a water meadow.

In the east of the study zone there is a group of three cropmarks showing as ring ditches (34). The largest ring has evidence of an internal structure, and could be the remains of a windmill mound. The smallest cropmark in the group is a pennanular ring ditch with thickened terminals. 400m to the west of this site is another cropmark of a circular enclosure (29), together with the faint traces of a rectilinear earthwork (30), possibly a water meadow. Further cropmarks relating to water meadow features have been observed at (19), together with extant post-medieval field boundaries.

Other undated sites in the gazetteer include the site of a stone cross (13) in the centre of Writtle, and a human skeleton found during the construction of Writtle Bridge in 1891 (23).

Cartographic & Aerial photographic evidence

The post-medieval development of the area immediately around the PDA can be ascertained from the cartographic records. The 1777 Andre & Chapman map (Figure 3) demonstrates the presence of a series of structures on the area of the PDA, possibly relating to farm buildings belonging to Lordship manor. The 1783 Lordship estate map (Figure 4) provides a more detailed record of the vicinity. This map shows the PDA to be lying across two fields named 'Loam Pit Field' to the north, and 'Hay Barn Field' to the south, with the field boundary running east-west across the site. At least one structure falls within the western end of the PDA, which given the field name 'Hay Barn Field', may be a barn or other farm building. 'Butt Field' immediately to the south of the PDA is of note, as the name suggests the field was used for target practice; Butts being low mounds set behind targets. This theory is perhaps supported by the fact that a Napoleonic camp (28) was situated in the adjacent fields to the southeast. Equally, the field name may have a medieval origin, if the site was used for archery.

The 1843 tithe map, and later OS maps (Figure 5) demonstrate the persistence of the field boundaries around the PDA. The tithe map again indicates a structure lying in the west of the PDA, which is not shown on the OS editions (Figure 6 & 7). The OS maps show the northern part of the PDA, formerly 'Loam Pit Field', being crossed by a series of footpaths or tracks. Buildings occupy the area immediately west of the PDA, but none occupy the site.



Figure 3. 1777 Andre & Chapman map of Essex



Figure 4. 1783 Lordship Farm estate map



Figure 5. 1843 Writtle tithe map



Figure 6. 1874 Ordnance Survey 1st Edition map



Figure 7. 1938 Ordnance Survey map

Aerial photographic evidence shows the existence of a large irregularly shaped quarry in the northeastern part of the PDA (Palmer Appendix II). The depression was visible in 1947, and was noted on the recent site visit. Although the quarry is not shown on any of the historic maps, it is possible that ‘Loam Pit Field’ acquired its name from this activity. This would suggest that the quarry is at least 200 years old.

Further aerial photographs demonstrate that both Hay Barn Field and Loam Pit Field were pasture between 1946 and 1951, with Loam Pit Field continuing as pasture until 1955 (Palmer Appendix II). Between 1951 and 1977 a series of three buildings (probably glasshouses) were constructed on the PDA, with the remaining areas in the north planted as an orchard, and the area to the southeast used for crop trials. By 1977 the glasshouses had been rebuilt as they now appear on the current OS map.

Discussion & Statement of Potential

Although evidence for early prehistoric activity in the study zone is largely confined to sporadic finds made in the nineteenth century, recent excavations around Writtle Agricultural College (7, 8, 9, 11) have recovered flint work and abraded pot shreds from the topsoil, indicating a prehistoric presence within the vicinity of the PDA (Rahtz 1969; Reidy 1993a; 1993b, Robertson 1998; Vaughan 2000). Situated on a slight promontory between the Can and Wid valley, with numerous natural springs, Writtle has been identified as an area with *potential* for prehistoric settlement (WHSAs 2001), especially considering its close proximity to the Chelmer Valley, where a number of prehistoric settlements have been located (Atkinson 1995; Brown 1998, 2001; Brown & Lavender 1994). To date the only prehistoric features discovered in the area were found at King John’s Hunting Lodge (8), preserved in a buried soil underneath the upcast from the moat (Rahtz 1969). Although the conditions for the survival of these features may be unique, there is potential for this settlement activity to continue into the PDA.

Writtle’s close proximity to the Roman town of *Casearomagus*, and various Roman roads, make it an area of potential settlement. The majority of known Roman settlements around the Chelmsford area are situated to the west of the town, where a string of Roman villas including those at Pleshey, Chignall, and Great Oxney Green are situated (Clarke 1998). Spot finds of pottery and brick in the centre of Writtle, suggest a widespread but ill-defined Roman presence. Establishing the nature and significance of Roman occupation in Writtle, and its relationship with the nearby settlement of *Casearomagus*, has been identified as an immediate research priority in the Local Plan (ECCHCG 1999).

The presence of two burial urns at (21) are of note as there is a clear relationship between the distribution of Roman burials and Roman roads. Given that road metalling was found in north of study area (4), to the west Lordships Road, there is the possibility that a Roman road or track once ran through Writtle. Major J. G. S. Brinson projected the possible line of a Road from great Waltham to Writtle, although no further evidence of this road has been found (Hull 1963, 203).

Finds of abraded Roman pot sherds in the topsoil of excavation trenches at the Day Nursery (7) (Vaughan 2000), indicate a potential for encountering Roman remains in the PDA. The origins of this material are difficult to ascertain, especially as no Roman features have been encountered from this, or any other excavation in the area. However, the presence of Roman artefacts could suggest settlement in the vicinity, or

equally, the material could have been introduced through manuring.

There are at present no archaeological remains relating to Saxon settlement in Writtle. The paucity of evidence is perhaps misleading, given the records in the Domesday Book. Although the location of settlement is uncertain, it is likely that the main focus of settlement was around the Greens and Common lands of Greenbury, Oxney, Edney and Radley (Hook 1998). There is no evidence to indicate Saxon settlement in any of the excavations carried out in the vicinity of the PDA, and there is no Saxon precursor for King John's Hunting Lodge (8).

There is a great deal of archaeological evidence relating to medieval Writtle. The principle focus of settlement was around Greenbury Green in the centre of Writtle, and the area of Lordships Farm. The latter region was dominated by the royal manor of King John's Hunting Lodge (8), which included an ancillary farm immediately south of the moat (Rahtz 1969). Although the survey of 1419 lists the farm buildings in detail, there is little indication of the layout or extent of this farm complex (Hunter 1993, 124). It is *possible* that this early medieval farm extended to the east of Lordship Road into the PDA. Archaeological trenching at the Agronomy Centre and Day Nursery did not encounter any intact medieval features, although finds of thirteenth century pot and tile were recovered. The nature of this presence is difficult to assess, given that relatively small areas have been subject to trenching outside of the moat. Understanding the relationship moated sites have with contemporary settlements and neighbouring buildings, together with tracing the development of medieval settlements, has been highlighted as an important area of study at the local, regional, and national level (Aberg 1978, English Heritage 1997, Brown & Glazebrook 2000).

The continued occupation of Lordship farm following the demise of the royal manor, makes it possible that post-medieval activity will be encountered in the PDA. The 1873 estate map shows a series of buildings on the east side of Lordship road, at least one of which falls within the PDA. The nature of these structures is unknown, however the field name 'Hay Barn Field' implies they were agricultural buildings. The cartographic evidence also indicates the presence of a field boundary running east-west across the centre of the PDA. Archaeological trenching at the Agronomy centre (9) (Reidy 1993a; 1993b), immediately south west of the PDA, revealed a series of sixteenth and seventeenth century pits. There is potential for further such features to fall within the PDA

Having reviewed the known and potential archaeological remains, an important factor to consider is preservation. The evaluation at the Day Nursery (7) showed that the area immediately to the north of the PDA had thin topsoil between 0.30m to 0.38m deep, and that ploughing had disturbed the underlying natural (Vaughan 2000). Archaeological features uncovered at the Agronomy Centre (9) were also partially truncated by modern services and tree bowls (Reidy 1993a; 1993b). However, soil conditions were found to be conducive to the survival of calcareous remains such as bone and shell.

It is likely that recent ploughing will have partially disturbed any archaeology within the PDA. The foundations of the semi-permanent standing buildings and glasshouses toward the centre of the site, together with any service trenches dug throughout the area, may also have disturbed the archaeology. Post-medieval quarrying in the east of the site will have caused the greatest disturbance to any archaeology in the PDA.

Aerial photographic evidence shows an extensive quarry pit over 100m long, and 50m wide, which will have destroyed any earlier archaeology in this section of the PDA (Palmer Appendix I).

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Appendix I

Gazetteer

Gaz #	Grid Ref	Period	Description	SMR #
1	TL 6784 0762	Modern	Air ministry experimental station probably established during WWII and operating until the late 1960s. Known test equipment installed included an Air Ministry Experimental Station Type 7 radar, comprising of an operations building and a sunken concrete well. During the 1950s the site was installed with a Marconi built L-band radar with a clutter rejection system. During the mid 1950s the station was used for moving target indicator experiments.	15839
2	TL 6870 0760	Undated	Earthwork with a clear bank on the western and southern sides, but with no sign of a ditch. Possibly no more than a lynchett on the edge of a small river valley. Feature now encroached upon by housing.	803 814 815
3	TL 6810 0740	Undated	Various cropmark features including areas of probable extractia, linear features, and a square macula feature c. 20 x 20m.	16252
4	TL 6780 0720	Roman?	Road metalling six inches thick and ten feet wide, observed by Major J. G. S. Brinson. The road could be part of the Chelmsford-Braintree-Long Melford road. Brinson projected the line of a possible road from Great Waltham to Writtle.	804
5	TL 6707 0701	Undated	Archaeological watching brief at Writtle Agricultural College located no archaeological deposits.	18255
6	TL 6800 0700	Prehistoric	Approximate find spot of two arrowheads, a circular scarper, flakes, a core, and burnt flint. Found to a depth of 3ft in the Can valley.	5543
7	TL 6790 0690	Prehistoric/ Roman	A collection of prehistoric pottery, struck and burnt flint, and a group of abraded Roman sherds were found in an Archaeological Evaluation carried out on the site of the proposed Day Nursery, Writtle Agricultural College. No archaeological features were encountered.	18921 18922
8	TL 6768 0680	Prehistoric/ Med	Mediaeval moated site of 'King John's Hunting Lodge' (formerly Ancient Monument 93), founded By King John in 1211, and visited by both Henry III and Edward I. The interior of the enclosure was completely excavated between 1955 –57, prior to destruction. Excavations revealed 3 periods of building, roughly corresponding to the C13th, C14th and C15th. The manor had 3 fish-ponds to the east, which have now been developed into a reservoir. Prehistoric pot sherds and flints were found in association with a ditch, hearth and post-hole. Roman bricks and tile were incorporated into the period I buildings.	659

Gaz #	Grid Ref	Period	Description	SMR #
9	TL 6777 0675	Prehistoric/ P-Med	Archaeological Evaluation trenching carried out on the site of the proposed Agronomy Centre, Writtle Agricultural college, revealed a truncated and heavily disturbed medieval feature containing 14 sherds of C13 th Mill Green Ware. The other features uncovered were either post-medieval or undatable due to a lack of finds. Two residual Prehistoric waste fakes were also recovered. Work was followed by a watching brief.	14587 14588 14589 14590 14591
10	TL 6766 0667	Med	A fine timber framed, weather boarded late medieval aisled barn of 6 bays. Built in 1478, the barn is the only upstanding building associated with King John's Hunting Lodge. The building is a Scheduled Ancient Monument (SAM 94).	658 30954
11	TL 6773 0657	Prehistoric/ P-Med	An Archaeological Excavation of 2 trenches at Kitts Croft revealed Post-medieval pits and post holes probably relating to the creation of a garden in the late C19th. Residual medieval pottery was found in the trenches, together with a mix of Prehistoric-modern pottery from 2 test pits.	18174
12	TL 6750 0650	Prehistoric	Find spot of Levallois flake	813
13	TL 6768 0628	Undated	Site of a stone cross close to All Saints Church.	17688
14	TL 6735 0613	Med	Site of probable C12 th to C14 th mill mound. A trial trench in 1963 found the mound to be natural. A thin spread of sherds on the side of the mound was noted.	857
15	TL 6704 0610	Roman	Find spot of a Roman amphora handle, found at a depth of 4ft in c.1870. Are now covered by housing.	710
16	TL 6700 0600	Prehistoric	Approximate find spot of several Palaeolithic ovate flakes, together with a group of Neolithic picks and polished & flaked flint axes. A sandstone hammerstone with hourglass perforation was also found in the vicinity.	653 654 655 657
17	TL 6750 0590	P-Med	Several large stone blocks found in the garden of 89 Lodge Road, one with the date 1868.	873
18	TL 6770 0580	Roman	Finds spot of Roman pottery in the C19th. Area now a housing estate.	18581
19	TL 6820 0600	Undated	Rectilinear cropmarks, possibly post-medieval field boundaries, field drains or part of a water meadow.	14058
20	TL 6800 0600	Prehistoric	Find spot of a 2 Mesolithic tranchet axes and 2 micro blade cores. Found 1891.	788
21	TL 6783 0615	Roman	2 Roman burial urns found in 1840.	711

Gaz #	Grid Ref	Period	Description	SMR #
22	TL 6775 0614	Roman/ P-Med	Church of All Saints. Originally built in C13th, c. 1230, with alterations throughout the C14th-C19th. The west tower fell in 1802 and was rebuilt. The church contains some Roman brick in its construction. Excavations in 1953 and 1974 recovered Roman bricks and pottery, together with C14th artefacts, human bones, coffin wood and coffin nails. In 1994 the possible remains of a C11th tower were observed in a test pit dug by the current tower footing.	705 706 707 708 709 30959
23	TL 6824 0614	P-Med	Writtle Bridge. Cast iron bridge built in 1891, and carrying the Chelmsford-Writtle road over the River Wid. The bridge has 4 brick pillars and bank retaining walls. During construction a human skeleton was found	716 40255
24	TL 6800 0630	Med	Find spot of a group of late medieval sherds of Essex 'Red Ware' tradition, together with collection of small sherds of late 16 th -18 th century local coarse wares, found by Mr Lucas from a 5m wide channel revealed during the construction of a garage.	868 869
25	TL 6815 0640	Modern	Site of a Marconi experimental radio station, built in 1919, and used for public entertainment broadcasting between 1922-3. The site was used for research into radar navigation for bombers during WWII. The site has now been cleared, and is covered by housing.	15937
26	TL 6793 0642	Modern	Site of a small engineering works occupied by a Marconi Specialised Components Division until 1965. The site has now been cleared, and is covered by housing.	15938
27	TL 6800 0650	Modern	A 22-acre WWI landing ground on the site of a Napoleonic period Camp. The ground was allocated to No. 1 Reserve Aeroplane Sqd. RFC, in use from 1914 to 1916.	19365
28	TL 6805 0655	Undated	Site of Napoleonic Camp, located on Hop Gardens and Loam Pit Fields.	18584
29	TL 6830 0660	Undated	Cropmarks of a circular enclosure	18180
30	TL 6840 0670	Undated	Rectilinear feature showing as faint earthworks in 1947. Possible water meadow.	14057
31	TL 6840 0685	Med	Lawford Lane. The Lane was 'the King's Highway' in 1292 running from Writtle to Chelmsford, and forming part of the old route to London. The lane was downgraded to its current use as a bridle path in 1871.	14137
32	TL 6855 0715	P-Med	2 kilograms of post-medieval metropolitan slipware sherds collected from a finds scatter in a ploughed field c. 1960.	827
33	TL 6870 0660	Med/ P-Med	Find spot of 6 small oxidised-ware plain sherds, probably all from the same vessel. Collected by Mr. M. J. Cuddeford in the 1980s.	854 855

Gaz #	Grid Ref	Period	Description	SMR #
34	TL 6870 0660	Undated	Group of 3 faint cropmarks of possible ring ditches. One large ring with an internal structure is possibly a windmill mound. One is a small pennanular ring with thickened terminals.	853
35	TL 6863 0628	P-Med	Mill mound indicted on the 1777 Chapman & Andre map of Essex. The post mill stood until 1987. The remaining mound is 2cm high. The ditch has been filled.	712
36	TL 6786 0630	P-Med	4 The Green. C18th timber framed house	30926
37	TL 6780 0633	P-Med	20 The Green. C18th timber framed house	30927
38	TL 6778 0634	P-Med	Greenbury. C18th –C19th timber framed house	30927
39	TL 6776 0634	P-Med	24 The Green. C18th brick house.	30929
40	TL 6773 0635	P-Med	32-36 The Green. Late C19th front to a C18th building.	30930
41	TL 6771 0636	P-Med	40-42 The Green. Late C18th timber framed house.	30931
42	TL 6769 0637	P-Med	44-46 The Green. C18th timber framed house.	30932
43	TL 6768 0637	P-Med	48-50 The Green. Early C19th brick house.	30933
44	TL 6787 0627	P-Med	1 The Green. Early C19th timber framed house.	30934
45	TL 6785 0627	P-Med	The Leets. C18th/early C19th front to an earlier timber framed house.	30935
46	TL 6778 0623	P-Med	Late C16th and C17th timber framed house.	30936
47	TL 6772 0621	P-Med	Aubyns. Timber framed house built c.1500.	30937
48	TL 6770 0620	P-Med	Mundays. C17th timber framed house.	30938
49	TL 6768 0618	P-Med	15-17 The Green. Late 18 th /early C19th timber framed House. In front of No. 15 stands a C18th/early C19th Village pump on Writtle Green.	30939 30940
50	TL 6767 0617	P-Med	19 The Green. Late C18th/early C19th timber framed house.	30941
51	TL 6766 0621	Med/ P-Med	23 The Green. A large 2 storey medieval timber framed building with C18th stucco front. The house was used as a Scattered home from 1908 but is now a private residence.	15395
52	TL 6766 0625	Med/ P-Med	27-29 The Green. C15th timber framed house with C18th alterations.	30943
53	TL 6766 0626	P-Med	31 The Green. C18th timber framed house.	30944
54	TL 6766 0627	P-Med	Ratcliffes. C18th red brick house.	30945
55	TL 6766 0628	P-Med	35 The Green. C18th timber framed house	30946

Gaz #	Grid Ref	Period	Description	SMR #
56	TL 6766 0629	P-Med	37-43 The Green. C18th/C19th range of timber framed houses.	30947
57	TL 6765 0632	P-Med	Beam Ends. C18th/C19th range of timber framed cottages.	30948
58	TL 6762 0638	P-Med	Rose and Crown Public House. Early C19th brick Public House.	30949
59	TL 6786 0618	P-Med	9 Lodge Road. C17th timber framed house.	30951
60	TL 6787 0616	P-Med	12 Lodge Road. Early C19th brick house.	30952
61	TL 6778 0609	P-Med	17-19 (The Vicarage) Lodge Road. C18th red brick house.	30953
62	TL 6782 0617	P-Med	1 Romans Place. C18th timber framed house with later brick front.	30960
63	TL 6783 0617	P-Med	2 Romans Place. C18th brick house.	30961
64	TL 6784 0618	P-Med	3 Romans Place. C18th brick house.	30962
65	TL 6790 0631	P-Med	4 St Johns Green. C18th timber framed house.	30964
66	TL 6790 0632	P-Med	St Johns House. C18th red brick house.	30965
67	TL 6791 0635	P-Med	9-12 St Johns Green. C18th timber framed house.	30966
68	TL 6794 0638	P-Med	21-22 St Johns Green. C18th timber framed house.	30967
69	TL 6794 0635	P-Med	23-24 St John Green. C18th timber framed house.	30968
70	TL 6795 0630	P-Med	White Bears. C16th timber framed house.	30969
71	TL 6794 0628	P-Med	31 St Johns Green. C18th timber framed house.	30970
72	TL 6794 0628	P-Med	33 St Johns Green. Late C18th/early1 C19th brick house.	30971
73	TL 67990627	Med	14 Bridge Street. c. 1400 Single ended timber framed house.	31052
74	TL 6784 0611	P-Med	Boundary wall of the Writtle Bowling Club, dated 1656.	39274
75	TL 6767 0618	P-Med	Malthouse. Late C17 th /early C18th timber framed malthouse with brick walls to the kiln.	15277
76	TL 6812 0622	P-Med	Site of a once extensive early C19th malthouse and brewery complex. The "Old Maltings" is a C19 th 2 storey timber framed building with brick and weather-board walls. The only remaining part of the brewery is 3 storey red brick, rendered and weather-boarded structure to the west of the malthouse. Brewing ceased on the site in 1907.	15278
77	TL 6789 0640	P-Med	Site of former gas works. A modern house occupies the works site, but the former Gas Manager's house is still present and occupied.	40425

Appendix II

AIR PHOTO SERVICES
21 GUNHILD WAY
CAMBRIDGE
CB1 8QZ
PHONE/FAX 01223 572063

**WRITTLE AGRICULTURAL COLLEGE,
TL679068, CHELMSFORD,
ESSEX:**

AERIAL PHOTOGRAPHIC ASSESSMENT

REPORT No: 2004/05

FEBRUARY 2004

COMMISSIONED BY

CAMBRIDGE ARCHAEOLOGICAL UNIT
DEPARTMENT OF ARCHAEOLOGY
DOWNING STREET
CAMBRIDGE CB2 3DZ

AIR PHOTO SERVICES, CAMBRIDGE: ROG PALMER MA MIFA

Archaeological consultant for aerial photographic interpretation, accurate mapping and oblique aerial photography

**WRITTLE AGRICULTURAL COLLEGE, TL679068, CHELMSFORD,
ESSEX:
AERIAL PHOTOGRAPHIC ASSESSMENT**

SUMMARY

This assessment of aerial photographs examined an area of some 4.2 hectares (centred TL679068) in order to identify archaeological features.

No archaeological sites were identified within the Development Area or, but for the remains of a moat to the west, within a larger Study Area.

Land use within the Development Area had been either as pasture fields or, more recently, as greenhouses and crop trials. Neither is conducive to the visibility of sub-surface archaeological features.

Original photo interpretation and mapping was at 1:10,000 level.

WRITTLE AGRICULTURAL COLLEGE, TL679068, CHELMSFORD,

ESSEX:

AERIAL PHOTOGRAPHIC ASSESSMENT

Rog Palmer MA MIFA

INTRODUCTION

This assessment of aerial photographs was commissioned to examine an area of some 4.2 hectares (centred TL679068) in order to identify and accurately map archaeological and natural features and thus provide a guide for field evaluation. The level of interpretation and mapping was to be at 1:10,000.

ARCHAEOLOGICAL AND NATURAL FEATURES FROM AERIAL PHOTOGRAPHS

In suitable cultivated soils, sub-surface features – including archaeological ditches, banks, pits, walls or foundations – may be recorded from the air in different ways in different seasons. In spring and summer these may show through their effect on crops growing above them. Such indications tend to be at their most visible in ripe cereal crops, in June or July in this part of Britain, although their appearance cannot accurately be predicted and their absence cannot be taken to imply evidence of archaeological absence. In winter months, when the soil is bare or crop cover is thin (when viewed from above), features may show by virtue of their different soils. Upstanding remains, which may survive in unploughed grassland, are also best recorded in winter months when vegetation is sparse and the low angle of the sun helps pick out slight differences of height and slope.

Grass sometimes shows sub-surface features through the withering of the plants above them. This may occur towards the end of very dry summers and usually indicates the presence of buried walls or foundations. Such dry summers occurred in Britain in 1949, 1959, 1975, 1976, 1984, 1989 and 1990 (Bewley 1994, 25) and more recently in 1995 and 1996. This does not imply that every grass field will reveal its buried remains on these dates as local variations in weather and field management will affect parching. However, it does provide a list of years in which photographs taken from, say, mid July to the end of August may prove informative.

Such effects are not confined only to archaeological features as any disturbance of soil and bedrock can produce its own range of shadow, crop and soil differences. The origin of many of these may be identified and separated from archaeological features but there may remain some features of unknown derivation that cannot be classified without specialist knowledge or input from field investigation. Examples of non-archaeological features include the natural – such as resulted from periglacial action, or deeper soils as may remain from former watercourses or colluvial deposits – and man-made – for example, former field boundaries, backfilled quarries

and pipelines. Some may be mistaken for archaeological evidence and all can be of relevance to its identification and survival.

The most immediately informative aerial photographs of archaeological subjects tend to be those resulting from specialist reconnaissance. This activity is usually undertaken by an experienced archaeological observer who will fly at seasons and times of day when optimum results are expected. Oblique photographs, taken using a hand-held camera, are the usual products of such investigation. Although oblique photographs are able to provide a very detailed view, they are biased in providing a record that is mainly of features noticed by the observer, understood, and thought to be of archaeological relevance. To be able to map accurately from these photographs it is necessary that they have been taken from a sufficient height to include surrounding control information.

Vertical photographs cover the whole of Britain and can provide scenes on a series of dates between (usually) 1946-7 and the present. Unfortunately these vertical surveys were not necessarily flown at times of year that are best to record the crop and soil responses that may be seen above sub-surface features. Vertical photographs are taken by a camera fixed inside an aircraft and adjusted to take a series of overlapping views that can be examined stereoscopically. They are often of relatively small scale and their interpretation requires higher perceptive powers and a more cautious approach than that necessary for examination of obliques. Use of these small-scale images can also lead to errors of location and size when they are rectified or re-scaled to match a larger map scale.

PHOTO INTERPRETATION AND MAPPING

Photographs examined

Cover searches were obtained from the Cambridge University Collection of Aerial Photographs (CUCAP) and the National Monuments Record: Air Photographs (NMRAP), Swindon. Photographs included those resulting from specialist archaeological reconnaissance and routine vertical surveys.

Photographs consulted are listed in the Appendix to this report.

Base maps

Base maps at a scale of 1:10,000 were provided by the client.

Study area

Photographs were examined in detail for an area extending at least one modern field beyond the assessment area.

Photo interpretation and mapping

All photographs were examined by eye and under slight (2x) magnification, viewing them as stereoscopic pairs when possible. A single interpretation was made at 1:10,000 level by marking features on a transparent overlay following procedures described by Palmer and Cox (1993). This overlay was then scanned and transformed to match the 1:10,000 base map using the specialist program, AirPhoto (Scollar 2002). The transformed file was set as background layers in AutoCAD Map, where features were overdrawn using standard conventions. Other features related to changing landuse were added with less precision. Layers from this final drawing have been used to prepare Figures 1 and 2 and the digital file has been provided to the client.

Accuracy

AirPhoto computes values for mismatches of control points on the photograph and map. In the transformation prepared for this assessment the mean mismatches were less than $\pm 2.50\text{m}$. These mismatches can be less than the survey accuracy of the base maps themselves and users should be aware of the published figures for the accuracy of large scale maps and thus the need to relate these mismatches to the Expected Accuracy of the Ordnance Survey maps from which control information was taken (OS 2004). Mapping originally undertaken at 1:10000 does not have the inherent accuracy to be used to locate features on the ground with precision.

COMMENTARY

Soils

The Soil Survey of England and Wales (SSEW 1983) shows the area to comprise marine and river terrace gravel (soil association 571s: EFFORD 1) a soil that produces crop responses over sub-surface differences of depth.

Archaeological features (Figure 1)

No archaeological features were identified within the Development Area although field management was never favourable to their visibility (see Land use below). However, other than the moat west of Lordship Road no archaeological features have been identified nearby that may extend into the Development Area.

The moat (TL676068) has been mapped from a 1947 vertical photograph. At that date its ditch was clearly visible although there was considerable disturbance to the interior. The 1947 view reflects the earthwork mapped by the Ordnance Survey in 1881.

Non-archaeological features (Figure 1)

Two irregularly-shaped hand-dug quarries have been shown in the northern part of the Development Area. These were visible as depressions in 1947 but were no longer being worked. They remained as hollows in 1955 but may have been filled to facilitate planting of an orchard by the early 1960s. A more regular quarry is mapped immediately east of the moat.

This is steep-sided and deep and was also mapped by the Ordnance Survey in 1881. It is not known whether this is a quarry or dug as a reservoir for the moat.

There have been minor additions or removals to field boundaries in the Study Area as landuse has changed. None is indicated on the maps for this Assessment.

Of passing historical interest may be the presence of an Avro Lancaster, apparently without engines, close to buildings at TL68170644. This was first identified in 1949, remained in situ until 1961 but had been removed by 1987.

Land use (Figure 2)

The early photographs of the Development Area show there to have been two fields – north and south – with farm buildings occupying the western one-third of the southern field. Both fields were in pasture between 1946 and 1951 with the northern field probably continuing as pasture into 1955.

In the 1950s the farm buildings were extended up to the quarry in the north field (by now this had been fenced off) while in the southern field a ?greenhouse was constructed. Foundations for this appeared on the 1951 photographs and by 1955 there was a block of three such units, aligned roughly NNW-SSE, in that field. By 1955 the remaining area of the southern field was used for crop trials or for planting short rows of crops.

In 1961 the farm buildings were being demolished (later rebuilt) but the remainder of the southern field remained as in 1955. The northern field had been planted as an orchard.

By 1977 the greenhouses had been rebuilt as they now appear on the OS map and the north and south fields continued in use for crop trials and/or bushes up to the date of the most recent photographs (1991).

Such landuse makes it extremely unlikely that archaeological features would be visible on aerial photographs unless they survived in upstanding form.

Most of the fields surrounding the Development Area east of Lordship Road have been in arable use since the 1940s but no archaeological features have been identified on the photographs examined.

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APPENDIX

Aerial photographs examined

Source: Cambridge University Collection of Aerial Photographs

Vertical photographs

RC8-BY 131-135	3 June 1977	1:2500
RC8-BY 147-151	3 June 1977	1:2500
RC8-BY 160-166	3 June 1977	1:2500

Source: National Monuments Record: Air Photographs

Specialist collection

TL6706/9-13	1 August 1991
TL6707/1-2	1 August 1991

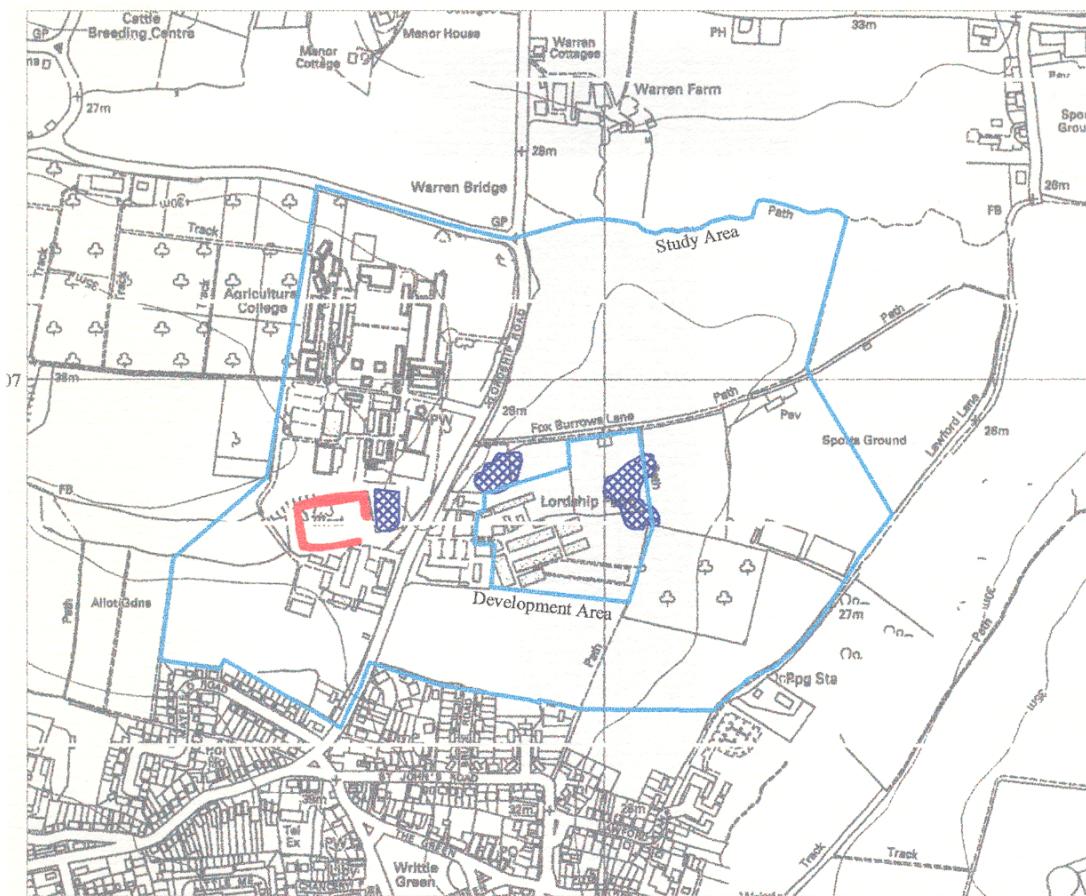
Military obliques

TL6706/5-6	26 March 1949
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Vertical collection

RAF/CPE/1776: 5018-5019	10 October 1946	1:7550
RAF/CPE/2029: 6056	26 April 1947	1:7500
RAF/CPE/2361: 5038-5039	15 October 1947	1:7500
RAF/CPE/2467: 5008-5009	2 March 1948	1:7500
RAF/CPE/2467: 5036-5037	2 March 1948	1:7500
RAF/CPE/2361: 5061-5062	15 October 1947	1:7500
RAF/58/237: 5080-5081	22 May 1949	1:7700
RAF/58/237: 5102-5103	22 May 1949	1:7700
RAF/58/238: 5066-5067	6 June 1949	1:7680
RAF/58/238: 5097	6 June 1949	1:7680
RAF/58/372: 5082-5083	28 February 1950	1:5200
RAF/58/674/5083-5084	12 May 1951	1:7920
RAF/82/1085/F22: 40-42	16 February 1955	1:10000
RAF/542/137/F21: 38-39	3 March 1955	1:9600
RAF/542/137/F22: 60-61	3 March 1955	1:9600
RAF/58/4648/F42: 279	29 August 1961	1:10000
OS/87117: 83-84	20 August 1987	1:5850
OS/87172: 440-441	27 September 1987	1:7800

Figure 1. Writtle Agricultural College:
Archaeological and recent features identified on aerial photographs



Archaeological feature

— Ditch

Recent feature

■ Quarry

Original photo interpretation and mapping at 1:10000 level
based on photographs at CUCAP and NMRC.

Air Photo Services

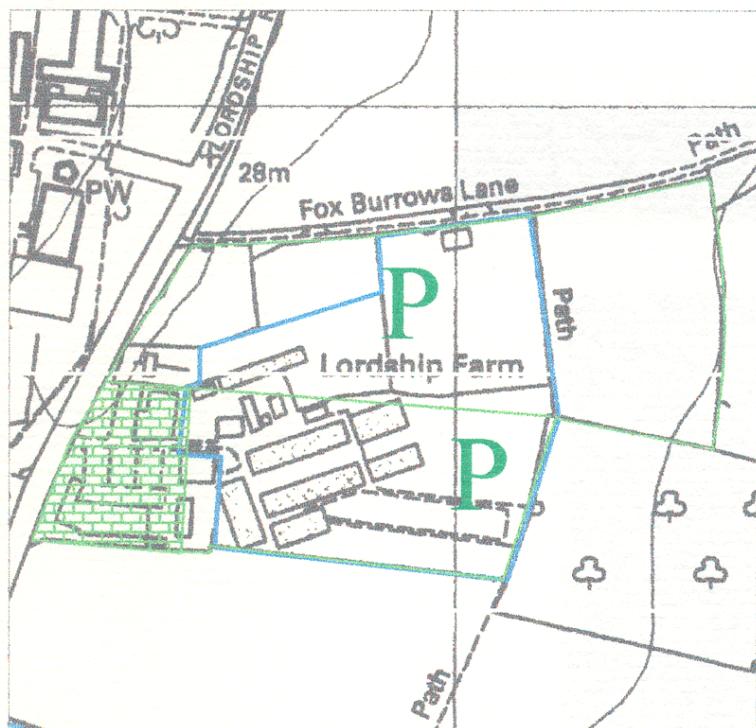
February 2004

Drawing: 0405Writ.dwg

Background map Crown Copyright. Licence: AL100028850

Figure 2. Writtle Agricultural College:
Landuse as identified on aerial photographs

1940s



1950s

