

**SUMMERSFIELD
PAPWORTH EVERARD
CAMBRIDGESHIRE**

**ARCHAEOLOGICAL DESK-BASED AND
GEOPHYSICAL SURVEY
ASSESSMENT REPORT
ISSUE 1**



Essex County Council

Field Archaeology Unit

August 2006

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CAMBRIDGESHIRE**

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ASSESSMENT REPORT
(ISSUE 1)**

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**SUMMERSFIELD,
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**ARCHAEOLOGICAL DESK-BASED AND GEOPHYSICAL SURVEY
ASSESSMENT REPORT (REVISION 1)**

Client: Barratt Homes

National Grid Ref: TL 2850 6250 (centred)

Planning Application Ref: Pre-planning application

Cambs Site Event Number: ECB 1983

Essex CC FAU project no: 1503

Dates of Geophysical Survey: 22–29 July 2005

SUMMARY

This report describes the results of an archaeological desk-based and geophysical survey assessment of the Summersfield site, a proposed development in the south-western quarter of the historic village of Papworth Everard, Cambridgeshire. A large housing development is proposed for the eastern half of the site, with the area to the west left as a public open space. The archaeological assessment has been carried out on behalf of Barratt Homes to support a pending planning application, and follows an archaeological brief issued by the Cambridgeshire CC Archaeology Office.

The assessment covers the known historical and archaeological evidence for the site and an area extending for up to 0.5km beyond its limits. It is based on the available documentary and cartographic sources, a previous aerial photographic survey, reports on archaeological fieldwork in the area, and a watching brief report on geotechnical trial pits across the site. The assessment also incorporates the results of a geophysical (gradiometer) survey of a 50% sample of the site. A detailed technical report on the geophysical survey results supplements this report. The assessment report meets the requirements of Phases 1 and 2 of the Cambridgeshire CC brief, and the original draft has been revised following review of the assessment results in Phase 3.

The assessment concludes that there is only low potential for prehistoric evidence on the site. There is high potential for significant Iron Age and Roman features across the north of the site, where an enclosure interpreted as a farmstead has been located by aerial photographic and geophysical surveys, and proven on the ground by trial trenches. The potential for Iron Age and Roman remains in other parts of the site is probably lower. Nothing is known of the Saxon period, and the origins of the present village cannot be traced any earlier than the 12th century. A potentially significant area of medieval remains, possibly part of the original village, has been identified in the north-west of the site, near the parish church, and the site of a medieval windmill is known at the site's south-eastern limit. Extensive evidence for ridge and furrow cultivation recorded by the aerial photographic and geophysical surveys shows that most of the site was open fields in the medieval period, and cartographic evidence suggests it remained so until enclosure in 1818. The site has remained agricultural land until the present day.

The housing development design avoids any impacts on the probable Iron Age/Roman enclosure in the centre-north of the site or the probable medieval settlement area in the north-west. Geophysical survey has identified some areas of potential archaeological remains within the area of the housing development, although in general the survey results do not suggest the presence of major archaeological remains across the site. However, further evaluation is needed to establish the extent, date and character of any archaeological remains to define areas of archaeological potential and impact more precisely. The landscape design of the public open space involves only limited groundworks, and the impacts in this area of site will consist of a balancing pond, underground water attenuation trap, drains, a sewer, a play area and fringe tree planting. These could have adverse, but localised impacts on the probable medieval settlement area near the church and the probable Iron Age/Roman enclosure.

It has been agreed with the Cambridgeshire CC Archaeology Office to carry out further evaluation of the housing development by trial trenching of a 3% sample of this area. Targeted trial trenching will be carried out to evaluate the area of the probable Iron Age/Roman enclosure and the areas of localised impact around the edges of the public open space. Apart from two drains and a sewer that cross it, the main area of the public open space has no development impacts and does not need further evaluation.

1.0 INTRODUCTION

1.1 Archaeological Assessment and Planning Background (Figs 1, 2)

1.1.1 This report provides an archaeological assessment of the Summersfield site, a proposed housing development in the south-western quarter of the historic village of Papworth Everard, Cambridgeshire. The assessment represents the first stage in the evaluation of the site's archaeological potential, which is being carried out before submission of a planning application by Barratt Homes to South Cambridgeshire District Council. When it is completed, the evaluation will result in the formulation of a strategy for archaeological mitigation in support of the planning application.

1.1.2 The assessment consists of a desk-based study of the available historical and archaeological evidence on the site and in the surrounding area, and the results of a geophysical survey of the site carried out in July 2005. The assessment report updates a previous desk-based assessment carried out in 1998 (Cambridge Archaeology Unit 1998) and a recent watching brief on the digging of geotechnical test pits (Northamptonshire Archaeology 2004).

1.1.3 The 1998 desk-based assessment identified areas of archaeological potential, especially in the north of the site (Cambridge Archaeology Unit 1998, 11). This is recognised in the Supplementary Planning Guidance for residential development of the site prepared for South Cambridgeshire District Council (KM Planning 2003), which makes the following recommendations:

*The development site should be subject to further archaeological evaluation, to be carried out **prior to planning permission**. The evaluation results should allow for the fuller consideration of the presence/absence, nature, extent, quality and survival of archaeological remains within the development area. An informed judgement can then be made as to whether any planning consent will need to include provisions for the recording and, more significantly, the preservation of important archaeological remains **in situ** (paragraph 6.19).*

- These recommendations are in line with national policy on archaeology and planning, as set out in Planning Policy Guidance 16 (DoE 1990).
- 1.1.4 As a result of these recommendations, Barratt Homes commissioned the Essex CC Field Archaeology Unit to carry out the required archaeological evaluation work. Essex CC FAU consulted the Cambridgeshire CC Archaeology Office, which advises South Cambridgeshire District Council on archaeological policy, to agree an archaeological programme that would satisfy the requirements of the planning system.
- 1.1.5 It was decided that the 1998 desk-based assessment needed to be updated to take into account the results of archaeological fieldwork that had recently taken place in the vicinity of the site. It was also decided to carry out a geophysical survey to assess the site's archaeological potential in more detail. This would enable a more informed decision to be made on the most appropriate level of field evaluation in the next stage of the archaeological investigation.
- 1.1.6 The desk-based study and the geophysical survey were carried out on behalf of Barratt Homes by Essex CC FAU, and their sub-contractor, Stratascan Ltd. The work was undertaken according to the archaeological brief prepared by the Cambridgeshire CC Archaeology Office (Cambs CC 2005) and the Written Schemes of Investigation prepared by Essex CC FAU (Essex CC 2005a; 2005b). All work followed the Institute of Field Archaeologists' *Code of Conduct*.
- 1.1.7 The results of the desk-based study and geophysical survey have been brought together in a single archaeological assessment report. This report is supported by a fully detailed technical report on the geophysical survey (Stratascan 2005), which has been issued separately. These reports complete the first two phases of archaeological evaluation set out in the Cambridgeshire CC brief: *Phase 1, Desk-based Assessment*; and *Phase 2, Non-intrusive Archaeological Survey* (Cambs CC 2005, paragraph 2.4). This assessment report has been used to inform the next stage of evaluation: *Phase 3, Review*, which has determined the strategy for field evaluation.

2.0 BACKGROUND

2.1 Location and Historical Topography (Figs 1, 2)

2.1.1 The proposed Summersfield development lies in the south-western quarter of the historic village of Papworth Everard (centred on TL 2850 6250). The site lies on a low hilltop on the outskirts of the village, which extends along Ermine Street (the A1198), originally the main Roman road from London to York. The centre of the village lies in an area of lower-lying ground to the north-north-east of the site, with the two focal points of the historic village located to the east and west of Ermine Street. To the east is the site of a medieval moated manor house, later occupied by Papworth Hall, while to the west is Church Lane, leading to St Peter's church, situated immediately to the north-west of the site.

2.1.2 The site covers an area of 21.5 hectares (Fig. 2). It is bounded to the east by houses along Ermine Street, to the north by housing, Queen Mary's Nursing Home and St. Peter's church, to the west by the Cow Brook, and to the south by open farmland. The site is divided into two main areas by a belt of recently planted trees and shrubs running north-south up its centre. The proposed housing development covers an area of 12 hectares to the east of the trees, while a 9.5 hectare area to the west, sloping down to the Cow Brook, is proposed as a public open space. The site is former arable land, and is currently covered with rough grass.

2.2 Geology and Natural Topography (Fig. 2)

2.2.1 The drift geology is stiff yellow-streaked grey Boulder Clay, containing moderate to frequent chalk and flint inclusions, overlying Oxford Clay. The Boulder Clay forms part of an extensive plateau, dissected by river valleys, laid down over southern and central East Anglia at the end of the Anglian glaciation. The topsoil is a former ploughsoil, 0.3-0.4m thick, and a subsoil layer has been identified on the slope down to the Cow Brook, resulting from ancient ploughing and colluvium (hill-wash).

2.2.2 The highest point of the site is in the south-east, at c. 57m OD, and a spur extends north-westward towards the centre-north of the site. To the west of the belt of trees the ground slopes quite sharply down to the Cow Brook, which lies in a narrow valley at c. 35m OD. There is also a slope down towards the north-eastern corner of the site, at just above c. 40m OD.

3.0 DEVELOPMENT PROPOSALS

3.1 Housing Development (Figs 2, 11)

3.1.1 The proposed development consists of around 400 houses, with related gardens, roads and services, in the eastern half of the site, to the east of the central belt of trees (Assael Architects drawing A1848 1000 R14). The pond in the north-east of the site will be retained. Access to the site from Ermine Street South (the A1198) will be provided by two access roads, one each at the north-eastern and south-eastern corners of the site. The housing development is currently being redesigned in detail, but the overall development area and layout will remain unchanged.

3.2 Public Open Space (Figs 2, 11 & 12)

3.2.1 The area to the west of the central belt of trees will be left as a public open space. The landscape design (Liz Lake Associates drawing 924/01 Rev A) preserves the character of this part of the site largely unchanged without any earthmoving or ground modelling. The public open space will be rolled and re-seeded to existing contours, with limited tree planting around its fringes, and reinstatement of a former hedgerow.

3.2.2 The main proposed groundworks are a balancing pond measuring 90m by 40m in the north-east of the open space and an underground water attenuation trap measuring 40m by 25m in the south-east, with three land drains running from these features down the valley slope to the Cow Brook. A sewer extends north-westwards from housing development to the north-west corner of the public open

- space (Capita Symonds drawing 482000-016). All of these features will penetrate the base of the ploughsoil.
- 3.2.3 A kick-about and two play areas are planned for the area immediately to the south of the balancing pond. The kick-about area will be grassed, while the play areas will mainly be grassed with localised areas of wet-pour safety surfacing to a depth of 200mm, 200mm above the base of the ploughsoil. The supports for the play equipment will involve 500mm x 500mm post-holes dug to a depth of 500mm, marginally penetrating the base of the ploughsoil. The paths in the public open space will either be grassed or will be shallow-laid tarmac within timber edging boards. The precise positions of these features may be changed in the final design, but their general location relative to the overall development will remain unchanged.
- 3.2.4 An area of mixed planting is proposed to the south of the play areas, along the fringe of the central north-south belt of trees and shrubs that screen the housing development from the public open space. Other planting is limited to 12 ash and willow trees around the north and east sides of the balancing pond, and 13 plane and oak trees planted singly along the paths bounding the play areas.

4.0 AIMS AND OBJECTIVES

4.1 General Aims

- 4.1.1 The aim of this desk-based and survey assessment report is to prepare a synthesis of readily available archaeological and documentary/cartographic information relating to the study area, to assess the site's archaeological potential before carrying out intrusive evaluation methods such as trial trenching.
- 4.1.2 The geophysical survey was carried out in addition to desk-based assessment to enable a more detailed assessment of the site to be made by identifying areas of potential archaeological features. The aim of the survey was to produce plots of

the survey results, including interpretative plots, which can be used to assess the likely presence and distribution of archaeological features across the site.

4.1.3 The assessment will contribute to the general aim of the archaeological evaluation, which is to evaluate the location, extent, date, character, condition and significance of any archaeological remains in the site area, and to make recommendations for appropriate mitigation measures in support of the planning application.

4.2 Objectives

4.2.1 The objectives of the desk-based assessment and geophysical survey were:

- To confirm the location of and further assess the suspected Iron Age/Roman enclosure in the centre-north of the site.
- To locate and assess potential evidence for a deserted area of the medieval village in the north-west of the site, near the parish church.
- To locate and assess any further evidence for the suspected medieval windmill site in the south-east of the site.
- To locate and assess any other evidence of archaeological features.
- To assess the site's archaeological potential against the background of recent archaeological fieldwork carried out in the surrounding area.

5.0 DESK-BASED ASSESSMENT METHOD

5.1 This desk-based and survey assessment report is an update of a previous desk-based assessment of the site (Cambridgeshire Archaeology Unit 1998). It was agreed with the Cambridgeshire CC Archaeology Office (Essex CC 2005a, paragraph 1.3) that the present assessment report would assess all the readily available information, but would summarise much of the detailed description in the 1998 report to avoid extensive repetition. The main additions to the 1998 report are the assessment of recent archaeological fieldwork in the area, and assessment of the results of a geophysical survey of the site itself.

- 5.2 The desk-based assessment follows the guidelines laid down by the Institute of Field Archaeologists' (IFA) *Standard and Guidance for Archaeological Desk-based Assessments*. It is based on a search of readily available documents, maps and archaeological records and reports held at the Cambridgeshire Historic Environment Record or the Cambridgeshire Record Office (CRO). The records held at the CRO include the Papworth Trust and Varrier Jones Foundation archives. As the site is close to the historic county of Huntingdonshire, the Huntingdon Record Office was also consulted, but it held no relevant material.
- 5.3 The search checked the cartographic and documentary sources used by the 1998 desk-based assessment, and confirmed that the earlier assessment report provides a comprehensive coverage of the historical evidence. All maps and aerial photographic survey records were consulted to assess topographical development, and the most significant maps and survey plots are reproduced in this report. The search mainly concentrated on reports on recent archaeological fieldwork in the area, as these were considered most likely to add significant information to the previous desk-based assessment results.
- 5.4 The desk-based assessment is based on consultation of the following:
- The 1998 desk-based assessment report (Cambridge Archaeol. Unit 1998)
 - A rectified plot of cropmarks visible in an aerial photographic survey of the Papworth Everard area (Cox and Palmer 1996).
 - The 2004 watching brief report on geotechnical test pits and boreholes on the site (Northampton Archaeology 2004)
 - The Cambridgeshire Historic Environment Record (Sites and Monuments Record), and related archaeological reports (Appendices 1 and 2)
 - The Schedule of Ancient Monuments
 - Historical documents held in the Cambridgeshire County Record Office (where relevant to the site)
 - Historical maps held in the Cambridgeshire County Record Office (see List of Maps Consulted at the end of this report)
 - Historical Ordnance Survey maps
 - The Victoria County History (VCH 1989)

- The Royal Commission on Historic Monuments for England (RCHME 1968)
- Parish histories, both published (Parker 1977) and manuscripts held in the Cambridge Records Office (Janes no date)

5.5 The study area includes the proposed development site and the immediate surrounding area up to 0.5 km from the site limits. Information from outside this area has been included if thought to be relevant to the study area.

5.6 Site walkovers carried out on 2 June and 22 July 2005 considered the nature of the site and its topography both before and after the long grass was cut, and included an inspection of earthworks along the southern limit of the churchyard.

6.0 DESK-BASED ASSESSMENT RESULTS

The bold numbers in brackets within the text refer to the locations of archaeological or historical evidence within the study area, shown on Figure 3 and described in detail in a gazetteer set out in Appendix 1. Numbers 1-15 are as identified in the 1998 desk-based assessment, while numbers 16-27 refer to archaeological and historical evidence recorded since then. A full list of archaeological surveys and investigations carried out in the study area is given in Appendix 2, with references to the related reports.

6.1 Prehistoric (before c. 600 BC) (Fig. 3)

6.1.1 Evidence for the prehistoric in the general area is very sparse. This may be because prehistoric settlement was dispersed and tended to be situated in well-drained valley sites rather than on the boulder clay plateau, but may also reflect the relative lack of fieldwork in the area until recently, and the greater difficulty of locating prehistoric sites in general.

6.1.2 There is very little evidence of prehistoric remains within the study area. A few sherds of pottery that might date to the Late Bronze Age (c. 1000-600 BC) were recovered from topsoil in a trenching evaluation to the east of Ermine Street (**18**). The only other prehistoric evidence is from the site itself, as Winifred Janes,

writing in the late 1940s, reported that ploughing had revealed prehistoric flint arrowheads and scrapers in the western part of the site (Janes no date, 6). No prehistoric worked flint or pottery was recovered from the watching brief on 20 test pits excavated across the site in the geotechnical investigation (Northamptonshire Archaeology 2004).

6.2 Iron Age and Roman (c. 600 BC – AD 400) (Figs 3, 4)

- 6.2.1 The Iron Age was a period of population growth, based on improved agricultural technology that allowed the heavy clay soils to be farmed. Settlement patterns became denser and agriculture more intensive through the Late Iron Age and the Roman period. The Romans introduced a rich material culture, although this did not necessarily penetrate to the poorer rural settlements.
- 6.2.2 There is extensive evidence of Iron Age and Roman activity within the study area, especially on the south side of the village. Aerial photographic survey (Cox and Palmer 1996) has identified cropmark complexes whose form is typical of Iron Age or Roman ditched enclosures. (Cropmarks visible from the air are formed by differential crop growth over buried features in the subsoil, and this can indicate the presence of archaeological features.) A roughly square enclosure is situated in the centre-north of the site (**4**), with a possible area of pitting to its north (**27**), and there are two other enclosures with related boundary ditch systems to the east of Ermine Street (**12**, **13**). These enclosures probably represent farmsteads, typically with one or more roundhouses within the ditched enclosure, although some of the enclosures may have been working areas or for corralling livestock.
- 6.2.3 One of the enclosures to the east of Ermine Street has been evaluated in detail by trenching (**12**). Slots, eaves-drip gullies and post-holes provide evidence of timber buildings within the enclosure, with iron-working slag, a hearth stone and animal bones representing rubbish from occupation. The enclosure was remodelled on several occasions and appears to have been occupied over a long period of time. Pottery dating was sparse, but small amounts of Early Iron Age pottery were recovered, and a few sherds of Roman pottery came from the fill of

- the enclosure ditch, dating its disuse. Similar evidence of internal buildings and occupation might be expected from within the enclosure in the centre-north of the Summersfield site (4).
- 6.2.4 A few sherds of Late Bronze Age or Early Iron Age pottery were recovered from topsoil during further evaluation trenching east of Ermine Street, immediately opposite the south-eastern corner of the site (18).
- 6.2.5 The main Roman feature in the study area is Ermine Street (the modern A1198), the main Roman road from London to York, which runs close to the eastern boundary of the site (17). The line of the Roman road is closely followed by the modern road (Margary 1973, 179 and 204), and its roadbed and/or side ditches have been recorded in several places, most recently at Sheep Lair Farm, Folksworth (Kemp 1995). Both Janes (no date) and Parker (1977) discuss the possibility of earlier trackways along the general line of the Roman road, but lying further to the west, although there is no definite evidence of this at present.
- 6.2.6 Recent archaeological fieldwork along the line of the proposed Papworth bypass has identified three further Iron Age and Roman sites. Excavation supplemented by geophysical survey has recorded a network of ditched enclosures 400m to the west of the site (16c), on the opposite side of the valley of the Cow Brook, and these are interpreted as field boundaries and stock enclosures. An isolated rectangular enclosure (16b), again on the west side of the Cow Brook, was interpreted as a mortuary enclosure, although no evidence of burials was found. Both sites are broadly dated by pottery to the Late Iron Age and Roman periods. Further to the south-west, a corn drier in a ditched enclosure (16a) is typically Late Iron Age or Roman, even though no associated dating evidence was found.
- 6.2.7 No Iron Age or Roman pottery or other finds were recovered from the watching brief on 20 test pits excavated across the site in the geotechnical investigation (Northamptonshire Archaeology 2004).

6.2.8 Overall, recent archaeological survey and fieldwork suggests that the site lay within a developed Iron Age and Roman agricultural landscape interspersed with farmsteads, one of which was situated in the north of the site itself (4).

6.3 Saxon and Medieval (c. AD 400 – 1500) (Figs 3, 4)

6.3.1 There is no historical or archaeological evidence for the Saxon period within the study area. A documentary reference to a Hundred or *Wapentake* meeting place may relate to the crossroads 1km to the north of the village (14, not illustrated on Fig. 3), but even this is conjectural. No Saxon artefacts have been recovered from the village or its surrounds.

6.3.2 The Domesday Book of 1086 (Hinde 1985, 47-8) has an entry for *Papworde* and records multiple tenants, the most important being Count Alan of Brittany. The entry makes no distinction between Papworth Everard and the neighbouring village of Papworth St Agnes, and they may not have been recognisable as distinct villages at this date. The implication of the Domesday entry is that the Papworth area comprised dispersed small settlements in multiple tenancies rather than a more nucleated settlement pattern. If Papworth Everard existed at all at this date, it may have been no more than a small hamlet on the main road.

6.3.3 The earliest specific evidence for Papworth Everard is a document of the 1160s with a reference to the manor being held in demesne by Everard de Beche, who gave his name to the village (RCHME 1968, 198). In 1377 the village was recorded as having an adult population of 85 (VCH 1989, 357).

6.3.4 The medieval manor house was presumably situated within the moated enclosure east of Ermine Street (10), 300m east of the site's north-eastern corner. The manor house was mentioned in documents from c. 1300 onwards, and apparently continued to exist on the same site until it was superseded by Papworth Hall in 1808. The moated site is a Scheduled Ancient Monument (Cambridgeshire no. 33284), the only such site within the study area. There have been excavations in the moat but no records or finds have survived.

- Earthworks south-west of Papworth Hall (**8**) may be medieval, representing one or more house platforms (Hinds 1993).
- 6.3.5 St Peter's church (**6**) immediately to the north-west of the site is largely Victorian, but almost certainly stands on the site of an earlier, medieval church. The listed building register describes the chancel and nave as containing 13th-century fabric (DoE 1984, 35) and there is a fragment of a medieval alabaster carving in a buttress at the north-east end of the chancel (Burrell and Benton 1934, 79). Parker (1977) argues that a reference to a priest, dated c. 1075 (made in a later document), implies that there was a church at that date, and the Victoria County History (VCH 1989, 363) also suggests the existence of a church by the 12th century. The churchyard has been extended to the south in recent times, but it has retained much of the character of a medieval walled churchyard with a raised burial ground.
- 6.3.6 The area around the church may have been the original focus of the medieval village, near the Cow Brook, and on the opposite side of Ermine Street to the manor house. A hollow way of probable medieval date (**1d**) is still visible along the southern edge of the churchyard, running along its common boundary with the north-western limit of the site. Earthworks west of the church (**2**) may also be medieval (Hinds 1993). A typically medieval moated enclosure to the north of the church (**5**) was recorded on the 1818 enclosure map but is no longer visible.
- 6.3.7 There may have been an area of medieval settlement that was subsequently abandoned south of the church, in the north-west of the site (RCHME 1968, 196). Medieval pottery dating to between the 12th and 14th centuries has been recovered as surface finds from the north-west of the site, and from around a spring at the site's western limit, in the valley of the Cow Brook (**1a**, **1b**, **1d**). In the late 1940s Winifred Janes (no date, 6) recorded that ploughing in the north-west of the site had revealed house footings, with pottery and glass (**1c**). This may represent evidence of an abandoned area of settlement south of the church, but unfortunately no detailed records and none of the finds have been kept, and the nature and date of the reported house footings remains uncertain.

- 6.3.8 Both aerial photography and the 1818 enclosure map show a small circular earthwork at the south-eastern limit of the site (**3**), which the Victoria County History identifies as a windmill site. This interpretation is based on a reference of 1571 to a mound in this location, and a Hundred Roll entry which refers to a mill in the manor in 1279, but which had disappeared by the 16th century (VCH 1989, 356, 362). Winifred Janes (no date), writing in the late 1940s, records that the windmill mound was still visible in living memory, in a meadow called Mill Field, before the mound was ploughed out when the field was turned over to arable. A photograph taken in 1947 and published by Parker (1977, plate 9) records the ploughed-out remains of the mound. The location of the earthwork at **3**, on the highest point south of the village and next to the main road, is ideal for a windmill.
- 6.3.9 Evidence of medieval ridge and furrow cultivation is still visible in several areas around Papworth Hall on the east side of Ermine Street (**7, 9, 15**). Furthermore, aerial photographic survey (Cox and Palmer 1996) shows extensive evidence of ridge and furrow as cropmarks in arable fields around the western and southern edges of the village (**26a-c**), including the Summersfield site (**26b**) (Fig. 4). The evidence for ridge and furrow on the site consists of four areas. A large area of furrow marks in the west of the site ran west-south-west down the slope to the Cow Brook, with a long curved headland at the top of the slope. Three areas of ploughing are visible between the headland and Ermine Street, two areas running perpendicular to the road, and the third parallel to it.
- 6.3.10 No medieval pottery or other finds were recovered from the watching brief on 20 test pits excavated across the site in the geotechnical investigation (Northamptonshire Archaeology 2004).

6.4 Post-medieval (c. AD 1500 – present)

- 6.4.1 Many of the existing houses and farms in and around the village were built in the post-medieval period, although there is no firm evidence of buildings on the site itself. The village did not expand in the post-medieval period and its population remained relatively static, consisting of 15 households in 1563, 24 in 1630, 15 in

- 1660 and 14 in 1741. There was some population increase in the 19th century, but in the 1911 census there were still only 165 inhabitants (VCH 1989, 357).
- 6.4.2 Ermine Street was made into a turnpike in 1633 and was still recorded as such in 1876 (VCH 1989, 357). By around 1800 the focus of the village seems to have moved towards the main road. Papworth Hall (**11**) was built in 1808 to the west of the medieval moated manor, within an enclosed park. By 1816 the manor house had fallen into disrepair and was subsequently demolished. St Peter's church (**6**) was built in its present form in 1850, and in 1870-1 a tower was added and its west end was extended. There is a record of a probable post-medieval well and drain to the west of the church (**25**).
- 6.4.3 Enclosure of the medieval open fields did not take place until 1818. The 1818 enclosure map (Fig. 5) shows that the northern half of the site was sub-divided into a series of small, roughly rectangular fields, although the southern half remained open as a single large field. Comparison between the 1818 enclosure map (Fig. 5) and the ridge and furrow patterns plotted from aerial photographs (Fig. 4) shows that one of the new enclosure boundaries perpetuated the line of the curved headland of the western area of medieval ridge and furrow. This suggests that up to 1818 there had been little change in the medieval open field pattern through the post-medieval period, with some boundaries being retained.
- 6.4.4 Baker's *Map of Cambridgeshire* of 1821, and the 1825 parish and tithe maps show a road diverting from Ermine Street and crossing the site from its south-eastern corner along the spur of high ground, before running along the east side of the churchyard and continuing to the north of Church Lane (these maps were consulted but are not reproduced). Documentary evidence records that between 1818 and 1824 Charles Maddryll Cheere, then owner of Papworth Hall, sought to enlarge his park by diverting the main road to the west, only stopping when he found he must bear the whole cost himself (VCH 1989, 358). The 1998 desk-based assessment suggests that this diversion would have followed the line of an ancient trackway (Cambridge Archaeology Unit 1998, 7-8), but no such trackway is shown on the 1818 enclosure map, and its existence before 1818 is doubtful

- as it would have cut across the line of medieval field boundaries that appear to have survived intact up to that date.
- 6.4.5 The small fields in the north-west of the site may have been smallholdings, and it is possible that the footings observed by Winifred Janes in this area (paragraph 6.3.7) may have been remains of more recent houses or cottages. The 1st Edition Ordnance Survey of 1891 shows some further sub-division of fields, and these survived relatively unchanged until the later 20th century, when they were opened out to form a single large arable field over the entire site area.
- 6.4.6 The recent history of the village has been dominated by the foundation of the Cambridgeshire Tuberculosis Colony in 1918, based on Papworth Hall. Houses were built in the village for tuberculosis patients and their families, and in 1927 the colony changed its name to the Papworth Village Settlement. A modern hospital has been built in the grounds of Papworth Hall.

7.0 GEOPHYSICAL SURVEY METHOD

- 7.1 The detailed methodology of the geophysical survey carried out by Stratascan Ltd is set out in the technical report which supplements this assessment report (Stratascan 2005). The survey techniques available and the selection of the most suitable survey method are summarised below.
- 7.2 Geophysical survey aims to locate potential archaeological remains through systematic measurement of changes in the magnetic properties of the soil. The methods that have been developed include both rapid scan reconnaissance and intensive, high-resolution techniques. These are often used in combination, with reconnaissance survey of large areas used to target selected smaller areas for more detailed survey, or even with two detailed survey techniques used together to maximise data recovery. Results can vary according to the nature of the soils, and survey aims, design and operation.

7.3 The following techniques were considered for geophysical survey of the site:

- **Magnetic Susceptibility.** Alteration of iron minerals in topsoil through biological activity and burning can enhance the magnetic susceptibility of the soil, and measurement of magnetic susceptibility can thus give a measure of past human activity. Measurement is made by a field coil, and the results are plotted as variations in magnetic trends across the survey area. Magnetic susceptibility survey is most effective in rapidly scanning large areas to target the more intensive and higher resolution techniques of magnetometry and resistivity.

- **Magnetometry.** This method measures small changes or anomalies in the magnetic field resulting from different features in the soil. Mapping of anomalies in a systematic way enables an estimate to be made of the type of feature represented. Strong anomalies are generated by buried iron objects or by heavily fired features such as kilns or hearths. More subtle anomalies representing pits or ditches can be seen where they contain more disturbed or humic material that is rich in magnetic iron oxides compared with the natural subsoil. Magnetic gradiometer equipment can be used in different ways to provide **Magnetometer Scanning**, a rapid scan technique, and **Magnetic Gradiometry**, an intensive, high-resolution technique. In the right conditions, magnetic gradiometry can map the magnetic anomalies and, with processing of the data and filtering of “background noise”, can interpret them and identify distinct archaeological features.

- **Resistivity.** This method is based on the inability of soils, and objects within them, to conduct an electrical current which is passed through them. As resistivity is linked to moisture content, and therefore porosity, hard dense features such as stone walls will give a relatively high resistivity response, while features such as ditches will give a low response. Again, if conditions are right, variations in resistivity can be plotted, and with processing of the data, these can be interpreted to identify archaeological features.

- 7.4 Following discussion with Stratascan Ltd and the Cambridgeshire CC Archaeology Office, it was decided to carry out a field trial of the techniques described above to test their effectiveness before deciding which would be most suitable for the site survey. An area in the centre-north of the site, measuring 40m by 40m, was selected for the field trial, straddling the cropmark of the western side of the square enclosure identified by aerial photography (Fig. 7). This would assess the ability of the geophysical techniques to identify a feature plotted from another survey method. The magnetic susceptibility trial was carried out over an area of 160m by 60m, extending westwards from the 40m square trial area, to assess the effectiveness of this reconnaissance technique over a much larger area.
- 7.5 Two trial trenches (Fig. 7, Trenches 1 and 2) were excavated by mini-excavator across the line of the cropmarks of the western side and north-western corner of enclosure, with the aim of confirming its location and verifying the results of the geophysics field trial by recording the actual ditch lines on the ground.

8.0 GEOPHYSICAL SURVEY RESULTS

8.1 Geophysical Survey Report

- 8.1.1 Full details of the results of the geophysical survey carried out by Stratascan Ltd are set out in the technical report which supplements this assessment report (Stratascan 2005). The geophysical survey report provides a detailed description of the results, with a full set of survey plots, presented both as raw and processed data, and interpretative plots where appropriate. The main results are summarised in this report, along with a plan showing the survey design (Fig. 7) and a copy of the overall interpretative plot of the survey results (Figs 8a, 8b).

8.2 Geophysical Trial Survey Results (Fig. 7)

- 8.2.1 Neither the magnetic susceptibility nor the magnetometer scanning trials were sufficiently successful for them to be used as a reconnaissance technique across the rest of the site, especially as both techniques failed to show a response over the cropmark of the enclosure ditch plotted from aerial photographs. Resistivity

- survey showed average readings across most of the survey area, with very weak evidence of any below-ground features, and failed to identify any features that might correspond with the cropmark. By contrast, magnetic gradiometer survey identified a linear anomaly on the line of the cropmark of the western ditch of the enclosure.
- 8.2.2 Trial trenches 1 and 2 (see 9.0 Trial Trenching Results, below) both successfully identified ditches corresponding with the aerial photographic cropmarks of the western and north-western ditches of the enclosure, and with the linear anomaly recorded in the magnetic gradiometer trial. The correspondence of the aerial photographic and magnetic gradiometer survey plots with features recorded on the ground means that the results of both forms of survey can be interpreted with confidence.
- 8.3 Geophysical Survey Design (Fig. 7)**
- 8.3.1 Preliminary results of the trial survey were presented by Stratascan at a site meeting with the Cambridgeshire CC archaeology officer and Essex CC FAU staff, to determine the most suitable method for the overall site survey. The trial showed that reconnaissance survey to target areas of detailed survey was not a viable option. Instead, it was decided to carry out a detailed survey of a c. 50% sample of the site area using the **Magnetic Gradiometry** survey technique that had been successful in the field trial. It was also decided to include the public open space within the survey as well as the main housing development area, to allow assessment of any proposed groundworks in the public open space.
- 8.3.2 The survey was carried out in six parallel 30m-wide transects, set 30m apart, and aligned north-south up the site (Fig. 7). The survey transects were arranged to provide the best coverage of the available area, and 7.7 hectares were surveyed overall. This survey design had the advantage of allowing relatively quick and continuous survey up the long axis of the site. The survey included complete coverage of the cropmarks of the enclosure in the centre-north of the site, and the area next to the suspected windmill site in the south-east. The survey area

would also be extended if interesting anomalies were discovered near the limits of the survey transects.

8.4 Gradiometer Survey Results (Figs 8a and 8b)

- 8.4.1 The survey identified several sets of positive linear anomalies (marked red on the survey plot) that are interpreted as evidence of archaeological features. A set of positive linear anomalies in the centre-north of the site form a roughly square outline, and correlate with the cropmarks of the ditched enclosure interpreted as an Iron Age or Roman farmstead. Other linear anomalies immediately outside the enclosure may indicate either further enclosures or field boundaries.
- 8.4.2 Linear anomalies in the north-west of the site could similarly represent either ditches relating to a settlement area, or field boundaries. They follow a different alignment to the Iron Age/Roman enclosure and are probably not related to it. Given their proximity to the church and medieval pottery find spots there is potential for these features to be medieval. Three very weak discrete positive anomalies (marked brown) in the north-west of the site may represent small features such as pits.
- 8.4.3 The southern and eastern part of the survey area recorded little positive evidence of archaeological features. An exception is the strong positive linear anomaly towards the south-eastern limit of the site, which may represent a boundary ditch associated with the postulated medieval windmill in this area. A small area of magnetic disturbance in the south-east of the site (shaded blue) could represent an area of burning or a feature such as a hearth or kiln. This is unlikely to have been a pottery or tile kiln as no pottery or tile was recovered from this part of the site during the recording of geotechnical trial pits in the immediate vicinity.
- 8.4.4 Linear anomalies representing medieval ridge and furrow ploughing (marked green) were recorded over much of the survey area. They were very consistent over the south-west and centre of the site, with more scattered evidence in the east and south-east. This evidence correlates with the ridge and furrow patterns recorded as cropmarks in the aerial photographic survey, although in the north-

west and the east of the site ridge and furrow cropmarks were not picked up by the geophysical survey.

- 8.4.5 Other areas of disturbance are probably recent rather than archaeological, and are thought to be associated with overhead electric cable supports (mauve shading), land drains (blue), and small ferrous objects such as modern drink cans (mauve dots).

9.0 TRIAL TRENCHING RESULTS

9.1 Trial Trench Layout

- 9.1.1. Two trial trenches (Fig. 9, Trenches 1 and 2) were excavated by a mini-excavator with a toothless bucket across the aerial photographic cropmarks representing the ditches of the western side and north-western corner of the postulated Iron Age/Roman enclosure. The aim of these trial trenches was to confirm the location of the cropmarks and verify the results of the geophysical (gradiometer) survey field trial by recording the actual ditch lines on the ground.

- 9.1.2. Trench 1 was located to investigate a set of poorly-defined cropmarks at the north-west corner of the enclosure, while Trench 2 was located to confirm the well-defined western side of the enclosure. In both trenches slots were excavated by hand through the ditches to confirm that they were real features, although because the geophysical survey field trial took longer than anticipated, there was insufficient time to excavate a full profile across the ditches.

9.2 Trench 1 (Figs 9, 10)

- 9.2.1 Trench 1 was 20m long and 1.5m wide and located a ditch aligned south-west to north-east, in exactly the same location as a ditch line recorded by geophysical (gradiometer) survey, and 3m to the west of the cropmark plot. The trench confirmed the accuracy of the gradiometer survey plot, although there is an error in the cropmark plot (no doubt as a result of the difficulty of transferring the cropmark record from aerial photographs to a rectified plot on a plan). The

geophysical survey identified a second ditch outside the line of the one that was recorded, and these two ditch lines at the north-western angle of the enclosure suggest that the ditched circuit may have been recut or modified at this point.

- 9.2.2 The ditch was 3.0m wide, cut the natural boulder clay, and was sealed beneath a 400mm cover of ploughsoil. There was no evidence of a buried medieval plough-soil or furrows. A slot 200mm deep excavated against the south-eastern edge of the ditch recorded a gradually sloping edge (1). The uppermost fill was greyish brown silty clay (2) above grey silt (6), probably a natural silting of the lower part of the ditch. Fill 6 contained a sherd of probable Roman pottery.

9.3 Trench 2 (Figs 9, 10)

- 9.3.1 Trench 2 was 2.75m long and 1.5m wide and located a ditch aligned north-south, in exactly the same location as the ditch line forming the west side of the enclosure as recorded by geophysical (gradiometer) survey and the cropmark plot. The location of the ditch confirms the accuracy of both forms of survey.

- 9.3.2 The ditch was 3.2m wide, cut the natural boulder clay, and was sealed by a 400mm cover of ploughsoil. As with Trench 1, there was no evidence of a buried medieval ploughsoil. A slot 200mm deep excavated right across the top of the ditch confirmed both its edges (3), which sloped down at 45°. Projecting the sides of the ditch downwards suggests it had a roughly V-shaped profile and was 1m deep. The uppermost fill was greyish brown silty clay (4). No pottery dating evidence was recovered.

9.4 Conclusions

- 9.4.1 The trial trenching verified the geophysical survey field trial using the gradiometer technique, as both trenches successfully located ditch lines recorded by gradiometer survey. The trenching results confirm that the geophysical survey results can be treated with confidence, but that there is a small margin of error in the cropmarks plotted from aerial photographs. Recording and minimal excavation of the top of the enclosure ditches suggests they were large and probably around 1m deep, with homogenous upper fills, sealed by a 400mm depth of ploughsoil.

10.0 ASSESSMENT OF RESULTS

10.1 Basis of Assessment

10.1.1 This assessment is based on a wide range of different forms of investigation and evidence. These include: historical and archaeological evidence from available documentary and cartographic sources; reports on archaeological fieldwork in the immediate area; the plot of the aerial photographic survey carried out in 1996; the watching brief on geotechnical test pits in 2004; and the report on the recent geophysical survey. Altogether, this body of evidence, especially the aerial photographic and geophysical surveys, enables a relatively detailed assessment of be made of the site's archaeological significance and potential.

10.2 Survival and Visibility of Archaeological Deposits

10.2.1 Over most of the site archaeological features are likely to have been truncated by modern deep ploughing, but the trial trenches excavated during the geophysics field trial confirmed that large, deep features, such as ditches and pits, survive beneath the ploughsoil, cut into the natural boulder clay. The survival of shallow features, such as beam slots and post-holes related to timber structures, is less certain, as these are more vulnerable to plough disturbance, although evidence of timber structures was found to survive on gazetteer site 12, on the opposite side of Ermine Street.

10.2.2 The watching brief on 20 geotechnical trial pits excavated in 2004 recorded a buried soil beneath the modern ploughsoil in the west of the site, on the slope down to the Cow Brook, representing the remains of medieval ploughsoil and/or hill-wash, and archaeological features may survive relatively undisturbed beneath this. The buried soil was absent over the higher ground across the eastern half of the site, and survival of archaeological features is likely to be better in the west than in the east.

10.2.3 The trial trenches for the geophysics trial confirmed that the aerial photographic and geophysical (gradiometer) surveys were successful in recognising and recording major archaeological features. This enables the results of these

survey techniques to be interpreted with reasonable confidence across the rest of the site. Earlier features, notably the Iron Age/Roman enclosure, are visible through the medieval ridge and furrow, and features may be masked in other parts of the site, especially in the south-west where ridge and furrow and hill-wash deposits appear to survive particularly well.

10.2.4 The watching brief on geotechnical trial pits did not recover any archaeological evidence at all, not even finds in the ploughsoil. Even accepting the limitations of trial pits for identifying archaeological remains, this does not suggest intensive archaeological evidence across the site.

10.3 Prehistoric (before c. 600 BC)

10.3.1 Flint artefacts are reported as having been recovered from the west of the site, on the slope down to the Cow Brook, although it is likely that these were stray finds residual in ploughsoil or hill-wash. Otherwise, evidence for the prehistoric is very slight, both on site and in the study area. No recognisable prehistoric features were identified by the geophysical survey. It is considered that if major prehistoric features, such as ring ditches (associated with burial mounds), were present, they should have been identified by the geophysical survey, given its success in identifying the ditches of the probable Iron Age/Roman enclosure.

10.3.2 Since the reported prehistoric finds are probably residual, the potential for significant prehistoric remains being present on site is considered to be low.

10.4 Iron Age and Roman (c. 600 BC – AD 400)

10.4.1 There is extensive evidence from the study area for an Iron Age and Roman agricultural landscape interspersed with enclosures representing farmsteads. The geophysical survey confirmed the location of one of these enclosures, previously recorded by aerial photographic survey, in the centre-north of the site (gazetteer site 4). The slight discrepancy in the two survey plots is the result of a minor error in the plotting of the cropmarks visible in the aerial photographs. Trial trenches verified the results of both surveys by locating the ditches on the enclosure's west side and north-west corner, and a sherd of pottery suggests

that the enclosure ditch became infilled in the Roman period. Evidence of internal buildings might be expected, on the evidence of the investigation of a similar Iron Age/Roman enclosure on the east side of Ermine Street (gazetteer site 12). Other lengths of ditch near the enclosure, identified by geophysical survey, may be related to it, representing either further enclosures or field boundaries.

10.4.2 The probable Iron Age/Roman enclosure in the north of the site is of high significance, as it may represent a settlement. The aerial photographic and geophysical surveys suggest that the potential for further significant remains in the north of the site is high, but that the potential for significant remains is probably lower across the centre and south of the site.

10.5 Saxon and Medieval (c. AD 400 – 1500)

10.5.1 There is no evidence for a Saxon settlement or remains either on site or in the study area, and the origins of the present village cannot be traced back any earlier than the 12th century. The north-west of the site, south of the parish church, is an area of possible medieval settlement that was subsequently abandoned (gazetteer site 1). Earthworks in the south of the churchyard may represent a medieval hollow way. Medieval pottery has been recovered from an area extending 200m to the south of the church, towards a spring on the line of the Cow Brook, and a few features identified by geophysical survey in this area are potentially medieval. Both the aerial photographic and geophysical surveys recorded extensive ridge and furrow ploughing over the site, however, and in the medieval period most of the site area would have been open agricultural fields (gazetteer site 26b). Towards the south-east of the site there is evidence of a ploughed-out windmill mound surrounded by a ditch (gazetteer site 3).

10.5.2 The potential for the presence of significant Saxon remains on the site is considered to be very low. The potential for significant medieval remains being present is considered to be high in the north-west of the site, where there may be settlement evidence, but low over the rest of the site, with the exception of the area around the windmill site in the south-east.

10.6 Post-medieval (c. AD 1500 – present)

10.6.1 The evidence suggests that the village did not expand in the post-medieval period, and that the medieval open fields over most of the site area remained largely unchanged until enclosure in 1818. After enclosure the north of the site was divided into a series of smaller fields, but the south remained a large open field. There was no major change to this landscape until the later 20th century, when the fields were amalgamated into a single large arable field. It is possible that some of the fields in the north-west of the site were smallholdings with cottages.

10.6.2 There is potential for post-medieval remains being present in the north of the site, but any such remains are considered to be of low significance.

11.0 INITIAL ASSESSMENT OF ARCHAEOLOGICAL IMPACT

11.1 Previous Impacts

11.1.1. Apart from the possible footings in the north-west of the site described by Winifred Janes, there is no evidence that the site has been built on, and it appears to have been mainly agricultural from at least as early as the medieval period. As discussed above (10.2.1), any archaeological remains are likely to have been truncated by modern deep ploughing over much of the site, but major features at least should survive. The higher ground in the east of the site is more likely to have been disturbed by ploughing than the slope down to the Cow Brook to the west, especially in the south-west where archaeological deposits may be protected by medieval ploughsoil and/or hill-wash.

11.2 Impact of the Proposed Housing Development (Fig. 11)

11.2.1 The foundations of the houses, as well as roadways, service trenches and the use of heavy plant during construction, will all have an adverse impact on any surviving archaeological remains, and it is prudent to assume that construction will have an adverse impact across the entire area of the housing development. A more detailed assessment of the extent and degree of the impact will be made

- when the archaeological evaluation has been completed and the development design has been finalised.
- 11.2.2 The layout of the housing development has been designed to avoid the area of the probable Iron Age/Roman enclosure in the centre-north of the site. This will avoid any impact from construction works over an area of known archaeological remains that are potentially significant. A house plot and a short length of the roadway at the north-western limit of the housing development clip the south-eastern corner of the enclosure, however, and will have an adverse impact. It is suggested that the detailed design of this area should be reconsidered.
- 11.2.3 The full extent and scale of the archaeological remains that would be affected by the housing development is difficult to assess on current evidence. The aerial and geophysical surveys have not identified evidence of extensive or large-scale archaeological remains across the development area, and if the surveys present an accurate picture the presumption is that the development is unlikely to impact upon any major archaeological remains. However, the geophysical survey did identify four areas of potential archaeological remains on which there might be an impact, around the western and south-eastern edges of the development area. The extent of the archaeological remains requires further evaluation to define the areas of likely impact more precisely.
- 11.3 Impacts within the Public Open Space** (Figs 11, 12)
- 11.3.1 In general, the areas of known archaeological potential in the north and north-west of the site lie in the area designated as a public open space. The design of the landscaping and drainage has been planned to avoid major impacts on the area of the probable Iron Age/Roman enclosure. Since no ground modelling or extensive groundworks are planned for the public open space, the areas of adverse impact on any archaeological remains will be localised.
- 11.3.2 **Kickabout and Play Areas.** These areas overlap the north-western and south-western corners of the probable Iron Age/Roman enclosure in the centre-north of the site, but will have only a slight adverse impact on the archaeological remains.

- The kickabout will be grassed. The play area will mainly be grassed, with local areas of shallow wet-pour safety surface whose base will be 200mm above the base of the ploughsoil, although the post-holes for the play equipment will penetrate marginally into the archaeological levels. Although these impacts are considered to be slight, the likely importance of the underlying archaeological remains in this part of the site means that mitigation measures will need to be developed, possibly including area excavation where preservation *in situ* is not considered practicable.
- 11.3.3 **Balancing Pond.** The pond measures c. 90m by up to 40m and is located in the north-east corner of the public open space, with trees planted around its northern and eastern sides. The pond will have a severe, but local, adverse impact on an area of potential medieval remains adjacent to the church, including earthworks and probable archaeological features identified by geophysical survey.
- 11.3.4 **Underground Water Attenuation.** This feature measures 40m by 25m and is located near the south-east corner of the public open space. Apart from medieval ridge and furrow plough marks, the archaeological potential of this area is unclear. The attenuation feature will have a severe, but local, adverse impact on any archaeological remains in this area.
- 11.3.5 **Drains and Sewers.** Being mainly on a slope, the public open space is free-draining, and new drainage is restricted to three land drains related to the balancing ponds and water attenuation, and a sewer running from the housing development area to the north-west corner of the public open space. These will have a localised adverse impact on any archaeological remains.
- 11.3.6 **Tree Planting.** An area of mixed tree planting to the south of the play areas extends the line of the central belt of trees and shrubs. Tree roots may have a slight adverse impact on any archaeological remains in this area. Individual trees along the paths in and around the play areas will be planted in pits measuring 1.0m x 1.0m and 700mm deep. They will have a slight adverse impact on any archaeological remains.

12.0 CONCLUSIONS

- 12.1 The archaeological assessment has identified three main areas of potentially significant archaeological remains: a probable Iron Age/Roman enclosure in the centre-north of the site; a probable medieval settlement area in the north-west, and the site of a medieval windmill in the south-east. There is also extensive evidence of medieval ridge and furrow ploughing across the site. Apart from the probable medieval settlement evidence in the north-west, the site has been agricultural land from the medieval period and possibly earlier. Evidence of pre-medieval landscapes (e.g. settlements, field boundaries, funerary monuments) is elusive, although recent fieldwork on sites in the surrounding area suggests there is a probability of Iron Age and Roman features being present on site. Evidence of the prehistoric on site and in the surrounding area is very sparse.
- 12.2 Geophysical survey and related trial trenches have confirmed the location of the postulated Iron Age/Roman enclosure, previously recorded as a cropmark by aerial photography. The success of the geophysical survey in locating the enclosure allows reasonably confident interpretation of the survey results across the rest of the site. The geophysical survey appears to have identified several areas of previously unknown archaeological features, but the overall results do not suggest that large-scale archaeological remains are present across the site.
- 12.3 Most of the potentially significant archaeological remains identified so far are located in the public open space to the west of the proposed housing development. Since the landscaping design for the public open space involves minimal ground disturbance the impact on archaeological remains would be limited. The landscape design avoids all but slight disturbances in the area of the probable Iron Age/Roman enclosure, and the area of potential medieval remains in the north-west of the site will also remain largely unaffected. The main impacts in the public open space, the balancing pond, underground water attenuation and land drains, might affect significant medieval remains, but the impacts would be localised.

- 12.4 The main housing development across the eastern half of the site will have an impact on several areas of potential archaeological remains identified by geophysical survey. Two of these areas might relate to the Iron Age/Roman enclosure and the medieval windmill site, but the extent and significance of the archaeological remains is generally not understood. Although the geophysical survey suggests a low density of archaeological remains across the housing development area, it is necessary to define the character and significance of the remains, and the areas of likely impact, more precisely.
- 12.5 The desk-based assessment and geophysical survey results, as set out in earlier drafts of this report, have been reviewed in consultation with Barratt Homes and the Cambridgeshire CC Archaeology Office. This review represents Phase 3 of the archaeological evaluation, to determine a strategy for field evaluation in Phase 4 (Cambs CC 2005).
- 12.6 The site's archaeological potential and the areas of impact from the development need to be evaluated further through trial trenching. The standard trial trenching approach of sampling 5% of the development area is not appropriate in this case, given the information that has already been obtained from the desk-based assessment, and the results of the aerial photographic and geophysical surveys. It has been agreed that an appropriate level of field evaluation would be trial trenching of a 3% sample of the housing development area, and targeted trenching of the area of the postulated Iron Age/Roman enclosure and local areas of impact around the edges of the public open space.

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Northamptonshire Archaeology, 2004	<i>Watching brief on land at Papworth Everard, Cambridgeshire.</i> Unpublished report in Cambs CC Historic Environment Record
Parker, R., 1977	<i>On the Road: The Papworth Story.</i> Pendragon Press
RCHME, 1968	<i>An Inventory by the Royal Commission on Historical Monuments: West Cambridgeshire.</i> London
Stratascan, 2005	<i>Geophysical Survey Report. Papworth Everard, Cambridgeshire.</i> Unpublished survey report
VCH, 1989	<i>The Victoria County History of Cambridgeshire and the Isle of Ely.</i> Vol. IX, 357-66

MAPS CONSULTED

Date	Scale	Map	Reference
1818	8 ⁸ / ₉ " to the mile	Inclosure Map	CRO P132/26/1
1821		Baker's Map of Cambridgeshire	Cambs Collection
1825	27" to the mile	Parish/Tithe Map	CRO R52/21/1
1891	25"	Ordnance Survey 1st ed.	
1950	6"	Ordnance Survey	XXXVIII.NE

APPENDIX 1. GAZETTEER OF HISTORIC ENVIRONMENT RECORDS (HER)

Record types

SAM = Scheduled Ancient Monument (protected under the Ancient Monuments Act 1979)

MCB = Monument, Cambridgeshire (all archaeological and historical records)

ECB = Event, Cambridgeshire (associated survey and fieldwork interventions)

Map No.	HER No.	NGR	Period	Description
1 a-e	MCB 3099 (was 02469)	TL 283 626 to TL 284 624	Medieval Post-medieval	Medieval village remains. Earthworks, documentary evidence, and pottery suggest deserted medieval village remains S of the church (not on OS), on either side of the Cow Brook (1a, 1c) and around a spring to the S (1b). Hollow-way visible along S boundary of church yard (1d), otherwise no remains visible. 12th-14th C pottery recovered as surface finds from 1a and 1d . Trackway of unknown date shown on 1825 tithe map (1e). No deserted medieval village remains visible on aerial photographs (RAF 1946; Cox & Palmer 1996).
2	MCB 13236 (was 11253)	TL 283 626	Medieval?	Earthworks. Irregular earthworks in pasture NW of church, sloping down towards stream to W, recorded in S Cambridgeshire Village Earthwork Survey (Hinds 1993).
3	MCB 1328 (was 01051)	TL 288 623	Medieval or later	Moat. On 1818 enclosure map, no visible remains. Circular, c. 4m diameter, entrance on E side. Probable windmill site.
4	MCB 15303 ECB 462	TL 284 625	Iron Age or Romano-British	Iron Age/Romano-British enclosure. Enclosure recorded as cropmarks from aerial photographs (Cox & Palmer 1996). Size and morphology suggest an Iron Age or Romano-British date.
5	MCB 1327 (was 01050)	TL 282 628	Medieval or later	Moat. On 1818 enclosure map, no visible remains. Semi-circular, c. 4m wide at open end.
6	MCB 3097 (was 02468) MCB 3098 (was 02468a)	TL 283 626	Medieval Post-medieval	St Peter's Church. Existing building, mapped on OS. Present structure mainly 19th C, but chancel arch includes carved details that may be 14th C (although 19th C in RCHM).

6	(continued)			Some 13th C material reused in nave and chancel walls. New tower built on N side in 1870. Church lengthened to W in 1871 over site of old tower destroyed in 1741.
7	MCB 3173 (was 02525)	TL 289 625	Medieval	Ridge and furrow. Cultivation remains S of Papworth Hall, running NW-SE (not on OS), two almost complete furlongs of 20 straight and 23 reverse S ridges.
8	MCB 13235	TL 287 628	Medieval	Earthworks. Irregular earthworks SW of Papworth Hall., including possible house platform, recorded in S Cambridgeshire Village Earthwork Survey (Hinds 1993).
9	MCB 3174 (was 02526)	TL 288 629	Medieval	Ridge and furrow. Cultivation remains N of Papworth Hall, running NW-SE (not on OS), 20 curving ridges.
10	SAM 33284 MCB 1167 (was 00921)	TL 290 628	Medieval	Moat. Scheduled Ancient Monument, still visible, mapped on OS. Sub-circular, c. 50m in diameter, internal raised island, entrance on W side. Probable site of medieval manor. Excavations have been carried out, but no records or finds are known.
11	MCB 3072 (was 02443)	TL 2886 6274	Post-medieval	Papworth Hall. Existing building, mapped on OS, built 1808. Succeeded earlier manor house, probably within moat to the E (see 10), recorded as derelict in 1816. Park dated to late 18th C, partially survives in present gardens.
12	MCB 14572 (was 13049) ECB 313 ECB 426	TL 2911 6239	Iron Age	Iron Age enclosure. Recorded as cropmarks showing in aerial photograph (Cox & Palmer 1996), and by 19 evaluation trenches measuring almost 1km long overall (Kenney 2000). Large near-circular enclosure of several phases, with internal features suggesting one or more domestic structures and industrial activity (ironworking slag). Small sub-rectangular enclosure to W. Early Iron Age pottery from internal features and Roman pottery in the enclosure ditch fill.

13	MCB15305 ECB 426	TL 292 626	Iron Age or Romano-British	Iron Age/Romano-British enclosure. Cropmarks recorded from aerial photographs (Cox & Palmer 1996). Size and morphology suggest an Iron Age or Romano-British date.
14	11833 (old number)	TL 292 637 (outside study area but in 1998 desktop)	Anglo-Saxon?	Meeting place. Documentary evidence suggesting a Hundred or Wapentake, an Anglo-Saxon local meeting place, was situated at the cross-roads 1km N of the village.
15	02527 (old number)	TL 295 634 (outside study area but in 1998 desktop)	Medieval	Ridge and furrow. Cultivation remains in three locations NE of Papworth Hall, running NW-SE (not on OS).
16 a-c	MCB 15319 MCB 15320 MCB 15321 ECB 973	TL 2761 6222 TL 2799 6227 TL 2784 6262	Late Iron Age or Romano-British	Late Iron Age/Romano-British enclosures and field system. Selective geophysical survey and excavation of three areas on the line of the Papworth By-pass (Hatton & Kemp 2002). Late Iron Age or Romano-British enclosure with oven (16a), probably a crop-processing area, but no datable finds. Late Iron Age/Romano-British rectangular enclosure (16b), interpreted as a ceremonial/mortuary enclosure, although no human remains were recorded. Late Iron Age stock enclosures and field boundaries (16c), mapped beyond the limits of the by-pass by geophysical survey.
17	MCB 150 (was 15034)	TL 290 620 to TL 285 630 (locally)		Ermine Street Roman road. Line of Roman road reflected in modern road line, with minor deviation to E in centre of village. Road confirmed as Roman through excavations elsewhere.
18	MCB 146 (was 14640) ECB 314 ECB 426 ECB 462	TL 2896 6229	Prehistoric? Medieval	Prehistoric remains and ridge and furrow. Two trial trenching evaluations (Alexander 1998; Wilson 1999). Possible prehistoric features, very sparse, with prehistoric flint artefacts and pottery in topsoil. Traces of medieval furrows (see 26c for aerial photographic evidence).

19	MCB 16307 MCB 16491 ECB 1845 ECB 1938	TL 2917 6262 TL 2939 6276	Iron Age Romano-British Post-medieval	Iron Age and Romano-British ditches. Geophysical survey and trial trenching evaluation (Eddisford <i>et al.</i> 2004), followed by further trial trenching and monitoring (Williamson 2005). A few Iron Age and Romano-British field boundary ditches.
20	ECB 308 ECB 955	TL 2895 6284 TL 2909 6284	Post-medieval	Papworth Hospital: no remains found. Two trial trenching evaluations (Roberts 1998; Hatton 1999). An 18th-19th C building, and extensive modern disturbance.
21	ECB 307 ECB 956	TL 2852 6315 TL 2865 6299	None	Papworth Village Centre: no remains found. Two stages of trial trenching evaluation (Prosser 1999; Ramsey 2000). No remains present.
22	ECB 463	TL 2823 6284	None	Church Lane: no remains found. Trial trenching evaluation (Guttman 1996). No remains present.
23	MCB 14977	TL 2855 6283	Modern	St Luke's Methodist Church. Existing building, built 19th C.
24	MCB 14978	TL 2845 6312	Modern	St Francis of Assisi RC Church. Existing building, built 19th C.
25	MCB 16269	TL 2819 6262	Medieval or post-medieval?	Well and drain. Documentary evidence. Ancient well and drain.
26	ECB 426	TL:282 632 TL 285 625 TL 291 623 TL 294 626	Medieval	Ridge and furrow: aerial photographic record. Ridge and furrow recorded as cropmarks on aerial photographs (Cox & Palmer 1996), forming different areas of cultivation either parallel to or perpendicular to Ermine Street. NW of village (26a): six areas with a long N-S headland, extending down to the stream to the W. SW of village (26b): four areas, with the westernmost aligned down the slope to the stream to the W, and divided from the eastern areas by a curved headland. The western area overlaps Sites 1 and 4. SE of village (26c) four areas, overlapping Sites 12, 18 and 19.
27	ECB 426		Unknown date	Possible pits. Area of disturbance showing as cropmarks on aerial photographs (Cox & Palmer 1996).

APPENDIX 2. GAZETTEER OF ARCHAEOLOGICAL SITES AND REPORTS

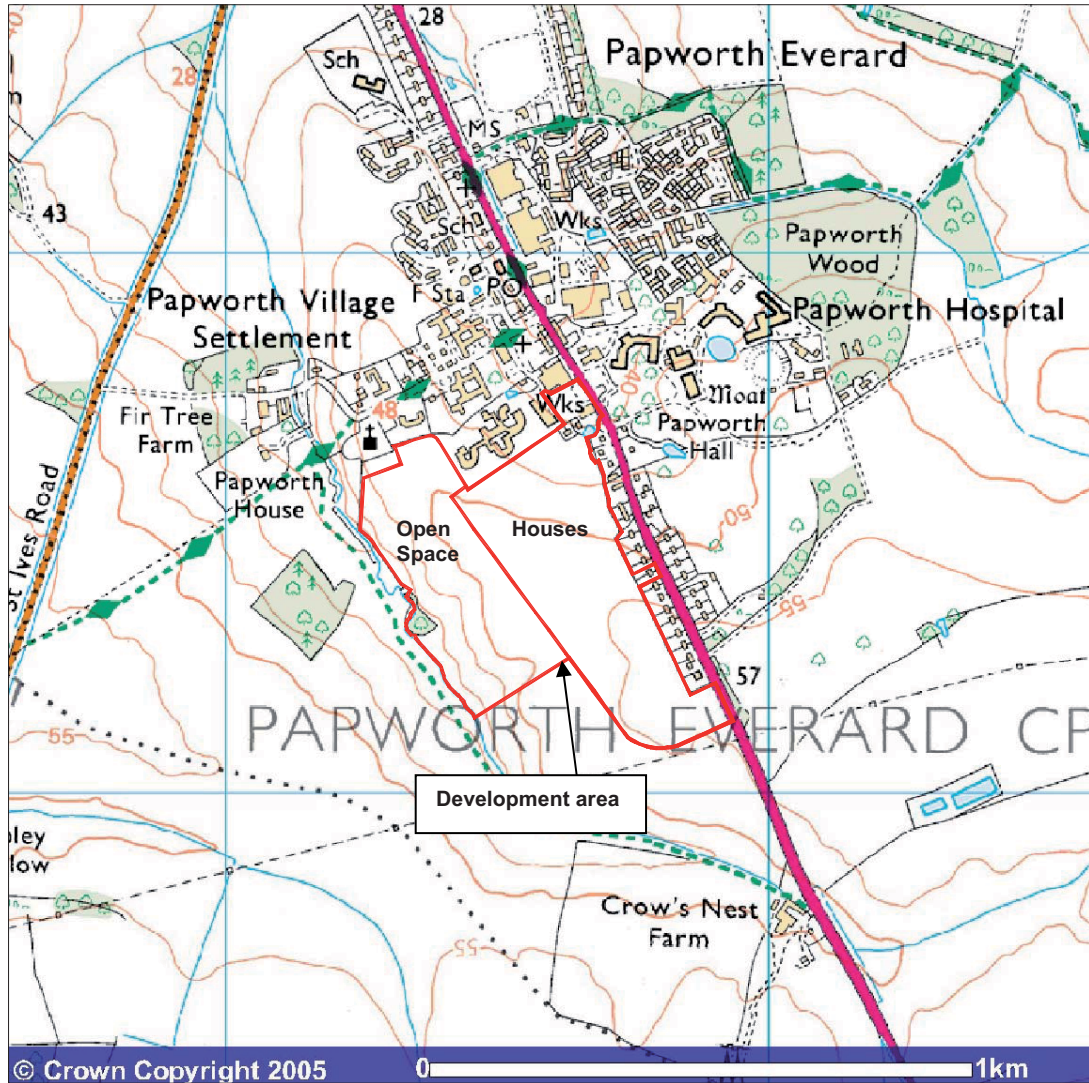
Unpublished reports are held in the Cambridgeshire CC Historic Environment Record

Site No.	Site Description	Investigation Type and Record	Report Reference
4	Iron Age/Romano-British enclosure	Aerial Photographic Assessment (ECB 426)	Cox, C. and Palmer, R., 1996. <i>Church Lane/Ermine Street, Papworth Everard, Cambridgeshire. Aerial photographic assessment: archaeology.</i> Air Photo Services Ltd report 967/05, unpublished.
12	Iron Age enclosure	Aerial Photographic Assessment (ECB 426)	Cox, C. and Palmer, R., 1996. <i>Church Lane/Ermine Street, Papworth Everard, Cambridgeshire. Aerial photographic assessment: archaeology.</i> Air Photo Services Ltd report 967/05, unpublished.
		Evaluation trial trenching (ECB 313)	Kenney, S., 2000. <i>Iron Age occupation off Ermine Street, Papworth Everard: an archaeological evaluation.</i> Cambs CC Archaeological Field Unit Report A154, unpublished.
13	Iron Age/Romano-British enclosure	Aerial Photographic Assessment (ECB 426)	Cox, C. and Palmer, R., 1996. <i>Church Lane/Ermine Street, Papworth Everard, Cambridgeshire. Aerial photographic assessment: archaeology.</i> Air Photo Services Ltd report 967/05, unpublished.
16	Late Iron Age/Romano-British enclosures and field system	Geophysical survey and trial trenching evaluation (ECB 973)	Hatton, A. and Kemp, S.N., 2002. <i>Iron Age and Roman archaeology along the proposed route of the Papworth By-pass: an archaeological evaluation.</i> Cambs CC Archaeological Field Unit report A211, unpublished.
18	Prehistoric features	Evaluation trial trenching (ECB 314)	Alexander, M., 1998. <i>An archaeological evaluation at Papworth Everard, South-East Quadrant, Cambridgeshire.</i> Cambridge Archaeological Unit report 279, unpublished.
		Evaluation trial trenching (ECB 462)	Wilson, N., 1999. <i>Papworth Business Park (units 1 and 4, and Phase 1 Attenuation Pond), Papworth Everard, Cambridgeshire.</i> Heritage Network report 89, unpublished.
19	Iron Age and Roman ditches	Geophysical survey and trial trenching evaluation (ECB 1845)	Eddisford, D., O'Brien, L., Peachey, A. and Williams, J. 2004. <i>Land north and south of Farm Lane and Stirling Way, Papworth Everard, Cambridgeshire. An archaeological evaluation.</i> Archaeological Solutions report 1692, unpublished.

19	(continued)	Further trial trenching and test pits (ECB 1938)	Williamson, J. 2005. <i>Balancing pond, land north and south of Farm Lane and Stirling Way, Papworth Everard, Cambridgeshire. Archaeological mitigation.</i> Archaeological Solutions report 1721, unpublished.
20	Papworth Hospital: no remains found	Trial trenching evaluation (ECB 308)	Roberts, J. 1998. <i>Cardiac and surgery wards, Papworth Hospital, Papworth Everard: an archaeological evaluation.</i> Cambs CC Field Unit report B035, unpublished.
		Desk-based assessment and trial trenching evaluation (ECB 701)	Grant, J. and Wilkins, B. 2002. <i>Papworth Hospital, Papworth Everard, Cambridgeshire. An archaeological desk-based assessment and trial trenching evaluation.</i> Herts Archaeological Trust report 1088, unpublished.
21	Papworth Village Centre: no remains found	Trial trenching evaluation, Phase 1 (ECB 307)	Prosser, L. 1999. <i>Papworth Village Centre, Papworth Everard, Cambridgeshire. An archaeological evaluation.</i> Herts Archaeological Trust report 0545, unpublished.
		Trial trenching evaluation, Phase 2 (ECB 956)	Ramsey, E. 2000. <i>An archaeological evaluation at Papworth Village Centre, Papworth Everard, Cambridgeshire.</i> BUFAU report 729, unpublished.
22	Church Lane: no remains found	Trial trenching evaluation (ECB 463)	Guttmann, E. 1996. <i>An archaeological evaluation at Church Lane, Papworth Everard.</i> Herts Archaeological Trust 0198, unpublished.
26	Ridge and furrow	Aerial photographic assessment (ECB 426)	Cox, C. and Palmer, R., 1996. <i>Church Lane/Ermine Street, Papworth Everard, Cambridgeshire. Aerial photographic assessment: archaeology.</i> Air Photo Services Ltd report 967/05, unpublished.
27	Pits?	Aerial photographic assessment (ECB 426)	Cox, C. and Palmer, R., 1996. <i>Church Lane/Ermine Street, Papworth Everard, Cambridgeshire. Aerial photographic assessment: archaeology.</i> Air Photo Services Ltd report 967/05, unpublished.

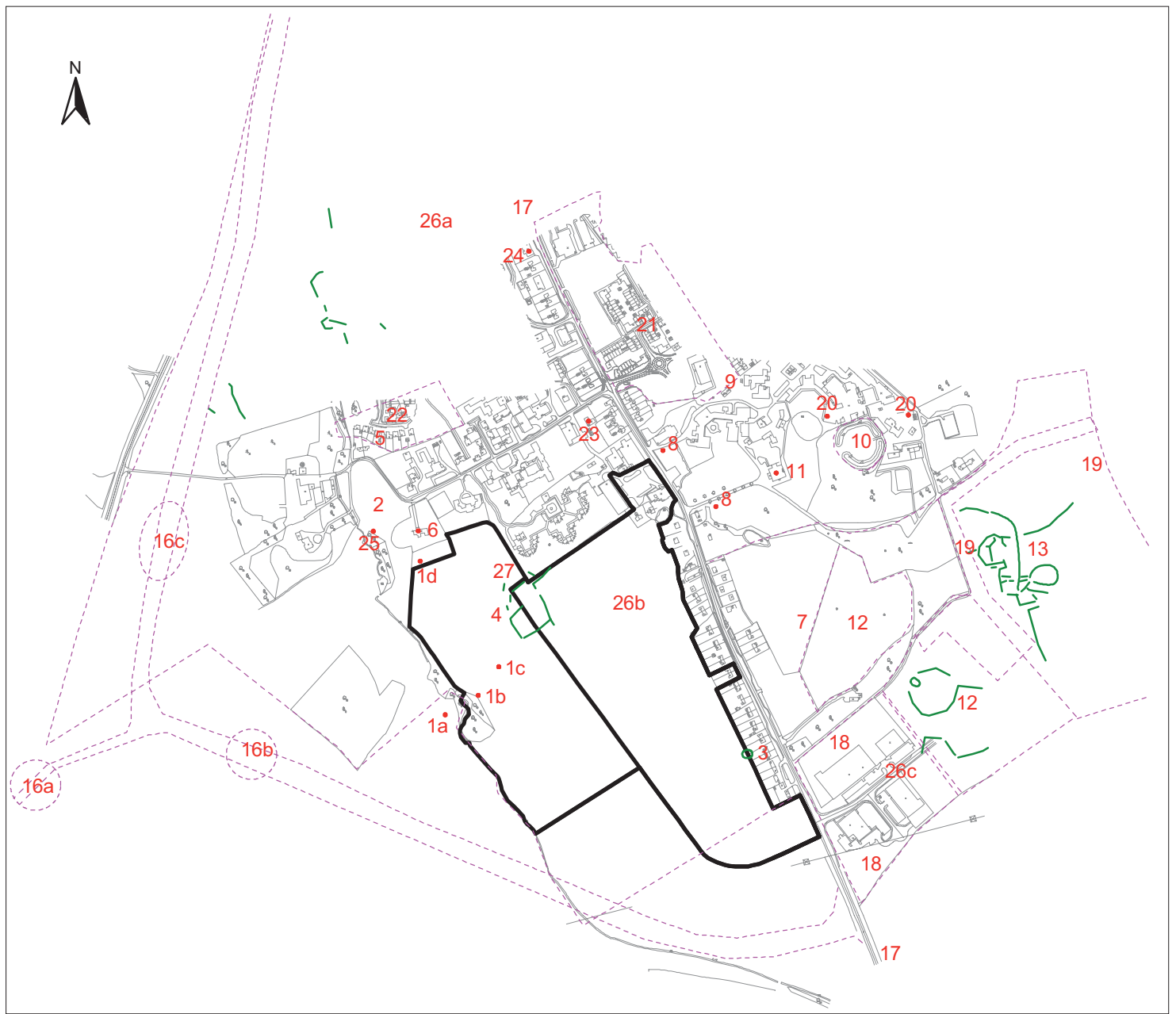


Fig.1. Site location



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Fig.2. Development area



Key

- 1 Gazetteer reference
- Cropmarks
- - - Area described by Historic Environment Record
- Development area

Fig.3. Map of gazetteer entries

AIR PHOTO SERVICES

76 The Green
Lynham Wiltshire
01249 891411

Aerial Photographic Interpretation

PROJECT: Ermine St. / Church Lane Papworth Everard
CLIENT: Hertfordshire Archaeological Trust

SURVEY BY: CC & RP

DATE: September 1996

SCALE: 1:10000

SOURCE: NLAP, CUCAP, CRO

© Air Photo Services 1996

- archaeological features
- area of possible pits
- headland
- ridge and furrow
- former boundaries
- woodland
- built up areas
- modern boundaries

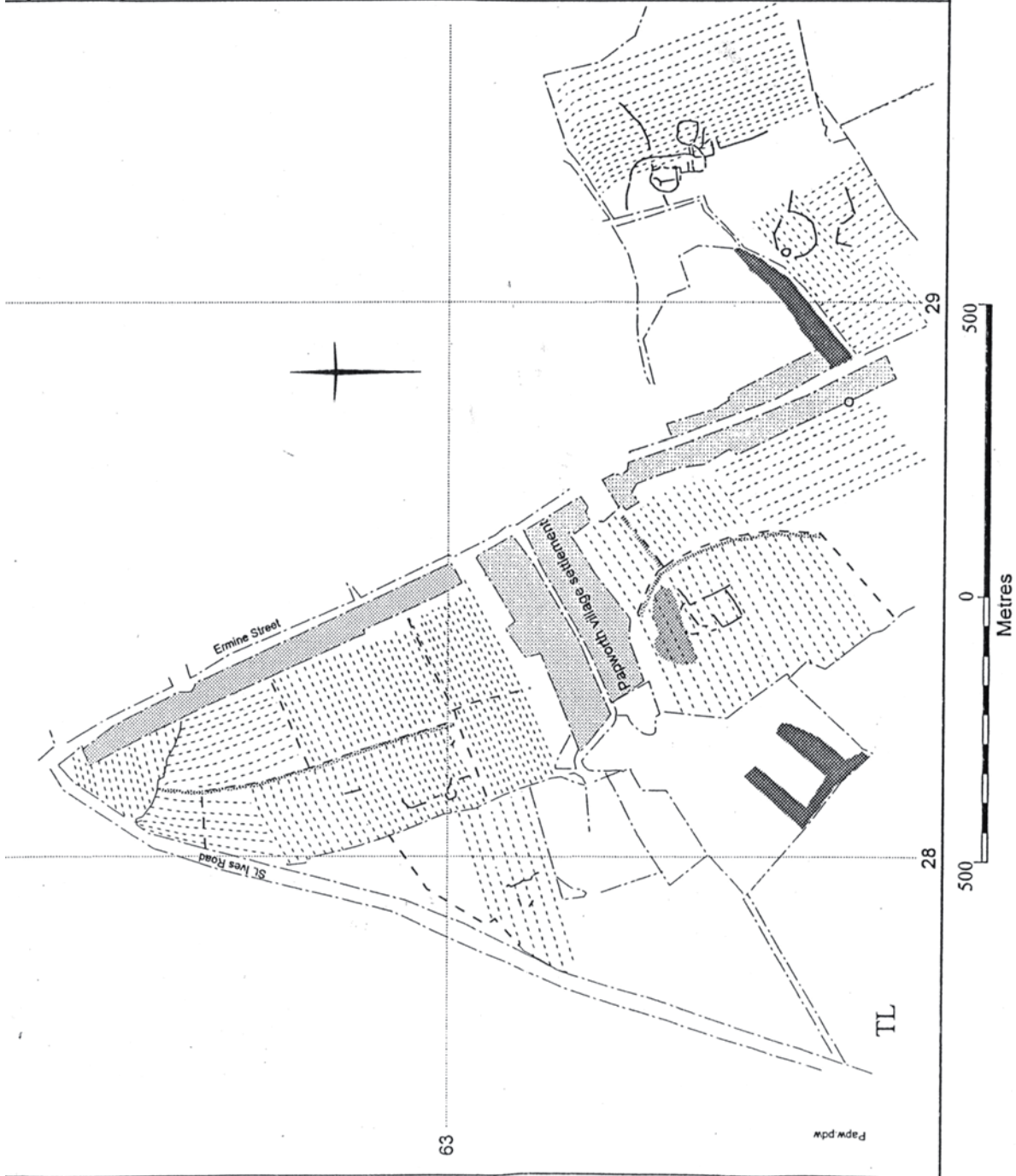


Fig.4. Aerial photographic interpretation (after Cox and Palmer 1996)

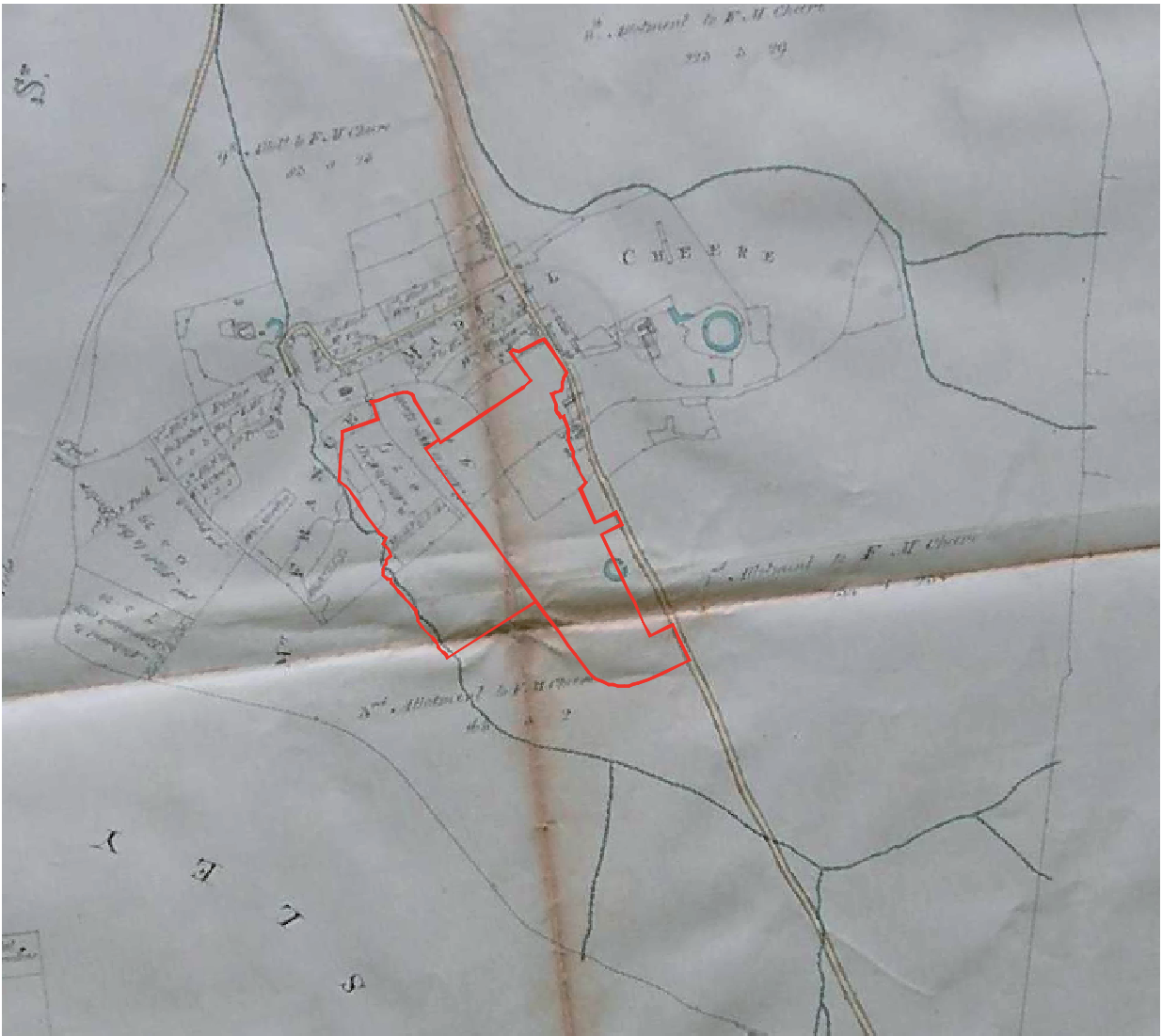
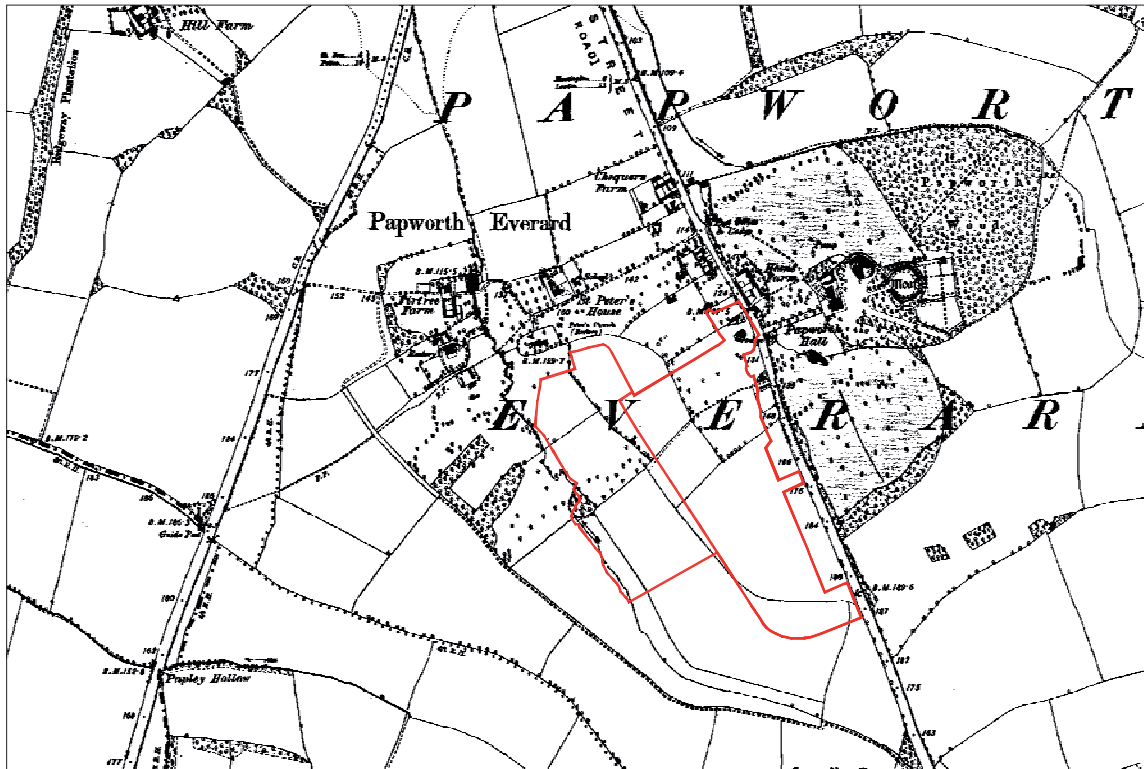
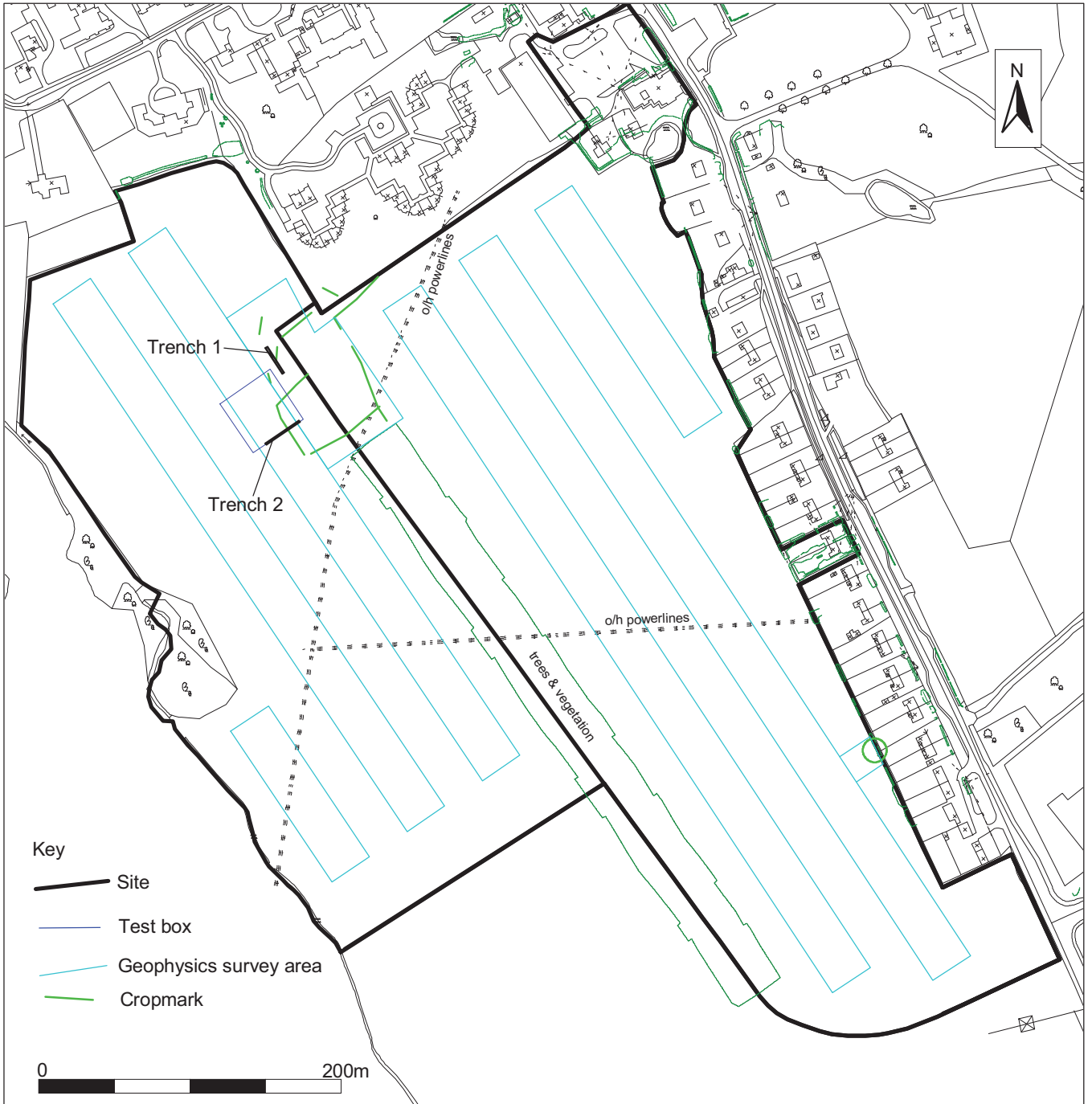


Fig.5. 1818 enclosure map



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Fig.6. First edition Ordnance Survey, 1891



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Fig.7. Location of geophysical survey areas and archaeological trenches

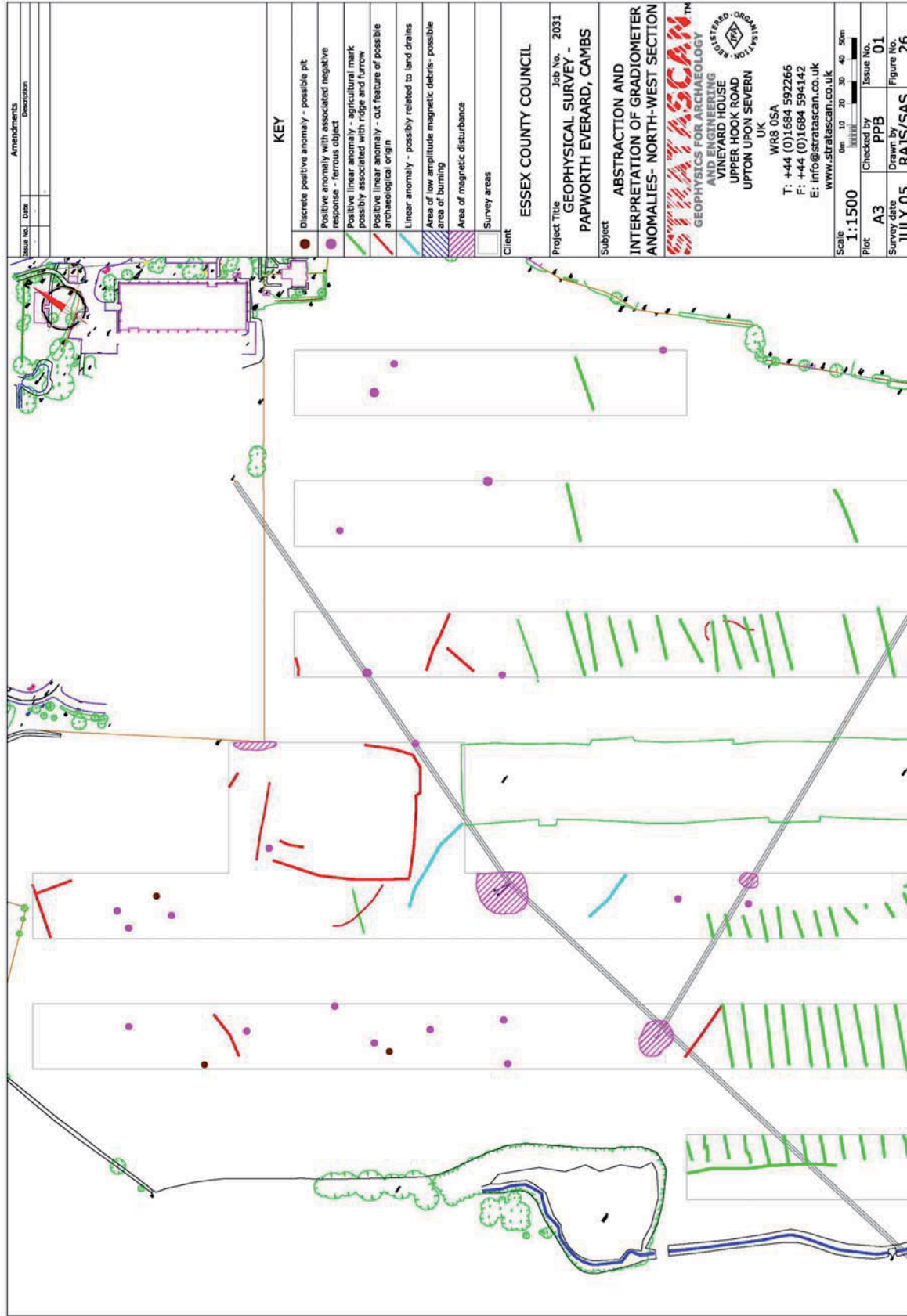


Fig.8a. Geophysical survey interpretation (north). Not to scale (after Stratascan 2005)



Fig.8b. Geophysical survey interpretation (south). Not to scale (after Stratascan 2005)

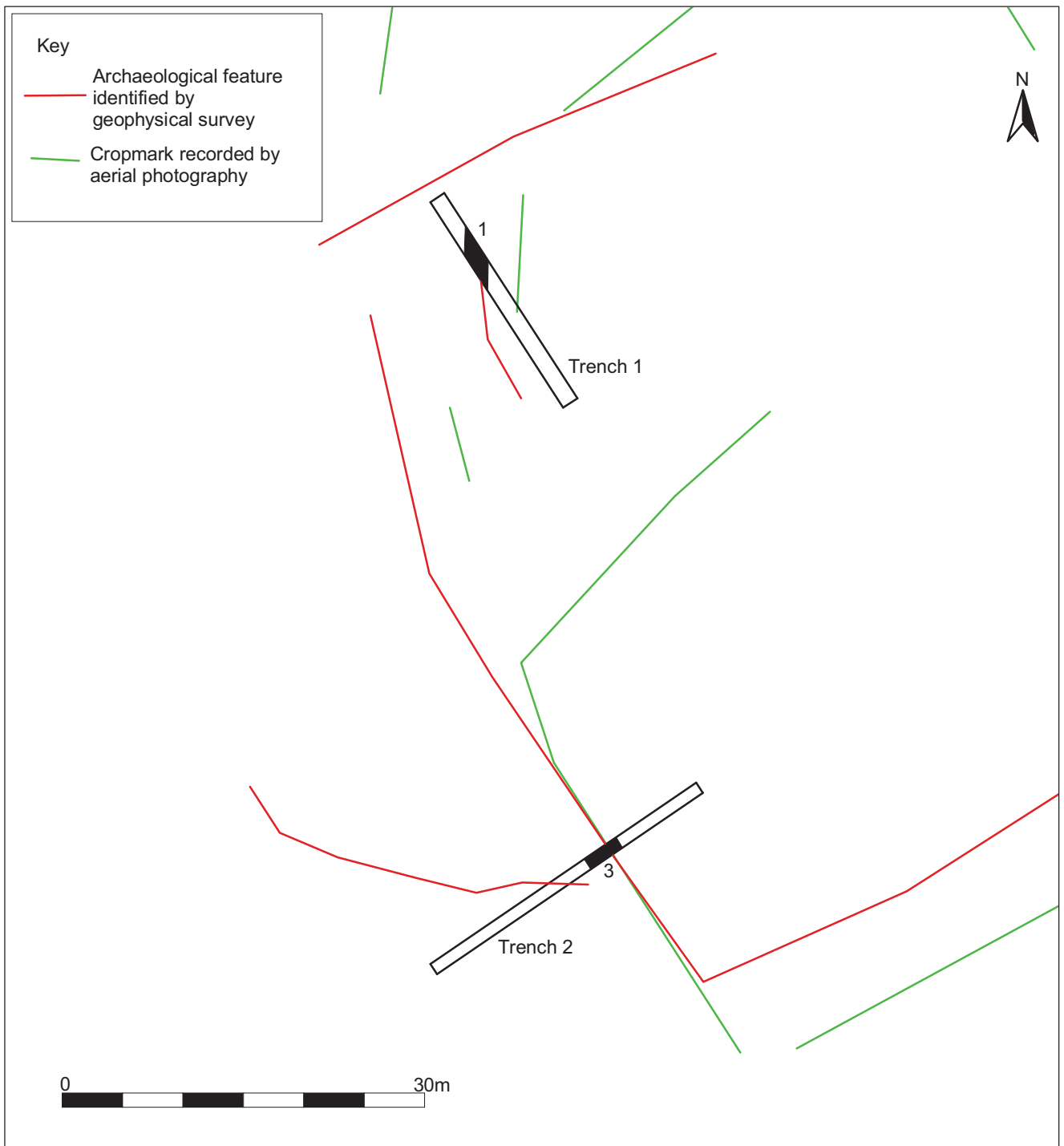


Fig.9. Location of trenches in relation to geophysical and aerial photographic survey plots.

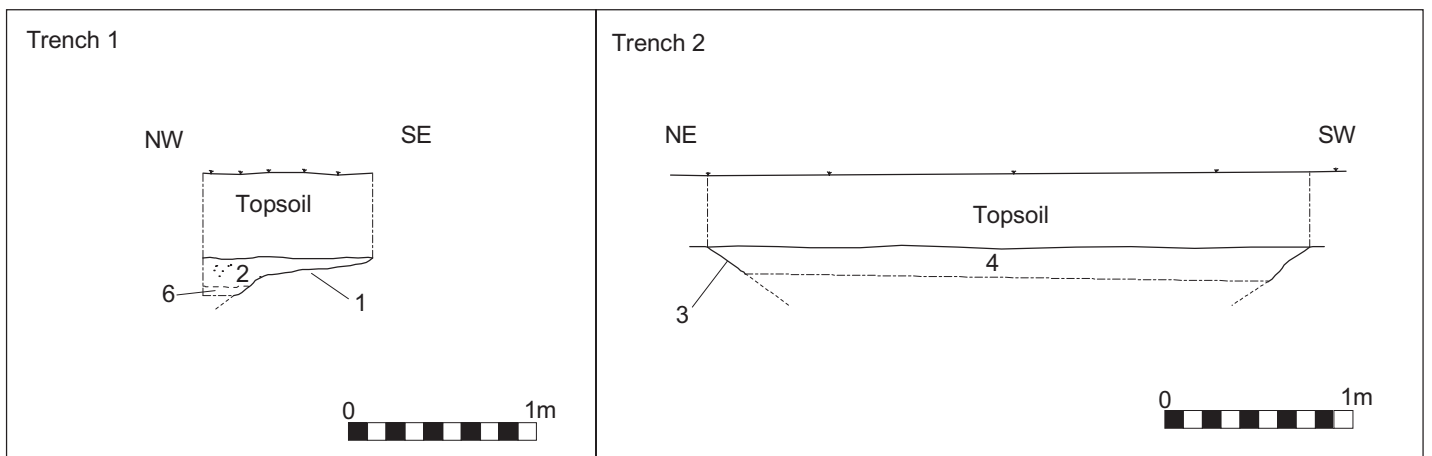
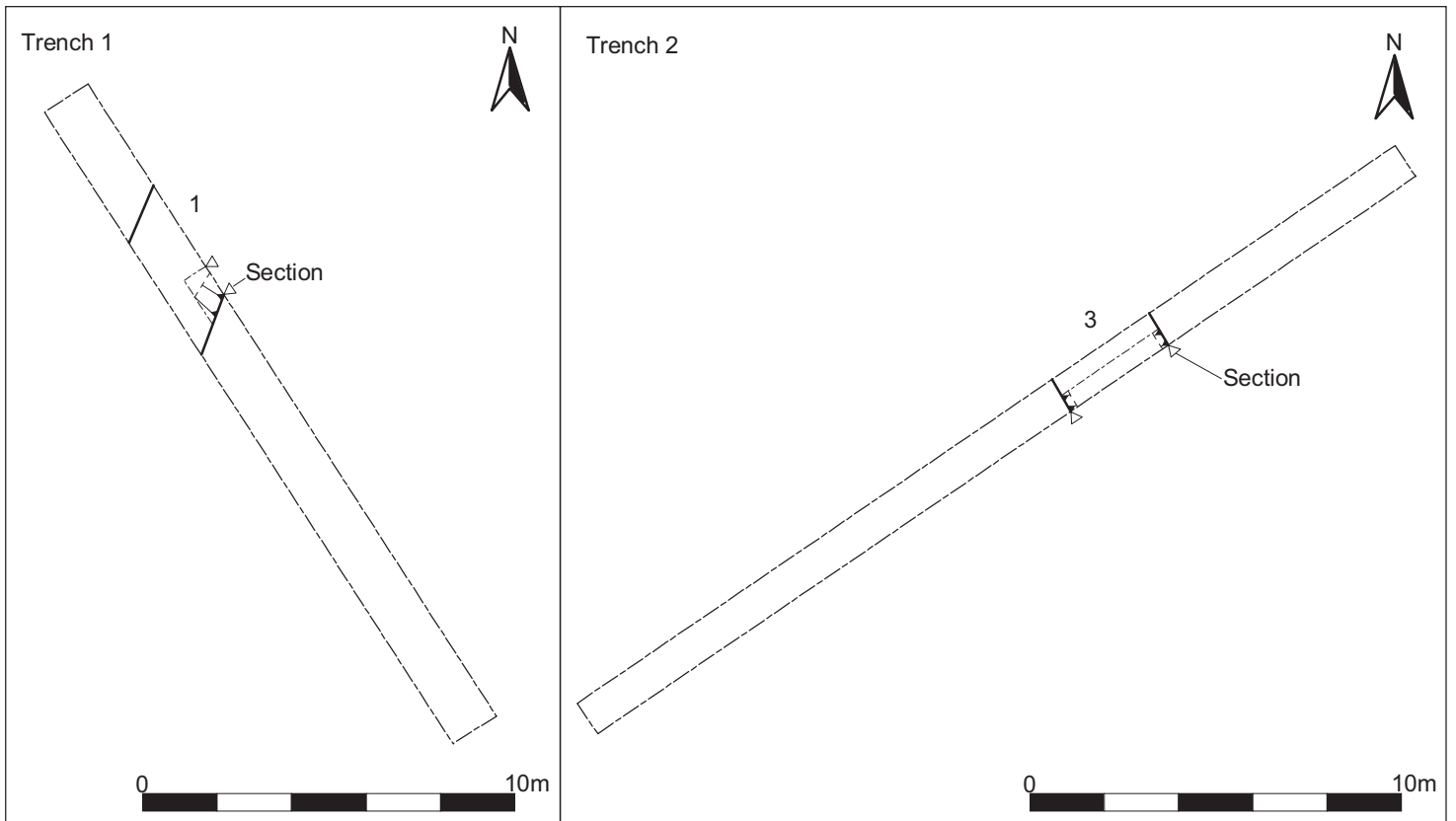
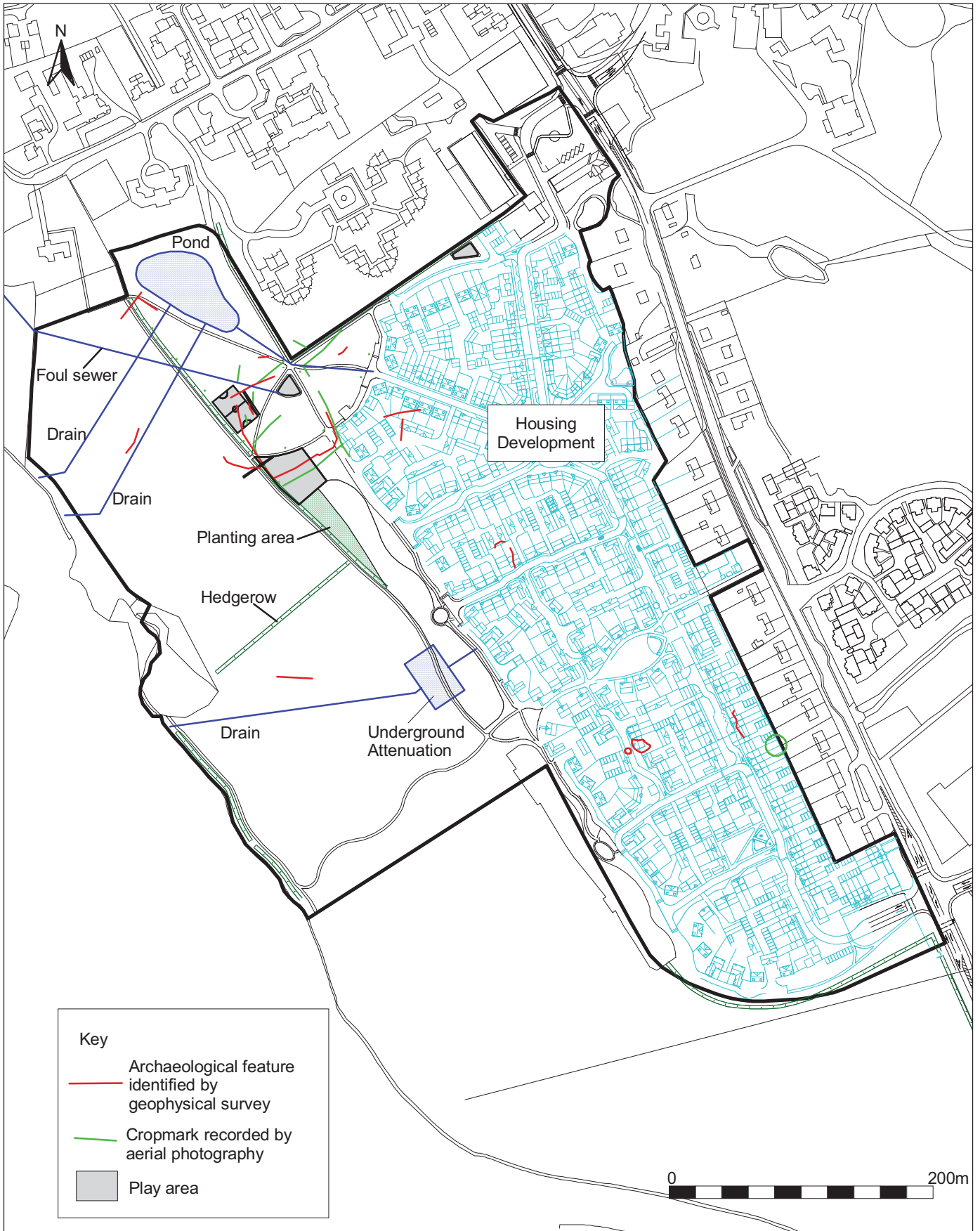
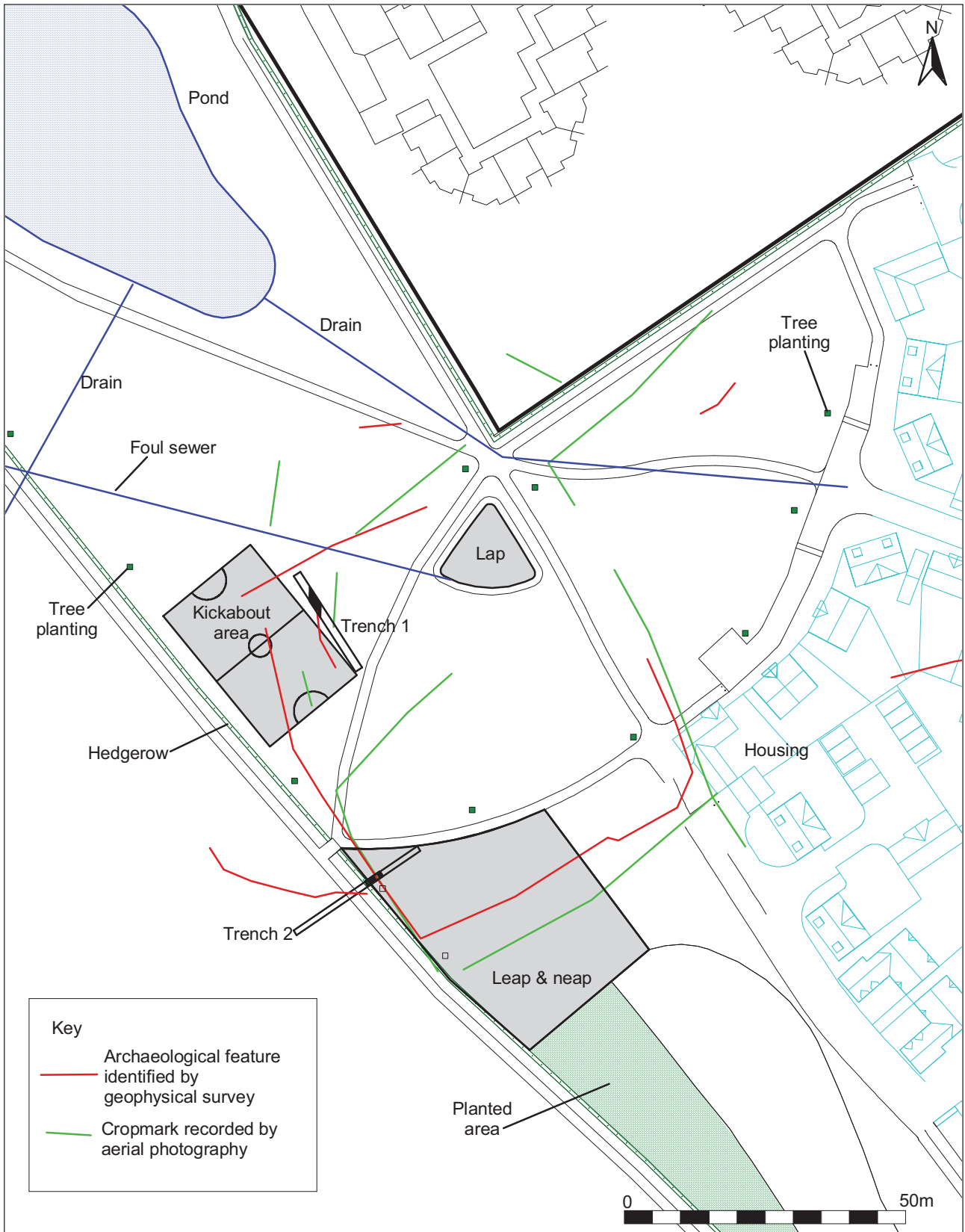


Fig.10. Trial trenches, detailed plans and sections



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Fig.11. Proposed development together with identified archaeological features



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Fig.12 Detail of proposed landscaping and drainage in the area of the probable Iron Age/Roman enclosure