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Silchester Iron Age Environs Project: Aerial Photograph and Lidar Survey Results

Krystyna Truscoe, University of Reading

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SILCHESTER ENVIRONS HAMPSHIRE AND WEST BERKSHIRE

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SUMMARY
A detailed examination of aerial photographs and lidar was undertaken as part of the desk-based assessment for the University of Reading *Silchester Iron Age Environs Project*. The results of the aerial investigation and mapping provide a framework for understanding how the landscape was altered over time and in particular how this affects our understanding and perception of the Iron Age to Roman transition.Sites of note include prehistoric funerary monuments and settlements, medieval deer park boundaries and Second World War ordnance production and storage sites.

The aerial photograph and lidar survey covered 143 kilometre squares, including and providing context for the core project area of c. 100 kilometre squares around the Iron Age *oppidum* and Roman town at Silchester. Archaeological monuments from all periods from the Neolithic up until the Cold War were mapped and recorded, although the emphasis of the overall project is on the Iron Age. A total of 671 archaeological sites were discovered and information was added to 81 of the known sites in the area. The project data is available from the Historic England Archive and the West Berkshire or Hampshire Historic Environment Records.

CONTRIBUTORS
Krystyna Truscoe (University of Reading) carried out the survey and wrote the report. Martyn Barber, Helen Winton and Fiona Small (Historic England) edited the report. Professor Michael Fulford, Dr Catherine Barnett (both University of Reading) and Helen Winton (Historic England) commented on the report.

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ARCHIVE LOCATION
The Historic England Archive
The Engine House, Fire Fly Avenue
Swindon SN2 2EH

Department of Archaeology
University of Reading
Whiteknights
PO Box 227
Reading RG6 6AB

DATE OF SURVEY
The analysis, mapping and recording were carried out in 2015-2016

CONTACT DETAILS
The Historic England Archive
The Engine House, Fire Fly Avenue
Swindon SN2 2EH

archive@historicengland.org.uk

Department of Archaeology
University of Reading
Whiteknights
PO Box 227
Reading RG6 6AB

krystyna.truscoe@pgr.reading.ac.uk

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INTRODUCTION

The aerial investigation and mapping component of the University of Reading's 'Between Kennet and Loddon: The Silchester Iron Age Environs Project' was carried out between September 2015 and September 2016. The aerial survey was one of a range of techniques used to examine and provide a context for the landscape around the Iron Age *oppidum, Calleva*, and the Roman town of *Calleva Atrebatum*. Aerial photographs and airborne laser scanning data (lidar) were used to create an archaeological map and descriptions of sites ranging in date from the Neolithic to the 20th century. As well as contributing to the Silchester project this data will inform future research, planning and land management in the area.

The project area is located between the River Kennet to the north, Tadley to the west and the River Loddon to the east, with the large urban centres of Reading to the north and Basingstoke to the south (Fig 1). The aerial photograph and lidar survey covered 143 kilometre squares to provide context for the core project area of 100 kilometre squares. The project area abuts previous aerial investigation and mapping projects in the Thames Valley (Fenner & Dyer 1994) and the Hampshire aggregate producing areas (Young 2010).

The research aim of the Silchester Iron Age Environs Project (SIAEP) is to examine prehistoric settlement activity and agriculture in the hinterland of Iron Age *Calleva* in order to provide a context for the inception and lifetime of the *oppidum* and for changes that occurred across the landscape during the transition to Roman urbanised living (Barnett and Fulford 2015, 4). The aerial photograph and lidar survey forms part of the desk-based assessment phase of this research, which also includes examination of Historic Environment Records, Portable Antiquity Scheme data and historic maps. As well as providing contextual information, the aerial survey was also used to identify targets for investigation by other techniques. These comprised woodland survey, analytical earthwork survey, geophysical survey, coring exercises and excavation. Results from these different techniques aided further interpretation of archaeological features seen on aerial photographs and lidar.

Aerial photographs from the 1930s to the present day and Environment Agency lidar were systematically examined and all archaeological features were interpreted, mapped and recorded. The project created 671 new records for Historic England's National Record of the Historic Environment (NRHE), while updates and amendments were added to 81 of the 267 existing records within the project area. Details of the form and extent of each monument were mapped and described.

The Iron Age *oppidum Calleva* and superimposed Roman town of *Calleva Atrebatum* were the most intensively studied features in the project area. A system of dykes – linear banks sometimes extending over considerable distances and possibly defining an area of territory – can be traced around the Iron Age *oppidum*, frequently surviving as upstanding earthworks. The Roman town sits within a network of roads, some visible as earthworks and others as cropmarks.

Previous surveys and excavations identified some evidence of later prehistoric and Roman occupation and land use in the northern part of the survey area (eg Gates 1975). However, the aerial survey showed further evidence of settlement across the project area, probably from the Bronze Age through to the Roman period and identified sections of the Roman road from *Calleva* to Verulamium. Evidence of later land use includes medieval moated sites and deer parks, medieval and post medieval field systems, post medieval country parks and extensive 20th century military sites. The successive impact of these changes in land use is one of the main themes of this report.

PROJECT AREA

The project area is located around the Iron Age *oppidum* and the Roman town of Silchester, straddling the border of the modern counties of West Berkshire and Hampshire. It covers 143 kilometre squares of gently undulating landscape between Reading to the north-east and Basingstoke to the south (Fig 1). The courses of the Rivers Kennet and Loddon run along the north/north-western and eastern sides and numerous tributaries of both run within or across the survey area. The main modern communication links are the railways between Basingstoke and Reading and between Reading and Hungerford; the former turnpike roads between Reading and Basingstoke (A33) and the Bath Road (A4); and the M4 motorway which cuts through the north-east section of the project area, north of Burghfield. The modern settlement pattern in the area is one of small towns and villages dispersed within a landscape consisting of a mix of heaths, woodland and farmland.

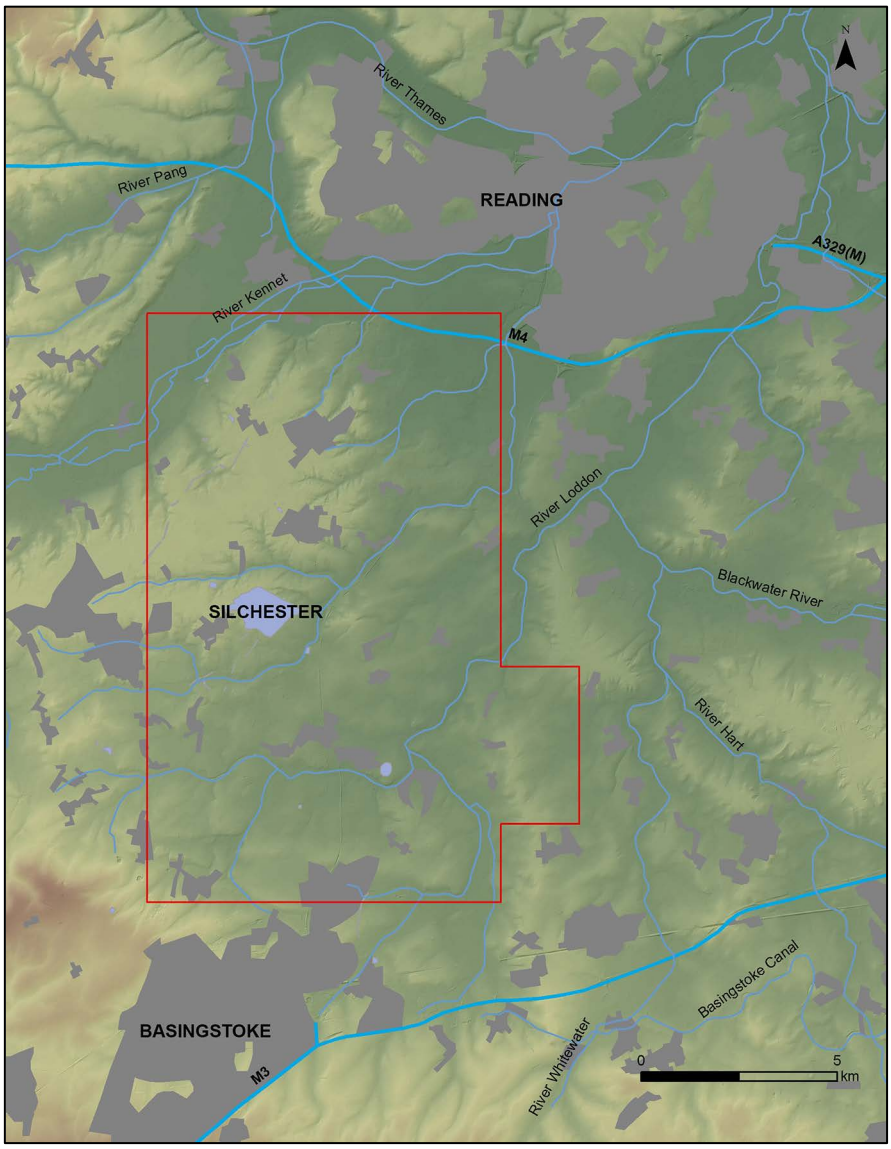

Figure 1 Location of the project area. Information derived from Ordnance Survey mapping © Crown Copyright and Database Right (2017) OS (Digimap Licence).

Topography and Land Use

The project area is mainly located within the Thames Basin and Heaths National Character Area (NCA 129) as defined by Natural England. The whole area comprises a plateau of Tertiary sands and gravels in the London Basin with intervening river valleys floored by London Clay (British Geological Survey (BGS) sheets 268 and 284). Most of the central part of the project area is located on London Clay, with the exception of Silchester itself, where both the modern village and the Iron Age/Roman settlement are sited on a gravel plateau which extends to the west across Pamber Heath.

Many later prehistoric sites have been discovered from cropmarks on aerial photographs (Gates 1975) over the area covered by the Thames Gravels in the north of the survey area (BGS sheet 268)). In some cases aerial photographs provide the only record of these sites due to their loss without excavation during gravel extraction in the mid-20th century. There are also large 19th and 20th century gravel pits across Silchester Common. Gravel extraction has a considerable impact on our knowledge of the prehistory and history of this area, but is also of importance in understanding the contemporary, historic, landscape. On-going development in southern Britain has been an impetus for continuing extraction in the Kennet valley.

The very southern part of the project area is Chalk, part of the Hampshire Downs escarpment, and conditions here (arable over free draining soils) can be conducive to the production of archaeological cropmarks. Wide London Clay flood plains within the river valleys of the Kennet and Loddon support mixed agriculture, and arable land and improved pasture are found on the localised fertile soils based on alluvium. Archaeological cropmarks are less commonly found in areas with moisture-retaining clay soils, although carefully timed and targeted survey can produce good results in some areas when ground conditions are right. The presence of freer draining alluvial soils is more likely to result in favourable conditions for cropmark formation. However, deep alluvial deposits can mask the presence of earlier sites.

There are areas of current and former heathland across the project area. The creation of heathland has its origins in prehistoric and historic farming practices. Pollen analyses have shown that heathland vegetation became more widely distributed regionally during the Neolithic to Bronze Age period, due to the clearance of woodland that occurred as settled farming became widespread. Evidence for cultivation appears to have declined in many areas, including the Thames Valley, during the Middle and Late Neolithic, but increased again in the Middle Bronze Age (Stevens & Fuller 2012, 717). An increase in woodland clearance during the Middle and Late Bronze Age and soil impoverishment brought about by agricultural practices resulted in an increase in the area of heathland (Hazel 1983, 2). The acid, leached soils associated with heathland mean that modern farming uses often consist of rough pasture, but these areas are also used for forestry, golf courses (such as Wokefield Park), or paddocks. Large conifer plantations are located on former heathland to the north and west of Mortimer.

Sites buried in uncultivated heathland are less likely to produce cropmarks. However, sites that post-date the onset of the formation of the heaths are likely to survive as earthworks if the heathland has not been ploughed or buried by other means. Woodland has traditionally been beyond the reach of aerial survey, unless photographed during periods of felling and replanting, but archaeological prospection using lidar has often proved highly successful.

Open field cultivation, probably with medieval origins, is known from cartographic sources in the project area eg Ufton enclosure map, 1805; Whiting map of Silchester parish, 1653. However, a large part of the parishes within the survey area was enclosed on a piecemeal basis over a long period of time (Chapman & Seeliger 1997: xvi). This process of piecemeal enclosure frequently occurred through small-scale clearance of woodland, or assarts, and the enclosure of commons, resulting in the patchwork of small to medium-sized, irregularly shaped fields and woods seen across much of the project area. There has been significant field boundary removal in more recent times, but the evidence of former hedge lines can often be seen as low earthworks on lidar or through sub-surface remains showing as cropmarks on aerial photographs.

The mosaic of heathland, woodland, wetland and grassland was ideal for hunting - during the medieval period several areas within this region were designated as royal forests (Natural England 2014: 10). For example, the royal hunting forest of Pamber around Silchester was established by at least 1086 (Stamper 1983: 41). Further evidence of hunting can be seen in the boundaries, or park pales, around a number of medieval deer parks which have been recorded during the survey or are shown on historic maps.

The 18th century saw the creation of several parks associated with large country houses, many of which remain. A considerable part of the land in the survey area remains in the ownership of large estates, principally the Englefield Estate (associated with Englefield House) and the Wellington Estate (associated with Stratfield Saye). The Englefield Estate manages woodlands, including formal parkland, covering approximately 1,400 hectares which includes Ufton Park and Pamber Forest (www.englefieldestate.co.uk/).

The largely uninhabited, undulating heathland areas within the project area have long been utilised by the military. The earliest activity of this kind identified during the survey dates to the First World War. A Second World War military airfield at Aldermaston was developed in 1950 into the Atomic Weapons Establishment (AWE), (www.awe.co.uk), which borders the north-western side of the project area. Other large installations within the project area include the First and Second World War ordnance depot of Bramley Camp, later a military training site, and the Burghfield Royal Ordnance Filling Factory, now part of the AWE. These sites cover large areas of land, preventing urban development on large areas of heathland and woodland and thereby, to some extent, helping to preserve it.

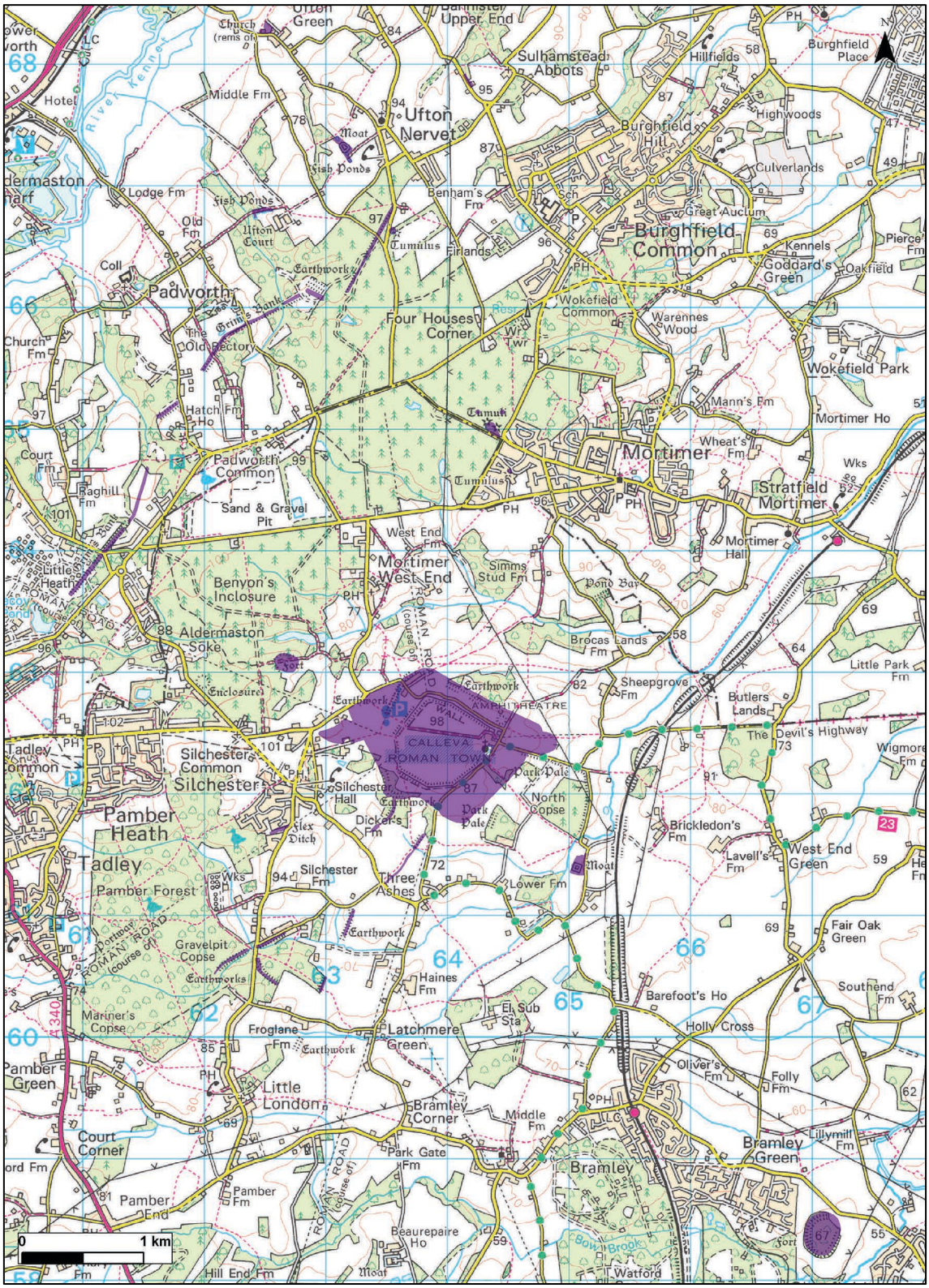

Figure 2 Scheduled monuments in the Silchester area shown in purple. OS base map © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Parts of the project area are highly valued for their ecological and amenity value. Pamber Forest is designated as a Site of Special Scientific Interest (SSSI) together with Silchester Common. The combination of two heathland Commons, extensive ancient oak wood, and unimproved wet meadows supports a diverse range of flora and fauna. Appreciation of the aesthetic and amenity value of heathland developed from the mid-19th century, especially following the establishment of the Commons Preservation Society (now the Open Spaces Society) in 1865 as a response to the enclosure of common land (www.oss.org.uk). The Iron Age and Roman site of Silchester is also a much-visited part of this landscape. The Roman town and amphitheatre and the Iron Age earthworks around them are protected as Scheduled Monuments as are several of the associated outlying earthworks, such as the Silchester Dykes (Figure 2).

PERCEPTIONS OF LANDSCAPE

Undertaking a survey from the aerial viewpoint contributes to an understanding of a landscape as the sum of its parts as large-scale patterns of field systems, settlement and land use can be better appreciated. Aerial photographs provide images of the landscape under study at different points in time and help to demonstrate how human interaction changes and remodels it. As such, aerial survey doesn't just identify and describe features in a landscape but contributes to an understanding of landscape as defined in the European Landscape Convention. This states that "landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" (Council of Europe 2000). The Convention supports raising awareness of the importance of landscapes and the essential part that they play in the lives of people, linking them with culture and nature and their past. The process of carrying out this survey and dissemination of the results aids understanding of the facets which form the landscape as a whole, taking a landscape-based approach rather than looking at individual archaeological features out of context.

The landscape of the survey area could be defined in many ways. Today it appears as a relatively quiet landscape of heath, woodland, mixed farming and rural residential areas. However, its general characteristics have received mixed views over the years. Elizabeth I when received at Silchester Common in 1601 during her royal progress through England described it as follows: "...Hampshire is a country pleasant of soile and full of delights..." (Page 1911 via British History Online. Accessed 2017), but Vancouver writing in 1810 was less favourable, stating that the woodlands "may be said to consist of a tough, sour clay. The heath and commons...afford but indifferent pasture" and further, that "raw damps exhaling from this district are supposed to produce rheumatisms" (*ibid*).

The project area can be viewed from a number of perspectives. Archaeologically speaking it is often considered as being the rural hinterland of *Calleva*, the large late Iron Age settlement of the Atrebates, later a Roman town. It could be viewed as a medieval hunting landscape, with the Royal Forest of Pamber covering a large area around Silchester and numerous deer parks located in the vicinity. It might equally be seen from the perspective of a landscape of private ownership as a large

proportion of the project area and the surrounding region were enclosed on a piecemeal basis, a process that started long before the peak of Parliamentary Acts of Enclosure from the mid-18th to early-19th centuries. The small irregular fields and earthwork remains of squatter settlements stand as testament to piecemeal enclosure and encroachment by the landless onto the woodland and commons. Another view is of a landscape that it is one of great estates: country houses and parks are found throughout, and in the modern day, ownership of a large proportion of the survey area is split between the Englefield Estate and the Wellington Estate. Finally, it could be characterised as a 20th century military landscape as the relatively level areas of land were suitable for large military sites and much of this land remains in government hands. There was also a particular emphasis during the Second World War on the production and storage of ordnance.

One particular theme that pervades most of the later periods is that of enclosure, in the general sense of restricting access to areas of land for a variety of reasons – settlement, agriculture, ownership and so on. It is far more difficult to understand the attitudes of people to the landscape in the prehistoric periods, particularly as control may have been exercised in ways that leave no physical traces that can be identified today. The landscape is defined and redefined by the people living, working and, to varying degrees, controlling it.

METHODS

The project scope included mapping of all archaeological features visible on aerial photographs and lidar to Historic England standards. The results ranged in date from the Neolithic period, when large monuments began to be made, to the 20th century. All sites visible as cropmarks and/or earthworks were included, as well as abandoned or demolished built structures. The latter included farms which were removed in the late 19th or early 20th century, but most structures recorded relate to the Second World War, such as airfields and their associated buildings, Heavy Anti-Aircraft batteries, and Prisoner of War camps.

Post medieval field boundaries and palaeochannels were mapped to aid the interpretation of the development of field systems and the degree of modification to the routes of rivers, either naturally or through human intervention, for example, in demonstrating the changing route of the River Kennet in the past, prior to its canalisation in the 18th century.

All readily available sources of print or digital aerial photography were consulted. All vertical photograph prints were viewed using a stereoscope. Rectified and georeferenced digital images were produced by transforming scans of oblique and vertical photographs. A digital terrain model, using OS 5m interval contour data, was used to compensate for undulating terrain when rectifying aerial photographs. Several visualisations of Environment Agency lidar were used, processed via the Relief Visualisation Toolbox (RVT) (Kokalj *et al* 2016).

Other sources used included historic maps, soils and geology data, published and unpublished archaeological accounts. Where appropriate, these sources are cited in this report. Otherwise, references can be found in the individual database records in the Historic England monument database, the National Record of the Historic Environment (NRHE) or local authority Historic Environment Records.

The form and extents of archaeological features were mapped using AutoCAD Map by tracing details from lidar, orthophotographs, or georeferenced and rectified aerial photographs. Archaeological features were depicted on different layers based on the form of remains, e.g. bank, ditch etc. (Fig 3), conforming to Historic England drawing conventions. The extent of the features described in each monument record was defined by a line drawn around the maximum extent of the site (a monument polygon). The drawing conventions used are shown in Figure 3 below.

A unique identifier number was attached to each group of objects corresponding to the monument description in the NRHE. Particular features can be retrieved from the NRHE, the project Geographic Information System (GIS) data, or the HER using this unique identifier.

Monument records in the NRHE database were created or amended where appropriate. The monument record consisted of a textual description of the site linked to indexed location, period, type and form of evidence. The record also included digital cross references to other monuments and datasets (usually the HER or scheduling information) as well as a list of the main aerial photographs and other

sources for the site. An Event record was created in the NRHE database to provide basic information on project aims, scope and procedures. Each monument record created or amended in the course of the project is linked within the database to the Event record.

Mapping and monument records were supplied to the Local Authority Historic Environment Record in West Berkshire or Hampshire.

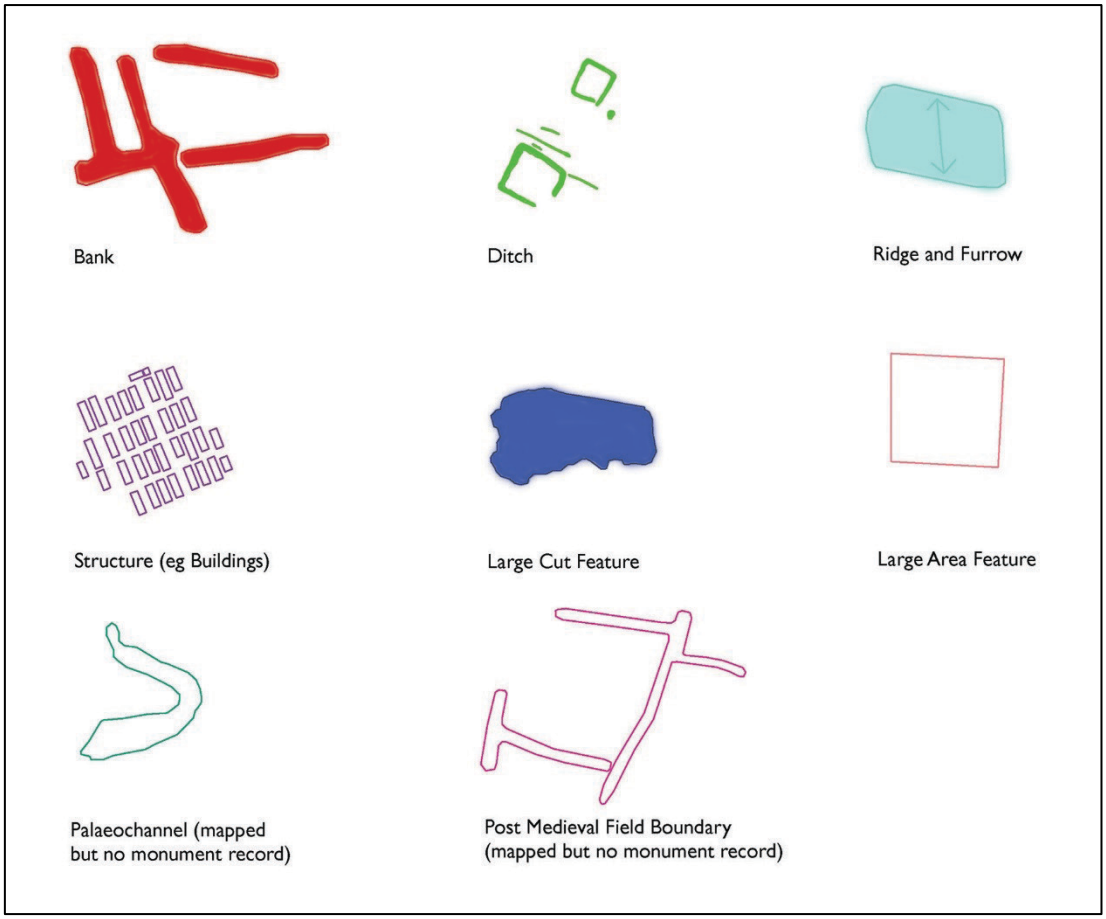

Figure 3 Drawing conventions used for mapping and for all report illustrations

Sources

Aerial Photographs

The main photographic sources consulted were: the Historic England Archive, Cambridge University Collection of Aerial Photography (CUCAP), Aerial Photography for Great Britain (APGB) images, Google Earth, BING, and local authority collections (Hampshire and West Berkshire). The aerial photographs used fall into two main categories: vertical photographs, mostly taken for cartographic and planning purposes, and oblique photographs, generally taken as part of a specialist archaeological survey.

The vertical photographs consulted within the project area have a date range of 1940 (the earliest Royal Air Force photographic coverage) to 2014 (the most recent Google Earth images covering the project area). There was good general coverage of vertical photographs, both historic and modern, across the project area. Although 36% of the photographs were not available as prints from the Historic England Archive it was felt that the available prints provided sufficient cover of the survey area.

Oblique photographs ranged in date from the 1930s (the Crawford Collection in the Historic England Archive) up until 2015 (the most recent Historic England aerial reconnaissance). While oblique photographic coverage was available across the area, there were significant clusters at Silchester and its immediate surroundings, and the Thames River Gravels in the north of the project area.

Lidar

Airborne laser scanning, or lidar (light detection and ranging), involves an aircraft-mounted pulsed laser beam, which scans the ground from side to side as the aeroplane follows a straight-line course across the target area. The laser pulses bounce off the ground, and any features on it, and the speed and intensity of the return signal is measured. 'First return' is the term used to describe the first beams to bounce back, whether they hit the ground, a rooftop or the tree canopy. 'Last return' describes those that, for example, follow a path between the leaves and branches before bouncing back from the ground within woodland. This information is used to create a precise Digital Elevation Model (DEM) of the ground and the features on it. As with aerial photographs, lidar captures images of the landscape at a particular moment in time. The ability to 'see through the trees' has been a break-through in aerial prospection for archaeological remains. Outside wooded areas, they are very much complementary resources to conventional aerial photographs.

Lidar data was obtained from the Environment Agency for this project. At the time of the project, Environment Agency lidar survey was generally undertaken for flood modelling and therefore coverage tends to concentrate on river valleys or other low-lying areas. A large proportion of the project area was covered by 1m resolution lidar. A smaller area was covered by 0.25m resolution lidar (Figure 4). The raw data (.asc files) were processed using the Relief Visualisation Toolbox (Kokalj *et al* 2016) and the different visualisations produced are outlined below.

Where there were gaps in lidar coverage, height data was obtained from APGB comprising contours at 5m intervals and Surface heights (including trees and buildings) at 2m intervals. The values of these height data were processed using the RVT in order to produce visualisations in the same ways as lidar but at a lower resolution.

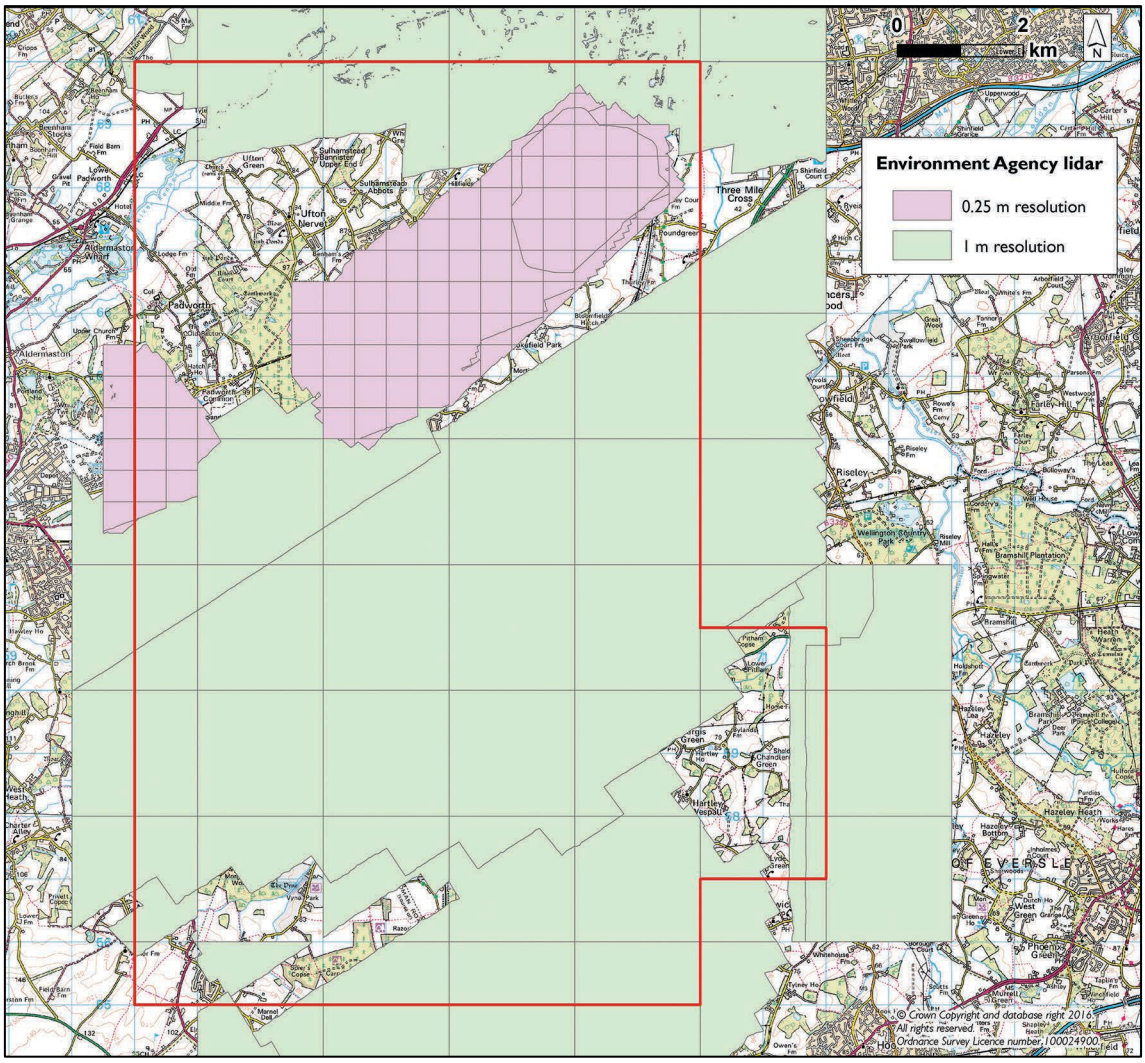

Figure 4 Environment Agency lidar coverage at 1m and 0.25m resolution. OS base map © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Several different lidar visualisations were used because they highlight different aspects of the data.

A Digital Surface Model (DSM) is a digital elevation model of the first returns of the laser pulse – i.e. the highest points encountered, including buildings and the tree canopy. Features on the ground are obscured by woodland and dense vegetation in the same way as on an aerial photograph.

A Digital Terrain Model (DTM), particularly useful in wooded areas, is created using algorithms to remove first return data. A so-called 'bare earth' model is generated from the last returns. The DTM was processed as a hill-shaded visualisation, where the virtual ground surface is 'lit' from multiple directions. This is arguably the most readily understandable visualisation as it offers a familiar view for those used to viewing archaeological earthworks in 3D or on oblique aerial photographs. This type of visualisation has been used for illustrations for the aerial survey results. However, a potential weakness of the hill-shaded DTM is that the

apparent position of features can move slightly from their true ground position if the direction of illumination is altered (Bennett *et al* 2012, 45). Therefore, different visualisations were used for mapping such as Openness-positive and Openness-negative.

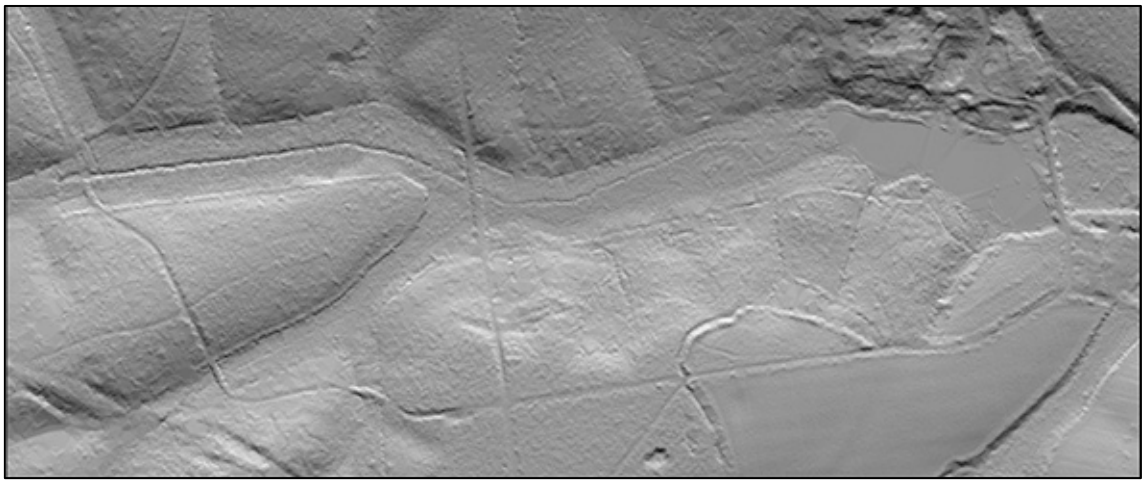

Figure 5 Hillshade model of the area around Pond Farm hillfort (bottom right of image). © Environment Agency/University of Reading.

In contrast to some other various shading techniques, openness is not subject to a directional bias due to the angle of hill-shading and therefore relief features do not contain any false horizontal displacement. Additionally, it offers a distinction between archaeological relief features and the surrounding natural topography (Doneus 2013, 6427).

Figure 6 Openness Negative of the area around Pond Farm hillfort (bottom right of image). © Environment Agency/University of Reading.

The openness techniques highlight both the highest and lowest parts of features, so the resulting visualisations clearly accentuate positive features (within Openness negative) and negative features (within Openness-positive). The openness visualisations were particularly suited for mapping and outlining archaeological features with sharp edges such as extractive pits.

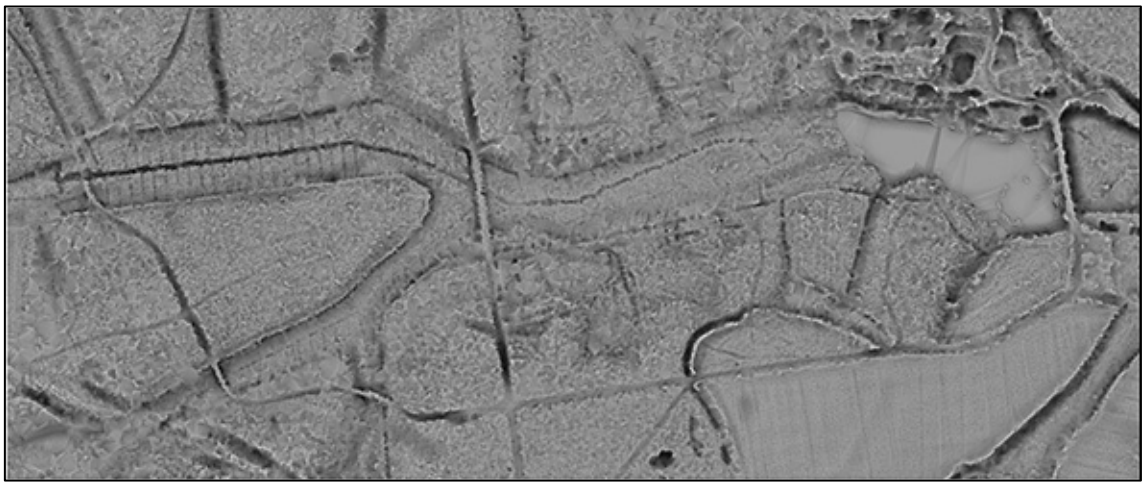

Figure 7 Openness Positive of the area around Pond Farm hillfort (bottom right of image). © Environment Agency/University of Reading.

The Local Relief Model (LRM) visualisation isolates subtle local elevation changes from the large-scale global relief and therefore enhances the visibility of small-scale, shallow topographic features irrespective of the chosen illumination angle (Hesse 2010, 67).

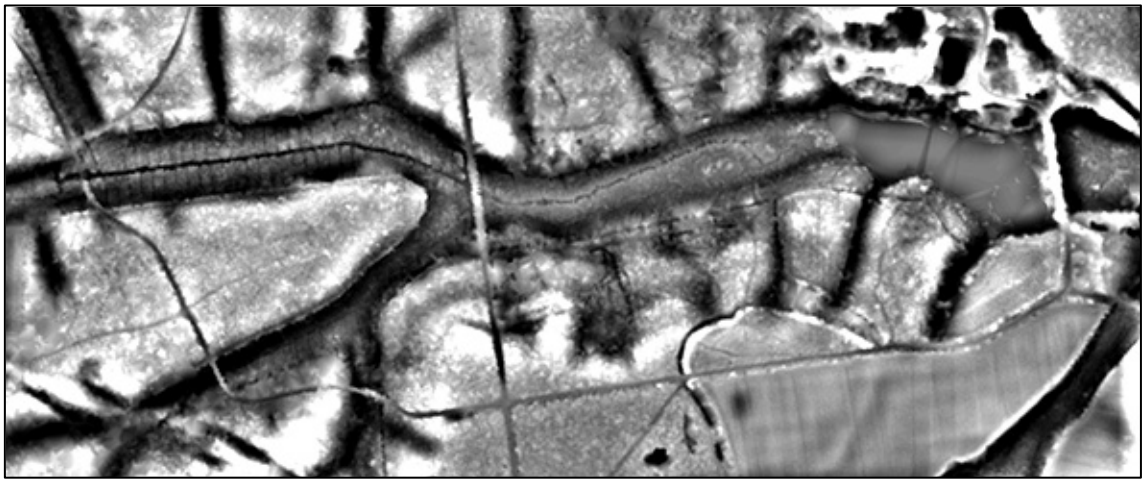

Figure 8 Local Relief Model of the area around Pond Farm hillfort (bottom right of image). © Environment Agency/University of Reading.

Sky View Factor (SVF) is a technique from which a shaded image can be produced based on diffuse, rather than direct, illumination, with the landscape illuminated uniformly from a bright sky above. The shading is produced by the sky-view factor, a parameter corresponding to the portion of sky visible from a particular viewpoint; a greater amount of light is visible from a ridge top as opposed to a steep valley bottom. It can be used to show relief characteristics and can improve the recognition of small-scale archaeological features (Zakšek *et al* 2011, 402).

Figure 9 Sky View Factor of the area around Pond Farm hillfort (bottom right of image). © Environment Agency/University of Reading.

The different visualisations were used together in order to better define and interpret the form and extent of those archaeological features which could be identified from lidar data. Only features which have a height or depth difference to their surroundings will be visible, and the degree of visibility will be further dependent on the resolution of the lidar data. Features with a slight change in elevation may not be visible on 1m resolution lidar but may be seen on a 0.25mm resolution survey. Sub-surface remains which can result in the formation of cropmarks will not be visible on lidar data. In woodland areas, resolution was particularly important as lidar was often the only source of information. The visualisations were used alongside the aerial photographs in non-wooded areas in order to provide supplementary information on extant earthworks or structures.

THE AERIAL SURVEY: UNDERSTANDING THE RESULTS

A variety of factors can affect our ability to identify and interpret archaeological features on lidar and aerial photographs. For example, an appreciation of the nature of the aerial view and how it differs from observing at ground level is necessary before trying to interpret how features fit into a landscape. Ground conditions, including soils and the underlying geology, have a significant effect on how buried archaeological remains may appear on aerial photographs. The moisture retaining qualities of soils is a key factor and so particular soils (the more free-draining) are more conducive to the formation of cropmarks than others. Land use also greatly affects how archaeological features survive above and below ground and the extent to which their remains can be identified on lidar or aerial photographs.

Aerial survey was just one of the techniques used to examine the landscape in the Silchester Iron Age Environs Project. The results from each technique complemented and informed the other types of survey. Analytical earthwork survey provided both detailed understanding of individual monuments and an appreciation of their local topography. An aerial view can have a flattening effect on a landscape so an understanding of the topography at ground level is important. This can be mitigated by viewing vertical photographs through a stereoscope and by comparison between the photographs and contours shown on an OS map or terrain modelling in Google Earth. What may appear to be a gentle undulation in a field from the air may constitute a significant change in elevation at ground level, which in turn may have significance in understanding the siting of certain types of archaeological sites, such as prehistoric funerary monuments.

Visibility of archaeological features

The nature of archaeological evidence that can be seen on aerial photographs and lidar usually comprises relatively large ditched and/or embanked features which are visible above ground as earthworks or as cropmarks representing sub-surface features (Wilson 2000). These range in date from the Neolithic period onwards when monumental structures such as long barrows and causewayed enclosures begin to be constructed. However, evidence from the long history of excavation, surface collection and from documentary sources shows that the project area has been used or occupied by humans from the Palaeolithic period. For example, Palaeolithic worked flints have been found near Bullsdown Camp, Bramley and Manor Farm, Monk Sherborne and Sherfield on Loddon (Hampshire AHBR 3355 and 33572), while Mesolithic flints were collected during excavations on a multi-period site at Bath Road, Ufton Nervet (NRHE 240931). The excavations and survey of the Iron Age and Roman settlement of Silchester represent the largest research-led project in the area, but developer-led excavations in specific areas have also made new discoveries. An example is the Iron Age/Roman farming settlement at Raghill Farm, Aldermaston, an area where no evidence of the site could be identified on aerial photographs and lidar (Wessex Archaeology 2008).

There is good coverage by vertical aerial photographs of the whole project area spanning a time period of 1940 to 1996. The systematic examination of these photographs together with lidar and satellite imagery has led to an increase in

archaeological knowledge from the Neolithic period to the Second World War. The specialist oblique photographs of the survey area tend to be focussed on the gravel areas around Silchester, Ufton Nervet and Burghfield while the coverage for other areas is relatively scarce.

Soil types and land use had the most impact on the differing nature of the archaeological remains found across the survey area during the aerial survey. For example, significant prehistoric and Roman earthworks were found in woodland and heath and similar buried remains were revealed as cropmarks on the free-draining soils around Silchester and in the Kennet Valley to the north. The archaeological features found on the clay derived soils of the eastern part of the survey area mainly comprised medieval or later features

It could be argued that more specialist aerial photography in the right conditions could lead to more discoveries on the heavier clay soils. Nationally, the relatively better and more frequent visibility of cropmarks on certain soils and geologies led to a tendency in the past for survey and reconnaissance to focus on those areas. This was coupled with an erroneous view that areas of lighter soils were most heavily favoured for settlement and agriculture prior to the early medieval period. More recent archaeological reconnaissance and excavation have proved that archaeological remains are widespread. The distribution of specialist oblique photographs is likely to be a result of complex factors rather than simply a preference for prospection over certain soil types. For example, much of the project area is covered in woodland and so unlikely to be photographed from the air. Other significant clusters of photographs relate to surveys of registered parks and gardens so therefore this is an area that has been flown over and observed from the air by an archaeologist. The whole survey area has been photographed repeatedly since the 1940s for non-archaeological purposes (the vertical cover) but this has not significantly changed the known distribution of archaeological remains. However, even though there are significant gaps in areas with heavier clay soils, this does not mean that that there are no archaeological features to be found in these areas, just that they may require exceptional ground conditions for cropmarks to form over buried features.

Prospection in areas with clay soils in Bedfordshire in 1996 (Mills & Palmer 2007, 10) and in Cambridgeshire and Bedfordshire in 2011 (Barber & Carpenter 2016, 20-23) was carried out when there were optimum conditions for cropmark visibility in those areas – a combination of increasing conversionof pasture to arable, ploughing level of medieval ridge and furrow, and exceptionally dry ground conditions. This resulted in photography of numerous buried archaeological features showing as cropmarks. Not all clay soils are the same and therefore the London clay in the Silchester area may not be suitable, even in very dry conditions, for archaeological aerial prospection (D Grady pers comm). However, the potential for further discovery in the Silchester environs away from the gravels should not be ruled out completely. In some instances, excavation for utilities has revealed archaeological sites for which no evidence has been apparent through aerial photographs or lidar. For example, a cable route from Bramley to Ashford Hill uncovered a Roman settlement at Latchmere Green, at the junction of the roads leading from Silchester to Winchester and Chichester. The site was already known

from surface scatters of pottery recorded in September 1941 (Hampshire AHBR). Evidence principally from lidar shows that earthwork survival on the woodland and heathland is more plentiful than in arable areas. The London Clay areas also have numerous earthworks associated with post medieval water management and drainage, and with its exploitation for the local brick and tile industry.

Figure 10 below shows the distribution of all sites recognised from the aerial archaeological survey mapped against soil types. It is immediately apparent that there are areas where fewer features have been identified. Highlighting those features only identified from cropmarks (Figure 11) makes it clear that there are particular areas where land use, soils and underlying bedrock geology (Figure 12) appear to be more favourable for buried archaeological remains to form cropmarks. Free draining, slightly acid, loamy soils, generally associated with arable and grassland, are found in the immediate area around Silchester where there is a concentration of below-ground archaeological sites showing as cropmarks. Very few features were identified from cropmarks further to the west on Silchester Common mainly due to the land use there. Here, although the soils are characterised as freely draining, they are also very acid, sandy and loamy soils, with the land cover consequently being heath and forestry.

Recognising the effects of changes in land use over time is also crucial to understanding the appearance and distribution of archaeological features on aerial photographs and lidar visualisations. For example, successive farming regimes may wipe out any trace of earlier cultivation systems, especially as the traces of field boundaries from earlier periods may never have been substantial. Meanwhile, the modern conifer plantations have been planted on broad ridges and furrows. In addition to the effect this will have on the condition and visibility of earlier features, the trees are planted fairly close together and have a dense canopy. These characteristics, such as are seen in the conifer plantations north of Padworth Common, can inhibit both lidar survey and ground survey as well as aerial photography.

One noticeable modern use of land within the project area is for large military sites, most of which remain in use today. Few earlier features could be identified within their boundaries, but where archaeological sites have been identified, preservation can be very good – for example, the section of the Scheduled Monument Grim's Bank within the ground of the Atomic Weapons Establishment at Aldermaston is very well preserved compared to some of the other sections of the monument to the north which are within tree plantations or on cultivated land. Even the 'historic' element of military activity in the project area has been affected by modern land use. For example, the site of the Second World War Theale airfield was completely destroyed by later gravel quarrying but is recorded on historic aerial photographs mostly taken while the airfield was still in use.

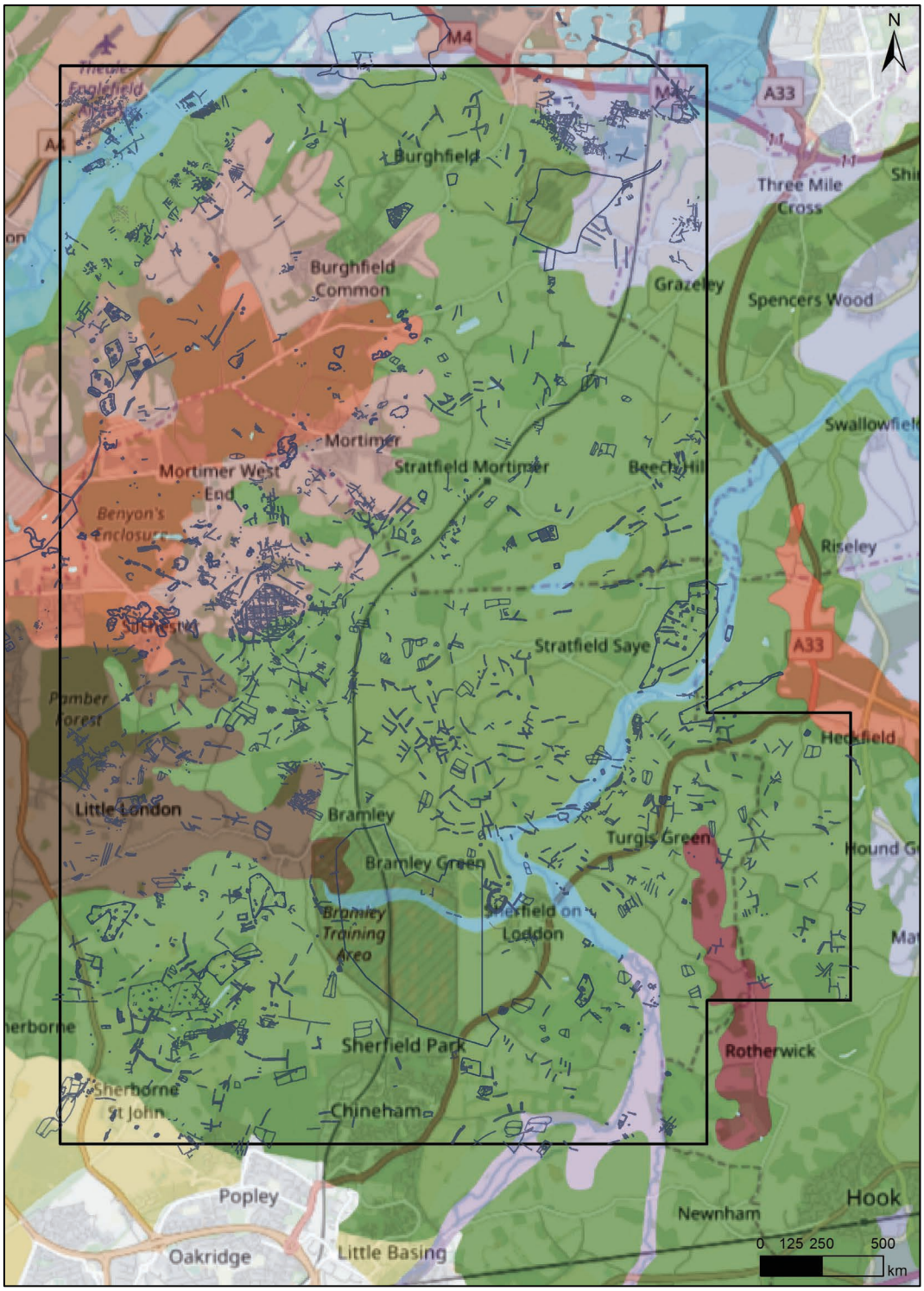

Figure 10 The soils in the project area and survey results overlaid in dark blue. KEY: Green - slowly permeable loamy and clayey soils, brown - freely draining, slightly acid, base-rich soils, orange – freely draining very acid sandy/loamy soils, pink – freely draining lime-rich loamy soils, light blue – loamy/clayey floodplain soils, dark blue – loamy/sandy soils with naturally high groundwater and a peaty surface, lilac – fen peat soils, red/brown – freely draining slightly acid sandy soils, yellow – shallow lime-rich soils over chalk or limestone, white – unsurveyed/urban. © British Geological Survey / Base map: Crown Copyright and Database Right (2017) OS (Digimap Licence)

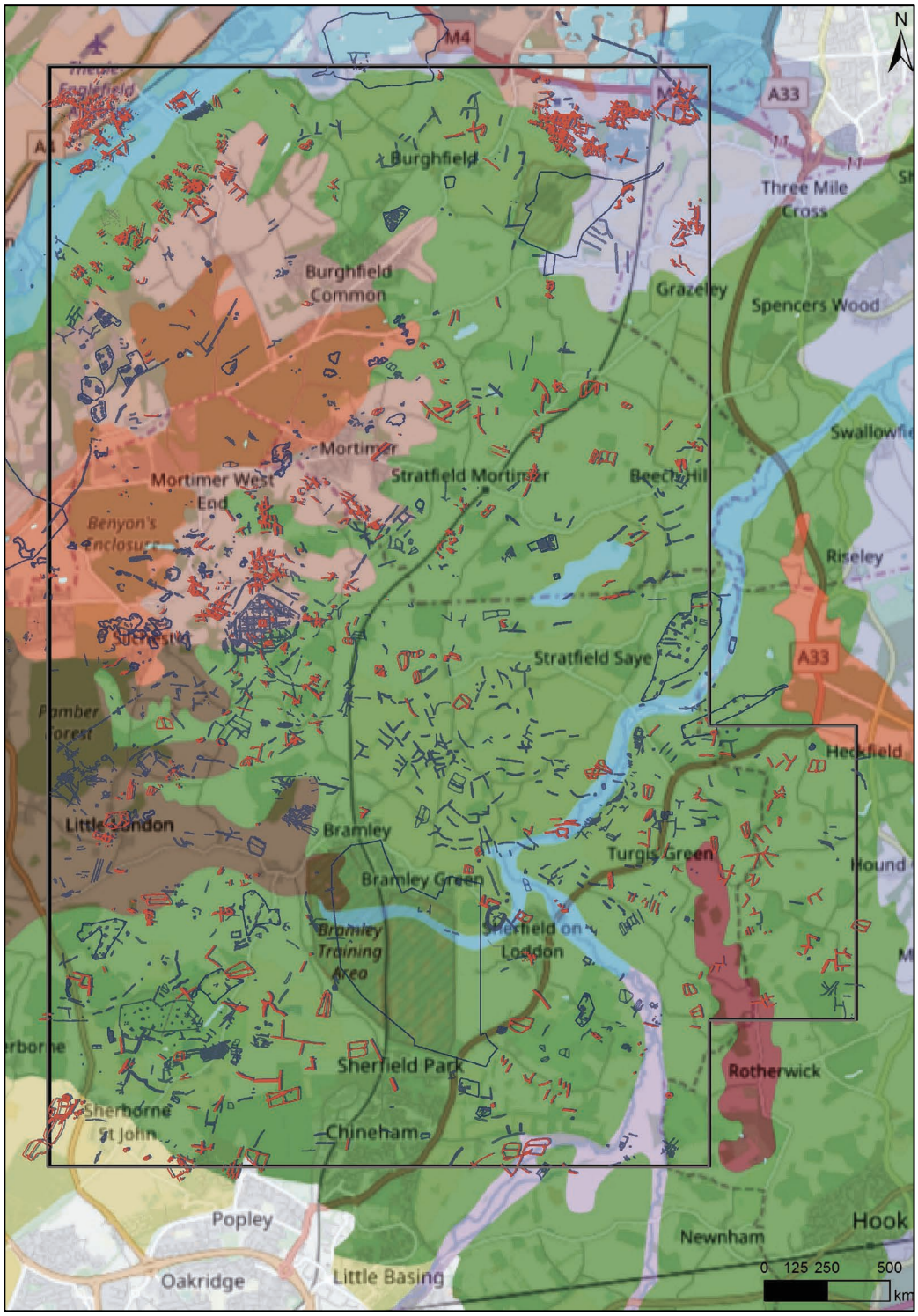

Figure 11 The soils in the project area and survey results overlaid in dark blue and those identified only from cropmarks highlighted in red. KEY: Green - slowly permeable loamy and clayey soils, brown - freely draining, slightly acid, base-rich soils, orange – freely draining very acid sandy/loamy soils, pink – freely draining lime-rich loamy soils, light blue – loamy/clayey floodplain soils, dark blue – loamy/sandy soils with naturally high groundwater and a peaty surface, lilac – fen peat soils, red/brown – freely draining slightly acid sandy soils, yellow – shallow lime-rich soils over chalk or limestone, white – unsurveyed/urban. © British Geological Survey / Base map: Crown Copyright and Database Right (2017) OS (Digimap Licence)

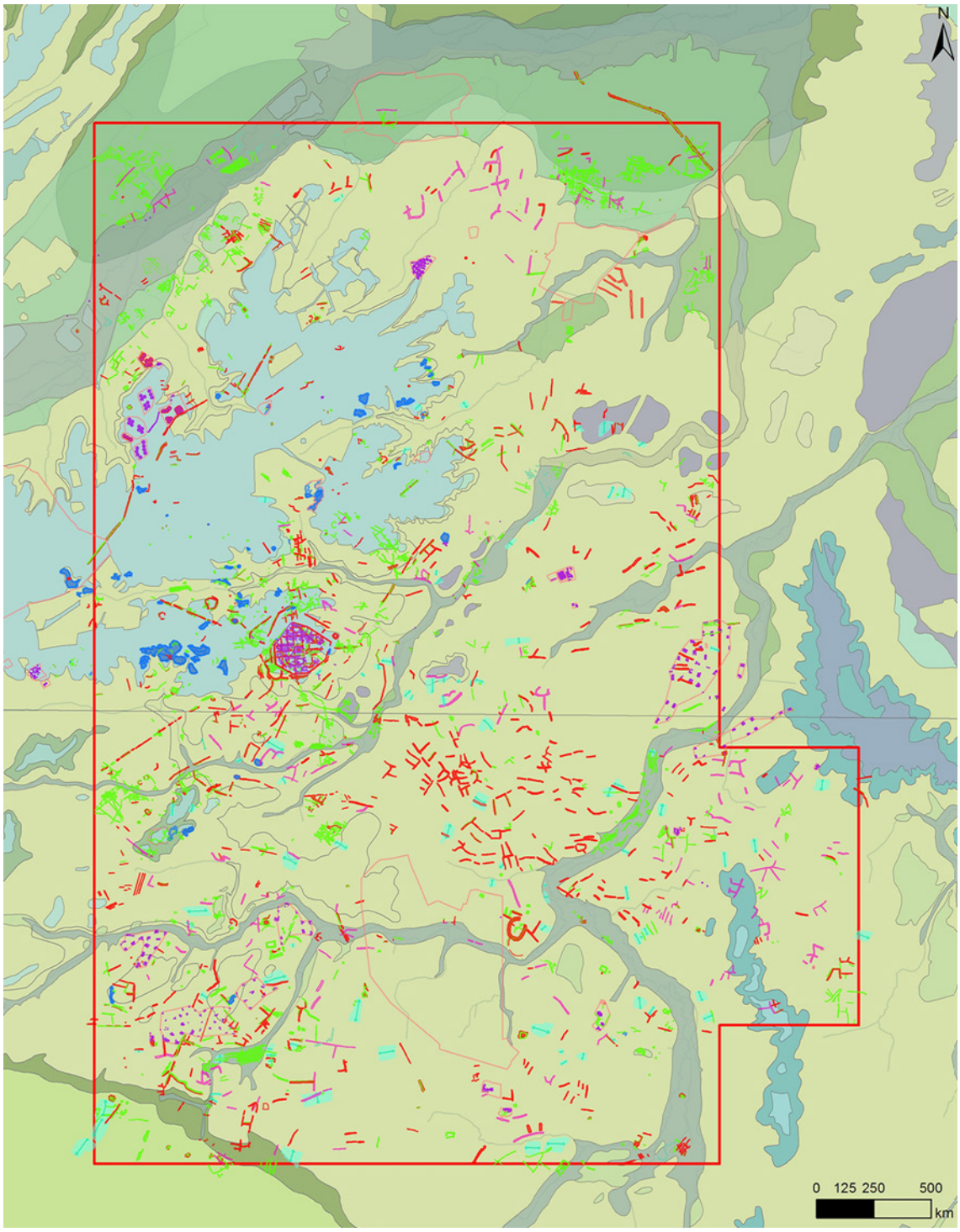

Figure 12 Geology of the project area and survey results. The main geological types are London Clay formation (light yellow) which covers most of the project area, Alluvium (grey) along the water courses, Silchester Gravel member (light blue) around Silchester, to the north and west of the Roman town and in smaller patches to the southwest, Windlesham Sand Formation (mid green) in the north of the area and adjacent to areas of Silchester Gravels in the southwest, Seaford Chalk Formation and Newhaven Chalk Formation (undifferentiated) (dark green) in band in the southwest corner of the project area, adjacent to Seaford Chalk Formation (light green). © Geological Map Data BGS © NERC 2017.

PREVIOUS RESEARCH

Research in this area has tended to focus on two main target areas: the Iron Age and Roman settlement at Silchester; and the Thames Gravels region which extends across the north of the area from Sulhamstead to Grazeley. In more recent years there have been episodes of archaeological investigation in advance of development in areas away from Silchester and the Thames Gravels, but a clear imbalance remains.

The Roman town of Silchester has a long history of investigation and Hingley provides an account of interest in the town from the 16th century to the 20th century (Hingley 2012). Most recently work has been carried out by the University of Reading (eg Fulford *et al* 2018; Fulford & Clarke 2011; Fulford, Clarke & Eckardt 2006). The effect of the buried streets and buildings on crops grown above them, seen so clearly from an elevated view, was observed from at least the 16th century, the earliest known description written by Leland after a visit in 1541 (Creighton with Fry 2016, 10). His observations of this phenomenon are followed by those of William Camden, the first writer to mention the Outer Earthwork, in 1610 and John Aubrey in 1667 (Fagan 1959, 279). Aubrey describes the phenomenon of the cropmarks at Silchester as relayed to him by others (Creighton with Fry 2016, 11).

Other antiquarians who visited the site include Thomas Hearne in 1714 and William Stukeley in 1724 (ibid, 12). The Roman town at Silchester was first mapped in both its topographical setting and in association with the Outer Earthwork and linear dykes to the south by Henry McLauchlan in 1850 (ibid, 19). The linear dykes around Silchester continued to be a subject of study and survey, for example by Williams-Freeman (1915), O'Neil (1943) and Gilyard-Beer (1954).

Large area studies carried out around the Silchester Environs project area using non-intrusive methods of investigation include:

- Aerial investigation and mapping in the Thames Valley: by Gates (1975), including the northern part of the current project area; and immediately to the north of the project boundary by the Royal Commission on the Historical Monuments of England (RCHME) as part of an early National Mapping Programme (NMP) survey (Fenner & Dyer 1994).
- Aerial survey to Historic England standards in the Hampshire aggregates areas which included the Silchester gravel plateau (Young 2008).
- Field survey of the extra-mural territory of the Roman town including fieldwalking and identification of cropmarks carried out by Corney (in Fulford 1984)
- Calleva Atrebatum, Silchester Roman Town: archaeological survey. Air photographic interpretation and transcription of the town and its environs (Royal Commission on the Historical Monuments of England 1994)
- Fieldwalking in the immediate environs of Silchester and in the Loddon Valley (Ford & Hopkins 2011).
- Geophysical survey and an examination of lidar by Creighton with Fry (2016) of Silchester and its immediate environs.

Excavations outside the Roman town have mainly been in response to development pressures, with the exception of Manning's investigation between 1961 and 1963 of an Iron Age/Roman site near to Ufton Nervet (Manning 1973). A Roman ladder-type settlement, or complex farmstead, was recorded through excavation at Raghill Farm, Aldermaston (Wessex Archaeology 2008), an area where nothing could be identified from aerial photographs or lidar. A probable Roman field boundary was also found to the north of Bramley Frith. Both sites are located on London Clay so have the problems with visibility of features from the air as discussed above.

NEOLITHIC AND EARLY TO MIDDLE BRONZE AGE: "RESIDENTIAL MOBILITY" AND INTERACTIONS WITH THE LAND

Introduction

Across the survey area, evidence of human activity from the earliest periods are mainly known through objects – finds rather than structures. Mesolithic sites are known along the Kennet Valley to the north, for example, at Thatcham (Healy *et al* 1992) and Newbury (Ellis *et al* 2003). Lithics from the Palaeolithic and Mesolithic periods include a Lower Palaeolithic handaxe from Mortimer Common [West Berkshire HER MWB9078] and a Mesolithic lithic scatter and lithic working site discovered during an excavation at Ufton Green (NRHE 1213740). Later Neolithic or Bronze Age flint blades and narrow flakes were also collected from the area around *Calleva* during the Silchester Field Survey (Ford & Hopkins 2011, 22).

The nature of airborne survey methods means that it is generally only possible to identify structures which were substantial enough either to leave an earthwork trace, or to have resulted in below-ground features capable today of affecting the growth of vegetation growing above them to form cropmarks. The mobile nature of hunter-gatherer occupation, and the lack of substantial structures from the Palaeolithic and Mesolithic, mean that these periods are, in terms of identifying archaeological sites, largely beyond the reach of aerial survey. For the Neolithic and Early Bronze Age, it is monuments with funerary or ceremonial associations that are most likely to leave a visible trace today. There is limited evidence of monumental structures within the project area from the Neolithic and Early Bronze Age, a picture that is reflected across the wider Thames-Solent region. However, a relative lack of monuments does not necessarily imply an absence of contemporary settlement (Bradley 2014, 89).

The Silchester area in the Neolithic period

The landscape today was heavily influenced by changing activities and lifestyles that began to occur in the Neolithic period. The formation of heathland is a product of early woodland clearance, which probably began at this time. Samples of waterlogged wood from a soil buried under alluvium at the hillfort adjacent to Pond Farm, north-west of Silchester, were analysed during post-excavation work by the University of Reading in 2015. The samples were dated to 2890-2660 cal BC (4179+/-26 BP, SUERC-65361), indicating a Later Neolithic date for the start of clearance, agriculture and soil erosion movement downhill at the site (Fulford, Barnett & Clarke 2015, 5).

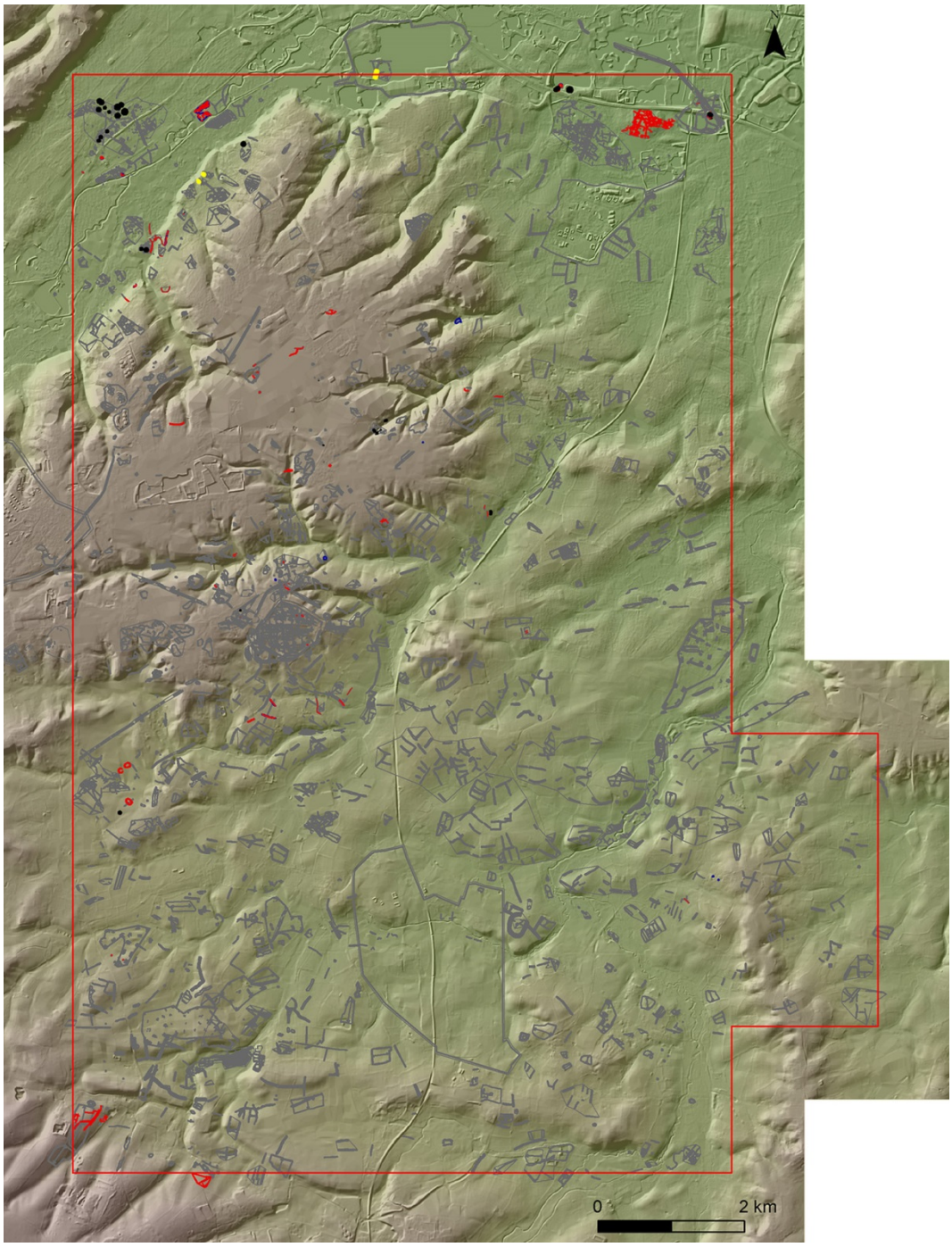

Figure 13 The Neolithic sites recorded during the aerial survey are all in the north (yellow) and round barrows are mostly clustered in the north-west and north (black). Aerial evidence for Bronze Age/later prehistoric settlement is scattered across the area (red). All other features mapped are shown in grey.

Woodland clearance is generally associated with the advent of settled farming, although it is unlikely that communities suddenly adopted a more sedentary lifestyle (Whittle 2009, 86). Neolithic practices and artefacts are known in southern Britain from the 41st to the 39th century cal BC including the appearance of the first long barrows and long cairns and evidence of cereals and domesticated animals.

However, there is evidence of variation across Britain in the date at which these lifestyle changes were occurring (Bayliss *et al* in Whittle *et al* 2011, 800). Recent reassessment of dating evidence (Stevens & Fuller 2012) shows surprisingly little evidence for cereal agriculture in Britain from the late 4th to the mid-2nd millennia BC. Brück suggests that this whole period, from the Early Neolithic to the end of the Early Bronze Age (c4000 – 1500 BC), should be characterised as one of "residential mobility", where communities were engaged in a range of seasonal subsistence activities carried out in a variety of locales (Brück 2000, 281).

From the beginning of the Neolithic period construction began of monuments such as burial mounds, the long barrows of the Early Neolithic and various forms of enclosure such as causewayed enclosures, cursus monuments and henges that are now in the archaeological record. The evidence for mobility and seasonality of settlement may suggest that the monuments reflect a change in attitudes to ancestry, community and the landscape rather than immediate adoption of a settled farming lifestyle. It is possible that these sites were foci utilised on a periodic basis by a still relatively mobile population.

The archaeological record in the study area for the Neolithic period mainly relates to artefacts, either single lithics or flint scatters, and there is limited knowledge of any earthwork remains. Three features have been tentatively identified through the aerial survey as being Neolithic in origin: an enclosure that may have surrounded a long barrow; a U-shaped ditch (possibly an enclosure within an oval barrow); and a fragment of a potential cursus. These monuments are all known from cropmarks in the northern part of the survey area on the river gravels.

The potential cursus site is in the southern part of the area formerly covered by the Second World War Theale airfield (SU 65142 70009). This was quarried away early in the post-war period and no archaeological investigation took place (Figs14-15). The cropmarks are visible over an area measuring 100m in length by 35m in width. A cursus is typically a long, but relatively narrow, rectilinear enclosure, sometimes open at one end, and usually defined by ditches which were originally accompanied by an internal bank. The possible example at Theale is visible as a partial sub-rectangular enclosure which resembles cropmark traces of cursuses elsewhere, for instance the 16 examples recorded during the Thames Valley NMP project (Fenner & Dyer 1994, 52), but in the absence of supporting evidence, other interpretations are possible.

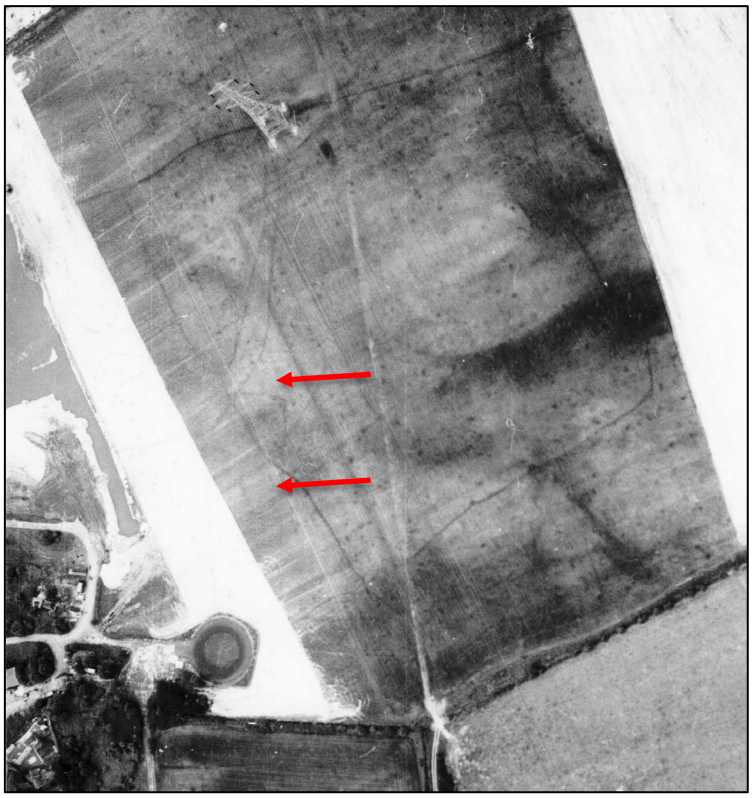

Figure 14 Possible cursus on Theale Airfield, NMR SU 6569/1 NMR 204/55-8 22-JUN-1970. © Crown Copyright RCHME

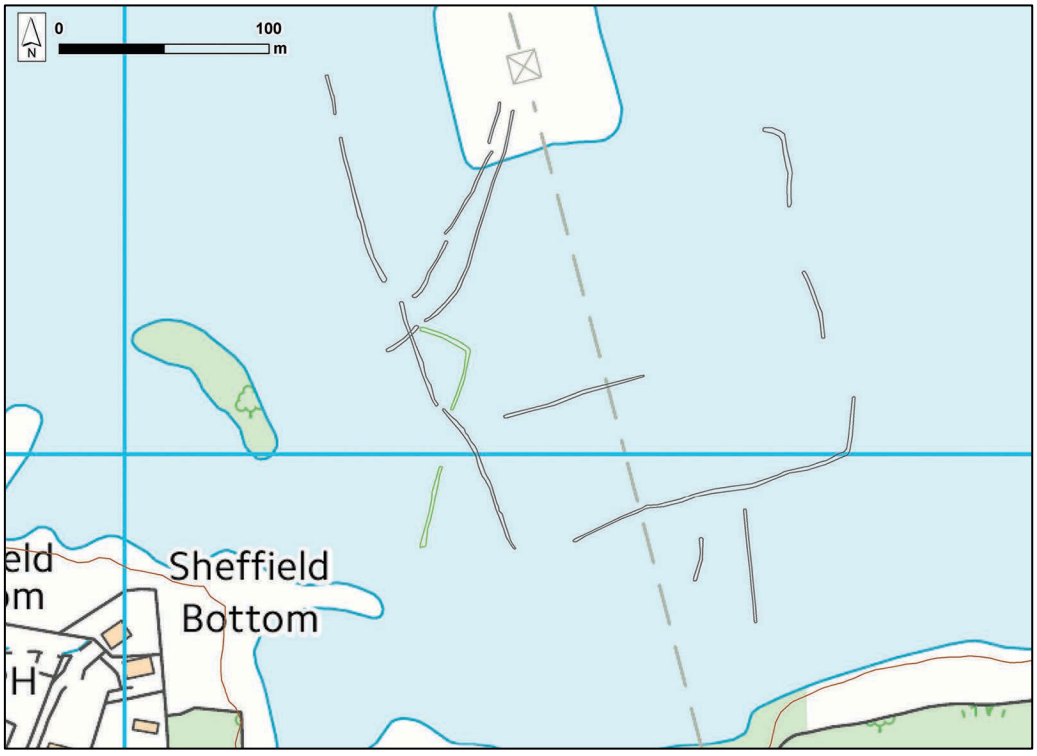

Figure 15 The possible cursus (green) on the former site of Theale Airfield. It appears to be cut through by later field boundaries and trackways (grey). The area is now the site of a flooded gravel pit with all trace of the archaeological remains removed © Crown Copyright and Database Right (2017) OS (Digimap Licence)

An oval enclosure (SU 6278 6864) and a U-shaped ditch (SU 62720 68542) are located to the north east of Ufton Green. It is possible that the oval enclosure could be the remains of a Neolithic funerary monument, perhaps the surviving element of a barrow, although whether the original form was as a long or oval barrow is unclear. Long barrows had a collective focus and, as mentioned above, appear from the early part of the Neolithic period in southern Britain. Oval barrows, which appear to have been constructed for individuals, are less precisely dated but are thought to fall into the second half of the 4th millennium cal BC (Bayliss *et al* in Whittle *et al* 2011, 801). The U-shaped ditch is more irregular in shape, and consequently more difficult to interpret, but might also be related to Neolithic funerary activity (Figure 16). They measure 31m by 20m and 33m by 14m respectively and are positioned approximately 100m apart. They sit on ground which rises to the south-east on one side and drops away to the north and west onto the floodplain of the River Kennet. The two monuments may have been placed to mark an area between two different landscape types – the river valley and the higher ground.

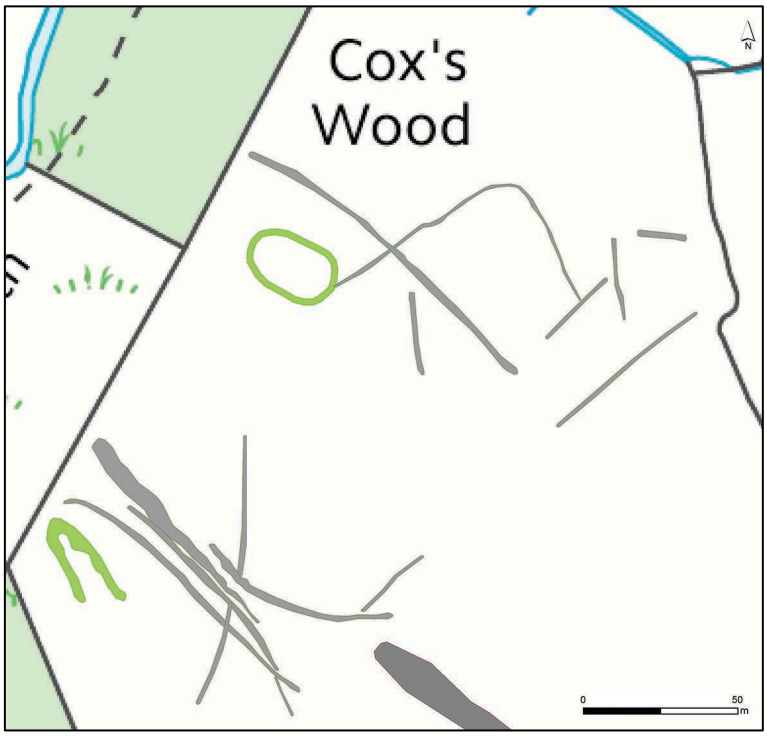

Figure 16 Two possible Neolithic monuments (green) to the north-east of Ufton Green. All other archaeological features shown in grey). The U-shaped ditch and oval enclosure sit on the 60m contour. © Crown Copyright and Database Right (2017) OS (Digimap Licence

Another oval-shaped feature was recorded to the east of the Silchester Roman amphitheatre (SU 64892 62631), but again its date and interpretation are uncertain (Figure 17). If the mark represents buried archaeological features it could be a Neolithic 'mortuary enclosure'. However it may be nothing more significant than a modern agricultural mark, such as the surface trace of a tractor-turning circle. It appears only on high altitude (and therefore quite small scale) black-and-white RAF vertical photographs from 1967 as a dark line enclosing an area measuring approximately 50m by 28 m, considerably larger than the previous two examples.

Figure 17 A possible Neolithic oval enclosure or agricultural mark. RAF 543/3859 F21 1048 13-JUN-1967 Historic England Archive (RAF Photography)

There are a number of reasons why the survey results should be so sparse for the Neolithic period. First is the issue of visibility of features on aerial photographs and lidar. The sites discussed above were identified from cropmarks on river gravels. As discussed above the free-draining soils associated with gravels are more conducive to cropmark formation than the heavier clay soils to the south. It is possible that other evidence of activity in the Neolithic period exists in the clay soils that cover the majority of the centre and south of the project area. Second, as already noted, permanent settlements are not a feature of this period and may have been too ephemeral to be identified by this type of survey, even where they still survive below the surface. Finally, potential settlement evidence may be masked by either natural movement of sediments, such as deposits of alluvium adjacent to rivers (Bradley 2014, 89), or colluvium downslope as a result of later human activity such as farming or by destruction through development or gravel extraction. While there may be few results for this period, they have greatly added to our relatively scant knowledge of landscape use in this area.

The Silchester area in the Early Bronze Age

Evidence for activity in the Early Bronze Age continues to be dominated by funerary monuments – round barrows occur across the survey area, both singly and in groups – but again no evidence of contemporary settlement could be identified on the aerial photographs or lidar. Settlement traces from this period still tend to be relatively insubstantial – pits, postholes, stakeholes, surface artefact scatters, probably representing transient or seasonal activity (the 'residential mobility' described by Brück (2000, 281)) – and unlikely to be detectable using airborne remote sensing. Additionally, of course, settlements in valley locations may be masked by alluvial or colluvial deposition, while the insubstantial nature of settlement traces in this period means they can be easily masked or eradicated by later activity.

However, if the distribution of round barrows is taken as an indication of both the possible extent and intensity of contemporary non-funerary activity in the survey area, then there may be considerable settlement and agricultural activity largely beyond the reach of aerial photography and lidar within the survey area. In fact, the known distribution of round barrows has been enhanced and extended by this *survey, including for example newly identified sites in Pamber Forest and* Latchmere Green (see below).

Possible round barrows are either identified as extant earthworks, usually hemispherical mounds in varying states of erosion, or as cropmarks indicating the sub-surface remains of their surrounding ditches, these often being referred to as ring ditches. Dating evidence for barrows within the survey area is sparse – some examples are mentioned below - but excavations carried out in 1982 at a multi-period site at Field Farm (SU 6743 7043) investigated four ring ditches immediately to the north of the Berry's Lane site and just outside the current survey area. One barrow at Field Farm was constructed in the Early Bronze Age (3650±80 BP (HAR-91339) and three others were dated to the Early/Middle Bronze Age through analysis of pottery and charcoal remains (Butterworth & Lobb 1992, 6). Environmental analysis indicated that they were constructed in a grassy clearing in oak and hazel woodland and that further woodland clearance was occurring during the life of the monuments (ibid, 69).

In general, round barrows and ring ditches in the survey area are relatively dispersed but can also be found in groups or linear arrangements (see Figure 13 for distribution). This is a picture reflected across the Kennet and Upper Thames region (Lobb & Rose 1996, 78) and was also observed in the Hampshire Aggregates NMP project. Barrows were seen as isolated features, in pairs or in groups in all areas surveyed (Young 2008, 33). Two examples of linear groups are located to the north of the survey area in the Kennet Valley, but there is only one such example within the survey area, the Holden Firs barrow cemetery. The cemetery is a Scheduled Monument and is located to the north-west of Mortimer (Figure 18). The cemetery consists of eight barrows: a linear group of five barrows, with three further outlying barrows: one to the north and the other to the south. The central, linear, group of five barrows has no known history of formal excavation. It consists of a group of two bowl barrows, a disc barrow and two bell barrows (National Heritage List for

England (NHLE) 1012804) centred at SU 64370 65003. Three outlying barrows are located around the central group: a bowl barrow to the north-west was partially excavated in the 1980s and is now located within an area of woodland (NHLE 1012425); approximately 125m to the north (NHLE 1012427); and to the southeast within Stephen's Firs (NHLE 1012304). The central part of the cemetery is located in open ground and is described as relatively well preserved in the Scheduling entry. However, recording the barrows from a lidar DTM meant that their condition could be observed without foliage or tree cover masking them and erosion to the barrows adjacent to the road to the south was recorded. The barrow within woodland to the northwest was also seen to have been eroded by the tree planting ridges around it. The Stephen's Firs barrow is recorded as a sub-surface feature in the Scheduling description, but a low mound was visible on lidar in the same location, which is probably the remains of the monument.

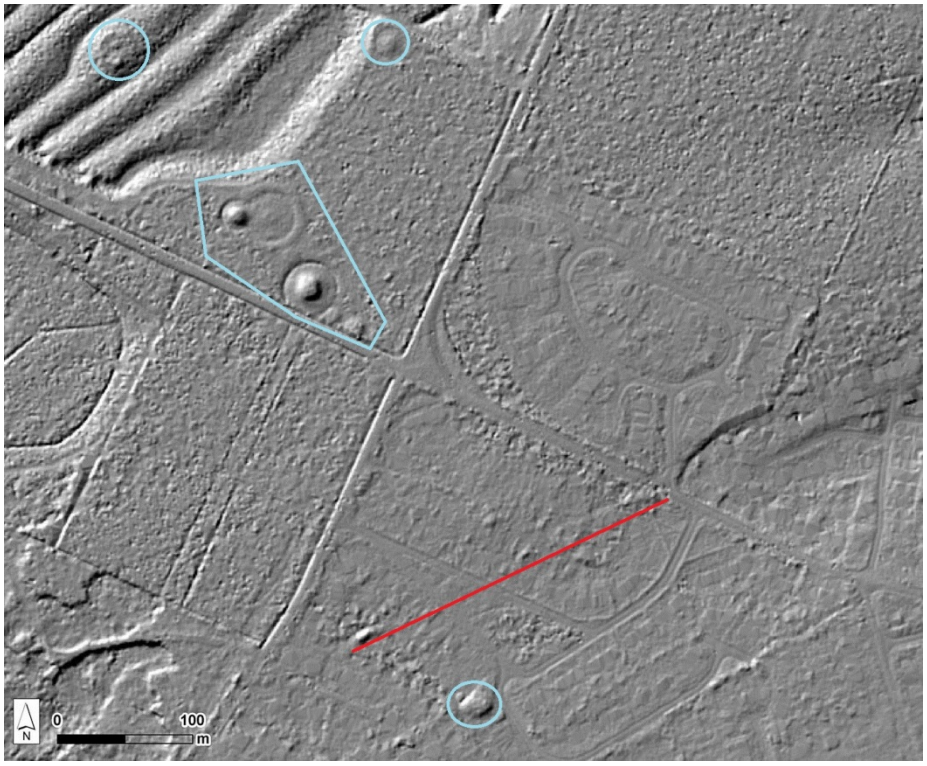

Figure 18 Holden Firs barrow cemetery (outlined in blue); the north-western barrows lie within a plantation of trees which have been cultivated on broad ridges. A section of an Iron Age linear dyke (alignment marked in red) survives within a modern housing estate in Stephen's Firs, Mortimer. Lidar DTM hillshade model © Environment Agency/University of Reading

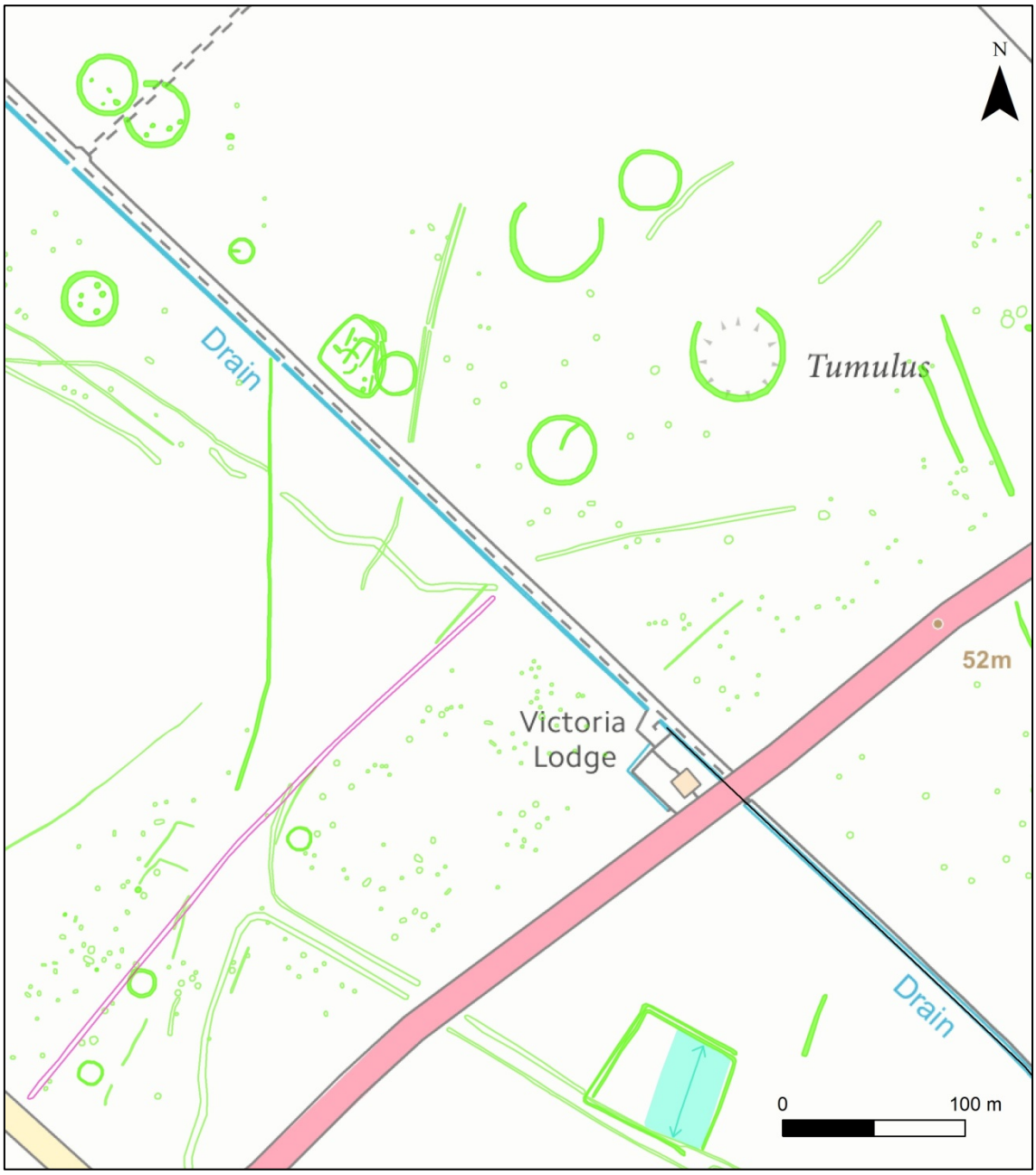

Figure 19 Bronze Age barrow cemetery and later settlement features recorded from cropmarks on aerial photographs, to the north and south of Bath Road, Ufton Nervet © Crown Copyright and Database Right (2017) OS (Digimap Licence)

The greatest concentration of barrows identified in the survey area is located to the north of the Bath Road, Ufton Nervet (Figure 19). At least nine barrows were recorded from cropmarks, together with evidence of later settlement enclosures and trackways. There are two possible barrows seen as cropmarks of ring ditches to the south-east of Nanpie Shaw, west of Ufton Nervet (Figure 63). Again, there is also evidence of adjacent, probably later, settlement. This includes a curving double-ditched trackway, possibly associated with field boundaries or enclosures around it, which lies to the east of the barrows.

Single barrows are found across the survey area, either surviving as earthworks or with their outer ditch seen as a cropmark or parchmark. For example, a possible round barrow was identified from a cropmark approximately 35m to the north of the outer earthwork of Silchester (Figure 26). Settlement enclosures, which may be Later Bronze Age or Iron Age in origin, lie to the north and east of it. A possible disc barrow survives as an extant earthwork near to the southern edge of Pamber Forest (Figure 32). This barrow was recorded from lidar and is located to the south-west of a Middle Iron Age enclosure. It consists of a central mound with a circular bank around the outside and is similar in its overall dimensions to the disc barrow which is part of the Holden Firs group. The Pamber Forest barrow measures 40m in diameter and the Holden Firs barrow is 50m in diameter.

Some examples a more problematic. A ditched arc was identified from a cropmark to the west of Bramley Frith Wood (Figure 20). It may be the remains of a complete circle, measuring approximately 22m in diameter, but it is visible on only one photograph taken in 1969 (CUCAP AYH58-9 05-JUL-1969). It is possible that it is another example of a single Bronze Age round barrow, but it is not located in a visually prominent position, so an alternate interpretation could be that it is the surviving element of an Iron Age round house.

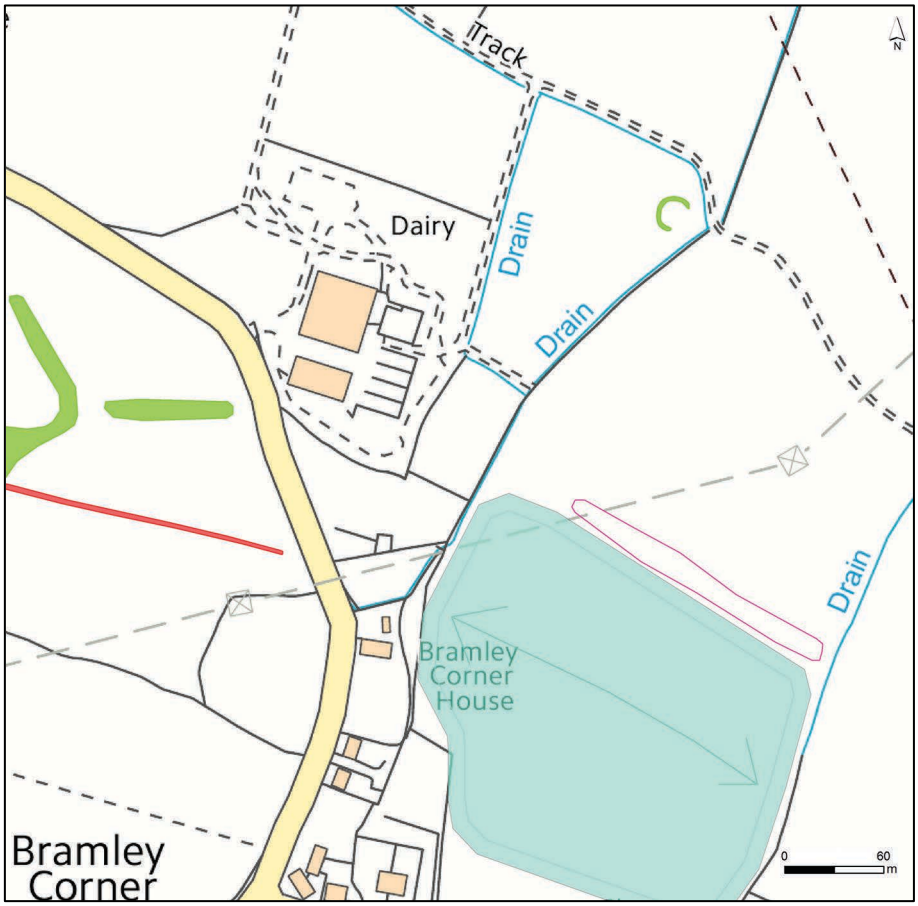

Figure 20 Possible barrow to the west of Bramley Frith Wood © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Another example of a single ring ditch appears to partially underlie the northwestern section of the late Iron Age outer earthwork of Silchester (Figure 21), a relationship that strongly suggests that the ring ditch predates the late Iron Age earthwork, supporting interpretation as a Bronze Age round barrow. The cropmark evidence suggests the ring ditch was at least partly covered by the Iron Age bank but not cut by the ditch, raising questions as to whether a barrow mound was still extant in the late Iron Age.

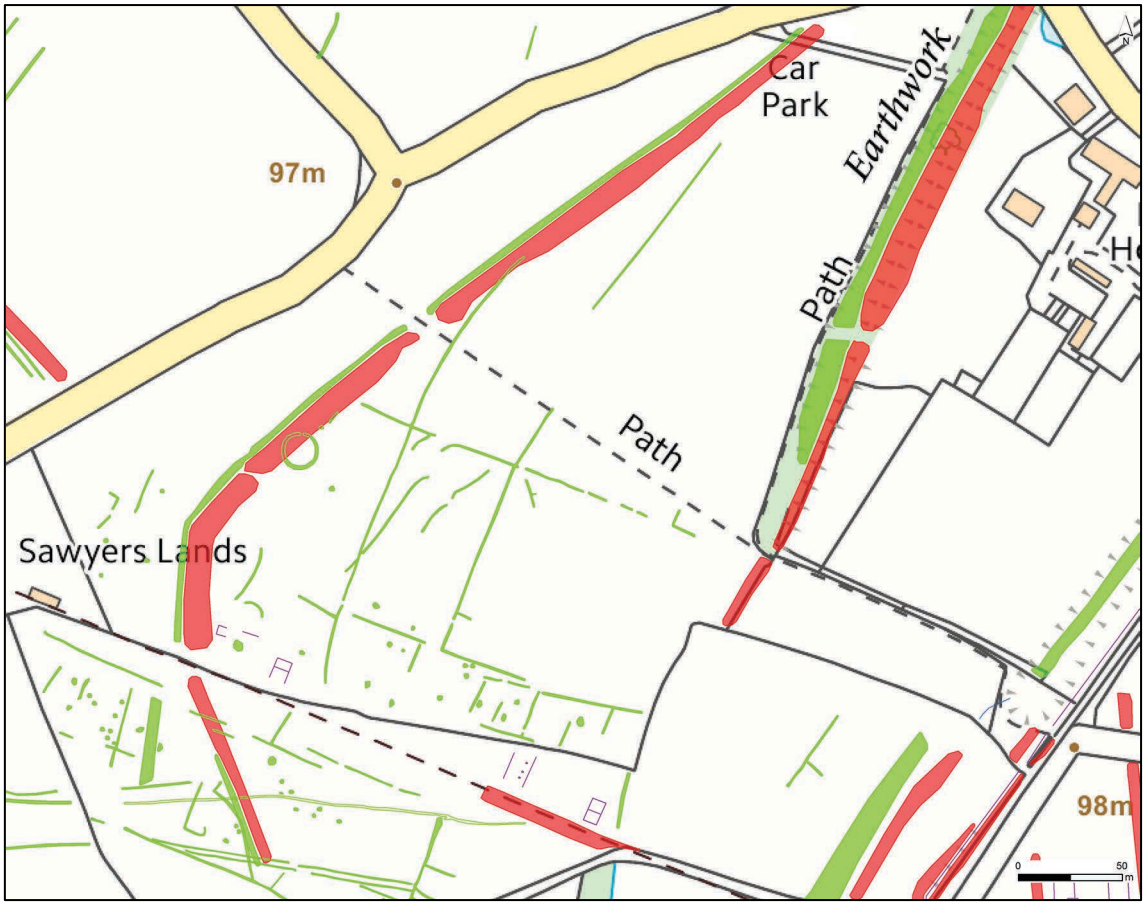

Figure 21 A ring ditch appearing to underlie the Iron Age Outer Earthwork in the context of all surrounding features at Sawyers Lands in the north-western area of Silchester © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Possible round barrows and settlement enclosures are also located to the south of Berry's Lane, Pingewood (Figure 22). An irregularly-shaped enclosure, measuring 43m by 43m, is located to the north-east of two ring ditches, which measure 24m and 26m in diameter. A larger ring ditch measuring 59m in diameter lies 75m to the east. The two smaller ring ditches were excavated by Reading Museum in 1969 (Gates 1975, 33) and a Late Neolithic/Early Bronze Age date was suggested for them. The excavators suggested that the monuments had been reused in the Middle Bronze Age, when both ditches were recut and an urn, possibly associated with a secondary burial, was located in one of the ditch fills (Lobb 1983, 15).

The two ring ditches were destroyed during the construction of the M4 motorway in 1970 and the remainder of the site was lost to gravel extraction in 1973-4 with no

further investigation (Gates 1975, 33).The irregular enclosure was not excavated but it is likely that it represents later settlement which has been sited with respect to the presence of the round barrows, though how much later is difficult to say – it could, for example, be contemporary with the Middle Bronze Age re-cutting and secondary burial. It is similar in size and shape to enclosures identified through the current survey as cropmarks on aerial photographs to the west of Sherborne St John, where three small irregular or sub-oval enclosures are grouped close together to the west of the modern village (Figure 23).

Figure 22 Possible barrows and settlement to the south of Berry's Lane, Pingewood, 30th July 1963. Note that differing crops or soil conditions at the time when the photograph was taken mean that only part of the site is visible. OS/63195 088-9 30-JUL-1963 Historic England (OS Photography).

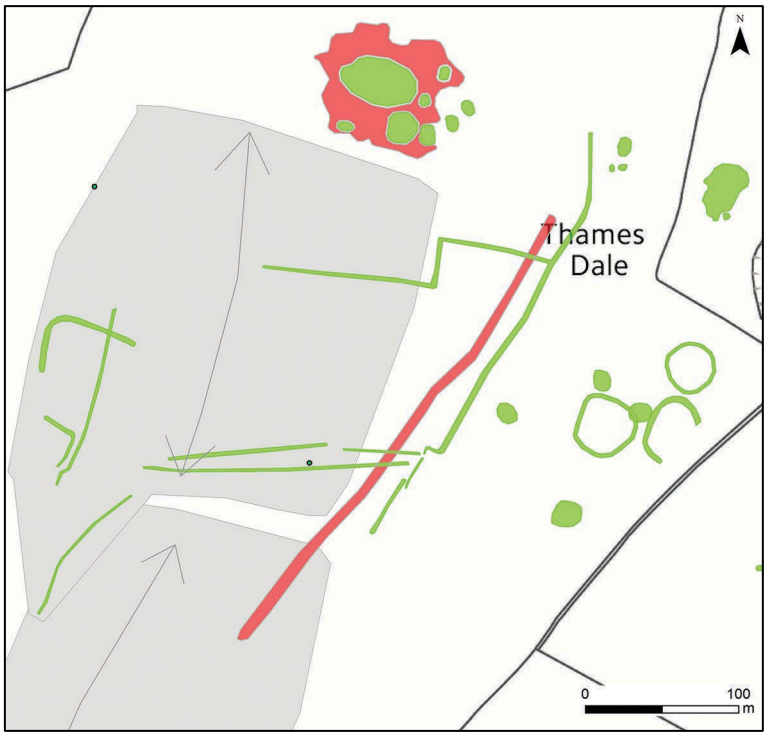

Figure 23 Three oval enclosures, probably part of a possible later prehistoric settlement, to the south-west of Sherborne St John. Fragments of a field system lie to the west. The enclosures are partially overlain by later extractive pits (green polygons) and medieval or post medieval ridge and furrow (shown in grey) overlies some of the field boundaries. © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

The enclosures may have each surrounded a single house or have performed some other function, such as corralling stock. Field boundaries, possibly associated with them, lie to the west of the enclosures. This site is undated but pottery identified as Deverell Rimbury in style and dated to the Middle Bronze Age was found recently in the field immediately to the north of the site (Shelvey pers comm 2017). As noted, the enclosures are morphologically similar to the enclosure adjacent to two possible round barrows to the south of Berry's Lane, Pingewood.

Discussion

It is difficult to build a clear picture of where people were living and working in the Silchester area in the Neolithic and Early Bronze Age periods from the aerial evidence alone. As seen across the region, the picture we have from the air is fragmentary, with the most visible traces of human activity being the ceremonial and funerary monuments, although on current evidence the survey area is lacking in particular monument types: there are no examples of causewayed enclosures or henges, for instance. The distribution of known Neolithic monuments, as identified in previous surveys, has been found to be varied in the surrounding region. Examples of all types of sites were found during the Thames Valley NMP project but the picture is very different for Hampshire. The Thames Valley NMP project identified 12 causewayed enclosures with a distribution from the north of Cricklade

(Glos) in the west to the Slough and Maidenhead (Berks) area in the east (Fenner & Dyer 1994, 49), the total rising to 15 in subsequent years (Oswald *et al* 2001, 110-1) but no certain examples have yet been found in Hampshire (Young 2008, 31).

The only known example of a Neolithic henge in Hampshire is at Damerham in the far west of the county (Hampshire AHBR 63295). The nearest to Silchester is to the north-west of the survey area at Dorchester on Thames, Oxon (The Big Rings SU 5720 9537). The Thames Valley NMP project found a concentration of long barrows in the Abingdon-Dorchester-Wallingford area (Oxon) (Fenner & Dyer 1994, 57) and eight examples were recorded during the Lambourn Downs NMP project (Berks) (Small 2002, 26). The distribution of cursus monuments varied from location to location across the Thames Valley NMP area, but included three sites identified in the Reading area and a further concentration in the Abingdon-Drayton-Dorchester area (Fenner & Dyer 1994, 54). Although certain topographical trends and relationships with other monument types have been identified for causewayed enclosures and henges, as well as cursuses, long barrows and similar features, their distribution across southern England is uneven. Consequently the relative lack of Neolithic monuments within the survey area is not altogether unusual, but at the same time their absence from available aerial photographs and lidar does not mean that there are none to be found – continued reconnaissance may help, but geophysical survey or more intrusive methods may offer the best chance of finding them.

Evidence for occupation in the Silchester area in the Early Bronze Age is similarly represented by funerary monuments, in this case round barrows, found either singly or in groups. As has been widely recognised across southern England, there are signs that some of these monuments in the survey area possessed some importance to later generations, although precisely how they were viewed or used in later periods is unclear. The presence of later settlement evidence – enclosures, field boundaries, tracks and so on – in close proximity to some barrow sites, and potentially dating from the Middle Bronze Age or later – has been highlighted in some of the examples described above.

It is arguably easier to see relationships between round barrows and later features in the northern and western parts of the survey area (Figure 13). These are the areas of free-draining soils associated with the River Terrace Gravels, offering greater visibility of cropmarks. The greatest concentration of barrows identified in this area is located to the north of the Bath Road, Ufton Nervet, where numerous trackways and enclosures suggest that this area continued to see intensive use during later prehistory and into the Roman period. Therefore it is possible that, depending on how long they survived as earthworks, the barrows continued to be of significance long after their initial use as burial monuments. Figure 13 above shows the distribution of barrows against all other archaeological features mapped during the survey.

Potentially more direct evidence of barrows influencing later activities can be seen in a possible association with the dykes thought to be associated with the late Iron Age settlement at Silchester. The south-west to north-east alignment of two barrows appears to be echoed by a section of Grim's Bank on Padworth Common. It

is therefore possible that the barrows may still have been of significance during the construction of this section of Grim's Bank.

There is no reason to assume any regular pattern in terms of the relationship between round barrows and later settlement, but equally without further investigation, either through geophysical survey, surface collection or perhaps excavation, it is impossible to be certain whether their sometimes apparent isolation from contemporary sites is real.

LATER BRONZE AGE TO MIDDLE IRON AGE: A SENSE OF TERRITORY

Introduction

The earlier Bronze Age period has been characterised as one of "residential mobility" (Brück 2000, 281); people move between particular locations on a seasonal basis rather than being settled in one place. During the Later Bronze Age and continuing into the Iron Age, the sense of attachment to land or territory implied by the construction of funerary monuments appears to intensify. The variety of settlements within the survey area included a proportion enclosed by earthen banks and ditches, perhaps signifying a different attitude to ownership and changing relationships between neighbours. The earlier funerary monuments may have continued to play an important part in people's lives, perhaps indicated by later settlements occurring in close proximity to them. Towards the end of the period larger defended enclosures were constructed, something which may have been prompted by a number of factors, including a desire to make a conspicuous display of status perhaps arising from wider political changes or social pressures.

Knowledge of settlement patterns in the Later Bronze Age varies across southern England, although a longstanding emphasis of research on Wessex and the Thames Valley is gradually being complemented by a considerable quantity of development-led investigation in other previously under-explored areas. Evidence of division of land associated with increasingly settled farming communities can be seen clearly across much, though not all, of southern England. The evidence commonly takes the form of sometimes quite extensive coaxial field systems, the earliest laid out from the Middle Bronze Age period, often integrated with small settlements, and continuing in use into the Iron Age. Bradley (1980) suggests that these areas of organised land division "might be connected with the emergence of group or individual rights over land", rather than evidence of a controlling political power. More recently, Yates' (2007) synthesis of post-PPG16 fieldwork across southern Britain used the increasingly widespread evidence for later Bronze Age field systems to underline apparent links between settlement enclosures, field systems and the circulation of 'prestige' items, notably metalwork, these apparent links supporting ideas of a competitive prestige goods economy fuelled by surpluses of agricultural produce.

There is little evidence within the survey area for the type of co-axial field systems seen on the southern Chalk Downland and elsewhere, but the change in settlement types, and their increased visibility through the practice of enclosure, may support the idea that there are also likely to be changes in the ways that groups or individuals use or control areas of land. Numerous trackways which may date to the later prehistoric periods were identified through the survey. There were often being recorded as a single ditch, or two parallel ditches visible as cropmarks on aerial photographs. The trackways were used, or re-used, for long enough to produce a permanent trace in the landscape, giving us a sense of repeated movement over a landscape rather than the more static pattern implied from the settlements alone.

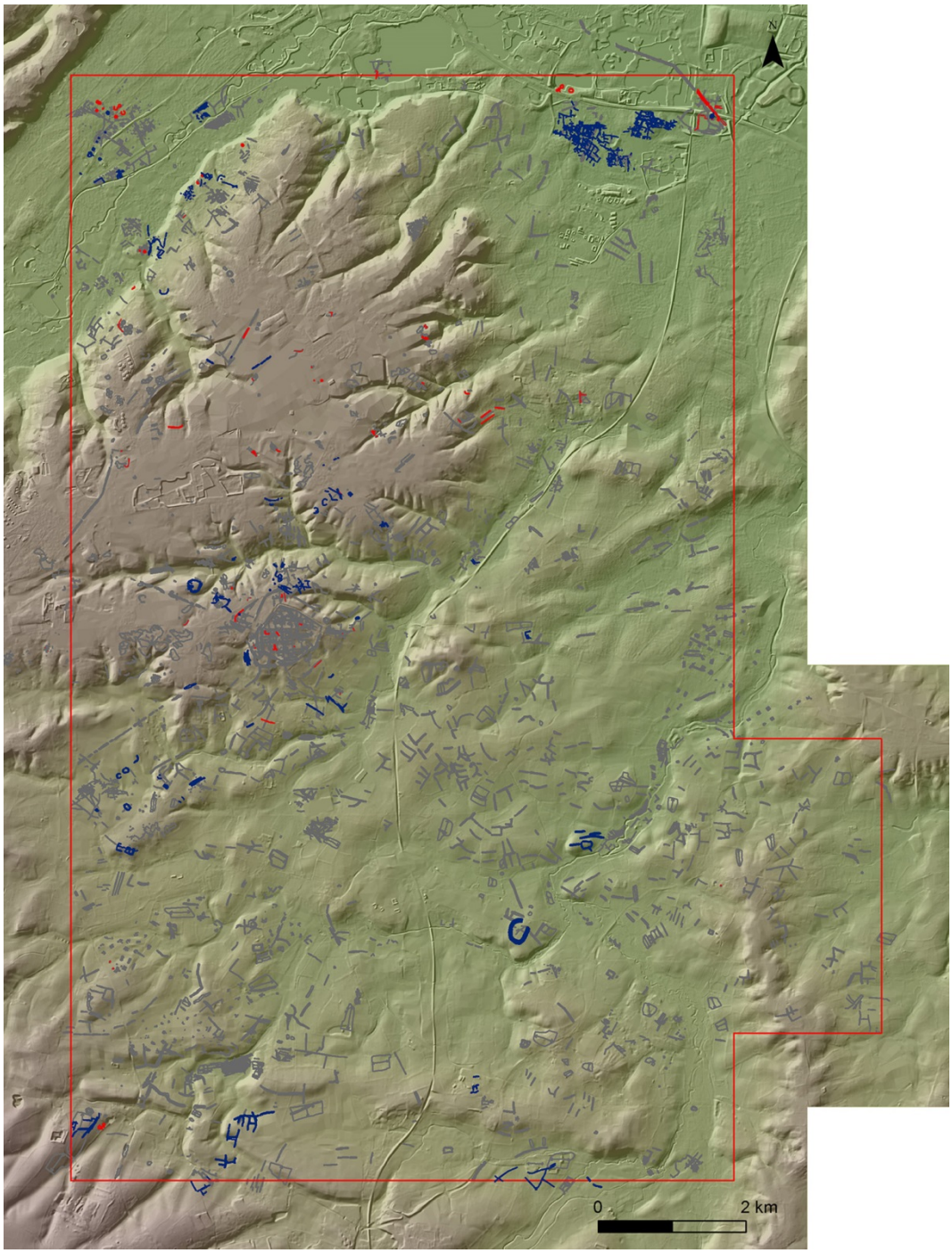

Figure 24 Features identified as being later prehistoric or Bronze Age (shown in red) and Iron Age (shown in dark blue). All other features mapped within the survey area shown in grey.

Settlement: Later Bronze Age

The possible Later Bronze Age settlement sites identified through the aerial photographic and lidar survey vary in size and form: from small enclosures which possibly surrounded a single house, to much larger sites bounded by a more substantial bank or ditch. It is unclear from the aerial evidence alone how long

individual sites were occupied for, or if any saw reuse in later periods, but there are locations where multi-phase settlement has been identified.

Known settlement sites interpreted as being Later Bronze Age in date are relatively scarce within the study area, but a number of possible new sites were identified. Settlement in this period is less transient and ephemeral than earlier periods: families or communities are living in relatively settled places, probably all year round and over a generation or two, perhaps more. However, unless the settlement is enclosed, it can be difficult to identify from the air. An enclosing bank and ditch might leave substantial earthworks, while even if eroded by ploughing, the enclosing ditch – and sometimes the bank – can produce a distinctive cropmark signature in the right conditions. However, without enclosure, features such as pits and post holes can be difficult to identify from the air as they need to be substantial to produce a cropmark trace.

Middle to Late Bronze Age settlements were found and examined through excavation within the northern part of the survey area and the finds suggested some specialisation in the type of agriculture practised. At Aldermaston Wharf two round houses were uncovered, each associated with a cluster of pits used for grain storage (Bradley *et al* 1980, 255). At Knight's Farm to the north of the survey area, an extensive settlement with a large round house and pit clusters was suggested as having an emphasis on livestock (ibid, 291). A number of pits and post holes were uncovered at Field Farm, adjacent to Knight's Farm, which the excavators suggest were Late Bronze Age in date, although a coherent pattern of settlement could not be identified (Butterworth & Lobb 1992, 6).

In the north-eastern part of the survey area at Pingewood (SU 6892 6916) excavation of field boundaries and enclosures initially recognised as cropmarks identified Bronze Age occupation (Figure 25). The site was probably occupied on a seasonal basis since the area would probably flood in the winter months. A large number of loom weights as well as bones of fully grown sheep were recovered showing that sheep were being kept for their wool which was then processed on site (Johnston 1983, 19). An analysis of pottery found at the site concluded that it was occupied during the transition between the Deverel-Rimbury and Post Deverel-Rimbury ceramic traditions, possibly a relatively short phase of activity (Bradley in Johnston 1983, 28). This would date the settlement to the Middle to Late Bronze Age, although some radiocarbon dates for southern Britain suggest that the older pottery tradition overlapped with the later. There are also hints of greater continuity of settlement at this location: Iron Age pottery was recovered from two cremation sites while a well, pits, post holes, ditches and a trackway were dated to the Roman period (Bowden in Johnston 1983, 36). Pollen analysis demonstrated that the site stood within an area that was largely open pasture from the Bronze Age through to the Roman period (Keith-Lucas in Johnston 1983, 50).

The field boundaries and enclosures at Pingewood were mapped from cropmarks on aerial photographs as part of the current survey and evidence of apparent continuity of boundary alignments is suggested by comparing the archaeological features with boundaries marked on the first edition Ordnance Survey map (6 inch 1878).

Some of these boundaries appear to be associated with features identified through excavation as being Bronze Age, Iron Age and Roman in date (Fig 25. These boundaries are marked on the first edition Ordnance Survey map, showing the continued influence of later prehistoric activity on the landscape into the late 19th century. These field boundaries have since been removed and the current system follows a different alignment.

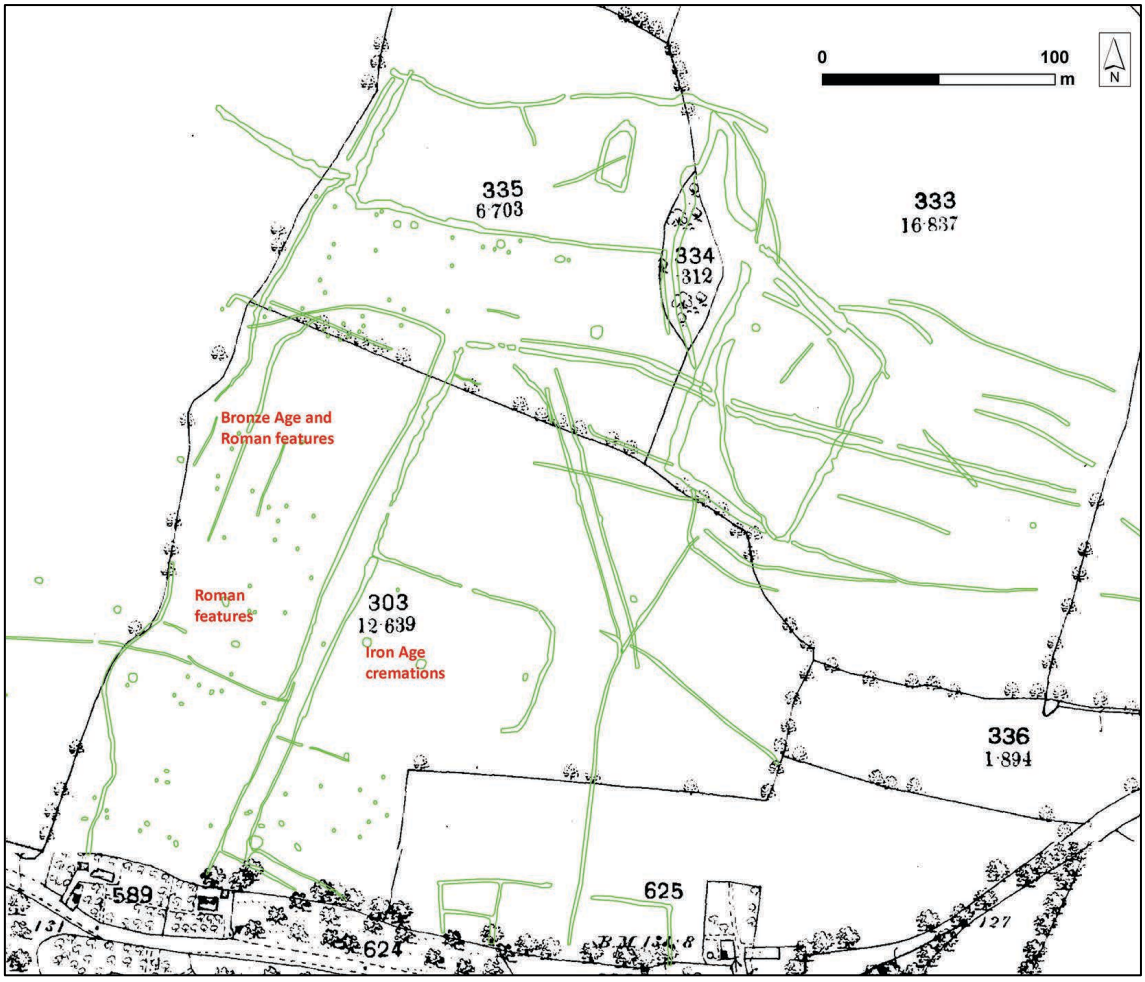

Figure 25 Multi-phase settlement at Pingewood, Burghfield, shown against the first edition OS map (1878). Areas of features dated through excavation are also shown. A number of the boundaries appear to have continued in use into the 19th century. © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

Further excavated evidence of settlement dating to the Bronze Age, but continuing into the Iron Age and Roman period, was uncovered at Mortimer Hill Farm. The excavated area of settlement consisted of a round house with an associated stockade formed of a curving line of postholes (Taylor 2011, 47). This area of Mortimer has since been developed for housing and no evidence of earlier settlement could be seen on historic aerial photographs. However, a possible hut circle measuring 9m in diameter - a circular ditch which may represent a drainage gully surrounding the site of a round house – or perhaps the remains of a small barrow, was identified in the field to the north of the settlement and may have had some association with it.

There is an overlap in size between larger round houses and smaller round barrows which can make interpretation difficult.

The picture presented by these examples of excavated evidence dated to the Later Bronze Age in and around the survey area is fairly limited, but suggests a mixed farming regime, with some hints of specialisation at particular sites. The continuity in use of settlement locations identified at Pingewood and Mortimer Hill Farm may be a factor in the visibility of archaeological features, together with the issues associated with different soil types discussed above.

There is an area of overlapping enclosures, trackways and field boundaries to the north of Silchester known from cropmarks on aerial photographs. These features probably represent multi-phase settlement which might span the later prehistoric through to the Roman periods (Figure 26) and possibly beyond. Two conjoined oval enclosures, one with a possible hut circle within it, and two smaller round enclosures, centred at SU 63835 63155, may on the basis of their size and form be Later Bronze Age or Iron Age in date. Two curvilinear enclosures and a number of field boundaries lie to the south (SU 63922 63033) and may also be evidence of later prehistoric settlement, preceding the development of the *oppidum*. The field boundaries and trackways surrounding the possible later prehistoric settlement are difficult to phase, but they appear to underlie features associated with the Roman town - the Silchester to Dorchester-on-Thames road, leading from the north gate, and a double-ditched trackway leading from it. This suggests that some of these features are at least pre-Roman in origin.

The site of a possible Bronze Age round barrow lies to the west of the two conjoined oval enclosures and to the north of a smaller oval enclosure (SU 63750 63157). The round barrow may have acted as focus for later settlement, as has been seen in other locations in the survey area, for example, Ufton Nervet (see above). A second possible Bronze Age round barrow site is located to the south of this site, represented by a small, circular, banked, enclosure. This enclosure might also be interpreted as being domestic in function, related to the area of possible settlement described above.

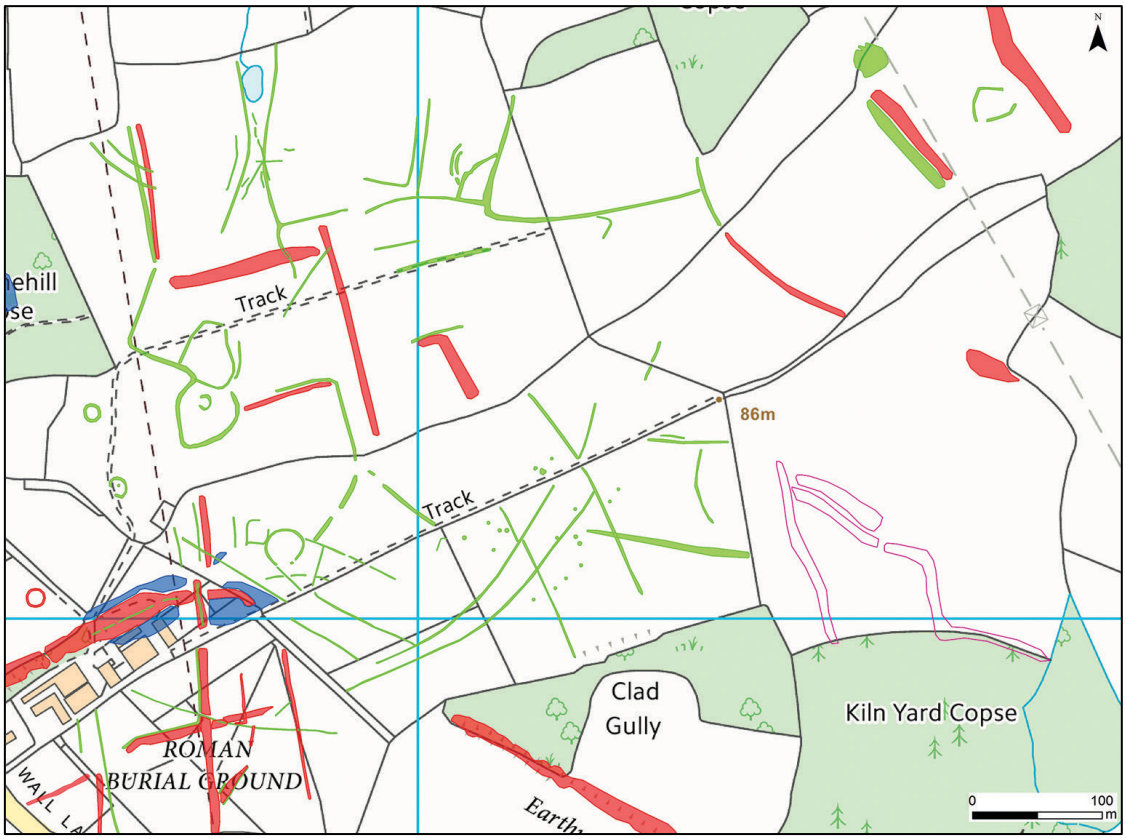

Figure 26 Probable later Prehistoric small enclosures and field systems to the north of the Roman town. The small circular banked enclosure on the left-hand side of the image may be associated with the settlement area or may be the remains of a Bronze Age barrow. © Crown Copyright and Database Right [2016]. Ordnance Survey (Digimap Licence)

Field systems: Bronze Age to Iron Age

While it has been possible to identify probable later prehistoric field systems on the soils overlying chalk in the south and the Thames river gravels to the north, there is very little evidence throughout the rest of the survey area. Neither is there evidence for the kind of large-scale coaxial systems in use during the later Bronze Age and Iron Age (and perhaps into the Roman period), of the type which cover the chalk downland of Hampshire and West Sussex (eg, Carpenter *et al* 2016). However, isolated fragments of possible small, later prehistoric, fields were identified in several locations: north of Silchester (**Error! Reference source not found.** and Figure 27), to the north-east of Bullsdown hillfort (Figure 28), east of Sherborne St John (Figure 29), to the south of Bramley Camp (Figure 30) and within Morgaston Wood, which survive as low, spread, earthworks (both as recorded from lidar and as observed on the ground) (Figure 31). It is possible that these fragments were each part of a larger system in their particular areas, but later cultivation and development may have removed any further evidence.

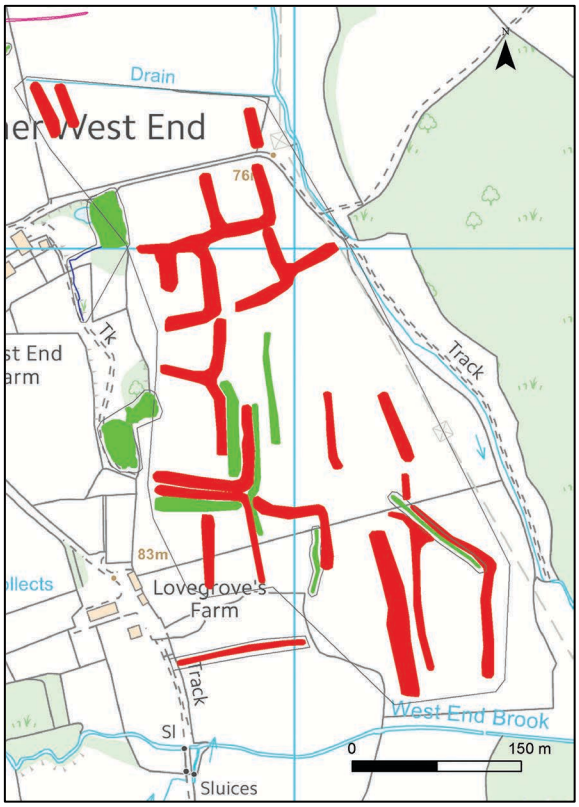

Figure 27 Possible Bronze Age or Iron Age field boundaries to the north-west of Silchester © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

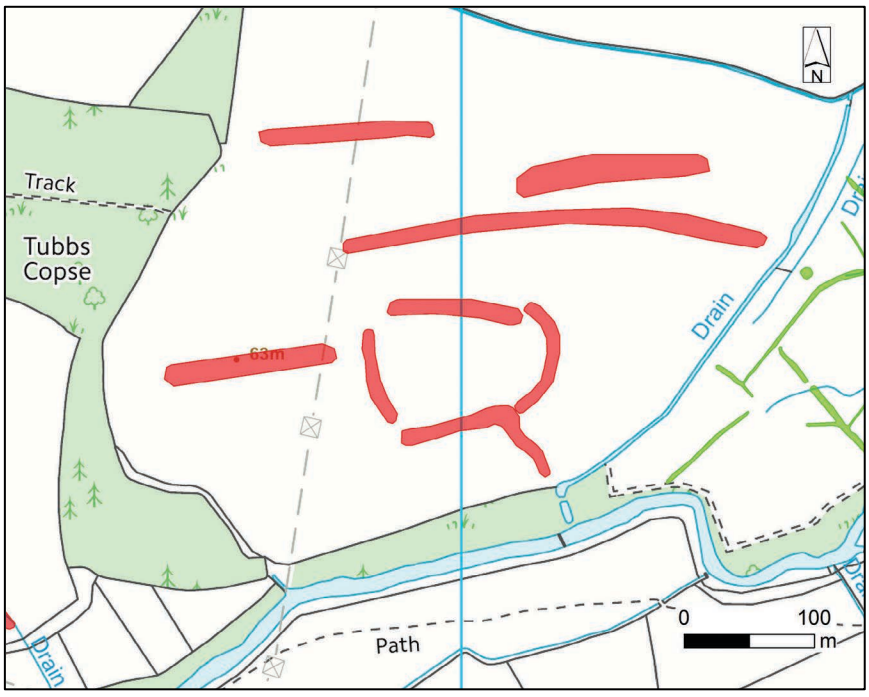

Figure 28 Possible Bronze Age or Iron Age field boundaries recorded from cropmarks to the north-east of Bullsdown hillfort © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

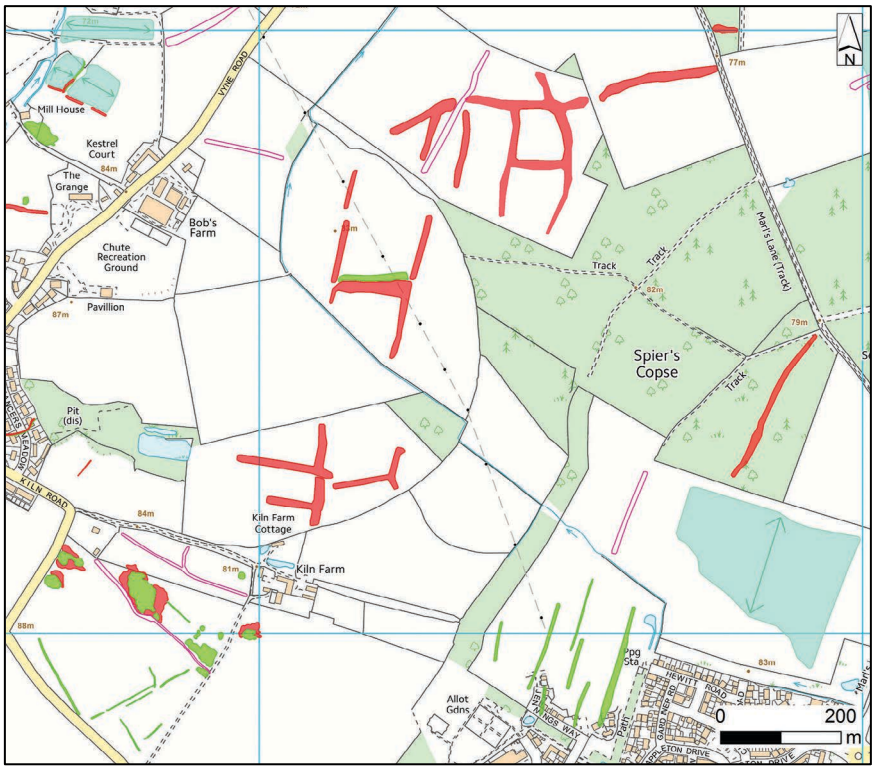

Figure 29 Field boundaries of a possible Bronze Age or Iron Age date (in red and green; magenta polygons are post medieval field boundaries) to the north and south-west of Kiln Farm, Sherborne St John © Crown Copyright and Database Right [2016]. Ordnance Survey (Digimap Licence)

Figure 30 Possible Bronze Age or Iron Age field boundaries south of Bramley Camp. Low earthworks defining small rectangular fields are visible in the field in the centre of the

photograph. RAF CPE/UK/1973 3223-4 11-APR-1947 Historic England Archive (RAF Photography)

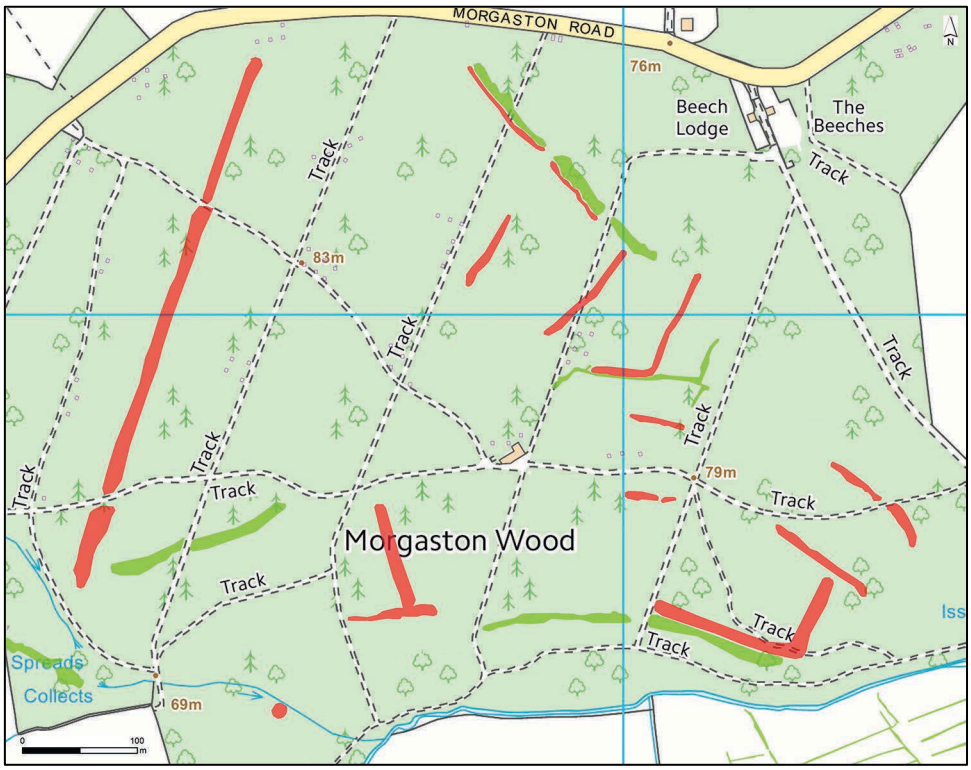

Figure 31 Possible Bronze Age or Iron Age field boundaries recorded from lidar in the eastern half of Morgaston Wood. © Crown Copyright and Database Right [2016]. Ordnance Survey (Digimap Licence)

Settlement: Early to Middle Iron Age

The excavated evidence discussed for the Later Bronze Age has shown continuity of use of locations of habitation, but also that people were living in a variety of open and enclosed settlements. The survey also recorded newly identified sites at locations currently under tree cover and within heathland. This implies a different land use in these areas and that they were suitable places to live and farm during the Iron Age.

Four enclosures were identified from lidar coverage of Pamber Forest: a pair of sub-circular enclosures (marked as 1 and 2 on Figure 32) and two sub-rectangular enclosures (marked as 3 and 4 on Figure 32). Enclosures 1 and 2 are relatively small in size, enclosing an approximate area of a quarter of a hectare and just under a third of a hectare respectively, and located 47m apart (centred at SU 61745 60569 and SU 61651 604930.

Enclosures 3 and 4 are both sub-rectangular in shape and based on morphology were initially interpreted as being Iron Age in date (Figure 33 for these sites in the context of other later prehistoric features recorded within Pamber Forest). The sub-rectangular enclosure in the south of the forest (SU 61767 60069) measures approximately 90m by 67m (approximately a third of a hectare) with a well-defined surrounding bank with an external ditch. The area enclosed is a size perhaps suited

to a farmstead, possibly for a single or extended family group. The enclosing bank seems fairly substantial, measuring up to 6m in width, perhaps beyond what was required merely for any practical concerns such as corralling livestock. The other enclosure in Gold Oak Copse (SU 62289 60348) is smaller in size (54m by 30 m) and appears to have been damaged by a network of later trackways.

Enclosures 1, 2 and 3 were selected for further investigation by the Silchester Iron Age Environs project team and were excavated in March 2017. Dates obtained through post excavation analysis put the date of construction of all three enclosures in the Middle Iron Age. Very few finds were collected from enclosures 1 and 2, but the pottery assemblage from enclosure 3 is Middle to late Iron Age in date, indicating that the enclosure may have been in use during the lifetime of the *oppidum* at Silchester (Fulford, Barnett & Clarke 2018, 7).

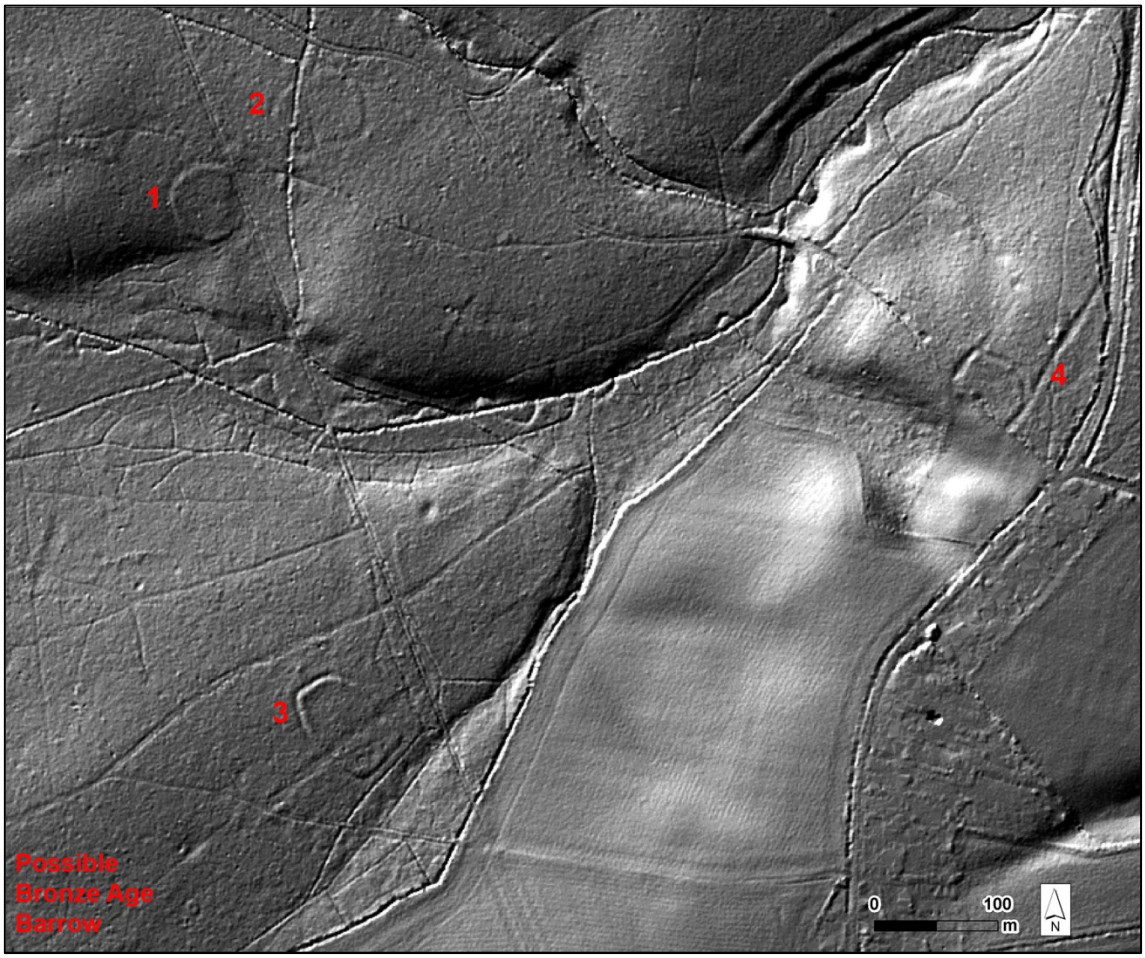

Figure 32 Four probable Iron Age enclosures in the southern area of Pamber Forest. A possible Bronze Age disc barrow can be seen in the bottom left of the picture, south-west of the southern enclosure. Hillshade visualisation of lidar DTM ©Environment Agency/University of Reading

There is no evidence that can be identified on the lidar coverage of field systems associated with the enclosures. Field boundaries might be expected to be preserved as earthworks within the forest given the clear appearance of the enclosures but

may be too slight as features to be identified by the available lidar (1m resolution Environment Agency). It is also possible that their location on clay soils meant that they specialised in livestock rather than arable farming, although even this would require some physical impact on the landscape in terms of boundaries and trackways. However, the presence of these enclosures strongly suggests a more open landscape, in contrast to its currently wooded nature.

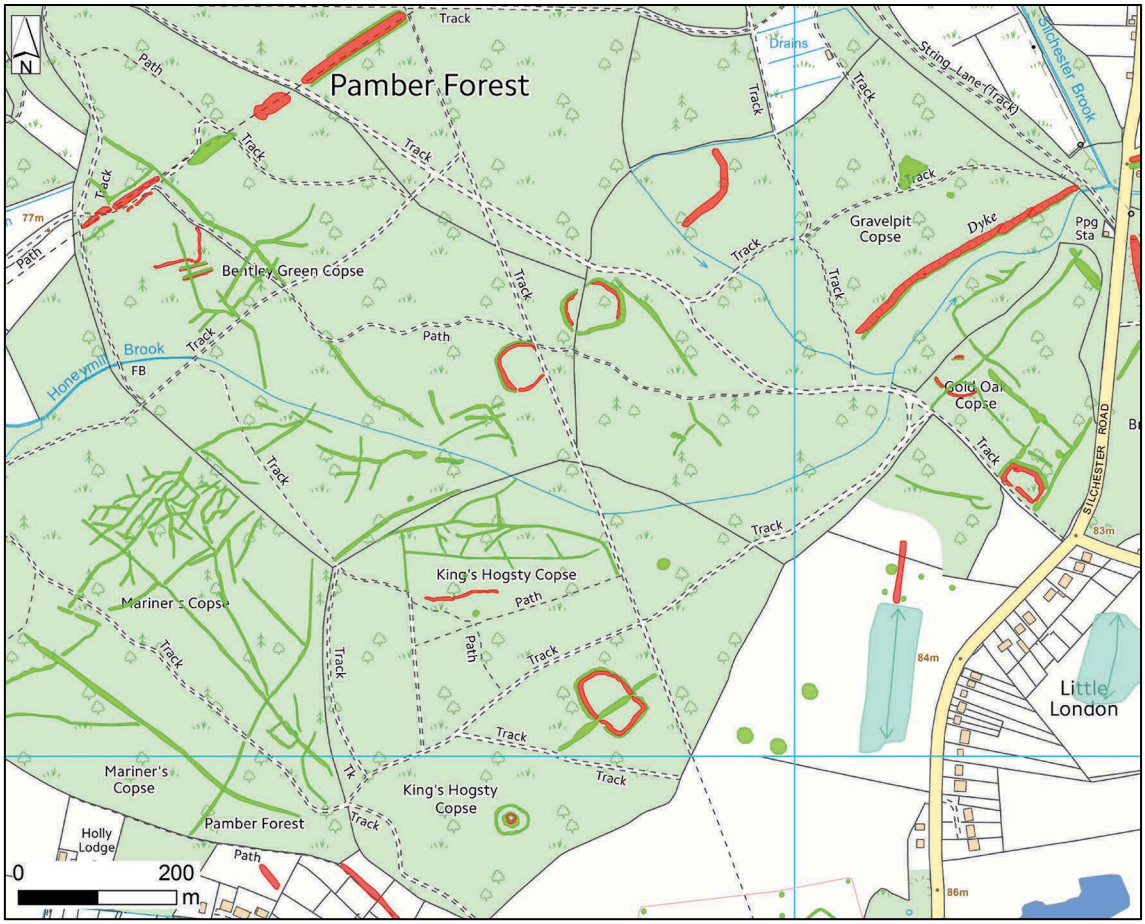

Figure 33 Iron Age enclosures and other features mapped within the forest including the south-western end of one of the Silchester dykes, a possible Bronze Age barrow in King's Hogsty Copse and later trackways. © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

Survival of the enclosures as earthworks within Pamber Forest was probably aided by designation of the area as a royal hunting forest in the medieval period and, more recently, by the extensive period as managed woodland. An example of a site where conditions conducive to survival were less favourable can be found to the west of Mortimer. There was a site of similar size to enclosures 1 and 2 in Pickling Yard Plantation (SU 6406 6463), which was marked as a 'Camp (remains of)' on the first edition Ordnance Survey map (1:2500, 1878). It was depicted as an earthwork of an oval enclosure measuring about 55m across surrounded by a ditch (Figure 34). The enclosure is not depicted on the 2nd edition map (1:2500, 1899) as it had been destroyed by gravel extraction and is marked as 'Camp (site of)' within the gravel pit.

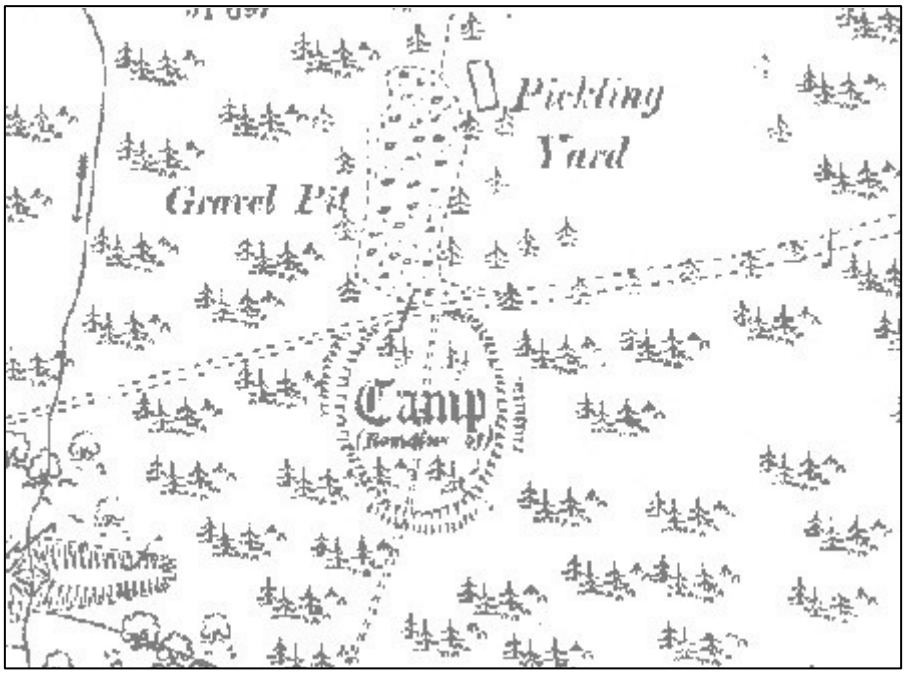

Figure 34 The former Camp marked to the west of Mortimer on the 1st ed OS map (1:2500, 1878)

Adjacent to Simm's Copse, to the south of Mortimer, there is a pairing of enclosures similar to the northern pair (enclosures 1 and 2) in Pamber Forest (Figure 35). The two buried enclosures were seen as cropmarks and are located at SU 64330 64096 and SU 64516 64242, approximately 95m apart and each encloses an area of around half a hectare. Two ditches, possibly field boundaries or trackways, lie to the east of the easternmost enclosure and are similar in appearance to the antennae ditches seen at sites such as Little Woodbury, Wiltshire (Cunliffe 2005, 241). However, they are not aligned on the enclosure and are some distance away (about 70m) so it is not clear whether they are part of the same site.

A caesium magnetometer survey carried out in July 2016 (Figure 36) indicated the presence of a third enclosure immediately to the south of paired enclosures and suggested that the westernmost enclosure had the beginnings of a funnel entrance (Lindford, Lindford & Payne 2019). The possibility of a funnel entrance for two of the enclosures means they could be interpreted as 'banjo' enclosures. The third enclosure does not appear to possess a similar entrance.

Banjo enclosures are characterised by their funnel entrances, and their design and setting had been thought to be associated with the collection, selection and corralling of livestock. However, the excavated example of Nettlebank Copse (Hampshire), investigated as part of the Danebury Environs Programme, proved to have different phases of use with changes in function. The earliest phase was dated to the Early Iron Age (4th century BC) and interpreted as a single farm surrounded by a ditch (Cunliffe & Poole 2000, 131). The settlement was abandoned, the ditch was recut and the funnel entrance added c.300 BC. The ditch was recut again in mid-1st century BC following the earlier line suggesting that the site was still a recognised feature despite the lack of evidence for its use following the abandonment of the settlement.

Figure 35 Two possible Iron Age enclosures east of Simm's Copse © Google Earth 01 Jan 2005

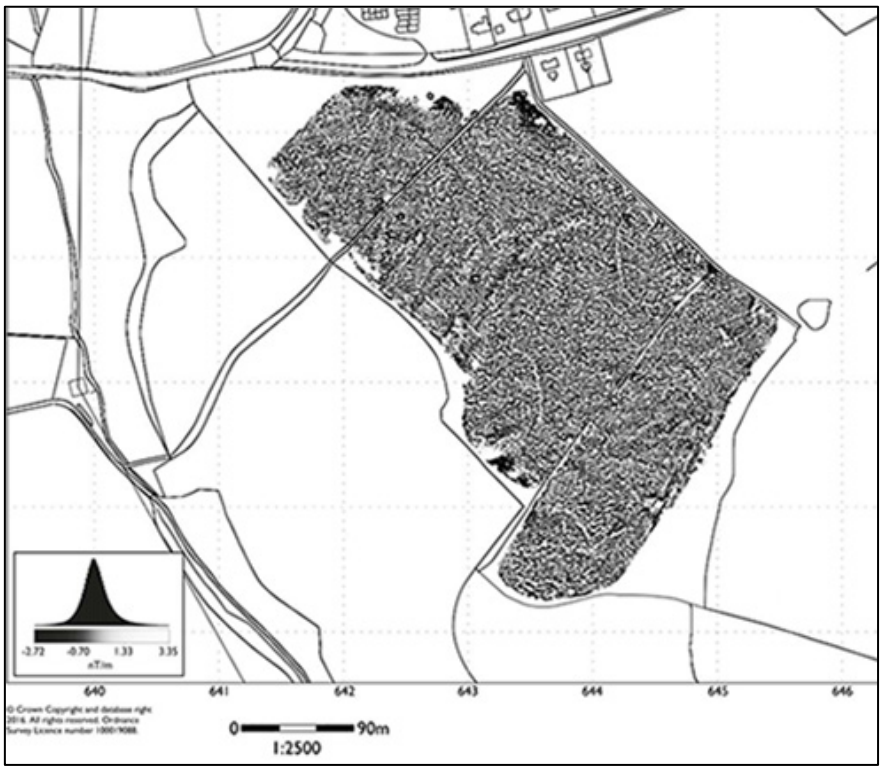

Figure 36 Results of the Historic England caesium magnetometer survey of Simm's Copse. The partial boundary of a third enclosure is located to the south of the westernmost of the pair of enclosures. © Historic England

At Nettlebank Copse, the only structures associated with the mid-1st century BC phase of use comprised an oven and a large pit, although a large amount of occupation debris was found in the ditches. The interpretation was that it may have been used for seasonal activities associated with stock, such as culling, castration or redistribution and that these occasions may have been accompanied by communal feasting or seasonal rituals of some kind (Cunliffe & Poole 2000, 134). Further investigation would be necessary to ascertain the nature of the Simm's Copse enclosures and whether they are contemporary with each other, but by analogy with paired enclosures, and especially paired banjo enclosures, elsewhere, it seems likely that their periods of use will have overlapped.

An arc or semi-circle of ditch which may form part of an enclosure was recorded from cropmarks on aerial photographs to the west of Ufton Nervet (SU 62265 67067, see Figure 37). The maximum width of the possible enclosure is 115 m, a similar size to the enclosures at Simm's Copse. It was not possible to identify any further elements of the feature from the available aerial photographs, but it may be the remains of a settlement enclosure. Further work on the ground such as geophysical survey and, perhaps, excavation, would be needed to identify traces of settlement activity and also to confirm whether or not there was ever a complete ditch circuit, or if the circuit was completed in some other form.

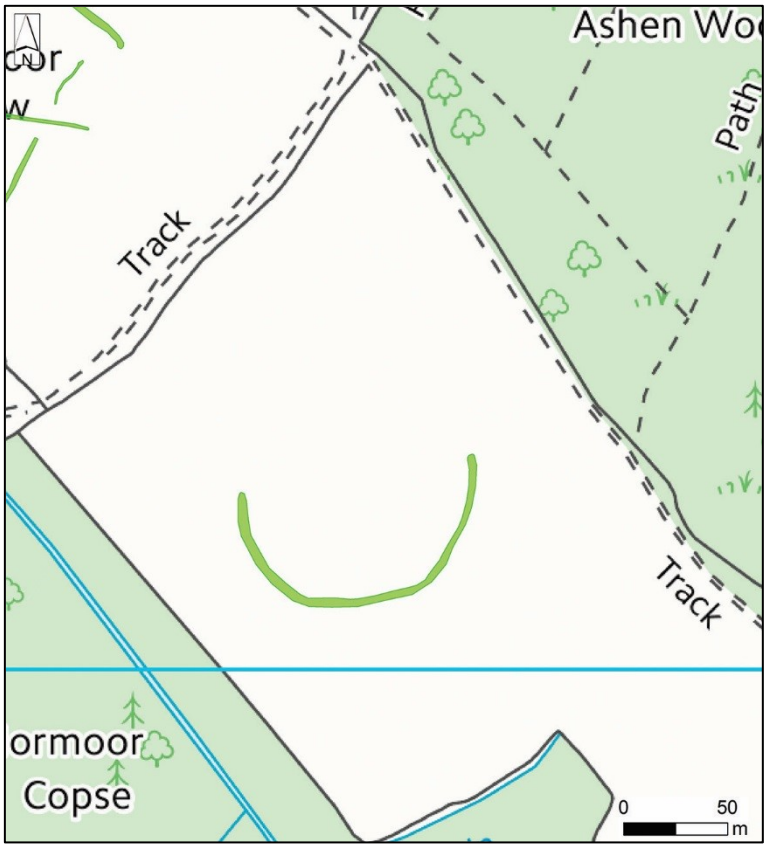

Figure 37 Partial enclosure to the west of Ufton Nervet © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

An Iron Age farmstead was identified from cropmarks adjacent to Windabout Copse (SU 65442 63734), to the south-east of Simm's Copse, and was selected for

excavation by the Silchester Iron Age Environs project in 2016 (Figure 39). It is located on a gently sloping hillside to the north-east of Silchester and consists of three areas of activity: a double-ditched enclosure with field boundaries around it at the southernmost part of the site, an area of field boundaries and a partial double-ditched enclosure in the centre, and a small square enclosure in the north-western part of the site. Early and late Iron Age settlement evidence was found within the double-ditched enclosure in the southern part of the site, located at the bottom of a gently sloping hill. The double-ditched enclosure is similar in form to those within the hillfort Casterley Camp (Wilts), an arrangement suggested by Cunliffe as being suitable for the sorting of flocks and herds (Cunliffe 2005, 248). The excavation at Windabout Copse recovered no evidence for the cultivation or storage of grain, so it is possible that there was more of an emphasis on livestock at this site. Perhaps different enclosures within the complex used for the movement of stock or for human habitation (Fulford, Barnett & Clarke 2016, 19).

In addition to occupation debris found in the area of the double-ditched enclosure, the excavation team found a chambered cremation burial within a small square enclosure further up the hill from the settlement (Figure 38). Large sherds of amphora were found adjacent to the burial and six complete dishes and two beakers were uncovered in the southern half of the chamber (*ibid,* 15). This is a similar type of arrangement to burials found in Essex and Hertfordshire (Cunliffe 2005, 559). The pottery recovered and Carbon-14 dating suggests that the farm was in use repeatedly throughout the Early and late Iron Age, including during the lifetime of late Iron Age Silchester.

Figure 38 The chambered cremation burial under excavation. © University of Reading

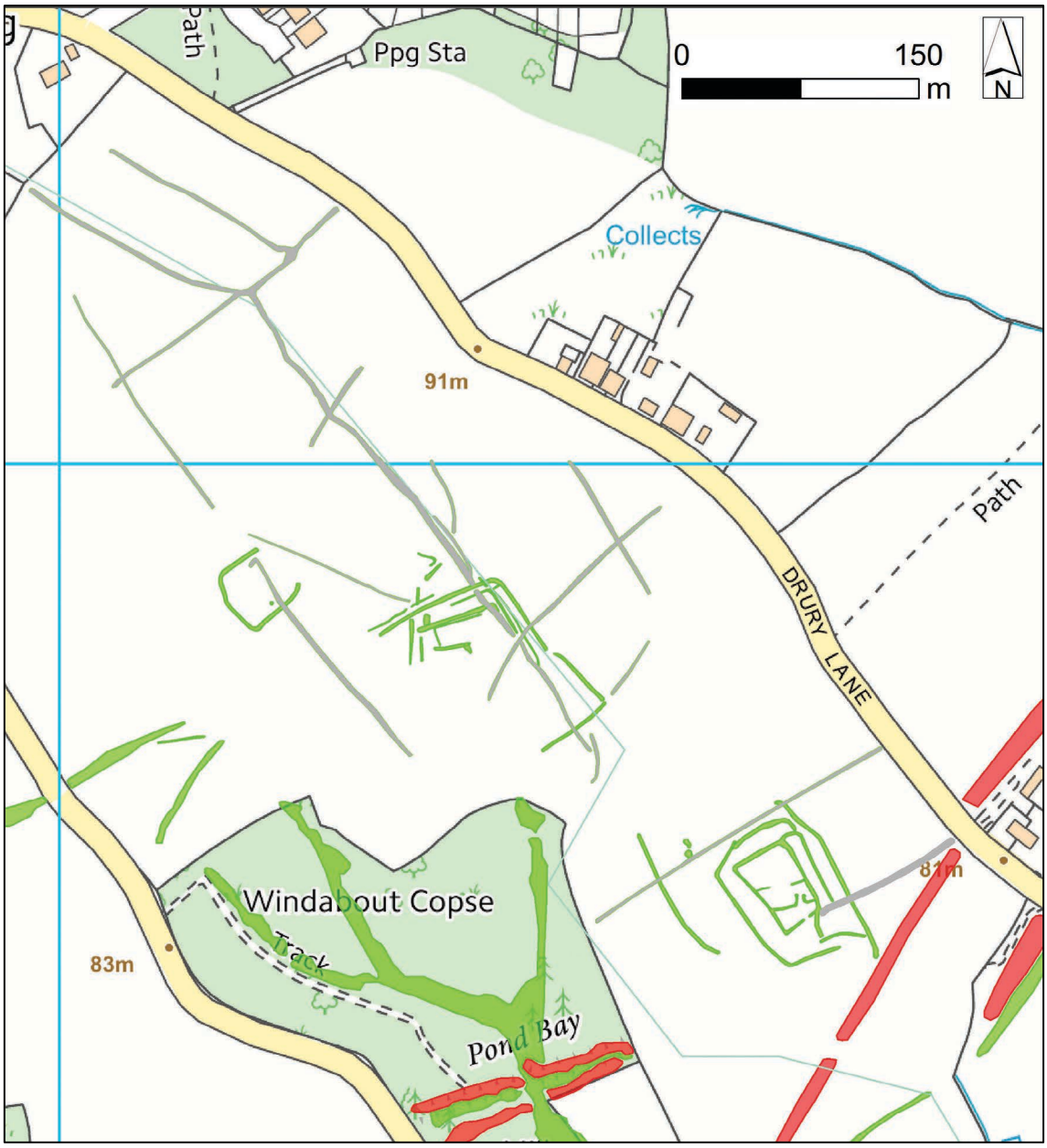

Figure 39 An Iron Age farm at Windabout Copse shown in green and red. Probable post medieval field boundaries are shown in grey. © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

Another possible farmstead site was identified from lidar within Round Copse, to the east of Chineham at the southern edge of the survey area (SU 68800 55276, **Error! Reference source not found.**). The site is located in a bend in the River Loddon and comprises a circular, banked, inner enclosure with a sub-square, banked, outer enclosure. A further, possibly attached rectangular enclosure is located immediately to the north.

The overall dimensions, form and location are similar to a farmstead excavated at Mingies Ditch in Oxfordshire (Allen & Robinson 1993). The excavators characterised that site as a Middle Iron Age farm with a mainly pastoral economy, but some emphasis on horses. The enclosure there was surrounded by hedges

alongside outer and inner ditches and was positioned to use a bow of the Mingies Ditch stream as a watering place. The earthworks in Round Copse are of similar morphology so it is possible they had a similar function. The earthworks were observed to be low and spread during a field visit (Field & Truscoe March 2017) and surviving in a similar form to the enclosures in Pamber Forest, which have been shown through excavation to be Middle Iron Age in date.

Figure 40 Earthworks within Round Copse Road © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

Settlement of a different character is located to the north-east of the River Kennet in Sulhamstead (SU 62765 69556) (Figure 41) at the northern end of the project area. A series of conjoined enclosures with two possible hut circles within them have a similar appearance of a fen edge settlement (eg Fengate, near Peterborough, Cambridgeshire, in Cunliffe 2005, 264). Its close proximity to the watercourse might suggest a seasonally occupied settlement with a specialised function related to

using the river resources, or perhaps summer grazing land. If so, there is the potential for excavation to reveal organic material preserved in waterlogged deposits, presenting an opportunity to study Iron Age life and landscape in detail.

Figure 41 Possible Iron Age settlement to the north of the River Kennett, Sulhamstead shown against the first edition OS map (1:2500, 1878). A post medieval field boundary shown on the first edition OS map overlies the centre of the site. © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1878)

Trackways

Trackways are difficult to date from evidence recorded from aerial photographs, but the relationships that can be inferred with other features suggests that some examples identified through the survey are later prehistoric in origin. The area around Great Scrub Copse, formerly part of medieval Silchester deer park, contains a number of cropmarks indicating trackways which are probably of different periods.

Figure 42 Trackways around Great Scrub Copse. The line of the medieval park pale extends along the western side the woodland as a bank and continues as a ditch to the south, turning to the east at Lower Farm. © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

Two trackways do not respect the park boundary which would have been a substantial earthwork during the medieval period, and cut across its line (Figure 42). Observation of the cropmarks suggests that the northern example, extending from Newersland to run to the south of Church Lane Farm, crosses the route of the triple ditched section of the park pale, while the southern example, running to the north of Lower Farm Bungalow, crosses the route of the the park pale. Further investigation on the ground – geophysics or perhaps excavation – would be needed to confirm these relationships.

The width of the cropmarks suggest the prolonged extent to which the ditches that define the trackways were used while the criss-crossing nature of trackways in this area and their varying relationships with the park pale, underlines the long history of use and the changing nature of this landscape.

Large Earthworks

As seen from the enclosures in Pamber Forest, new sites were identified from Environment Agency lidar used in this survey, but new information was also gained on known monuments. The massive earthworks in Rampier Copse at the south-

western corner of *Calleva* may represent the site of an existing defended enclosure later incorporated into the *oppidum* outworks (Boon 1974, 37). A low spread bank was identified on lidar extending from the south-eastern end of the curved section of the earthwork (see highlighted section on Figure 43) suggesting that a banked enclosure may have existed here, enclosing approximately 2.5 hectares, predating the *oppidum* and later incorporated into its defensive earthworks.

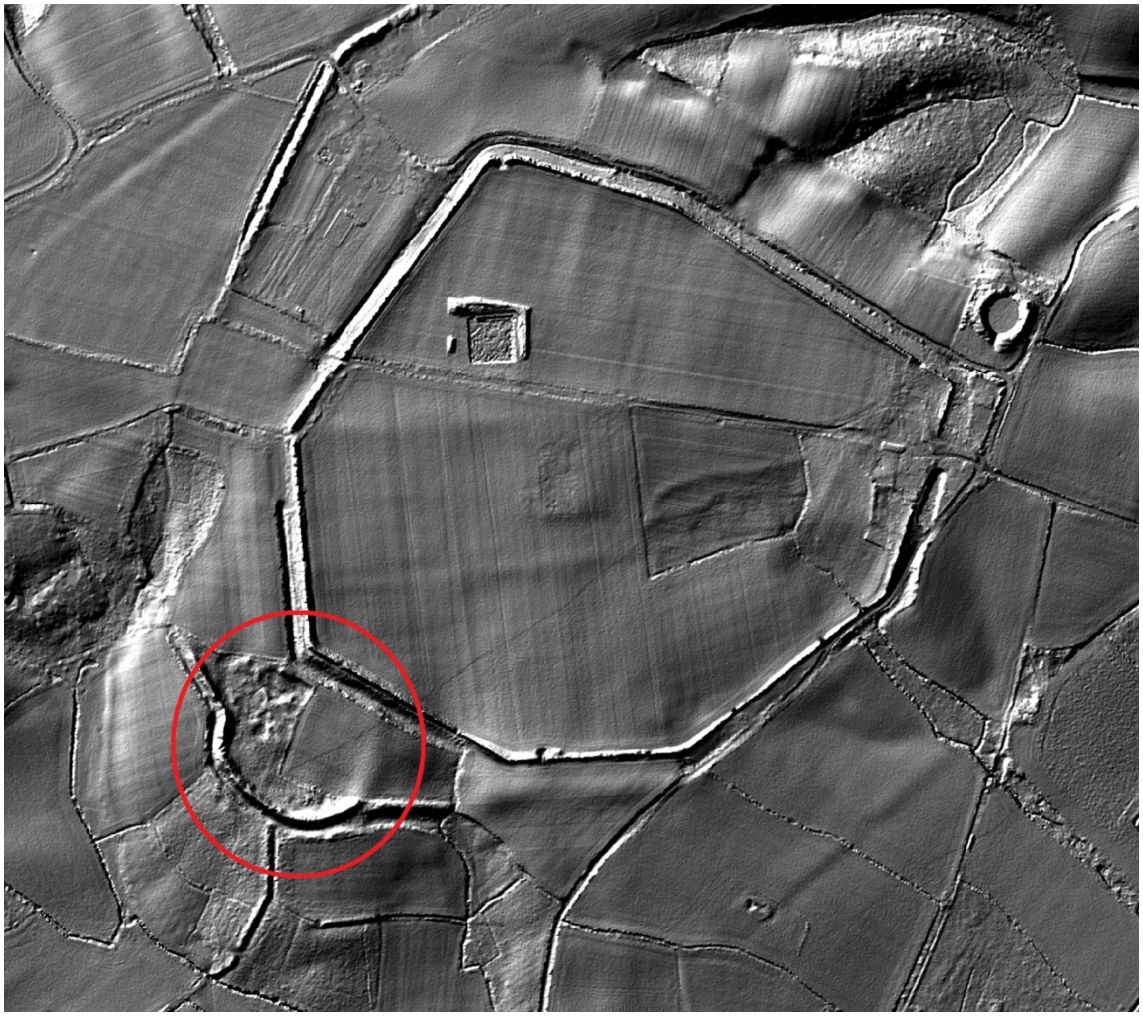

Figure 43 *Calleva* with Rampier Copse highlighted in the south-west corner. Hillshade visualisation of lidar © Environment Agency/University of Reading

If the curvilinear earthworks within Rampier Copse did once form a banked enclosure it would have been just over half the size of Bullsdown hillfort to the east of Bramley (SU 67083 58383). This triple-banked oval earthwork has been heavily overgrown since at least the 19th century and it has not been extensively explored. It is protected as a Scheduled Monument, designated because of the relative rarity of this type of small multivallate hillfort in this region (NHLE 1001944).

Boon suggested that Bullsdown hillfort may have preceded the *oppidum* at *Calleva* (Boon pers comm quoted in OS Archaeology Division Field Investigator's comments 24 January 1956 NRHE 240247). Its topographical location at the confluence of the Bow Brook and the River Loddon on a slight plateau might

support Boon's suggestion, but without further investigation on the ground it is impossible to confirm whether it was still in use during the lifetime of *Calleva* and, if so, what purpose it served.

The hillfort was surveyed by Williams-Freeman in 1915 and he described it as following the brow of the low hill on which it is sited. The north-eastern area of the earthwork has been destroyed, although Williams-Freeman stated that it could still be identified as a low undulation in the field at the time of his survey. An original entrance is not apparent on aerial photographs and lidar and, while a modern path cuts through the south-western corner, it does not appear to utilise an original gap in the rampart (Bayer 2017, 20). The central entrenchment has a broad flat surface measuring up to 18m in width, noted by Williams-Freeman as giving it a similar form to Buckland Rings, Hampshire (Williams-Freeman 1915, 361); there is also a resemblance to Hod Hill, Dorset (Cunliffe 2005,). The lidar survey (Figure 45) adds very little detail to Williams-Freeman's plan (Figure 44) of more than a century ago, or the OS survey which shows the site in similar detail to Williams-Freeman.

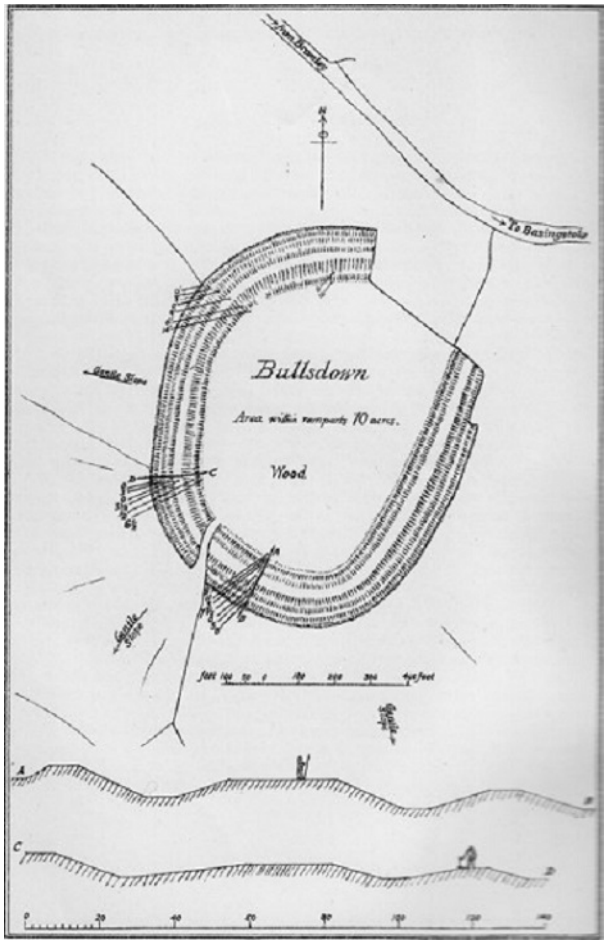

Figure 44 Plan of Bullsdown hillfort by Williams-Freeman (1915)

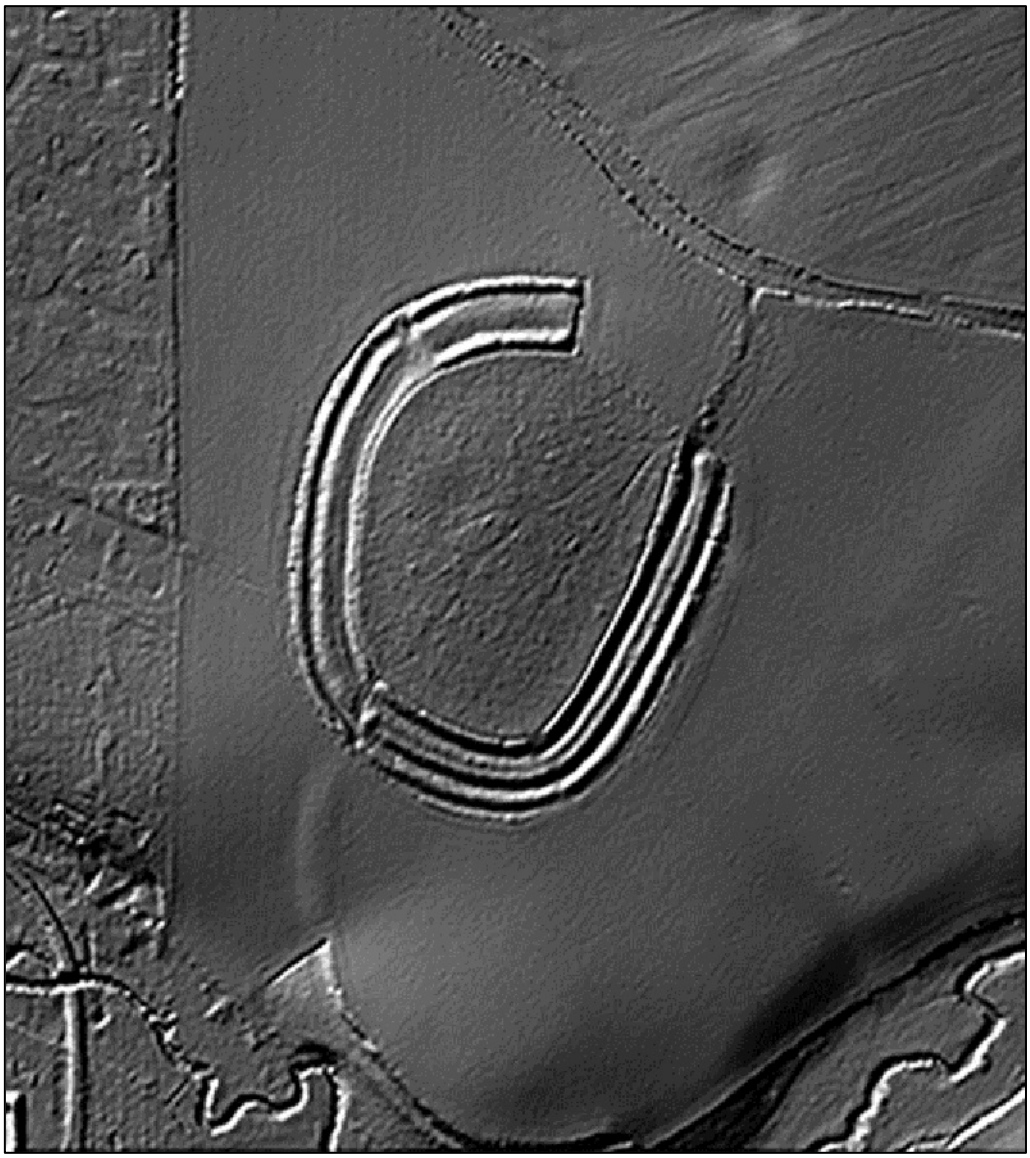

Figure 45 Bullsdown hillfort seen on hillshade model of DTM © Environment Agency/University of Reading

Clearly, further investigation is necessary in order to find out more about this monument. The site was highlighted by the Silchester Iron Age Environs Project for detailed earthwork survey and geophysical survey. The earthwork survey has added some detail to the surviving ramparts and geophysical survey has revealed sub-surface features in part of the missing north-eastern section, showing a continuation of the rampart and ditch into this area. However, little has been revealed about the site's function, phasing and interior features (Barnett pers comm 2017).

Another monument defined as a hillfort is located on heathland to the north-west of Silchester, just to the south of the former site of 19th century Pond Farm (SU 62682 63071). The site is partially under trees and was recorded from a combination of lidar and aerial photographs. Details of the ramparts and their relationships to post medieval woodbanks were recorded (Figure 46 and Figure 47).

Excavation and analytical earthwork survey were carried out as part of the Silchester Iron Age Environs Project. The excavation uncovered very little activity within the hillfort, but repeated re-cutting of the external ditches suggested use of the site over an extensive timespan. The ramparts were constructed in the earlier half of the late Iron Age, which would make it contemporary with the oppidum at Silchester. The site appears to have been in use during the Roman period and the ditches were recut in the early medieval period. This suggested to the excavators that the hillfort was in prolonged, if intermittent or episodic, use (Fulford, Barnett & Clarke 2015, 7). However, very little sign of occupation at any period has been found within the enclosed area. It might have been used for seasonal activities such as the rounding up and distribution of livestock, or over-wintering of valuable animals, possibly in the manner of the Nettlebank Copse enclosure (Cunliffe & Poole 2000, 134).

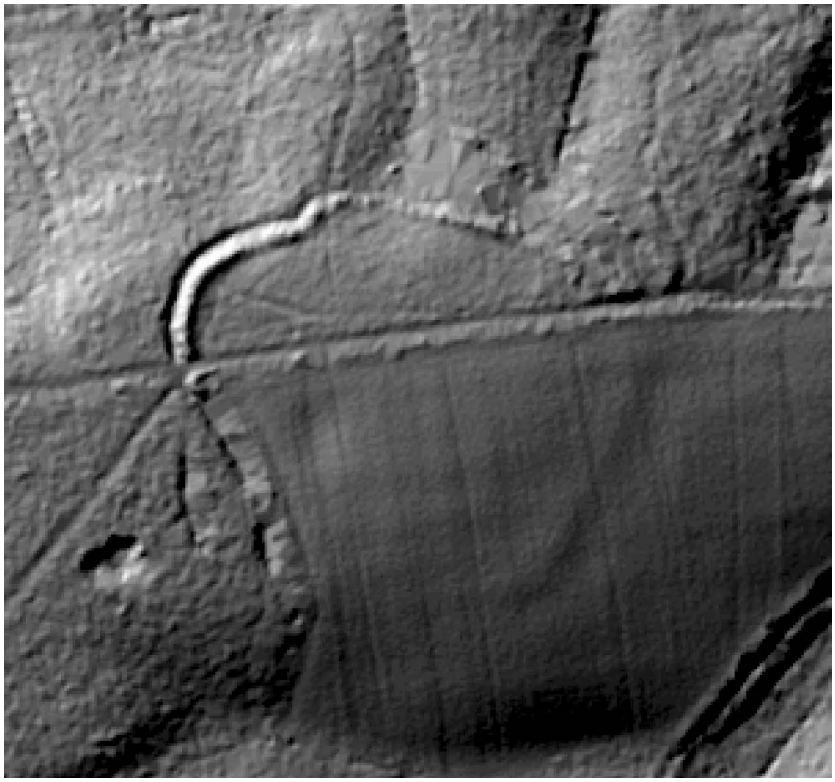

Figure 46 Pond Farm hillfort, The Frith, seen on hillshade model of DTM © Environment Agency/University of Reading

A small enclosure mapped from lidar to the west of Pond Farm (SU 61966 62896, see Figure 47) has previously been interpreted as a medieval coppice enclosure or stock enclosure (OS Archaeology Division Field Investigator's comments 11 May 1987 in NRHE 241085). This site is under dense tree cover and could only be recorded from the lidar DTM. Given the long period of use of the site at Pond Farm and the location of both of these earthworks to the either side of the Silchester to Speen Roman road, it is possible that the use of these sites might have overlapped at some point. For example, they both might have been used as stock enclosures along the roadway. Excavation would be required to try and determine any relationship, chronological and functional, between the two sites.

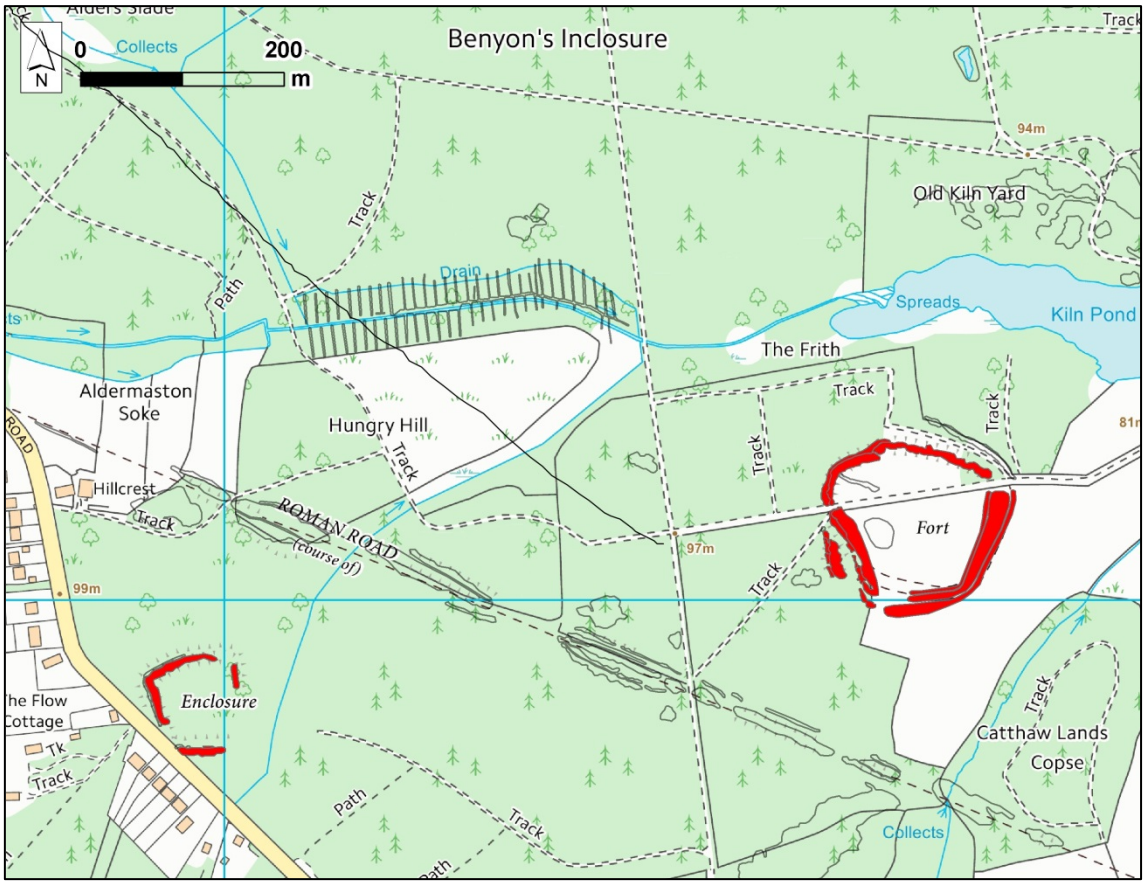

Figure 47 Pond Farm hillfort on the eastern side of the map and a small possible stock enclosure to the west © Crown Copyright and Database Right [2016]. Ordnance Survey (Digimap Licence)

Continuity and change

The earlier Bronze Age period has been characterised of one of "residential mobility" (Brück 2000, 281); people move between specific locations on a seasonal basis rather than being settled in one place. The creation of large funerary monuments suggests an idea of territory and a sense of belonging to the land. During the later Bronze Age and continuing into the Iron Age, this sense of territory appears to intensify. While people were living in a variety of settlements within the survey area, a proportion of those settlements were enclosed by earthen banks and ditches, implying a different attitude to tenure and changing relationships between neighbours. The earlier funerary monuments still seem to play a part in people's lives, however, with later settlements developed adjacent to them.

The Middle Iron Age saw changes to society and settlement structures in southern Britain with the emergence of larger defended enclosures. An example is the developed hillforts of Wessex, such as Danebury, which are thought to have controlled large territories with a number of dispersed settlements within them (Cunliffe 2005, 591). These changes to social structures may have been prompted by a number of factors, although the growing external influence of the Roman Empire is arguably of key significance. Iincreased demand for produce from the Roman world and the access of the few to Roman commodities enhanced the

position of those individuals and enabled the consolidation of hierarchical structures (Sharples 2010, 169). However, Sharples also suggests an alternate explanation: that late Iron Age societies in southern Britain "developed from indigenous societies. They are the result of the success of these societies and their requirement to transform themselves because of this success" (ibid, 170).

That there were changes to the social structures of the survey area can perhaps be inferred from the creation of the monumental earthwork of Bullsdown hillfort. There appear to be further societal changes in the later Iron Age, most dramatically shown in the creation of a major new settlement: the huge enclosed settlement, or *oppidum,* on the Silchester gravel plateau.

LATER IRON AGE AND ROMAN PERIODS: CHANGES TO SOCIETY AND POLITICAL CONTROL

Introduction

As noted in the previous chapter, a number of changes to social structures and hierarchies occurred during the Middle Iron Age in southern Britain. The late Iron Age saw further developments which appear to have been connected to political and social pressures. Very large, enclosed settlements akin to towns, known as *oppida*, were constructed in river valleys rather than on hilltops. These may each have been associated with large territories with dispersed settlements like the proposed model for the developed hillforts of Wessex (Cunliffe 2005, 591). The term *oppidum* was used by Julius Caesar to refer to the large settlements of the Gauls that he encountered during the Gallic Wars of 58 to 52 BC (Commentarii de Bello Gallico).

The *oppidum* that developed on the Silchester gravel plateau, known as *Calleva*, appears to have been the northern political centre of the Atrebates, whose main territory lies to the south above the Sussex Coastal Plain (Cunliffe 2005, 172). Another possible *oppidum* is thought to have been located within the southern part of the Atrebates territory around Chichester, West Sussex (McOmish & Hayden 2015, 25). Silchester is located between the Wessex chalklands to the south, the Upper Thames and Cotswolds to the west and the Lower Thames to the east. Access to the Thames Valley links the settlement to maritime trade with the Roman world, while contacts could also be maintained with the more fertile farming areas of the Wessex chalklands and Upper Thames Valley (Cunliffe 2012).

The construction of late Iron Age *Calleva* is associated with a system of extensive linear banks, although elements of these earthworks appear to predate the formation of the oppidum. The association of *Calleva* with a wider network of linear earthworks has led to the description of the site as a territorial *oppidum*. The purpose of the linear earthworks is unclear, but they may have been defining the core territory of the late Iron Age settlement, or they may have placed limitations on the movement of people living within and around them in a way which is difficult to discern today. The *oppidum* is located on a gravel plateau, perhaps taking advantage of the free-draining soils associated with this type of geology. Around this plateau are heavy clay soils which would have been more difficult to utilise for arable cultivation (Lodwick in Fulford *et al* 2018). It is possible that there was a greater emphasis on animal husbandry in much of the immediate hinterland of *Calleva* and that the majority of the grain used on the site was coming from a little further away, possibly from the settlements located on the Thames river gravels to the north. Cereals are among the foodstuffs recovered from the Iron Age deposits identified during the Forum-Basilica excavations, but little cereal-processing debris. It has been suggested that this points to the dependence of the *oppidum* on agricultural settlements around it (Fulford & Timby 2000, 555).

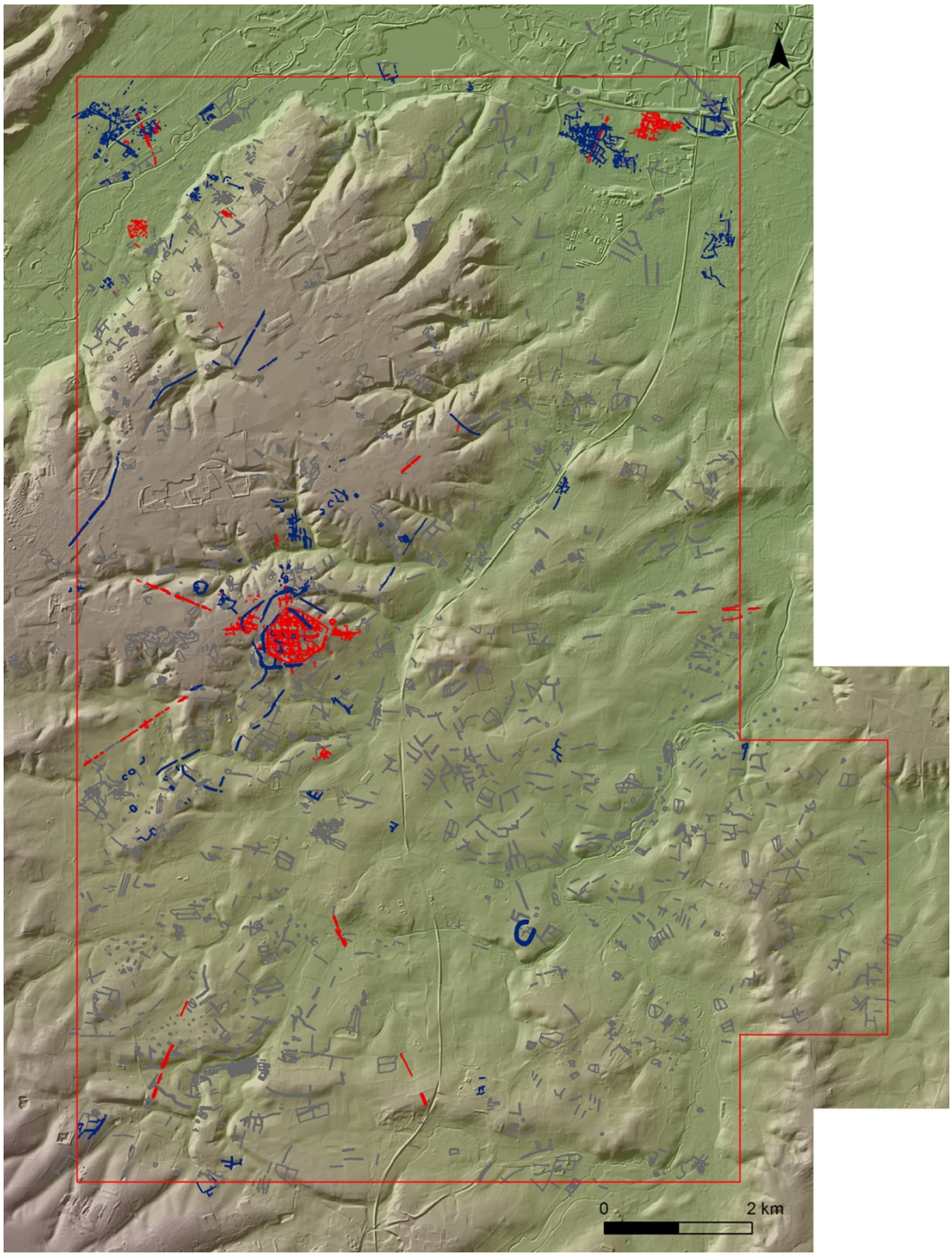

Figure 48 Sites identified as being Iron Age (shown in dark blue) or Roman in date (shown in red). All other features mapped within the survey area shown in grey.

This may in turn indicate that Silchester may either have had a fairly extensive hinterland under its control, or an established network of trade links, with dispersed settlements around it producing cereals and stock for trade within it.

The different landscape types around Silchester could have provided a mix of resources; for example, the clay soils which are found to the south and east could provide good grazing for livestock and support woodland. While the evidence for types of foodstuffs from excavations of the Iron Age phases at Silchester

demonstrates a variety of agricultural practices, there is very little evidence from aerial photographs and lidar to suggest exactly where cereals were being cultivated or livestock were being managed. This is partly due to the poor visibility of cropmarks on London Clay soils. The majority of the features identified on the clay areas during the survey are extant earthworks including traces of a large number of post medieval field boundaries that are no longer in use.

This does not mean that there were not numerous farmsteads providing agricultural produce for late Iron Age *Calleva* – only that we cannot identify them in all areas. However, while we may not be able to see the complete picture, fragments of field systems and farms were identified from cropmarks and earthworks during the survey which may have an association with Silchester. If we accept a degree of specialisation in farming, including seasonal exploitation of particular areas and resources, then perhaps we should consider an area extending up to the Thames Gravels in the northern part of the survey area as being part of Silchester's hinterland. Earlier phases of agricultural specialisation are suggested by some of the excavated evidence for Later Bronze Age sites, for example, Pingewood and Aldermaston.

Calleva retained its regional importance into the period of Roman occupation, when it became known as *Calleva Atrebatum*, as the capital of the *civitas* in which it sat, a self-governing territory as defined by the Roman imperial administration (Boon 1974, 57). The town was well connected with other major settlements by a network of new roads linking it to London, Winchester, Chichester, Bath, Old Sarum, Dorchester-on-Thames, St Albans and Cirencester. Settlements developed outside the town area along the lines of the roads leading from it. The new road system would have had a major impact on the landscape around Silchester during the Roman period; the survey results show that they occasionally cut through earlier trackways and field boundaries. While the imported goods found within the Iron Age settlement (Fulford & Timby 2000; Fulford *et al* 2018) show that it had good existing trade links prior to the arrival of the Romans, it is unclear to what extent, if at all, existing routes were used in laying out the new network.

Calleva Atrebatum was transformed during the second half of the Roman period, with a large-scale re-planning of its internal street layout and property boundaries at the turn of the third and fourth centuries AD, as well as the construction of the town walls c. AD 280 (Fulford & Clarke 2011). The street layout extended to the north of the town, adjacent to the road to Dorchester-on-Thames and probably predated the building of the town walls. No evidence for buildings could be identified from cropmarks in this area outside the wall but whether this section of the street grid was completely abandoned when it was constructed is unclear.

Late Iron Age *Calleva* and its earthworks

The late Iron Age settlement at Silchester was constructed around 20 BC (Creighton with Fry 2016, 342) and is of substantial size compared to previous large earthwork monuments in the vicinity. The area enclosed by the Inner Earthwork measures approximately 35 hectares, as compared with, for example, the interior of Bullsdown Camp which measures approximately 4 hectares. As already noted, it

belongs to a class of settlement referred to as a territorial *oppidum*, thought to be proto-urban in nature. Previously, it has been thought that the *oppidum* was constructed on a new site in largely open land (Boon 1974, 37), but the results of this survey show that it was developed within an already populated landscape. It may incorporate an earlier enclosure at Rampier Copse and has a variety of settlement types within its hinterland, such as the farm at Windabout Copse which had phases of use before and during the lifetime of the *oppida*.

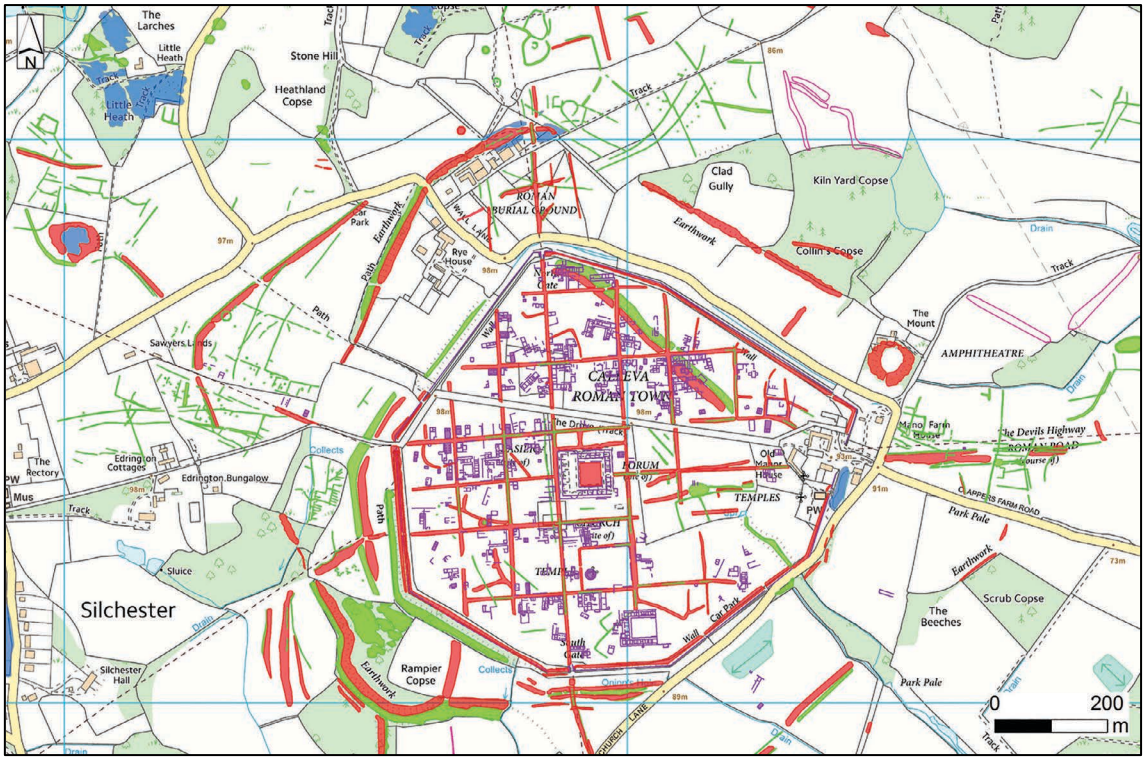

Figure 49 The evidence for the *oppidum* and Roman town of *Calleva* from aerial photographs and lidar. The inner *oppidum* earthwork underlies the Roman street pattern in the north-eastern quadrant. The outer earthwork is north and west of the town. There are curvilinear features underlying the Roman street grid in the western half of the town that may relate to the oppidum. The Roman features comprise the street grid, buildings and amphitheatre. The street layout continues to the north and settlement extends to the east and west.

Comparison of the morphology of the surrounding sites with excavated examples, combined with evidence from excavation and surface collection in the Silchester area, can be used to suggest how the immediate landscape may have functioned (Figure 49).

The late Iron Age settlement was enclosed by two circuits of defences formed of banks and ditches, further accompanied by a system of outlying earthworks, mainly linear dykes, considered to be associated with it. Some of these have been investigated as part of the Silchester Iron Age Environs Project (see below this chapter). The suggested line of the inner earthwork, as surmised from previous observation of cropmarks, earthworks and excavation, encloses an area of approximately 35 hectares. The existence of the southern and eastern sections is not definitely known (Creighton with Fry 2016, 307-13). The northern and western sections of the inner earthwork were recorded during the current survey as both

earthworks and cropmarks. The western section was visible as sub-surface remains recorded as cropmarks within the walls of the Roman town and outside the walls where it survives as an earthwork. This indicates that it comprised a bank measuring up to 24m in width with an external ditch which was up to 19m in width (Figure 49).

The only sections of the outer circuit of the *oppidum* which can be clearly identified are to the north, west and south-west of the Roman town, which all survive as earthworks. The possible route taken by the southern and eastern sections of outer earthwork has been suggested by previous investigators, but again, it is not definitively known (Creighton with Fry 2016, 313-22) The outer earthwork was mapped from lidar coverage around the town from the north-east to the south-west, where it may include a pre-existing earthwork in Rampier Copse. The suggested line of the outer earthwork could not be identified outside the south-eastern section It is possible, if it did form a complete circuit, that it is masked in part by post medieval field boundaries.

Figure 50 Curvilinear banks, of unknown function, seen as pale lines apparently underlying the Roman street grid (indicated by arrows). ©NMR SU 6362/57 NMR 410/60 03-AUG-1972

Curvilinear banks which may relate to the late Iron Age *oppidum* were identified from cropmarks within the inner earthwork. While it is difficult to form a chronological sequence from aerial photographic evidence alone, they do appear to underlie the Roman street grid (Figure 50 above).

The linear dykes

A system of long linear earthworks or dykes, in the area around Silchester may have had an association with either the *oppidum* or, possibly, earlier Iron Age settlements, or both (Figure 51). Their function is unclear, but their construction represented a considerable investment of resources. The outermost dykes could be interpreted as delineating the north-western and south-eastern extents of a parcel of land. It is possible that the dykes had an overall function of defining individual areas of land or helped control access or movement of people. Moore suggests that the Iron Age dyke system at Bagendon, Gloucestershire, was designed to control the movement of people through the landscape, funnelling people towards particular focal points and defining areas of landscape (Moore 2012, 410).

The dykes are found at varying distances from the late Iron Age settlement. The *oppidum* is not located centrally within them but is closer to the south-eastern side. The total area covered by the *oppidum* and dykes around it is approximately 130 hectares. The precise dating and phasing of all these features is unclear, but good evidence for construction during the Middle Iron Age was obtained for dykes at Little London and Brocas Lands and a late Iron Age date for the stretch crossing Wood Farm (see sections below). It is possible they were associated with an earlier centre for the Atrebates. It is also possible that a territorial *oppidum* developed out of a polyfocal site – a defined area containing a number of settlements which jointly performed the functions of a larger, single settlement.

Corney has identified complex dyke systems associated with groups of (often banjo-type) enclosures as polyfocal *oppida* (Corney in Cunliffe 2005) and Moore (2012) suggests that this model could certainly be applied to the landscape around Bagendon (Gloucs), where he identifies a relationship between a number of enclosures, including banjo enclosures, within a system of linear dykes. Several areas of activity are linked by linear earthworks with the entire complex covering approximately 200 hectares (Moore 2012, 396-7). McOmish and Hayden also interpret the Chichester Dykes (West Sussex) as defining a system of polyfocal enclosure and linear boundaries. The Chichester Dykes continued to be respected throughout the 1st to 4th centuries AD and into the medieval period. As noted earlier, this was suggested as the socio-political focus of the southern territory of the Atrebates, while the Silchester area served the same function in the north (McOmish & Hayden 2015, 25).

The function of the linear dykes around the Silchester *oppidum* is unclear, as is the extent to which they continued to be respected in the landscape after the Iron Age period. It is possible that they continued in use for some time, possibly as route ways, since their surviving sections are respected by trackways, roads and field boundaries in use today which follow the same alignment as them. This could suggest that the dykes were more extensive and that these later features might preserve their alignment.

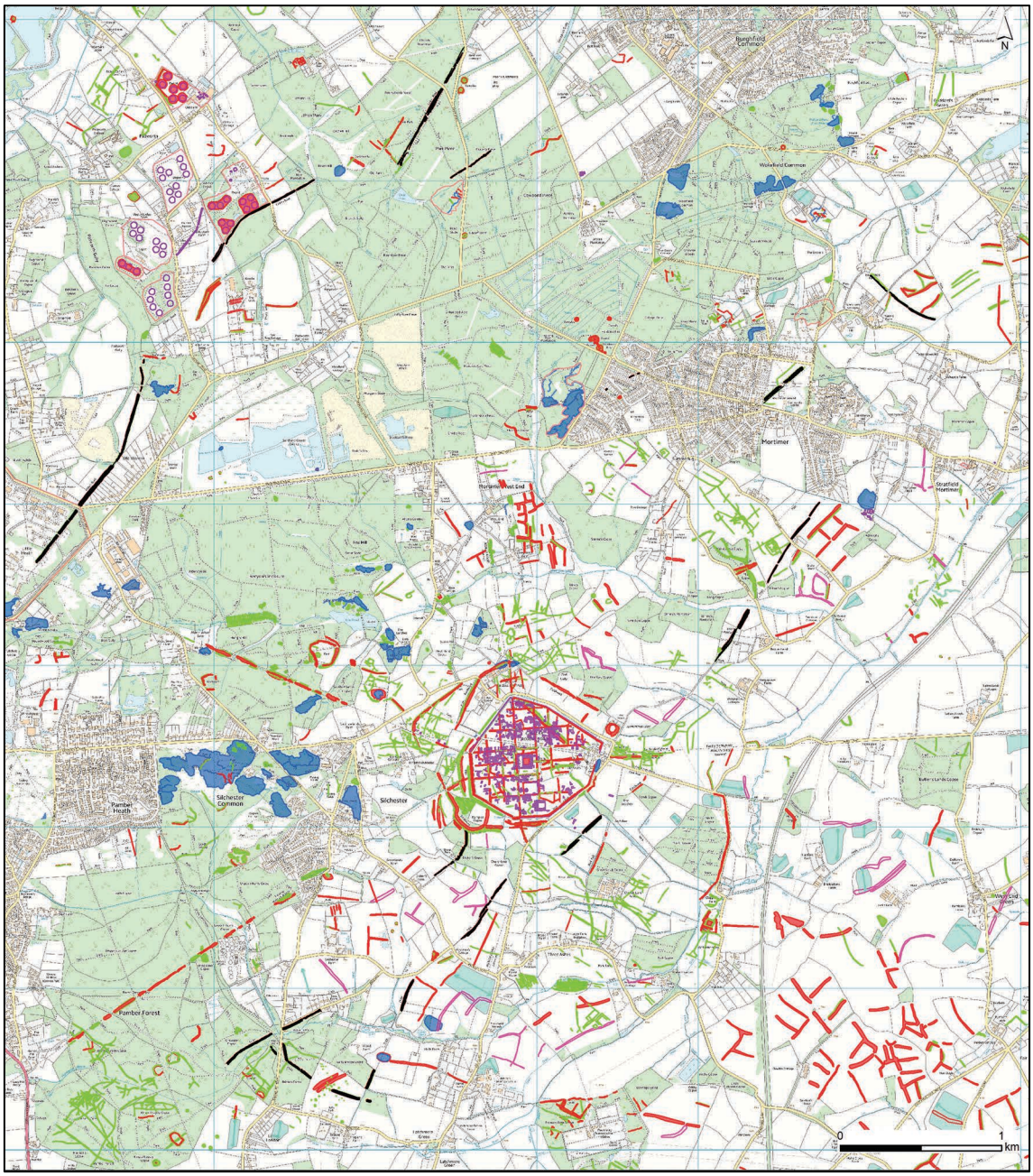

Figure 51 Features identified as linear dykes (in black) around Silchester. The *oppidum* does not sit in a central position as regards these earthworks although they share a broadly northeast-southwest alignments. © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

The dykes: south-west of Silchester

A number of linear dykes located to the south-west of Silchester (Figure 52) were recorded during the project from either their earthwork remains, identified on lidar, or from cropmarks formed by their sub-surface remains and seen on aerial photographs. Many of the dykes were recorded in earlier surveys (eg first edition Ordnance Survey map 1:2500, 1872; Williams-Freeman 1915) but this survey

recorded an additional section to the dyke which runs through a field to the east of Bridle's Copse as a cropmark.

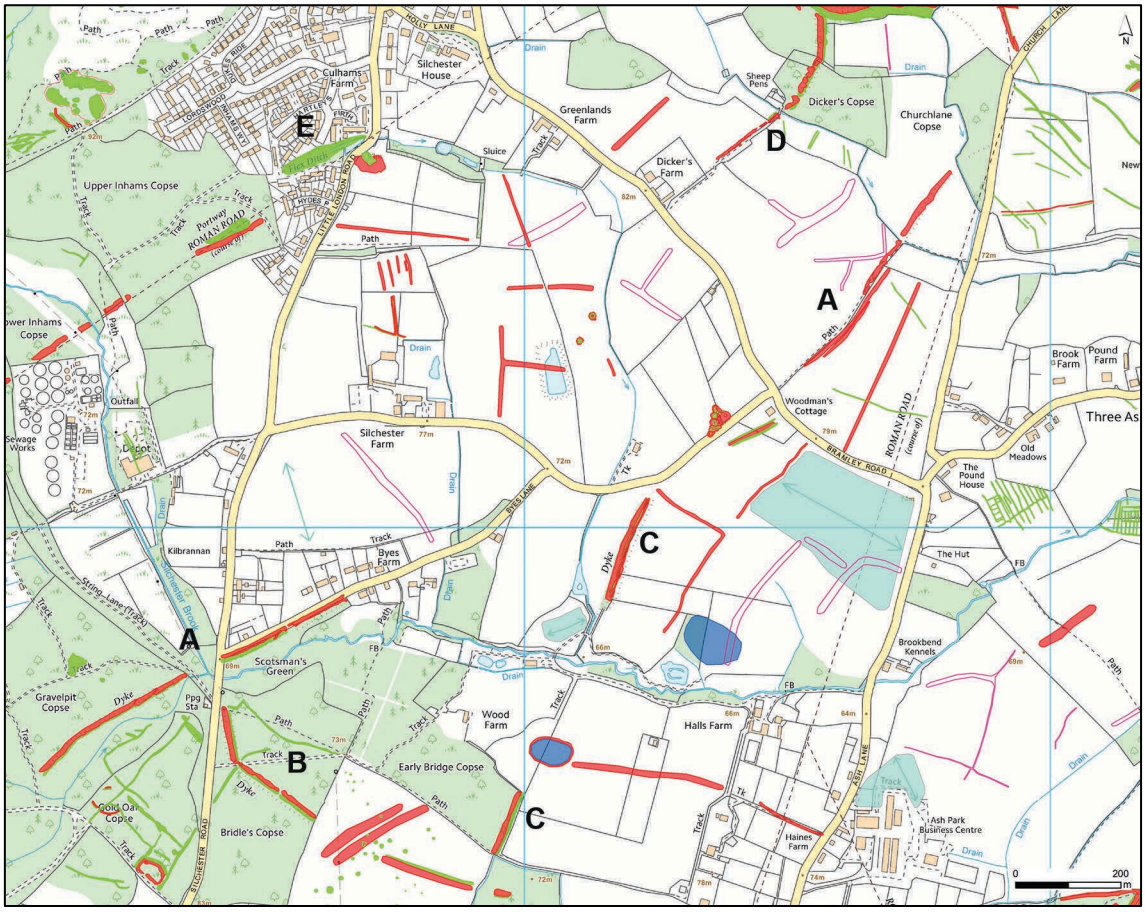

Figure 52 Dykes to the south-west of Silchester (southwest section of Fig 52): A – Little London, B – Bridle's Copse, C – Wood Farm, D – Dicker's Copse and E – Flex Ditch © Crown Copyright and Database Right [2016]. Ordnance Survey (Digimap Licence)

A linear bank with a ditch on its southern side runs south-west to north-east from Gravelpit Copse to Scotsman's Green for a distance of approximately 675m (A bottom left of Fig 55). The sections mapped here were visible as extant earthworks on lidar images. The dyke runs alongside Byes Lane, which is on the same alignment and may follow the course of sections of the dyke which are no longer visible or extant. A second dyke on the same orientation (A top right of Fig 55) continues to the north of Woodman's Cottage, extending to Churchlane Copse over a distance of 468m. This dyke is formed of two linear banks which run alongside each other for a distance of approximately 200m in its central section. The northern section was recorded from a cropmark and the southern section from an extant earthwork. It is possible that both earthworks labelled 'A' were part of one linear feature which may continue northeast to meet with the outer earthwork of Silchester, or if it continued on the same alignment, may have skirted the settlement to the east.

A linear bank and ditch (B on Figure 52) extend to the south of Scotsman's Green for a distance of 112m from a possible junction with linear 'A' at Silchester Brook.

This feature then turns to the south-east through Bridle's Copse and beyond, to the south of Early Bridge Copse. The northern end of linear B is an extant earthwork recorded from lidar within Bridle's Copse. Analysis of ditch fills carried out by the University of Reading in 2016 indicated the presence of moving water during its lifetime (Fulford, Barnett & Clarke 2016, 7). Radiocarbon dates obtained for the northern section of the Bridle's Copse linear point to a construction date in the Middle Iron Age, predating the *oppidum* at Silchester (ibid, 13). The southern section of this earthwork appears quite different in character from the northern section. At the point where it changes alignment, it becomes markedly both narrower and straighter, suggesting perhaps a different function, or a different date of construction.

The south-eastern section of linear B was recorded in the eastern half of the field south of Early Bridge Copse from a cropmark on aerial photographs. The feature was also identified through a Caesium Vapour Magnetometry survey (Historic England 2016) in the gap between the earthwork and the cropmark suggesting that it was originally a continuous feature of approximately 590m in length. The geophysical survey did not show the two parallel linear banks which cross the linear on a south-west, north-east alignment. These were recorded from cropmarks and it is unclear what their relationship was to linear B.

Wood Farm

Two sections of a dyke formed of a bank with a ditch on the eastern side, extend from south-west to north-east, to the east of Wood Farm (both sections marked as C on Figure 52). The southern section of the dyke survives as an earthwork and was recorded from lidar images. The northern section was recorded partially as earthworks on lidar and the remainder from cropmarks seen on aerial photographs. An excavation took place in May 2016 on the northern section of the dyke as part of the Silchester Iron Age Environs Project (Figure 53) to determine whether it could be dated to the same period as the *oppidum* (Fulford, Barnett & Clarke 2016, 11). Pottery of possible late Iron Age date was recovered from a land surface at the base of the monument and a series of radiocarbon dates show that the earthwork was constructed in the late Iron Age. This evidence suggests that the dyke and the *oppidum* are contemporaneous. Evidence of a settlement was found adjacent to the dyke, with radiocarbon dates from the Early, Middle and late Iron Age. The dyke appears to have had a long period of use as post medieval horseshoes were collected from the uppermost layers, indicating that it might have been used as a route way (ibid, 13).

Figure 53 Excavation of the dyke at Wood Farm in 2016 © University of Reading

Dicker's Copse

A linear bank with a ditch on its eastern side (D on Figure 52) extends to the south-west through Dicker's Copse from the south of the Silchester outer earthwork at Rampier Copse to Dicker's Farm. The northern section of the dyke running through Dicker's Copse is broader than its southern end, which runs through open ground alongside an extant trackway, narrowing from up to 12m wide to a maximum of 7m wide. This earthwork has probably been eroded by the later trackway and may have originally been the same width as the northern end. It may have continued to the south-west along the side of the trackway and a field boundary west of Bramley Road.

Flex Ditch

A linear earthwork known as the Flex Ditch (E on Figure 52) is located in the southern area of the modern village of Silchester and to the west of the Iron Age settlement. It is oriented northeast - southwest and lies immediately to the north of the route of the Roman road from Silchester to Old Sarum, with which it shares a broadly similar alignment. It is a substantial depression, recorded here from lidar, measuring approximately 170m in length and up to 32m in width. The ditch crosses the highest part of a spur, extending between a dry valley to the south west and the valley of a tributary of the Silchester Brook to the north east. A bank on its northern side was destroyed during the construction of modern houses but the ditch still has a maximum depth of around 6m (NHLE entry 1008725). This feature has been regarded as being one of the Silchester dykes (eg Boon 1974, 40), but it is unclear from present evidence alone whether the Flex Ditch was part of a

more extensive dyke. Alternately, it might have been a quarry pit alongside the Roman road, as also seen along the route of the road to Speen or to the south-west on the route of the Portway. Williams-Freeman suggested that the Flex Ditch was "a modern digging for soil" (1915, 407).

The dykes: north and west of Silchester

Grim's Bank

There is only partial coverage by Environment Agency lidar in this area and as a result the earthworks were recorded from a combination of sources: aerial photographs, lidar and images generated from APGB height data (see p15). The tree cover in this this area meant that one section of Grim's Bank to the south of the fuel depot at Padworth, which is shown as an earthwork on the modern OS map, could not be identified from the available sources and could therefore not be mapped during this survey.

Grim's Bank (Figure 54) lies to the north-west of *Calleva* and is visible as a fairly substantial earthwork extending from the grounds of the Aldermaston Atomic Weapons Establishment to cross Padworth Common to the north-east. Grim's Bank is the most distant of the dykes from Silchester, approximately 2.4 km to the north-west of the outer earthwork and is of uncertain date. Analysis of pollen evidence from an excavation at the south-western end of Grim's Bank by the Berkshire Archaeological Unit in 1978 suggested that this part of the linear earthwork was in existence in the later prehistoric/early Roman period and might have been contemporary with other dykes around Silchester (Astill 1980, 65).

Grim's Bank appears to be a collection of earthworks rather than a single feature. It consists of several sections which may not have been constructed at the same time or have served the same purpose. Excavations by O'Neil in 1943, Gilyard-Beer in 1952 and the Berkshire Archaeological Unit in 1978 on different parts of the southernmost sections of Grim's Bank showed a difference in construction techniques at the southern and northern ends. There was a construction of grey and yellow gravel at the southern end and a berm and possible revetting to the front of the bank at the northern end (ibid, 63).

The linear feature has a total length of approximately 4.25 km. Most of the sections have a similar southwest - northeast alignment but appear to change in character along its length. The southernmost section, which is preserved as an earthwork within the grounds of the Atomic Weapons Establishment, continues to Oxenheath on a southwest - north-east alignment (A1 on Figure 54). The southern sections of Grim's Bank could be seen as a single feature if their routes were extended.
The straight northernmost section in Park Piece (C on Figure 54) is orientated southwest-northeast and has a different alignment from the parts of the dyke to the south as its southern end is circa 430m to the east of the north-eastern end (as mapped) of section A3.

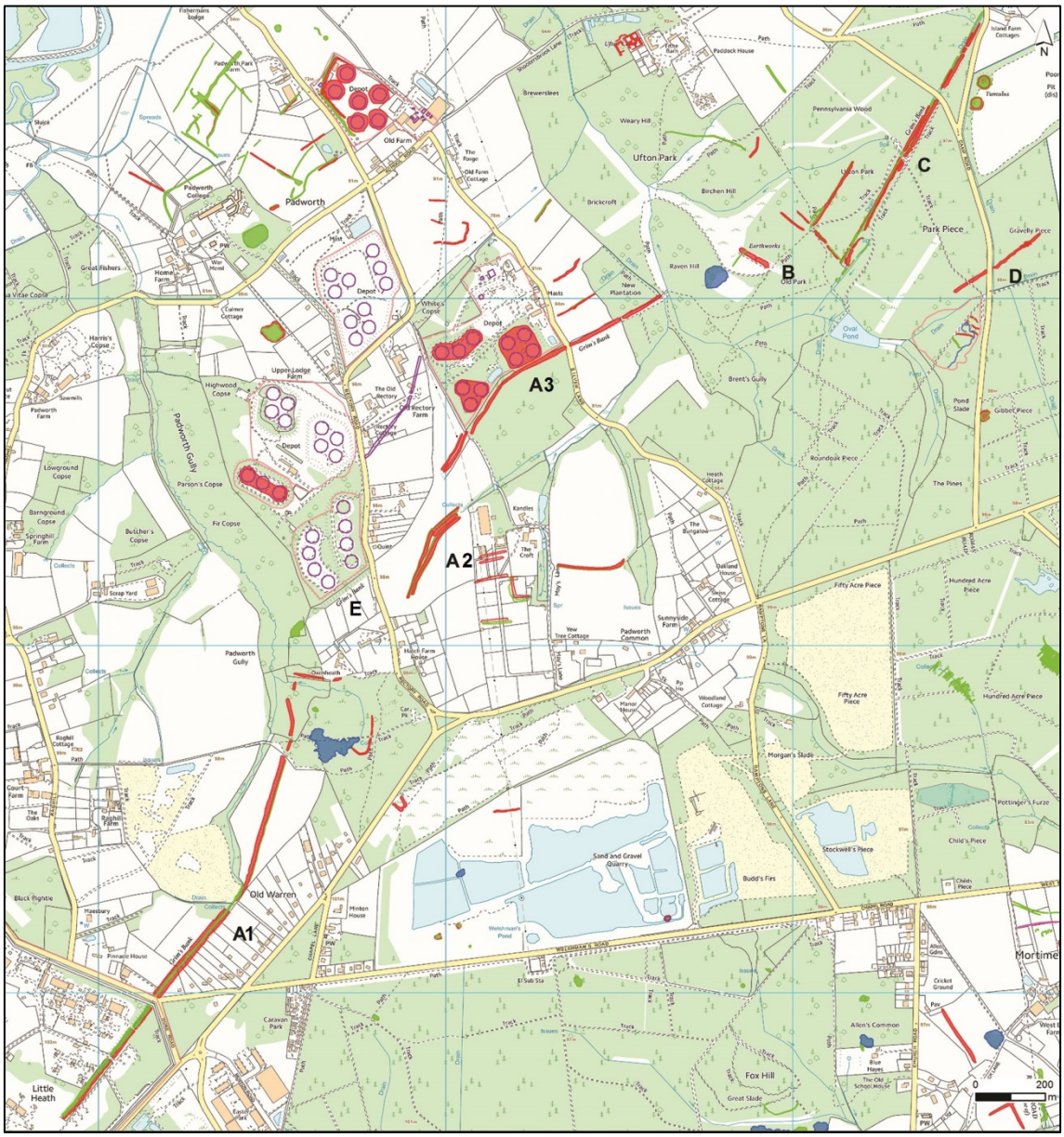

Figure 54 Dykes located to the north-west of Silchester (northwest section of Figure 52): the southern sections of Grim's Bank (A1, A2 and A3) extending from Aldermaston to Padworth; a possible cross-ridge dyke on Raven Hill (B); northern sections of Grim's Bank within Park Piece (C); a linear dyke to the south-east of Grim's Bank, east and west of Camp Road (D); section of bank which could not be mapped from the available sources to the south of Padworth fuel depot (E). © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

A northwest-southeast oriented bank (SU 62886 66118, B on Figure 54) is located on Raven Hill between sections A3 and C. The bank measures approximately 200m in length and up to a maximum of 10m in width. It appears to demarcate a spur of land and has been interpreted, based on its morphology, as either a promontory fort (O'Neil 1943, 192), or as a cross-ridge dyke (Field *et al* 2015, 14-15) (See Figure 55).

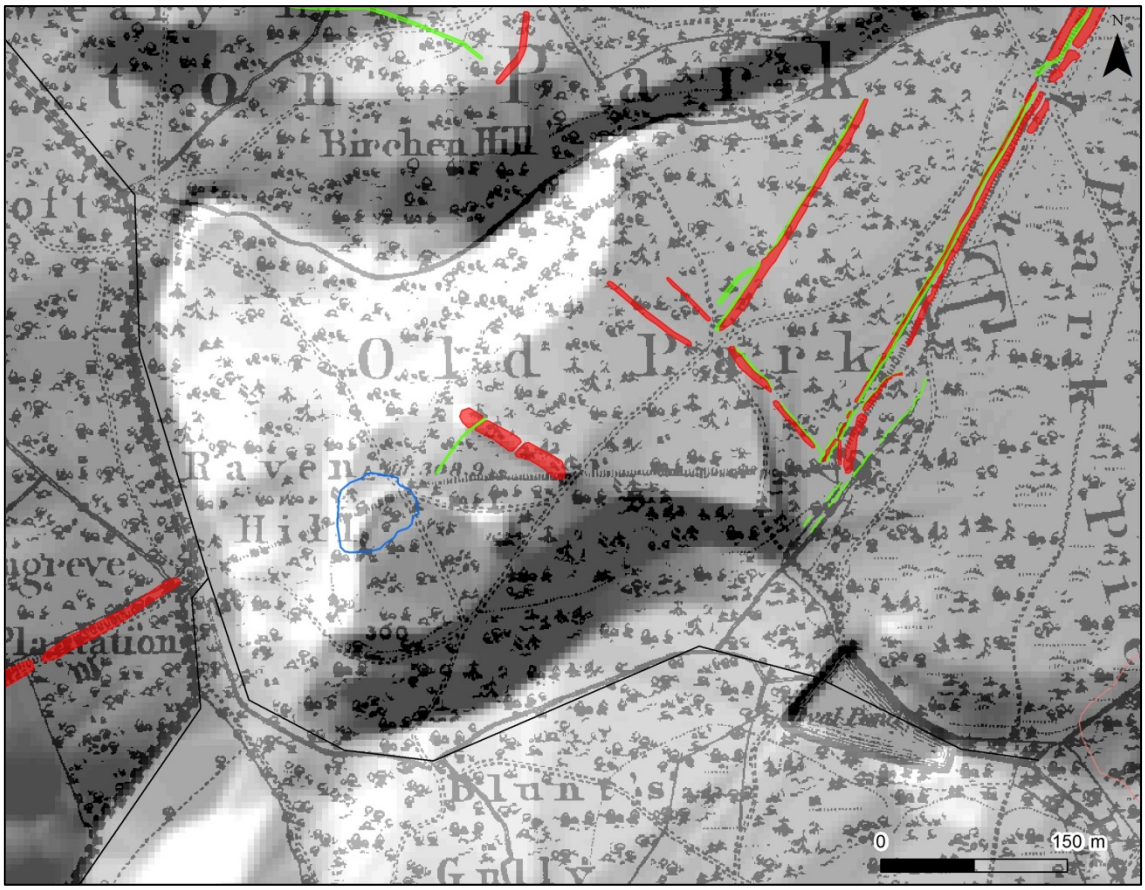

Figure 55 Bank interpreted as either a promontory fort or a cross ridge dyke seen in the centre of the image crossing a spur of land. The archaeological features are shown against the first edition OS map draped over the contour data ©APGB 5m DTM; © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1872)

A linear bank was newly recorded as an earthwork from lidar within Park Piece and Gravelly Piece (D on Fig 57), to the east and west of Camp Road. The bank is on a south-west, north-east alignment and measures approximately 300m in length. Further investigation, perhaps including excavation, would be needed to show whether this earthwork was connected with the Grim's Bank complex.

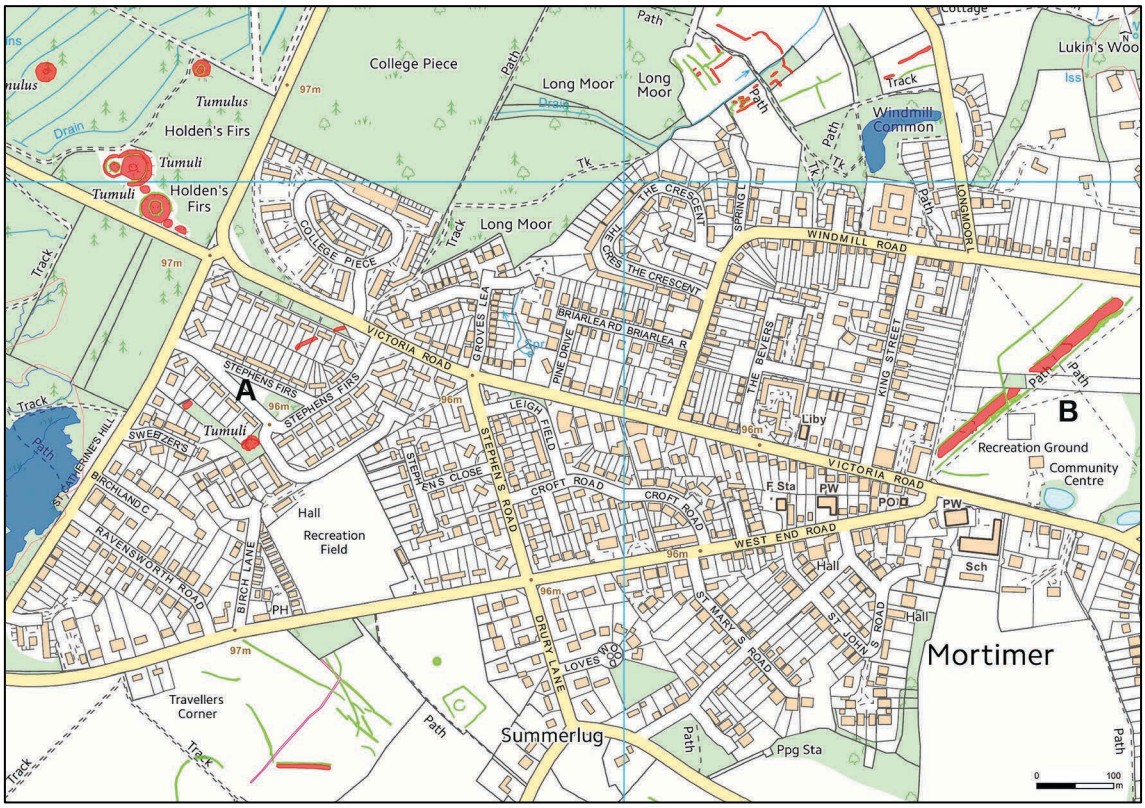

Figure 56 Linear dykes to the north-west of Silchester: A - Stephen's Firs, B - Recreation Ground, Mortimer © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

Stephen's Firs

Sections of a possible Iron Age dyke cross through the Stephen's Firs area of Mortimer from St Catherine's Hill to Victoria Road (A on Figure 56). Three banks, with no evidence of an associated ditch, measuring 13 m, 31 m and 16 m in length were recorded from lidar in open spaces across an area of housing. The dyke had previously been surveyed and mapped by the Ordnance Survey. The earthwork is shown on the Original Series OS One Inch mapping (1816-1830) as a continuous bank with its south-western end at a point to the west of St Catherine's Hill. It is also shown on the first edition OS map (1:2500, 1872) as a continuous bank and the surviving sections which could be identified on lidar correspond to the alignment as mapped.

Recreation Ground, Mortimer

The cropmark of a straight bank flanked by ditches (B on Figure 56) was recorded from aerial photographs crossing the Recreation Ground, Mortimer, from south-west to north-east. It measures approximately 21m in total width, similar to both the outer earthwork and dykes at Brocas Lands and Rampier Copse. This feature could be part of a Roman road (West Berkshire HER MWB4814) heading to Silchester. If this was the case it would meet the outer earthwork to the north of the Roman town, possibly ending in a junction with the Silchester to Dorchester-on-Thames Roman road. It is not aligned on a known route in the Roman road

network around Silchester, but might be part of the road to St Albans, the route of which is disputed in this area. The width of the earthwork is similar to some of the surviving sections of the Silchester to Speen Roman road, which measure between 19m and 26m in width. Without further investigation, including perhaps excavation, it is impossible to state whether the linear feature was associated with the late Iron Age settlement, or had a later date of construction and formed part of the Roman road network around Silchester.

Brocas Lands Farm

A linear bank was newly recorded as a low earthwork from lidar extending from southwest to northeast through Brocas Plantation (A on Figure 57), then continuing to the northeast crossing the field to the north of Hilliar's Copse (B on Figure 57). The linear appears to continue on the same alignment to the east of Drury Lane (C on Figure 57), where a wood bank defining a plantation is shown on the first edition OS map (1:2500, 1872). It is possible that a section of the linear dyke was reused as a wood bank.

Radiocarbon dating carried out following an excavation by the Silchester Iron Age Environs project team in 2016 suggested Middle Iron Age (400-205 cal BC, 2257±28 BP, SUERC 69389) origins (Fulford, Barnett & Clarke 2016, 8). This would mean the dyke predates the founding of the *oppidum*. If the line of the dyke were to be extended to the south-west it would possibly join the dyke which extends to the south-west from Churchlane Copse (Figure 52 above).

The dykes to the south-east of Grim's Bank in Park Piece, Stephen's Firs and to the north of Brocas Lands Farm all have a similar alignment to the central section of Grim's Bank. O'Neill (1943, 193) suggested that the dykes in Park Piece and Stephen's Firs might be focused on a location other than *Calleva*, perhaps on Mortimer Common in the vicinity of the Holden Firs barrow cemetery. The only possible site in this location is the enclosure shown on the first edition OS map (1:2500, 1872), but later removed by gravel extraction, at Pickling Yard Plantation (see above). In the light of the discussion of polyfocal sites and the suggested Middle Iron Age date for the Brocas Lands Farm dyke and the linear dyke at Bridle's Copse, Little London, it is possible that this enclosure was one of a group of related sites in the Silchester area with an association with the linear dykes, predating the *oppidum*.

Figure 57 Dyke crossing Brocas Plantation and continuing to the north-east (section A). The line of the dyke is preserved in later boundaries to the north-east (C) and south-west (A). (Removed post medieval field boundaries are shown in pink) © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

Another feature which could be interpreted as a linear dyke, based on its form and alignment, is located adjacent to Headlands Farm to the east of Mortimer (Figure 58 and north-east corner of Figure 51). However, it is also possible that this feature is a trackway. Its relationship to the group of field boundaries, of possible medieval or post medieval date, to the east is unclear, but a narrow trackway, of uncertain date, to the west appears to cut through it. The possible dyke or trackway was newly recorded from cropmarks observed on aerial photographs and comprises a bank with a ditch on its eastern side measuring approximately 500m in length. The feature is on a similar alignment to the north-eastern side of the Iron Age boundary bank around the *oppidum*, echoing its orientation in the same way that Grim's Bank follows the alignment of the north-western side.

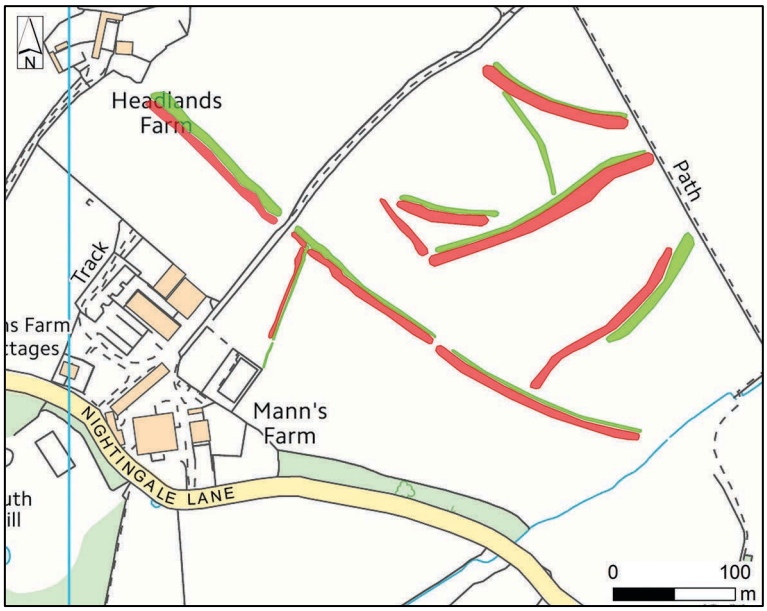

Figure 58 Possible dyke or trackway and field boundaries adjacent to Headlands Farm © Crown Copyright and Database Right [2016]. Ordnance Survey (Digimap Licence)

The linear earthworks around Silchester vary in form and extent, but many would have been substantial physical features in the landscape. While it is unlikely that all of the linear features mapped during this survey were contemporary in terms of construction, or performed similar functions, it seems likely that a considerable proportion were constructed in the late Iron Age. Current evidence, based on aerial photographs and lidar, does not represent a complete picture of the pattern of earthworks. The presence (or continuation) of some linear earthworks may be represented by the courses of later roads or boundaries, but further reconnaissance or geophysical survey will be necessary to test this. The possible reasons for constructing these dykes are also open to debate. For example, it has been suggested that the network of linears known as the Chiltern Ditches may have delineated different kinds of settlement (Bradley 1968, 12), while those around Bagendon may have controlled movement within a specified territory (Moore 2012, 410).

The linear earthworks and the boundaries around Silchester may have continued to have significance into the Roman period but how they were regarded is unclear. As discussed below, there appears to be continuity of settlement to some extent during this transition from the late Iron Age period to Roman control, but new forms of settlement also appear. The most striking changes are the redesigning of *Calleva* and the construction of the road system around it.

Changing settlement types

Changes to the settlement forms within the survey area appear to occur during the Later Iron Age. Rectangular enclosures are more common, occurring either as a single feature, perhaps housing a single family group, or within complexes consisting of a number of such enclosures, sometimes joined in a ladder-type formation associated with droveways, which may have been settled by several

families. A distinctly new type of settlement is represented by a possible villa located to the south of Silchester at Nelson's Field.

The pattern of varied settlement around Silchester area in the Roman period is one seen across southern England. As a whole the region contained a number of major urban centres and military sites set within a network of roads. Each of the major towns had a rural hinterland, although the degree to which they exercised direct control over them is unclear (Smith *et al* 2016, 78). There are a range of different settlement types within those rural areas, probably connected by trackways and minor roads. Excavated evidence suggests a peak in the establishment of rural settlements in southern England in the late 1st/2nd century AD, with a gradual decline through to the 2nd half of the 4th century AD (ibid, 81).

Throughout south-eastern England, enclosed Roman settlement is common in most areas, but particularly eastern Kent, northern and western Hampshire and the Thames Valley (Taylor 2007, 66). Rectangular or square enclosures possibly enclosed the residence or farm of one family group and contained a range of buildings, including domestic, agricultural and storage buildings (Hingley 1989, 55). Examples are found throughout the environs of Silchester and many could date from the later Iron Age onwards. Unenclosed settlement is more difficult to identify with aerial survey as it lacks the enclosing ditch that is more likely than any other settlement feature to produce a cropmark. Consequently, it is likely that there was more unenclosed settlement than the results presented here suggest.

A rectangular enclosure located to the west of Little London (SU 61949 59724) was identified from cropmarks (Figure 59). A trackway, or possibly part of another enclosure or field boundary, extends from the western side. This enclosure is located near to the site of a Roman tilery so may have been part of a settlement or industrial area adjacent to it. There are numerous pits within and around the site, although it is uncertain whether they predate or postdate the enclosure based on aerial evidence alone. Their size suggests that they may represent clay extraction, indicating that clay was being obtained across a larger area than that immediately around the tile kiln. Clay extraction and processing continued in this area into the 19th century and a brickyard and kiln are marked in this area on the first edition OS map (1:2500, 1872). Larger brick pits were excavated for the 19th century industry, highlighting the continuing use of the London Clay found in this area.

A small rectangular enclosure (Figure 60), possibly associated with field boundaries and trackways to the south of the site, is located to the north-west of Silchester (SU 62982 63006). These features were recorded during the Hampshire Aggregates NMP project (Young 2008)). The enclosure measures approximately 35m by 25m and has a clear break or entrance gap in its southern side. The enclosure may have been the site of an outlying farm associated with the *Calleva*.

Figure 59 Enclosure to the west of Little London. The larger pits around it (smaller pits shown in green and larger pits in blue) were probably associated with a 19th century brickworks. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

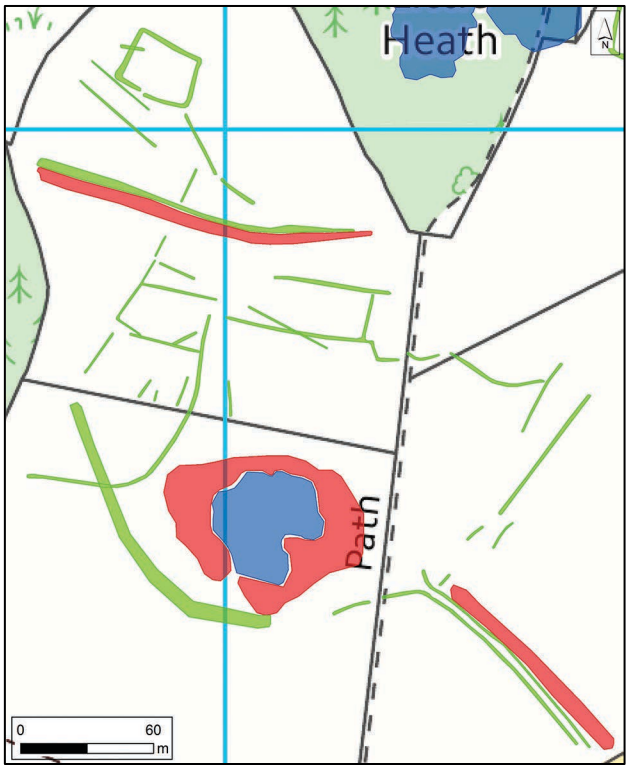

Figure 60 An enclosure, trackways and field boundaries to the east of Catthaw Lands Copse, north-west of Silchester. Later gravel extraction pits can be seen in the centre and north of the picture. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

A settlement which may be Iron Age or Roman in origin is located to the north of Pound Green in the north-east of the survey area (Figure 61). The site consists of an enclosure measuring 60m square which has a number of field boundaries and trackways around it. The cropmarks may represent a single farm with its associated fields, but it is also possible that these features are the remains of a more complex, possibly multi-phase, settlement.

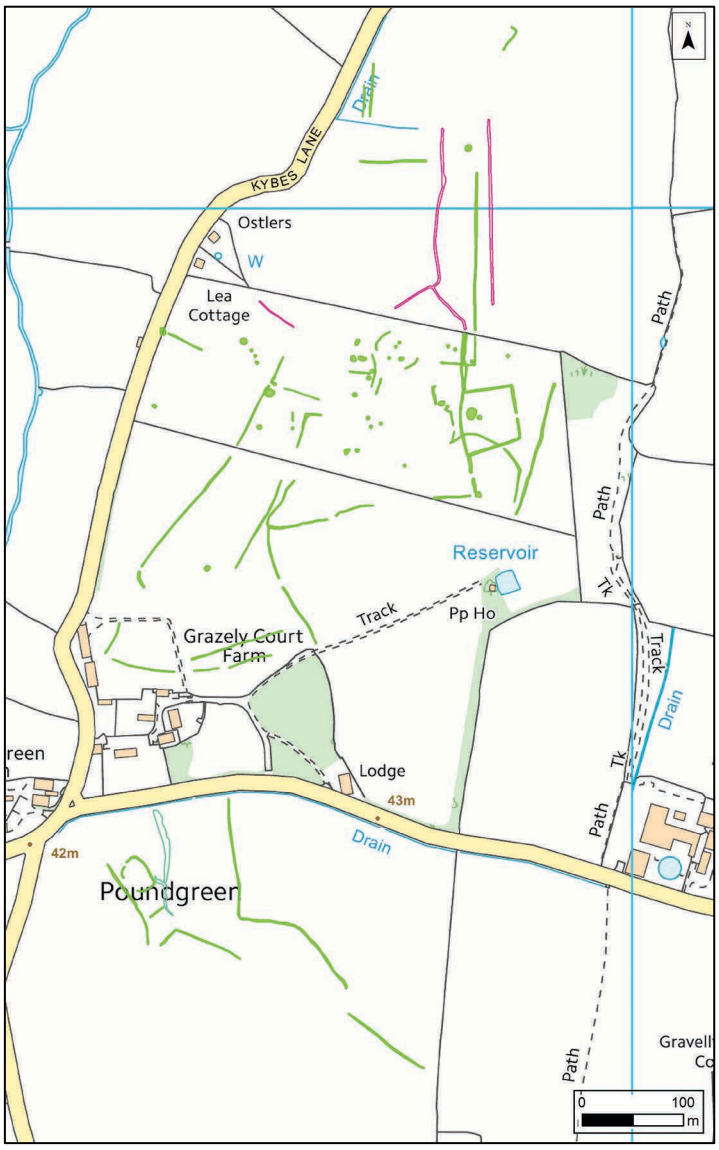

Figure 61 Settlement enclosures and field boundaries around Poundgreen © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Ladder-type groups of enclosures associated with trackways or droveways appear to become common in the early Roman period in the central area of Britain but are less common in the south. They have been interpreted as complex farmsteads (Smith *et al* 2016, 30), but much larger examples in south-eastern England may be clusters of farms, or villages (Taylor 2007, 52).

A possible example of this type of linear settlement was identified to the south of the kiln site and enclosure at Little London (SU 61764 59500, Figure 62). The

collection of enclosures is a rare example of a site identified from cropmarks on London Clay soils in this area. The cropmarks were very faint and it is highly likely that the full extent of the site was not visible on the available photographs, but it appears to be a group of enclosures, possibly with double-ditched trackways or droveways along its northern and southern sides. Pits around the site may have been contemporaneous, but might equally relate to extraction of clay in later periods.

Figure 62 A possible farming settlement to the west of Little London © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Examples of more complex types of settlement were identified in the northern part of the survey area, where soil conditions, over river gravels, are favourable for clearly defined archaeological cropmarks.

Two examples of ladder-type settlements to the north and west of Ufton Nervet were both newly identified through the current survey from cropmarks on aerial photographs (Figure 63 and Figure 64). These sites are similar in appearance to excavated Roman examples found at Cambridge and Haddon (Cambridgeshire) (Smith *et al* 2016, 30) and to an enclosed settlement at Raghill Farm, Aldermaston (West Berkshire), which was found to be late Iron Age/Roman in date. The excavators of Raghill Farm noted the significance of the site given the absence of similar settlement forms in the Aldermaston area (Wessex Archaeology 2008, 17). However, the settlements near Ufton Nervet and Little London suggest that this form was not as rare in the Silchester area during the late Iron Age and Roman periods as previously thought (*ibid).*

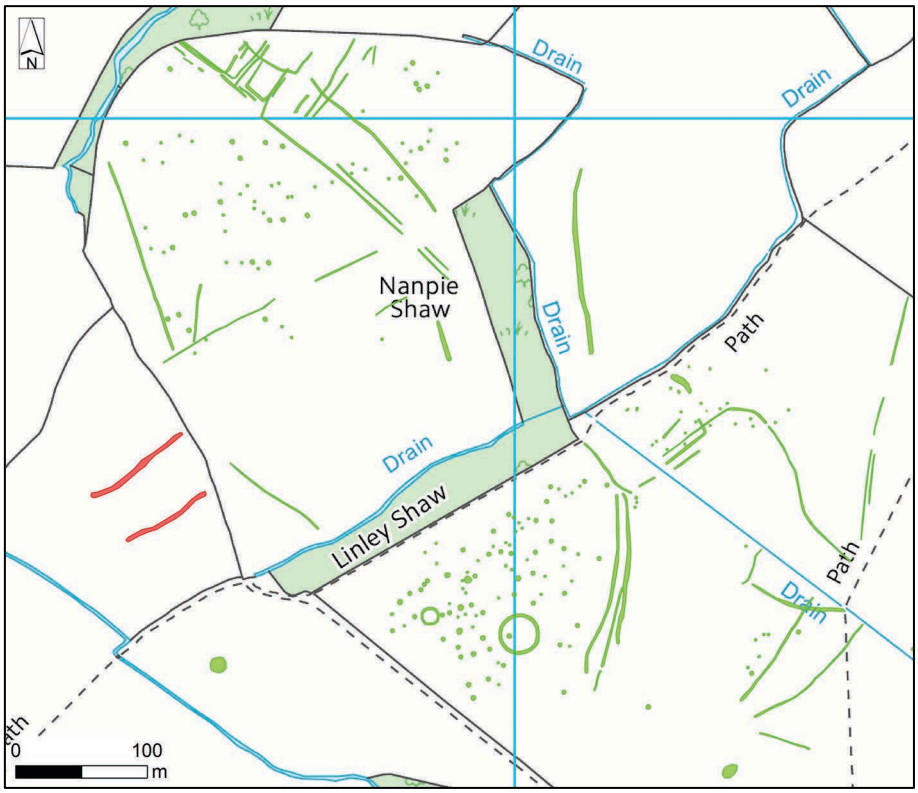

Figure 63 Linear settlement at Nanpie Shaw, to the north-west of Ufton Nervet. Trackways and boundaries to the south of Nanpie Shaw may also be associated with the site. Two ring ditches, probably the remains of Bronze Age barrows are adjacent to the trackways. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

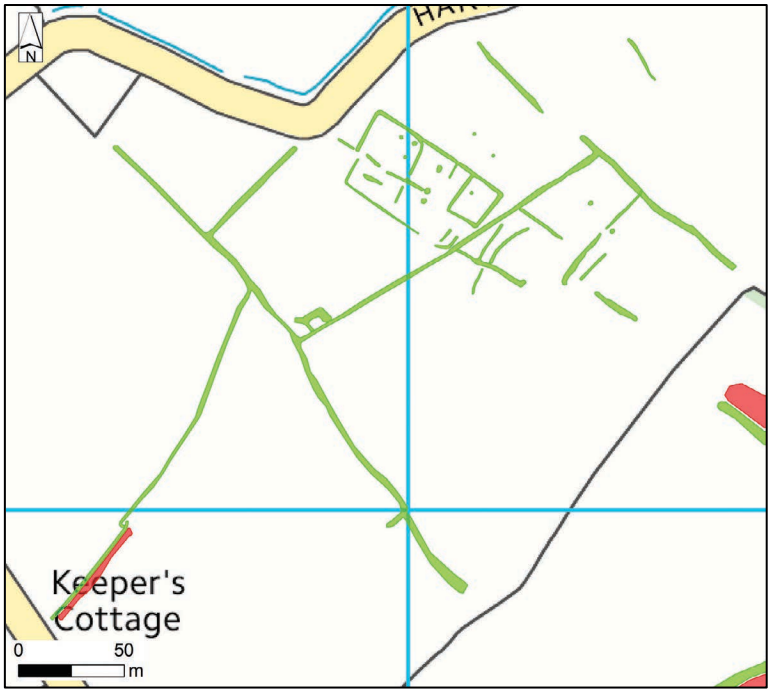

Figure 64 Linear settlement to the north of Ufton Nervet. A post medieval field system overlies the site. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Settlement west of Silchester, outside the Roman town and along the line of the Roman road to Speen, may also contain ladder-type settlements (Figure 65). The overall pattern of settlement features in this area is complex, and it is debatable whether they are offset from (and therefore respecting) the road, or pre-existing settlement has been cut through by the road. The cropmarks could represent two (or more) multi-phase settlements with associated field boundaries.

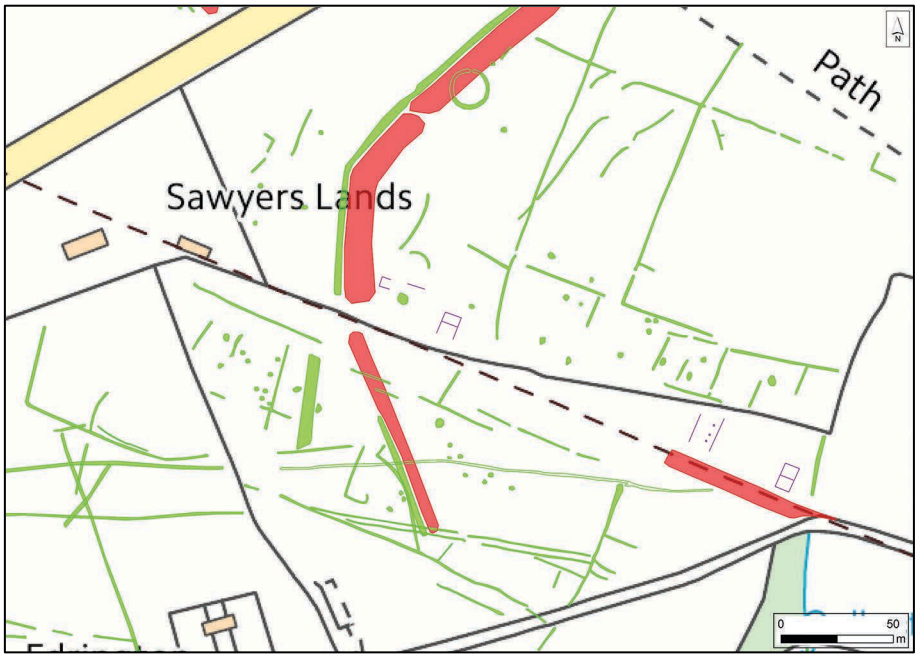

Figure 65 Detail of the settlement to the north and south of the road from Silchester's western gate to Speen (dotted line in centre of map). The broad bank of the late Iron Age outer earthwork runs through the settlement area appearing to overlie a possible Bronze Age barrow or enclosure © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Field boundaries were recorded around the northern, eastern and western sides of Calleva which may relate to either the late Iron Age or Roman settlement, or both. Field boundaries were also recorded around the ladder settlement in Nanpie Shaw (Figure 63), also located on gravel soils. Field boundaries, which may have originated in the Iron Age but remained in use during the Roman period, have also been recorded in other areas to the north and south of Silchester (see previous chapter). In general, they have been identified on gravels, with the exception of the field system to the east of Sherborne St John (Figure 29) which straddles chalk and clay soils. It is possible, as has been noted for previous periods, that a degree of specialisation in farming was also practised, with arable cultivation on the free draining gravel soils and with the good pasture associated with clay soils generally reserved for stock grazing.

There is no definite evidence for Roman villas in the survey area, but a group of enclosures and trackways within Nelson's Field, Three Ashes, south of Silchester, may represent such a site (Figure 66 and Figure 67). The cropmarks, visible over an area measuring 200m by 165m, consist of a double-ditched trackway with two enclosures to the north and two enclosures to the south. Fragments of decorated box tile, flint and tile were observed here and Corney (1984, 280) interpreted these

finds as indicating that a structure of "more than purely agricultural use" was sited here. Further non-intrusive investigation, perhaps both geophysical survey and fieldwalking, would help to establish whether the cropmarks relate to the remains of a villa and associated features.

Figure 66 Possible villa site, Three Ashes, visible as cropmarks. © Getmapping plc via Google Earth 31 Dec 2005

There are enclosures surviving as earthworks within Bramley Frith Wood around 420m south of the possible villa site and separated from it by a gap within which no evidence of settlement has been identified to date (Figure 67 and Figure 68). The earthworks, recorded from lidar, are visible over an area measuring 178m by 113m. They appear to define either two conjoined enclosures or a single large enclosure with an internal subdivision. There is no evidence for a northern side of the enclosure on either aerial photographs or lidar. The earthworks may have been truncated by a parish boundary bank on their northern side (Hampshire AHBR 42779). Further investigation, beginning with geophysical survey, would be needed to confirm whether the enclosures do extend north beyond the current limit of woodland.

The enclosures could be Iron Age or Roman in origin. Burnt flint, iron slag and lead were found during an earthwork survey in 2001 by Berkshire Archaeology Services (report information accessed via Hants AHBR 24010). The surveyors concluded that specialised activities were carried out here as well as it being a domestic site. It is possible that parts of the enclosures were re-used for woodland management in the medieval or post medieval periods and earthworks around them may be post medieval woodbanks.

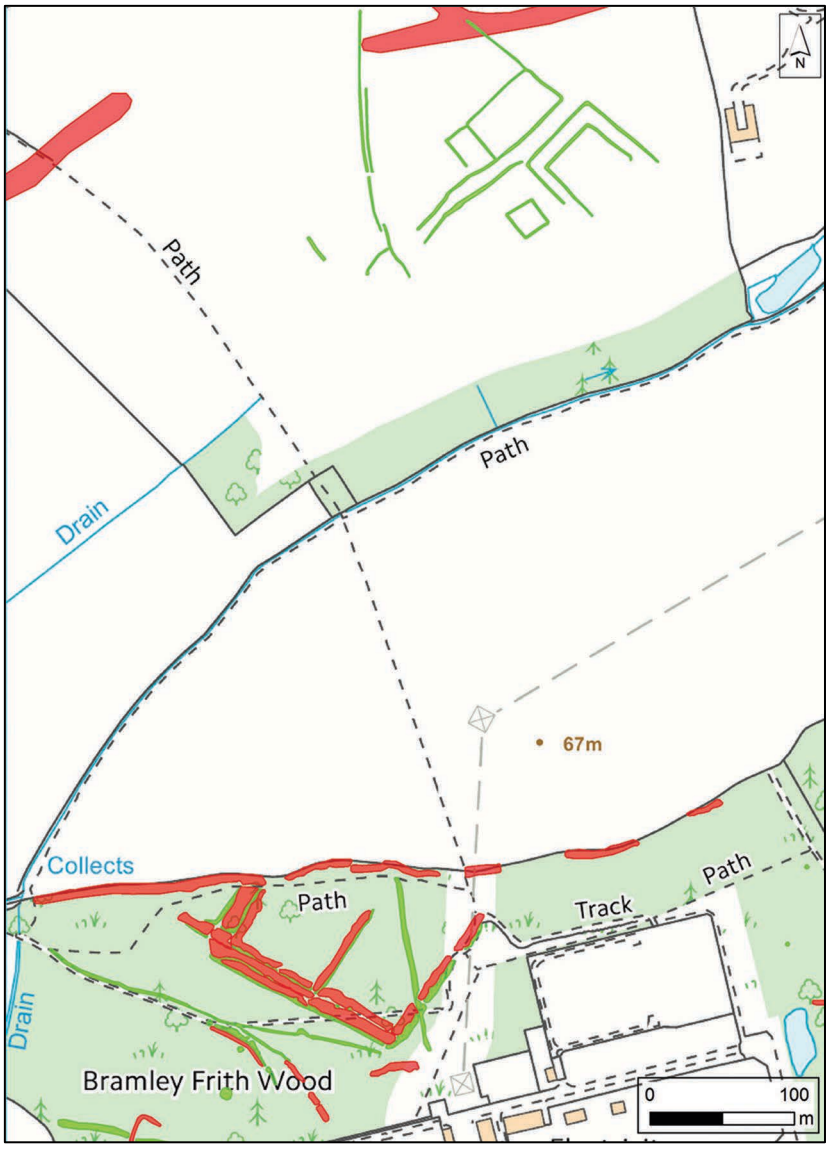

Figure 67 Possible villa in Nelson's Field, Three Ashes and enclosures in Bramley Frith Wood © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Figure 68 Iron Age or Roman enclosures in Bramley Frith Wood) on hillshade model of lidar DTM. ©Environment Agency/University of Reading

Several settlement sites, which may have an Iron Age origin but continue in use into the Roman period, were identified from cropmarks on aerial photographs in the northern part of the survey area to the north and south of Bath Road, at Ufton Nervet (SU 6167 6928). The settlements are indicated by enclosures, trackways, field boundaries and possible hut circles spread across an area of approximately 143 hectares (Figure 69). Numerous pits were also recorded, which may be associated with extraction of deposits of clay that occur in the underlying gravels (Gates 1975), though they could relate to the settlement.The adjacent Bronze Age barrow cemetery may indicate Middle Bronze Age or earlier settlement in this area but it is not clear if any of the boundaries or enclosures are from this period.

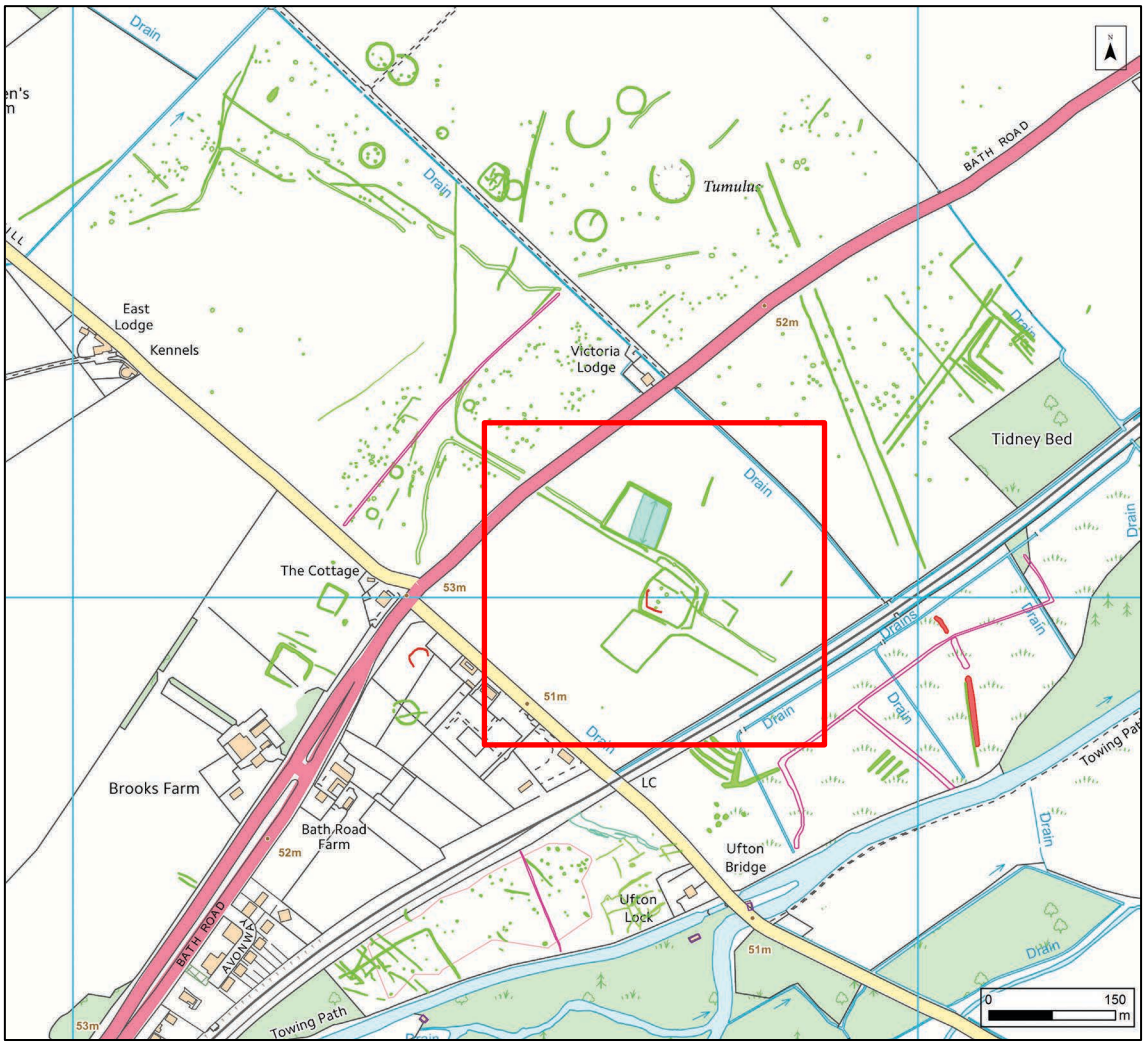

Figure 69 Bronze Age barrow cemetery, Iron Age and Roman settlement to the north and south of Bath Road. See detailed map below for particular features. See Figure 70 for boxed area © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

Trackways or linear boundaries extend across the settlement area, and are mainly oriented northwest-southeast or southwest-northeast. Small ring ditches are located along boundaries which lie immediately to the north of Bath Road, but it is difficult to tell whether the features are contemporaneous. The ring ditches are relatively small (two of 13m diameter and one 15m in diameter) and are well within the size range of Bronze Age round barrows. However, they may equally represent hut circles (perhaps drainage gulleys surrounding house sites) of possible Bronze Age or Iron Age date, although in this case they would be at the upper end of the size range for such features.

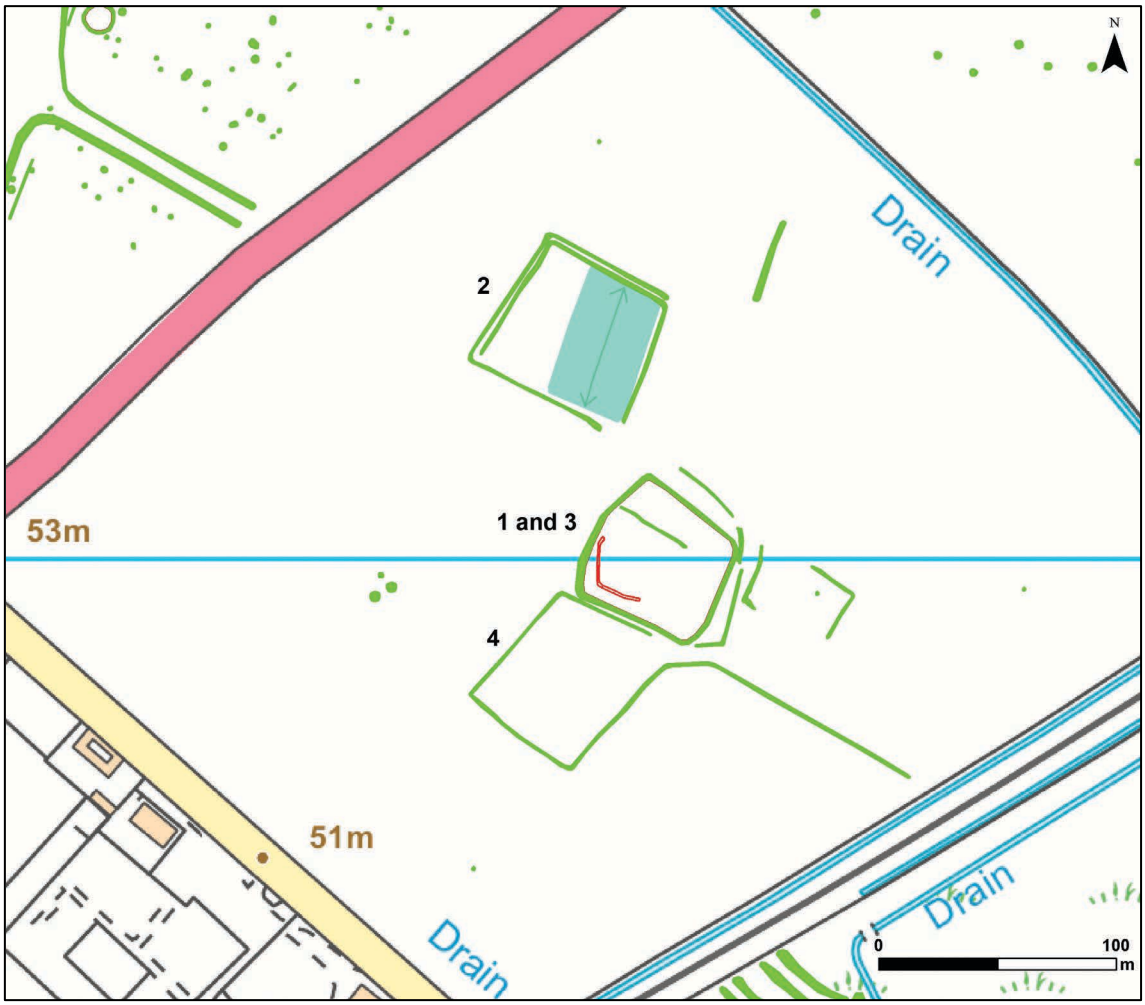

Figure 70 The features excavated by Manning: late Iron Age enclosure (1) overlain by Roman enclosure (3) and later Roman enclosure (2) located to the north. Road and an additional enclosure (4) identified through the current survey © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

Dating evidence for part of this area was provided by Manning's excavations of three enclosures to the south of Bath Road in 1961-1963: one overlying another and a third located to the north with a connecting trackway running between them. The earliest enclosure (1 on Figure 70) is late Iron Age and had no evidence for structures within it. A second enclosure (2 on Figure 70) was constructed to the north in the mid-1st century AD and a trackway running between the two enclosures was added later. Drainage gullies around a group of rectangular buildings were identified by the excavator within the northern enclosure. A third enclosure was then built over the site of the original late Iron Age enclosure, cutting through the surrounding ditch (3 on Figure 70). There may have been an overlapping period of use between the earliest enclosure and the later features, but the surrounding ditch had silted up by the end of the 1st century AD (Manning 1973, 12). An adjoining enclosure to the west (4 on Figure 70) is visible as a cropmark on aerial photographs but is not shown on Manning's site plan (1973, 4), so was presumably not identified from the aerial photographs available to him at the time of his excavation. This enclosure lies parallel to enclosure 2 and the

trackway and may be Roman in date as it appears to respect the other features of this period, although an earlier origin is also possible. Fragments of a field system and additional trackways can also be identified around the enclosures.

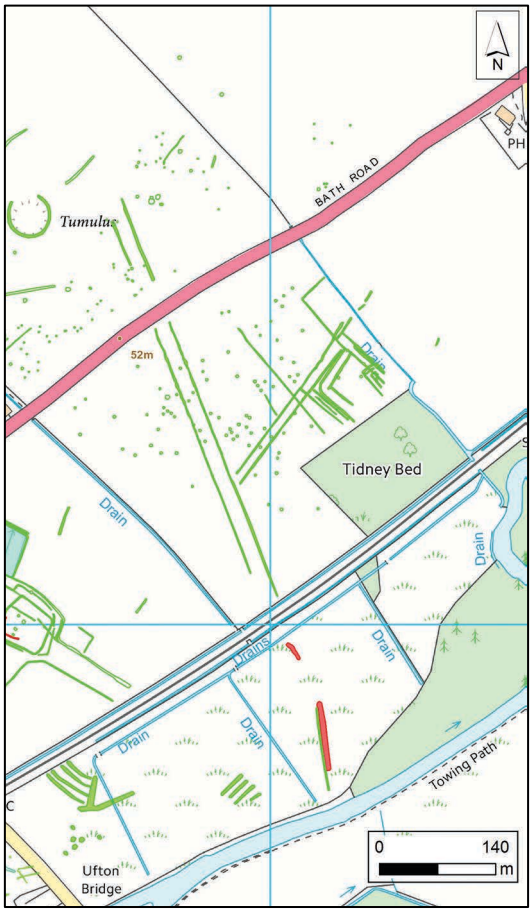

Figure 71 The Silchester to Dorchester-on-Thames Roman road, visible as two parallel ditches mapped from cropmarks, with a road leading northeast from it towards a group of settlement enclosures © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

The Roman road from Silchester to Dorchester-on-Thames (Figure 71) was constructed to the east of the group of the enclosures excavated by Manning and was probably contemporary with the later phases of this site (Manning 1973, 12). Another possible road leads off to the northeast towards two overlapping, multi-ditched enclosures. This road was defined by two straight parallel ditches seen as cropmarks. It is similar in appearance, although narrower in width, to the main Roman road and is probably contemporary or later than it. The settlement to the south of the eastern end of the minor road comprises two overlapping double-ditched rectangular enclosures, covering an area measuring approximately 70m by 80m and there is a single-ditched enclosure to the north. This appears to be an area of multi-phase settlement, but at least some of the enclosures were probably constructed after the creation of the Roman road.

Another area where there is evidence of repeated use of a particular location is to the north of the Bath Road (SU 61499 69492). This is adjacent to the greatest

concentration of Bronze Age barrows in the survey area (Figure 72, and north of centre on Figure 69). A trapezoidal enclosure appears to cross the surrounding ditch of one of the Bronze Age barrows, strongly suggesting that it is later in date. The fact that the enclosure ditch only clips the western side of the ring ditch may perhaps mean that an extant barrow mound still existed at the time. It is also possible that the stretch of enclosure ditch that clips the barrow represented a second phase, or extension of, the trapezoidal enclosure. A smaller trapezoidal enclosure may represent an earlier phase within the larger enclosure. This smaller enclosure in turn either cuts through or underlies a small ring ditch, which may be the site of a round barrow or perhaps – more likely given its relative slightness and smaller size – the site of a round house.

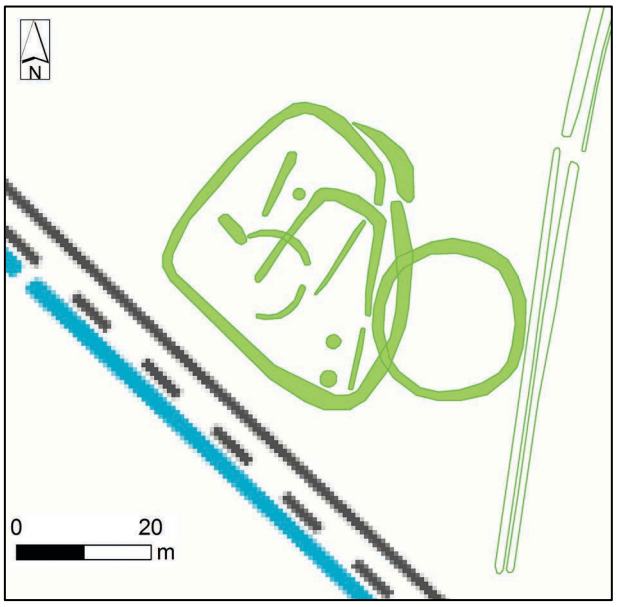

Figure 72 Overlapping settlement enclosures and ring ditches to the north of Bath Road © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

Further evidence of settlement was recorded in the south-west of the area, to the north-west of Ufton Lock (Figure 73). To the west of Ufton Bridge, overlapping curvilinear boundaries and partially visible rectangular enclosures may represent settlement enclosures or field boundaries (SU 61540 68625). The overlapping nature of the remains indicates multi-phase use of the site. There are further overlapping linear boundaries and possible cultivation marks to the west of these features. An oval enclosure may be evidence of earlier settlement to the east of Bath Road Farm (SU 61394 68865) and is similar in appearance to the possible Late Bronze Age enclosure at Pingewood (see Bronze Age discussion above). Two square enclosures to the north of Bath Road may be late Iron Age or Roman (SU 61256 68918 and SU 61306 68998).

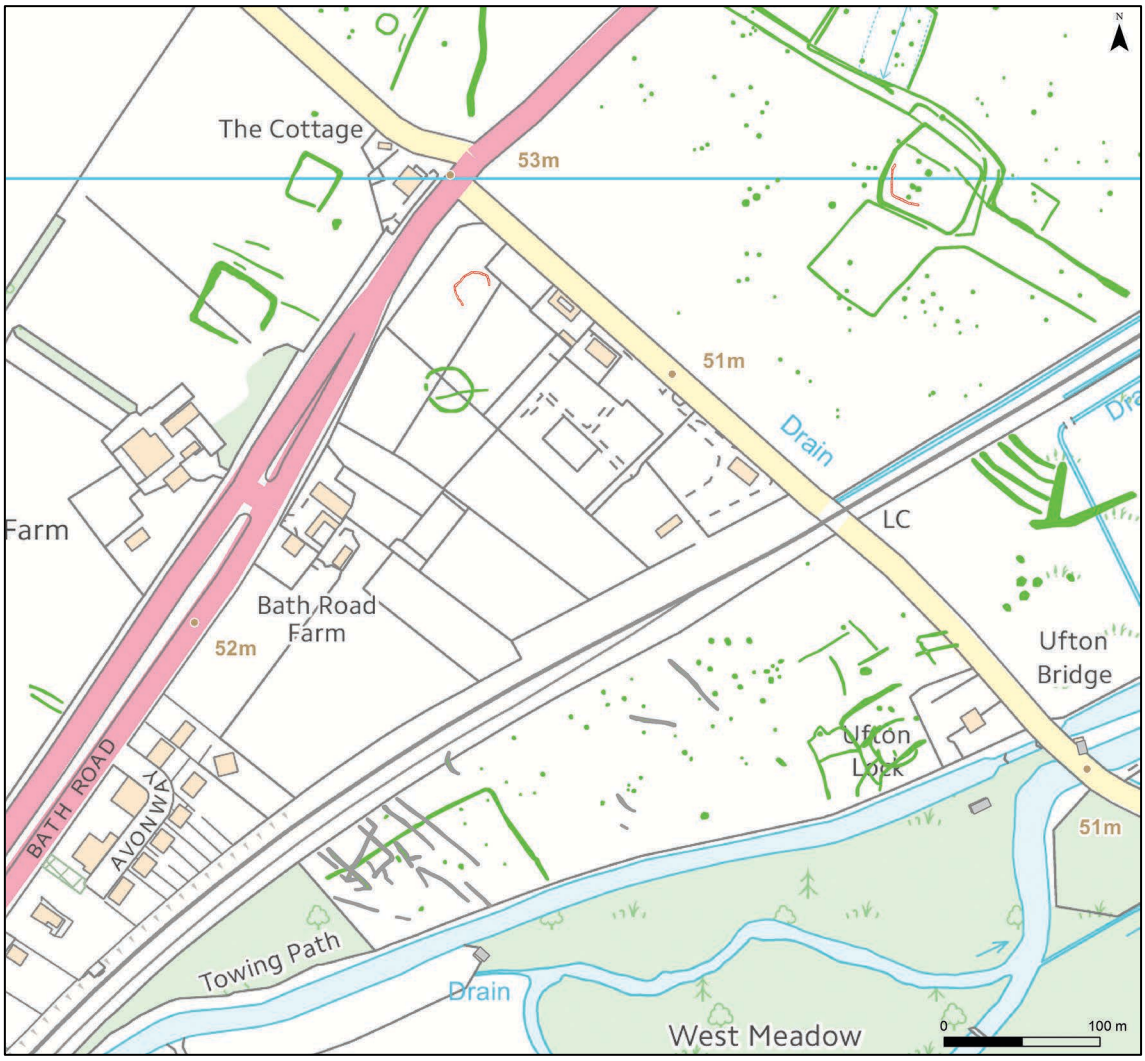

Figure 73 Possible Iron Age and Roman settlement to the north-west of Ufton Lock with possible cultivation marks shown in grey © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

The features recorded to the north and south of Bath Road are complex and multi-phase (Fig 72). The barrow cemetery could date from the Early Bronze Age date onwards, and the successive settlement enclosures, trackways and roads probably date from the later prehistoric through to the Roman periods. These demonstrate a long and considerable history of activity in this area.

To the north of Burghfield and Grazeley there is another example of a multi-period site which also appears to have a relationship with a Roman road (SU 6808 6916). The site (Figure 74) consists of a complex arrangement of settlement enclosures and field systems covering approximately 65 hectares. Clearly multi-phase, it is probably primarily Iron Age to Roman in date, although it is possible that some of the features could be earlier in origin. The multi-phased nature of the site is shown by the fact that some features clearly either overlie or cut through others, and there is evidence for reuse, or remodelling, of enclosures.

Three enclosures may each be the focus of settlement, although they need not have been contemporaneous in origin (1 to 3 on Fig 77). A multi-ditched enclosure is located to the south of Amner's Farm (1 on Figure 74), with field boundaries around it. The overlapping nature of the surrounding ditches suggests that it was recut and adapted on several occasions.

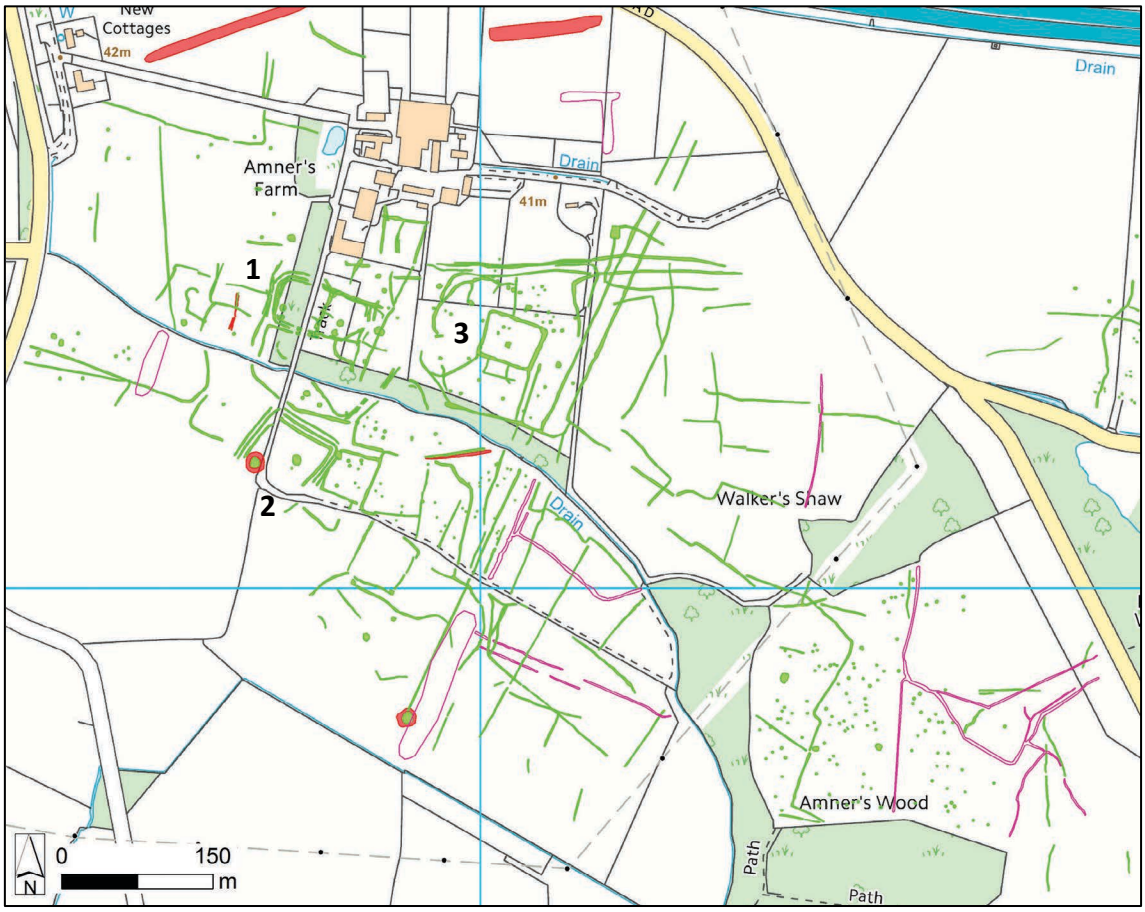

Figure 74 Iron Age and Roman settlement to the north of Burghfield with locations mentioned in the text marked as: 1 Amner's Farm enclosure, 2 Triple-ditched enclosure, 3 Single-ditched enclosure adjacent to Roman road © Crown Copyright and Database Right [2017]. Ordnance Survey (Digimap Licence)

A triple-ditched enclosure lies further to the south (2 on Fig 73). The southern edge of the enclosure was not visible on the available aerial imagery, but it is similar in appearance to temple sites of Iron Age or Roman date (Cunliffe 2005). However, multi-ditched enclosed farmsteads of Roman date have been identified in other locations within the region, such as Waylands Nursery, Wraysbury (Berkshire) and Dairy Lane, Nursling (Hampshire). The former site has been described as perhaps "symbolically defensive" where three concentric rectilinear ditches enclosed a number of four-post structures located in the corner of an enclosure (Preston 2003 reproduced in Smith *et al* 2016, 28). At Dairy Lane, two conjoined enclosures also had an elaborate boundary consisting of three concentric banks which may have been used to control the movements of stock into and out of bounded areas (Adam *et al* 1997 reproduced in Smith *et al* 2016, 28).

Further examples outside the region have been interpreted as being solely for stock control, such as at Hook Moor (West Yorks) (Allen *et al*, 2016), where the triple-ditched enclosure appeared to have been developed as part of an existing field system, or for ritual or religious use, such as Lee's Rest, Charlbury (Oxon) where the finds associated with the site, which included a small stone head of Mercury, led to this interpretation (*ibid)*.

The third possible focus of settlement is a single-ditched enclosure (3 on Figure 74) located to the west of two parallel ditches, probably a section of a Roman road (see below for further discussion). The enclosure is on the same alignment as the road, which suggests an association between the two features.

All three enclosures are surrounded by field boundaries and trackways which have the appearance of being constructed in several phases. The interconnected and overlapping nature of the various boundaries associated with the enclosures might indicate a pre-Roman farming settlement (or settlements) whose subsequent development in the Roman period was at least partly connected with the presence of the road.

The complexities of identifying archaeological features on different soil types from aerial photographs might be illustrated by another possible roadside settlement at Latchmere Green (Smith *et al* 2016, 41), located near the junction of the Roman roads from Silchester (Calleva Atrebatum) to Winchester (Venta Belgarum) and Chichester (Noviomagnus Regensium). No features could be identified at this location from aerial photographs or lidar during the current survey, but a settlement occupied from the late Iron Age through to the 4th century AD was found here (SU 6348 6019) by Southern Archaeological Services during construction work on a cable route from Bramley to Ash Hill between 1993 and 1994. Surface finds mainly of Roman date were recovered from the area over a long period of time. The preparation works for the cable route revealed an area of activity of around 400m in width between the line of the Roman road between Silchester to Chichester in the east, and the route of the Roman road from Silchester to Winchester in the west. The flint foundations of three walls were also uncovered. (Hants AHBR 20024). The site is located on London Clay, which, as already noted, is less likely to produce cropmarks than the chalk or gravels. This example illustrates that while many new sites were found through the survey, there is further evidence which may only be found by other methods of investigation such as geophysical survey or excavation.

Industry

The soils and sediments in the survey area were exploited for more than just agriculture. Roman pottery kilns have been found through excavation, for example in 1906 beyond the north gate of Silchester (Boon 1974, 280), and another site was identified at Little London. Numerous clay pits were recorded during the survey both from cropmarks and as extant earthworks. However, it is difficult to assign them to a particular period based on evidence from aerial photographs and lidar alone. London Clay continued to be used for brick and tile production in this area into the 20th century. Clay pits tended to be reworked and post medieval brickworks were often constructed in the locations of earlier workings.

The Little London site provides an example of the more recent reworking of a potentially much earlier site. A large number of clay pits of varying sizes were recorded around the site of a 19th century brickworks, shown on the first edition OS map (1:2500, 1872 and see Figure 75). However, excavations by Karslake in 1926 uncovered evidence of a Roman brick and tile works, including a tile with the stamp "NER. CL. CAE. AVG. GR" (Karslake 1926, 75-6). Possible Iron Age or Roman features were recorded from cropmarks adjacent to the site, the 19th century clay pits may have removed other evidence of earlier activity that might be identified on either aerial photographs or lidar (Figure 76).

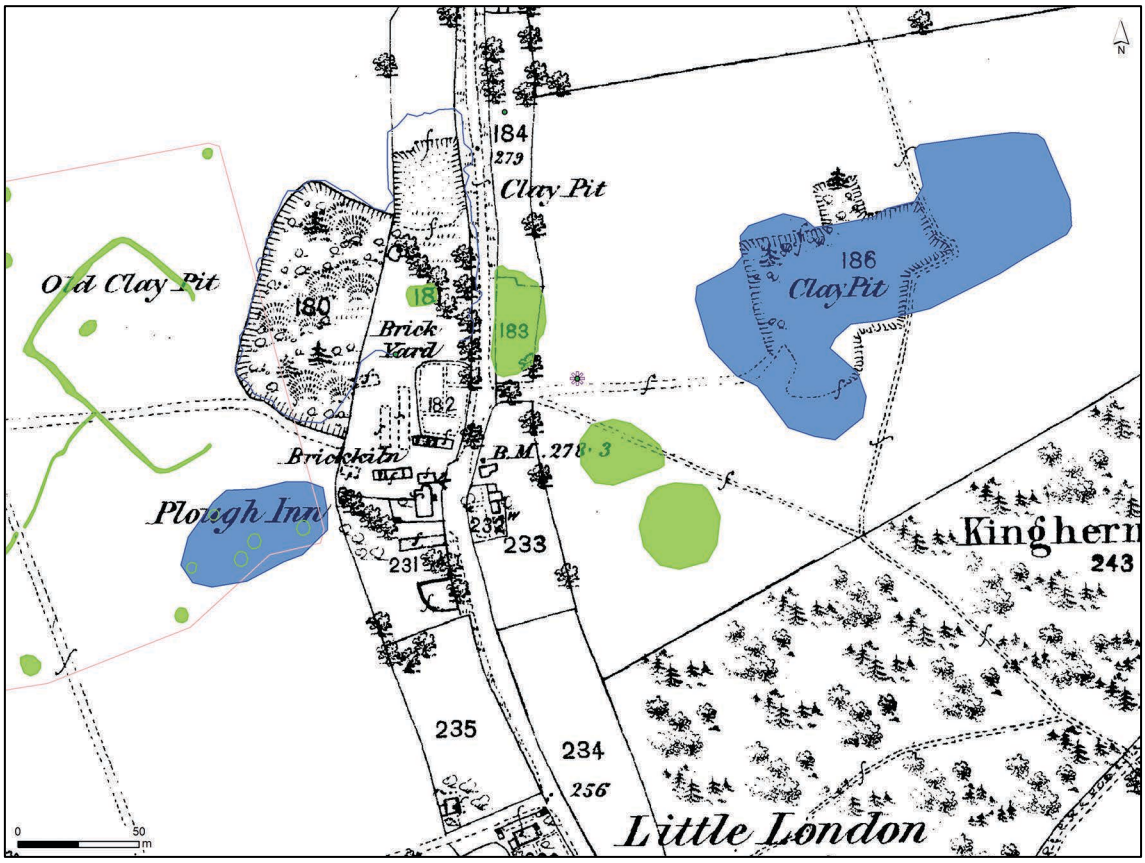

Figure 75 19th century brickworks shown on the first edition OS map (1:2500, 1872) located in an area where a Roman brick and tile works has also been identified.

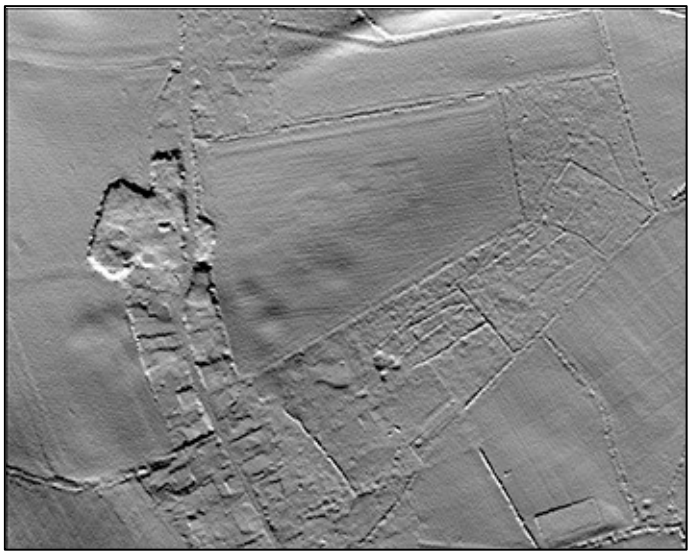

Figure 76 19th century clay pits, Little London, on hillshade model of lidar DTM.
©Environment Agency/University of Reading

Roads and Trackways

The clearest indication of landscape change during the Roman period, in addition to the reorganisation of the settlement itself, was the appearance of the network of major roads around *Calleva*. The roads were part of a wider system across Roman Britain, performing an official function as the routes of transportation of the imperial post, the *cursus publicus* (Millett 1990, 145), in addition to being used for other types of communication. They demonstrate the regional and wider connections and context of the Roman town.

Minor roads and trackways would have connected settlements both with each other and to the major road network. Some may have originated in earlier periods and continued in use. Numerous trackways were recorded through the survey but dating them can be problematic without other forms of evidence. In some cases, however, their probable date can be inferred from their context and relationships with other features around them. The minor road leading from the Silchester to Dorchester-on-Thames Roman road south of Bath Road is a good example of this (Figure 71). The trackway appears to have a logical connection with the major road suggesting that it was laid out at approximately the same time (see above). Various other trackways, such as those to the south-east of Calleva (Figure 77), may be associated with the Roman town, but could equally predate it.

Figure 77 Trackways to the south-east of the Roman town. The trackways probably date to between the later prehistoric and post medieval periods. Medieval Silchester park pale extends to the south from Great Scrub Copse, cutting through or underlying two of the trackways. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

The Roman road system around Silchester

The Roman town of *Calleva Atrebatum* sat within a network of roads which connected it with a number of other major Roman centres. Roads led: east to London (*Londinium*); north-west to Dorchester-on-Thames (*Dorcic*); west to Speen (*Spinae*), Cirencester (*Corinium*) and Bath (*Aqua Sulis*); south to Chichester (*Noviomagus*), Winchester (*Venta Belgarum*) and Old Sarum (*Sorviodunum*); and north-east to St Alban's (*Verulamium*). Sections of each of these routes were recorded during the Silchester Iron Age Environs Project, either as earthworks from lidar or from sub-surface remains visible as cropmarks on aerial photographs.

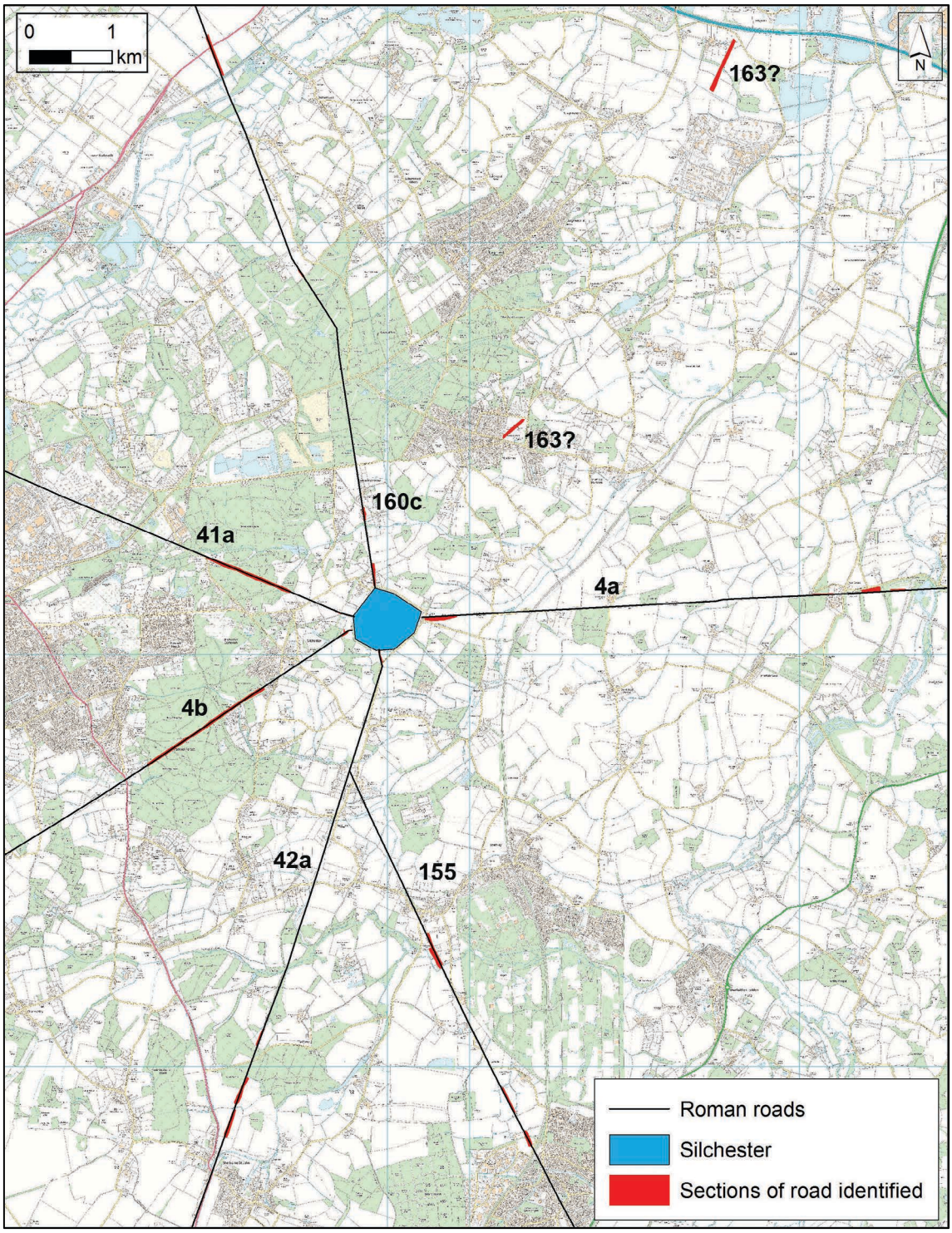

Figure 78 The routes of the Roman roads leading from Silchester identified by the numbers assigned to them by Ivan Margary in the various editions of his 'Roman Roads in Britain'. Sections of the plotted roads and other suggested roads identified through the survey are shown in red. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Silchester to London (Margary 4a)

This road leads from the east gate of the Roman town to Stratfield Saye Park, after which it continues to London via Bagshot Park and Staines, where it crosses the River Thames. It is known along the section between Bagshot Park and Silchester as `The Devil's Highway' (Margary 1973). The route is preserved in the line of a modern road up to a point half a mile (0.8 km) from the east gate. This road then diverges from the course of the Roman road, turning to the south.

The Roman road was recorded from cropmarks visible immediately to the east of Silchester Roman town, where two sections are defined by banks flanked by ditches measuring 325m in total length (Figure 79). There are several sections of earthworks and cropmarks beyond this including an earthwork ditch to the west of Fair Cross, measuring 250m in length (Figure 80), a double-ditched trackway along the line of the road is visible as a cropmark measuring 228m in length within Stratfield Saye Park. A fourth section is located 124m to the east also recorded from cropmarks. This section is defined by two parallel banks with associated ditches, measuring 172m in length.

The remains of settlement which may be contemporary with the road are also visible as cropmarks adjacent to the east gate of Silchester. However, it is also possible that these cropmarks relate to a possible early Medieval village centred on Silchester church (Fulford with Corney 1984).

Figure 79 Section of the Roman road leading from the east gate Silchester to London. © Getmapping plc accessed via Google Earth 31 Dec 2005.

Figure 80 Section of the Roman road from Silchester to London at Stratfield Saye park © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Silchester to Old Sarum (Margary 4b)

Sections of the Roman road from to Silchester to Old Sarum (near Salisbury, Wiltshire), known as the Portway (Figure 81), were recorded as earthworks on lidar and aerial photographs crossing Silchester Common adjacent to the south-west gate of Calleva and within Pamber Forest. The road is on a southwest-northeast alignment.

The road survives as an intermittent series of earthworks, either as banks, ditches or banks with associated ditches. The sections recorded as ditches probably indicate where material was later removed from the road. The earthworks extend from SU 61512 61623 to SU 62503 61591, for a distance of approximately 1.7 km. The earthwork remains of the road measure up to 24m in width. A section of the road leading from the south-western gate of Calleva was recorded from a cropmark on aerial photographs. The road here is formed of a bank measuring approximately 140m in length and up to 18m in width. A narrow ditch on its northern side with a channel leading off it to the north may be associated with the road or be later in date.

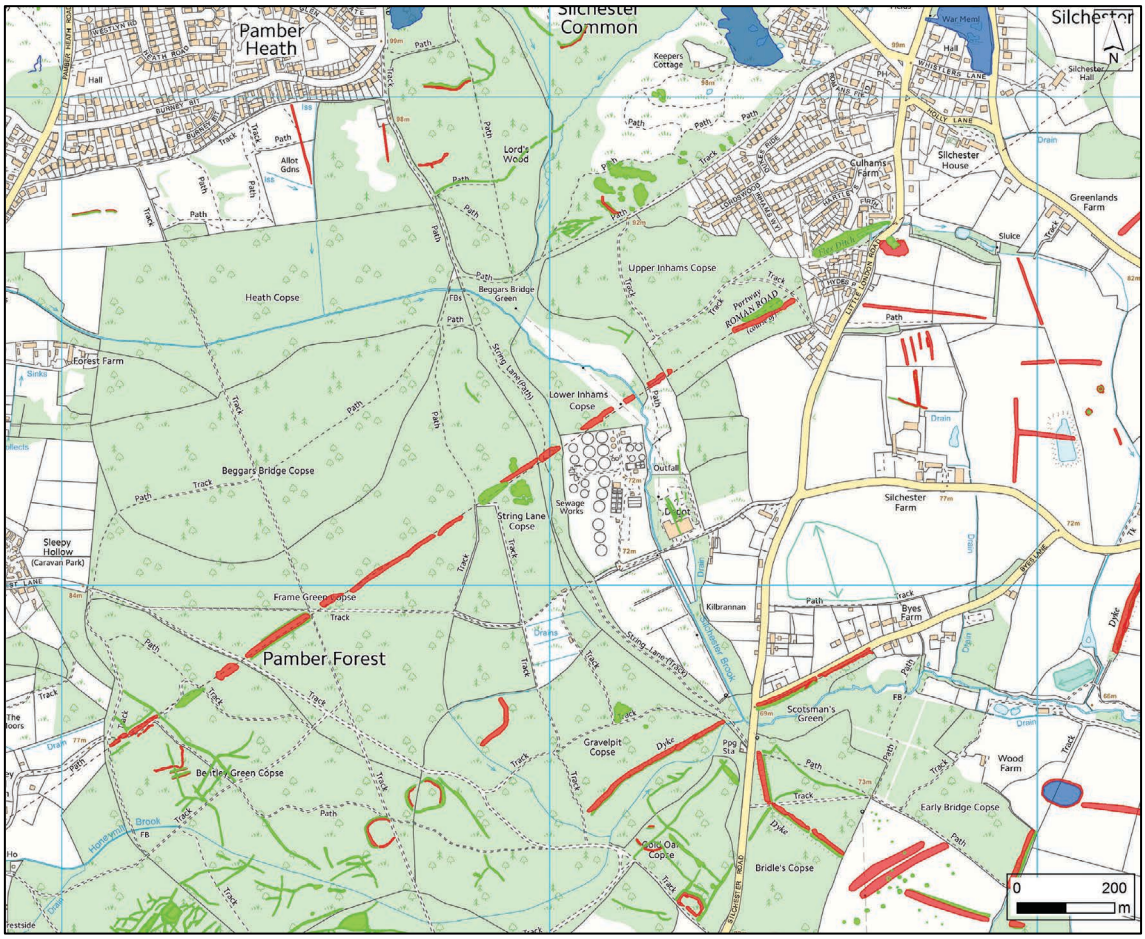

Figure 81 The Roman road to Old Sarum running from northeast to southwest through Pamber Forest © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Silchester to Speen (Margary 41a, Ermin Street)

The route of Ermin Street leads west from Silchester to Speen (Figure 82). It then continues west to Newbury and forks at Wickham. One route continues west to Bath, while the second goes north-west to Cirencester and Gloucester. The road was recorded within the survey area extending to the west from Silchester, then continuing through woodland to the north of Silchester Common, between Catthaw Lands Copse in the east and Aldermaston Soke in the west.

The road was seen as a cropmark on aerial photographs immediately to the west of Silchester, but within the The Frith woodland it survives as an earthwork, which was mapped from lidar. A modern road follows the route of the Silchester to Speen road for a distance of 133m from the town walls. The road continued to the north-west, recorded from cropmarks observed on aerial photographs, and extended through an area of Roman settlement in Sawyers Lands to the west of the town. This section is visible as a bank measuring 85m in length and up to 12m in width. Remains of the road were not visible on the available aerial sources between Sawyers Lands and Catthaw Lands Copse. The road survives as earthworks of intermittent banks and ditches within woodland. The total length of this section of road is approximately 1.1 km and the earthworks measure up to 40m in width.

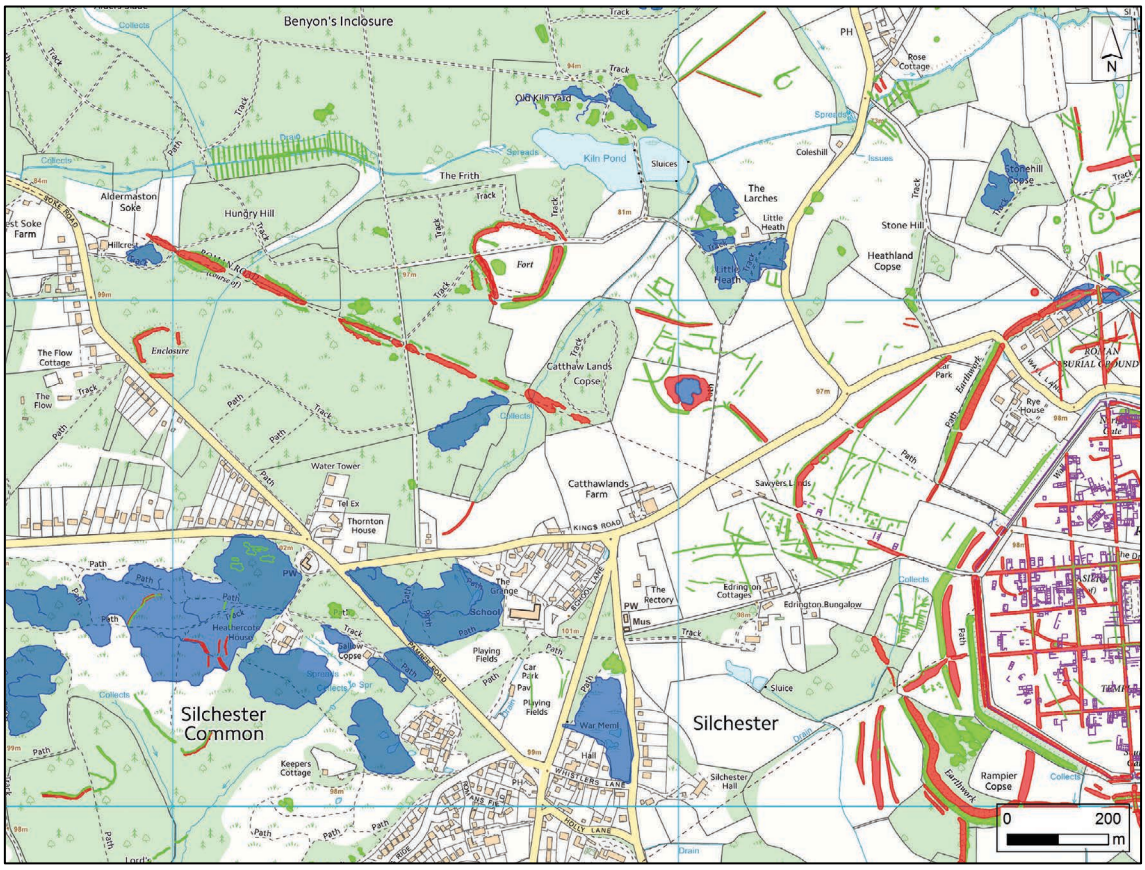

Figure 82 The Roman road from Silchester to Speen extending from south-east to north-west across Benyon's Inclosure © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Silchester to Winchester (Margary 42a)

The route to Winchester begins at the south gate of Silchester and was visible as a bank recorded from a cropmark on aerial photographs (Figure 83). This section of the road extends from the southern gate of Silchester for a distance of approximately 120m. The route of the Roman road is then preserved in the modern road leading to the south of Silchester, Church Lane, for a distance of 240m. The Roman road is thought to diverge from the modern road at this point, continuing to the south-west to Latchmere Green, where it was found through excavation at a depth of 5-6 feet (1.5-1.8 m) (Winbolt & Winbolt 1942, 162).

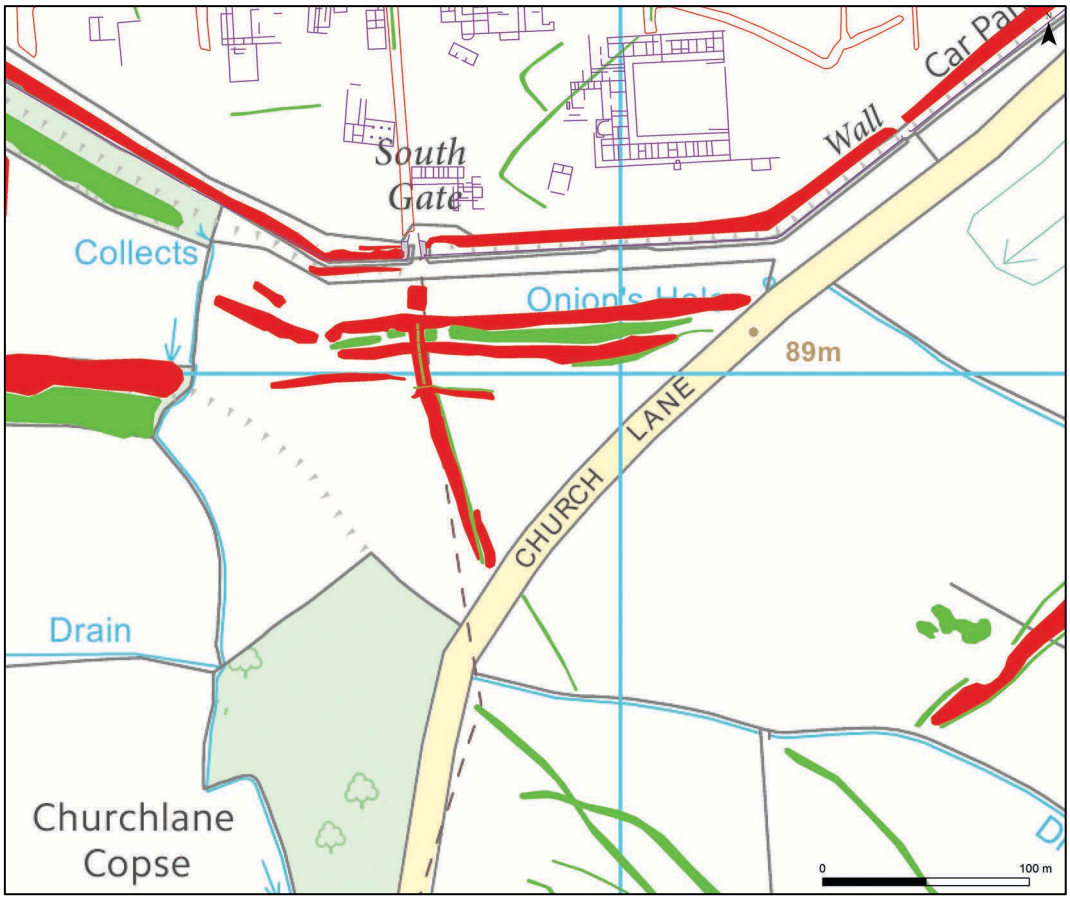

Figure 83 The Roman road to Winchester extending from the South Gate of Silchester © Crown Copyright and Database Right (2017) OS (Digimap Licence)

A second section was recorded as an earthwork on lidar to the south, between Peat Gully Copse and Morgaston Wood (Figure 84). This survives as two sections of bank measuring 215m in total length. The road was not visible as an earthwork on the available lidar within Morgaston Wood.

A third section of the road was recorded as a cropmark and earthwork on aerial photographs and lidar between the southern edge of Morgaston Wood and the village of Sherborne St John. This section consists of a hollow way flanked by banks extending for a distance of 353 m, which then continues as a single bank with a ditch on its western side for a distance of 345m. The route of the road is preserved in the modern Aldermaston Road before diverging from it to the south of Sherborne St John and continuing to the south-west (beyond the scope of the current survey).

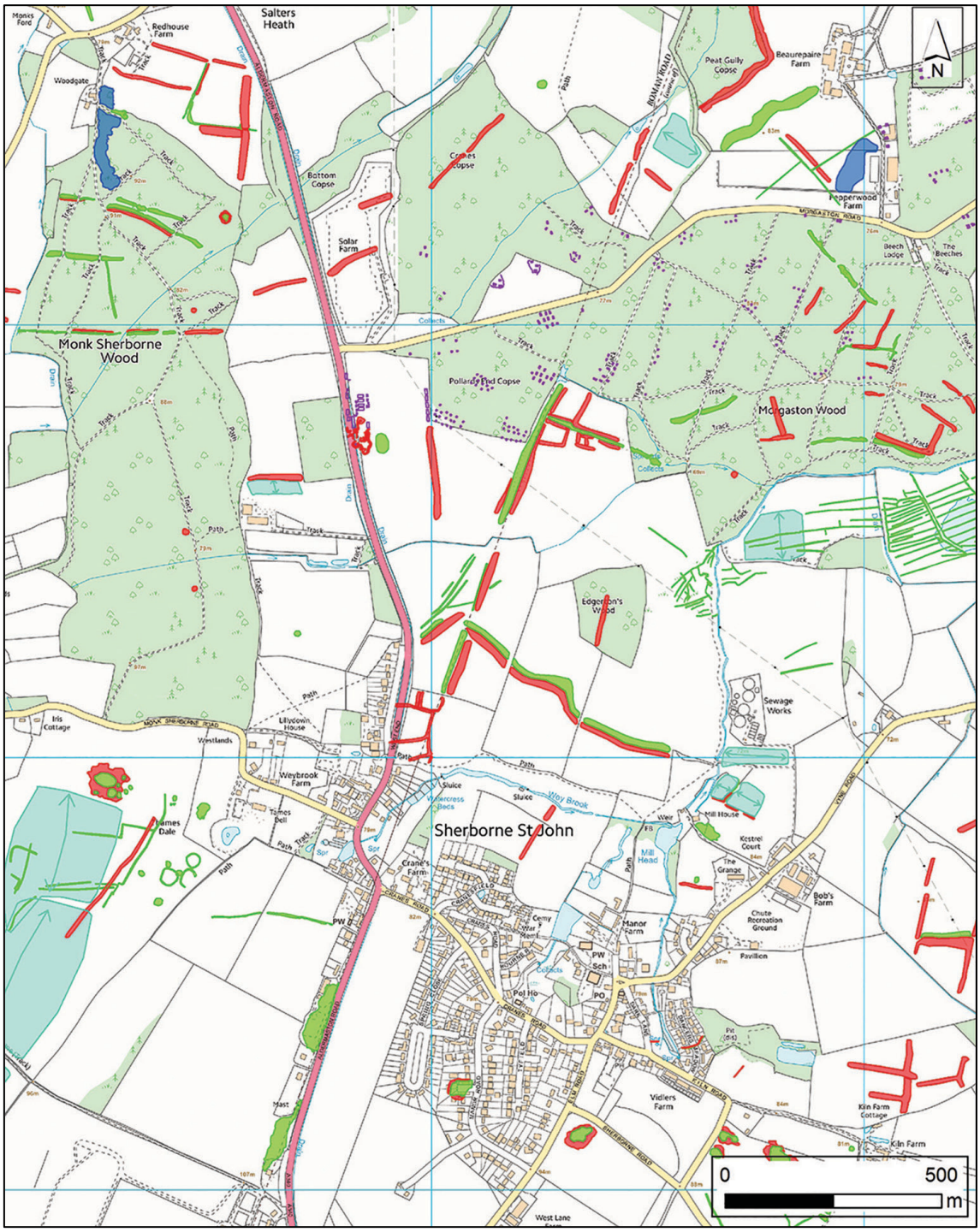

Figure 84 The Roman road from Silchester to Winchester extending from north to south through Morgaston Wood to Sherborne St John. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Silchester to Chichester (Margary 155)

Two sections of this Roman road were recorded from earthworks visible on lidar and cropmarks on aerial photographs. The northernmost section was recorded to the south of Honey Farm, Bramley (Figure 85). The earthworks consist of a single bank and ditch extending from north-west to south-east for a distance of 160m. It continues to the south-east as three parallel banks for a distance of 258m. This spreading out of the road remains may be the result of continued use of the route in the post-Roman period, or quarrying for materials causing the surface to be broken up.

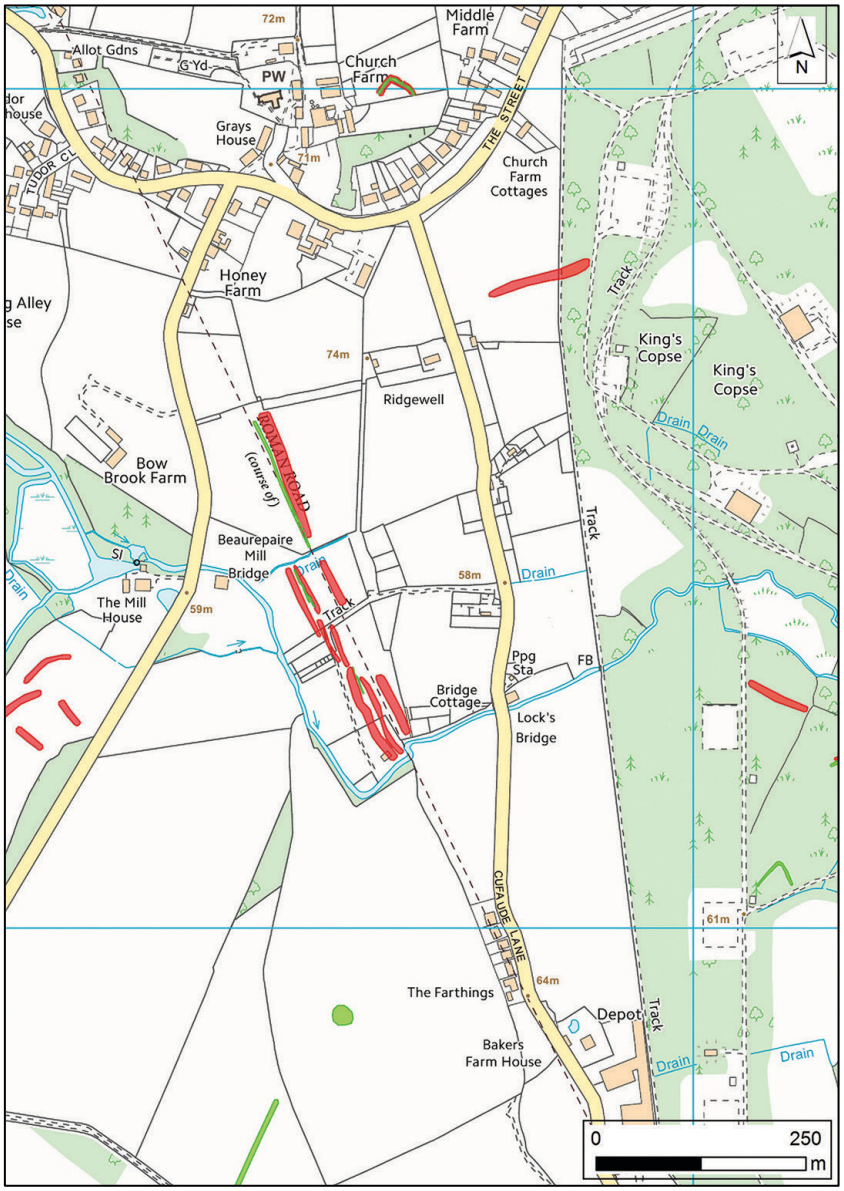

Figure 85 Roman road from Silchester to Chichester to the west of Bramley Camp © Crown Copyright and Database Right (2017) OS (Digimap Licence)

The southernmost section was recorded to the north-west of Chineham (Figure 86). The road was recorded from cropmarks in two sections. The first section comprised

a ditch flanked by banks extending from the line of the Reading-Basingstoke railway to the north-west for a distance of 173m. The second section is located 170m to the north-west of the first and is defined by a single bank measuring 329m in length.

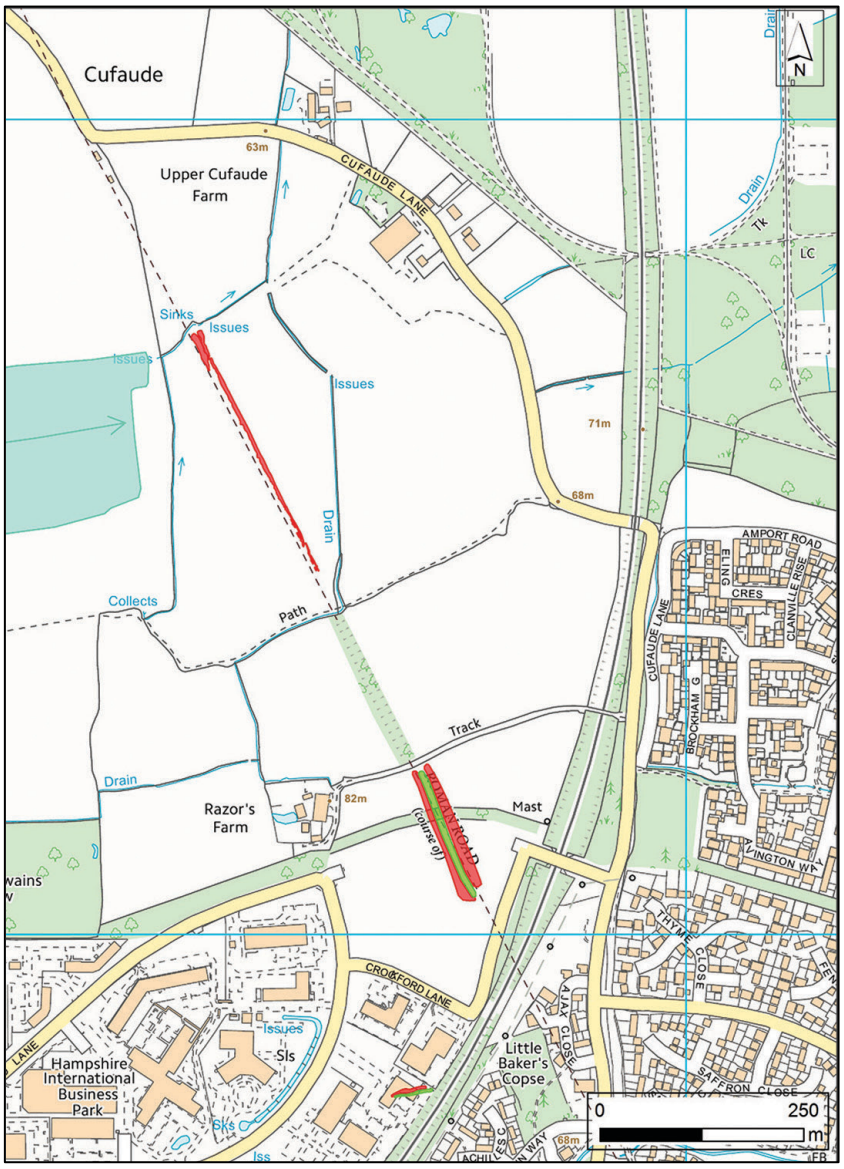

Figure 86 Roman road from Silchester to Chichester from Upper Cufaude Farm to Basingstoke

Silchester to Dorchester-on-Thames (Margary 160c)

This road (Figure 87) can be traced in part from the north gate of Silchester, where it was recorded from cropmarks on aerial photographs, extending to the north for a distance of 265m. The road turns to the north-west, north of Mortimer (Figure 78), and can be seen as an earthwork within woodland on Burghfield Common, to the north for a distance of 265m. The road is visible as a linear bank with a ditch along part of its western side. A second section was recorded from aerial photographs and lidar at Mortimer West End and consists of a linear ditch, seen as a cropmark and measuring 57m in length, and two linear quarries, recorded as earthworks on recent

lidar. The quarries are located to the east of the suggested line of the road and measure approximately 130m by 13m. The quarries could relate to the construction or continuing maintenance of the road surface during any period of its use. The suggested lines of many Roman roads, and thus their depiction on OS maps, do not necessarily represent their precise course, a fact which is demonstrated in the current survey.

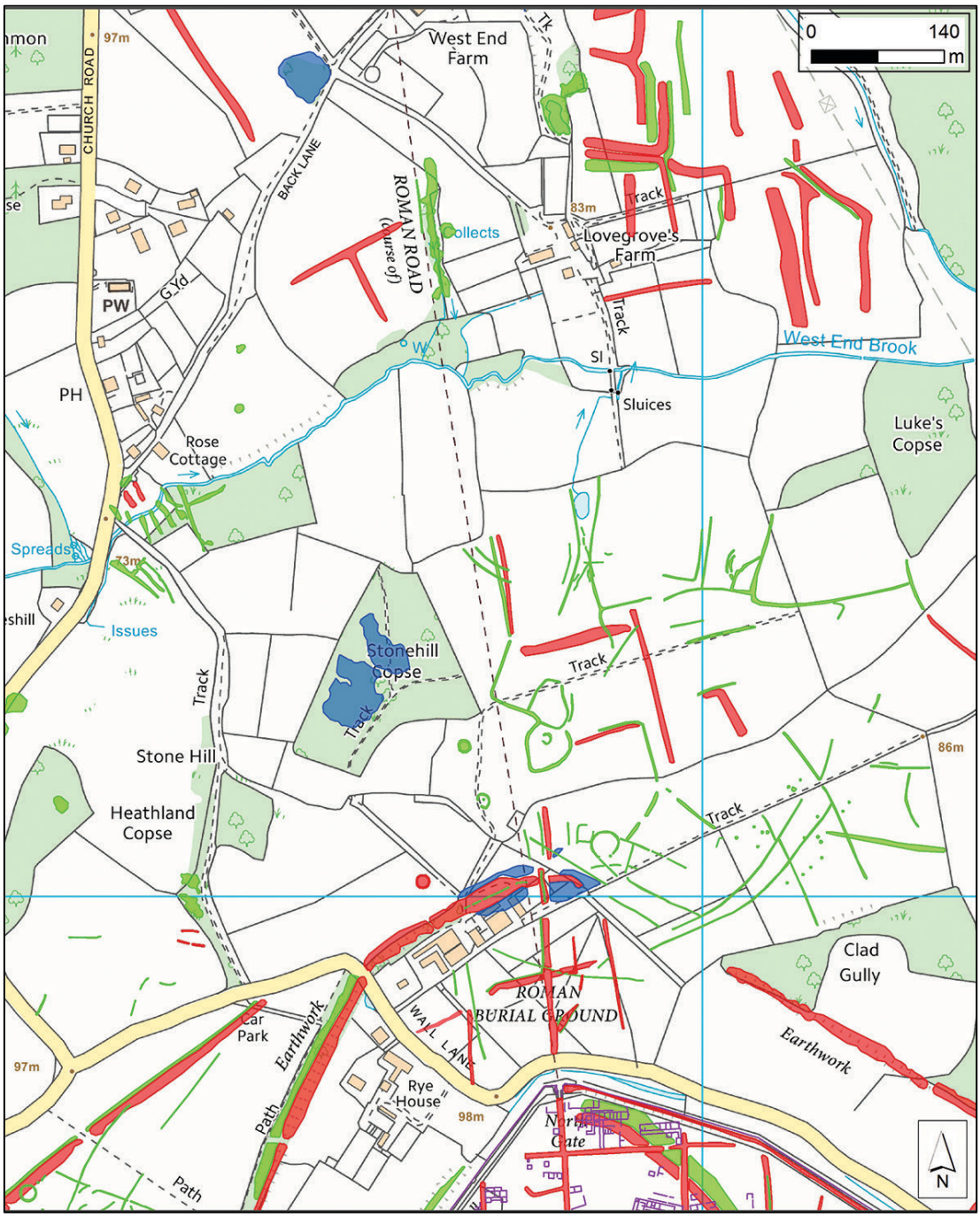

Figure 87 Roman road from Silchester to Dorchester-on-Thames running from the north gate © Crown Copyright and Database Right (2017) OS (Digimap Licence)

The route of the road can then be traced in part from cropmarks between Ufton Nervet and Sulhamstead (Figure 88) and it appears to have a relationship with contemporary settlement. The road can be seen as two parallel ditches extending from SU 62010 69033 to the north-west for a distance of 517m. A settlement enclosure, one of the three excavated by Manning (1973) is located to the west of the road (see above for more detail). A spur leads from the road from SU 61962 69172 to the north east for a distance of 134m towards another settlement.

Figure 88 Roman road from Silchester to Dorchester-on-Thames at Ufton Nervet, running through a multi-period area of settlement and a Bronze Age barrow cemetery © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Silchester to St Alban's (Margary 163)

The route of this road has not been clearly identified beyond the Thames crossing at Hedsor (Buckinghamshire), but it has been suggested that it may join the London road (4a) approximately three miles from the east gate of Silchester (Margary 1973). Stretches of the road were found through observation of cropmarks and earthworks and through excavation between Verulamium and the Thames crossing. Margary (1973) suggests that its southern end, where it joins road 4a, is preserved in an alignment of hedgerows and lanes from Beech Hill to Fair Cross.

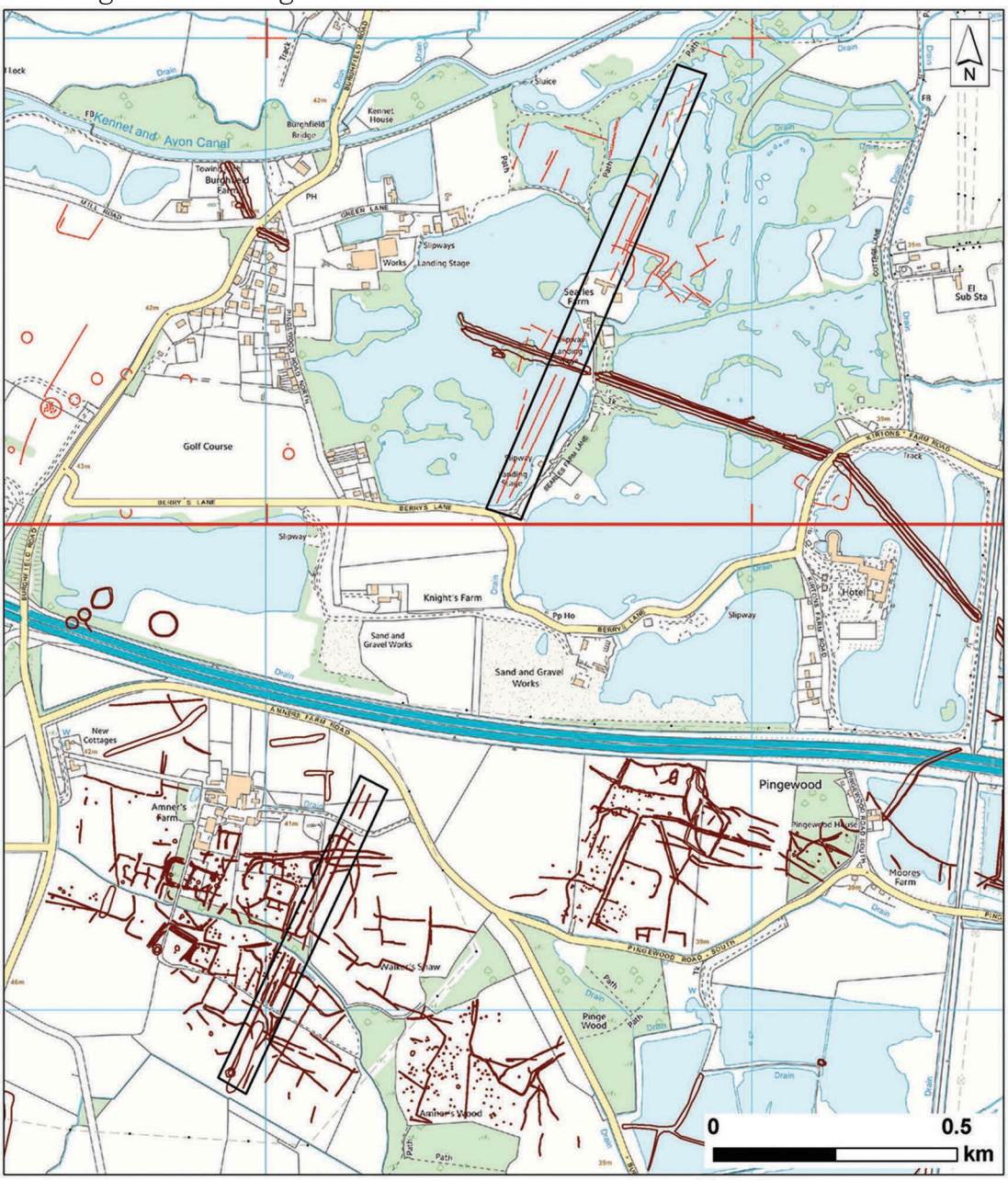

Figure 89 Two sections of the Roman road (in boxes) suggested as being the route between Silchester and St Alban's. The features mapped during the Thames Valley NMP project are shown in red, while those recorded during the current survey are shown in brown. The dark red line in centre of the image marks the boundary of the current survey area. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

The results of this survey and previous work carried out as part of the Thames Valley NMP project (Fenner and Dyer, 1994) suggest a different alignment for the road to Verulamium. Two sections of the road were recorded to the north of Burghfield, both identified from cropmarks (Figure 89) on the same southwest-northeast alignment. The northern section was quarried away during gravel extraction, but the southern section was photographed as a clearly defined cropmark in 2011. The road was represented by two parallel ditches measuring approximately 660m in length and positioned 16m apart. The distance between the ditches is identical to that recorded for the cropmarks of the road to Dorchester-on-Thames at Sulhamstead. The relationship between the road and the surrounding Iron Age to Roman settlement is unclear but some elements of the settlement appear to be aligned on it, and it cuts through other boundaries.

The roads around Silchester may have continued to be used into the early medieval period but eventually most fell out of use in later periods, possibly quite early on, although it is difficult to tell how long the roads remained in use after the abandonment of *Calleva*. The only two exceptions are the route of the road to London (Margary 4a) which is preserved in the line of the Devil's Highway along some of its length, but no longer has a direct link to Silchester, and the route of the road to Winchester appears to be partly utilised through the centre of Sherborne St John, but not to the north and south of the village.

POST ROMAN TO MEDIEVAL (5TH TO 16TH CENTURIES AD): CHANGES IN OWNERSHIP

Little evidence of early medieval (5th – 11th centuries AD, or 'pre-Conquest') activity was identified within the Silchester area through the survey. There was a similar lack of evidence from a series of large-scale surveys in the 1970s prompted by pressure of development and gravel extraction. This found sparse early medieval material to the south of Reading and in the Kennet Valley (Dodd 2014). Sites for this period can be difficult to identify in aerial photograph and lidar survey results, which may be due to a number of factors. This includes the fact that modern towns, villages and farmsteads may still overlie their early medieval predecessors and it is possible that later agricultural practices may conceal or remove evidence for earlier cultivation. In addition, there are few sites of this period that leave an earthwork or cropmark trace that can easily be attributed to this period.

The early medieval sites and features identified in the Silchester area were found through excavation and surface collection. These methods have so far produced little evidence of early medieval activity before the 10th and 11th centuries within the vicinity of *Calleva,* although settlement and funerary sites were found further afield, to the north of Ufton Nervet and Burghfield. (Figure 90).

As in the Later Iron Age and Roman periods, a succession of changes occurred to the way that land was owned and managed during the early medieval and medieval periods (5th to 16th centuries AD). While there was some continuity in the use of boundaries, a new administrative unit was defined with the parish system being developed in this period (Steane 1985). Smaller estates were created out of larger administrative entities. The influence of the Crown is seen in the creation of the royal forest of Pamber covered by Forest Law (Stamper 1983). This was a set of legal regulations applied to vast tracts of land in England from the early post-Conquest (1066) period on, which had an effect on the people living in and around it (Young 1979, 2). The popularity of hunting and the wish of the aristocracy to emulate the Crown led to the granting of licences to impark areas of the forest, creating private land with no access rights to common people. The growing privatisation of land is a theme reflected in agriculture and settlement during the medieval period, but greatly accelerated in the post medieval period.

The possibility that social status and, consequently, the ways in which the landscape is divided, settled and exploited, may be reflected in the form of settlements and other site types, a theme already noted for the later prehistoric and Roman periods, is also apparent during the medieval period. A large number of examples of the monuments which characterise the social changes of the later, medieval or post-Conquest, part of this period, including moated sites and the remains of park boundaries, were recorded during the survey (Figure 91).

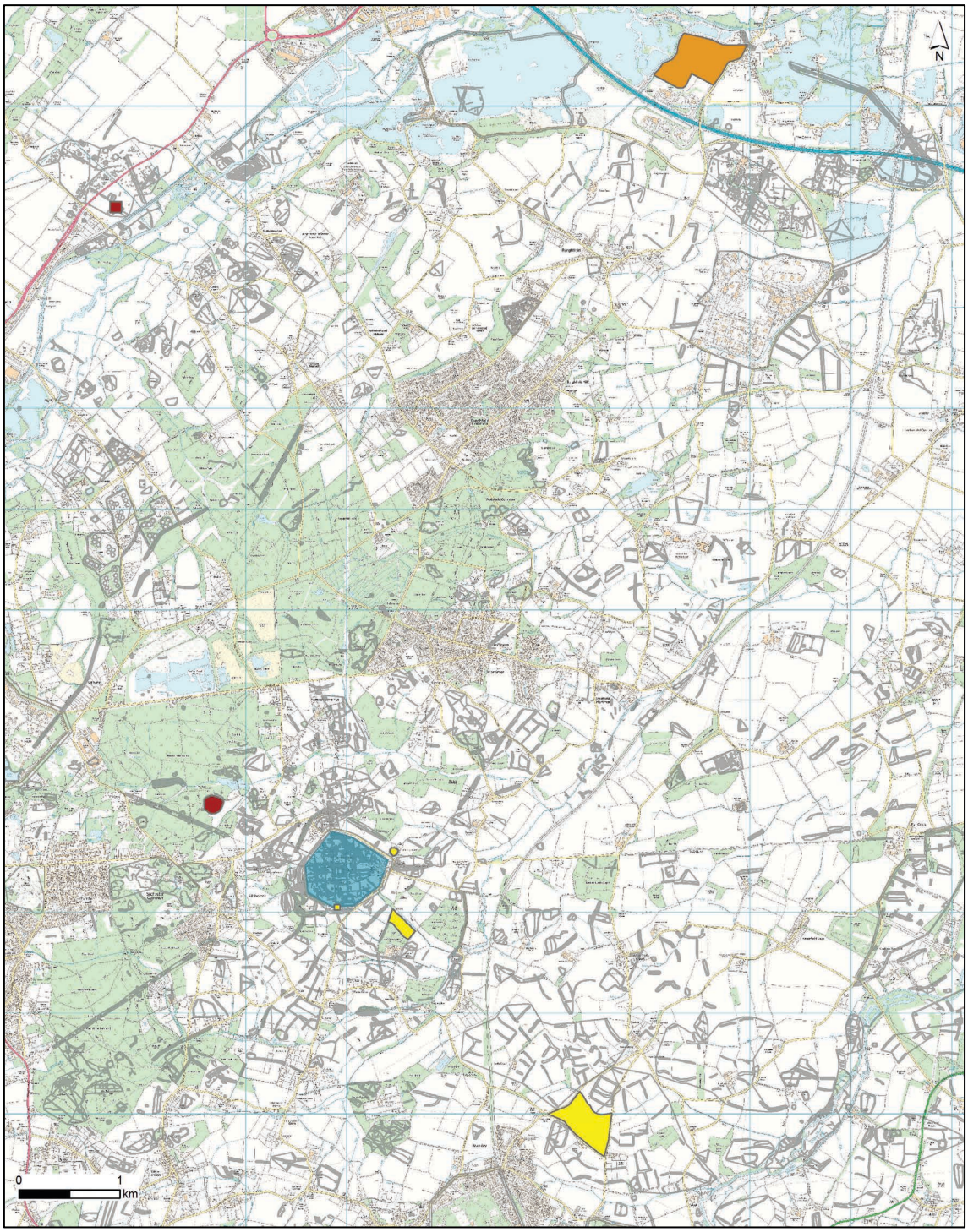

Figure 90 Distribution of early medieval archaeological evidence within the survey area: pottery collection locations (yellow); Sunken Featured Building and Pond Farm (red); and cemetery (orange). © Crown Copyright and Database Right (2017) OS (Digimap Licence)

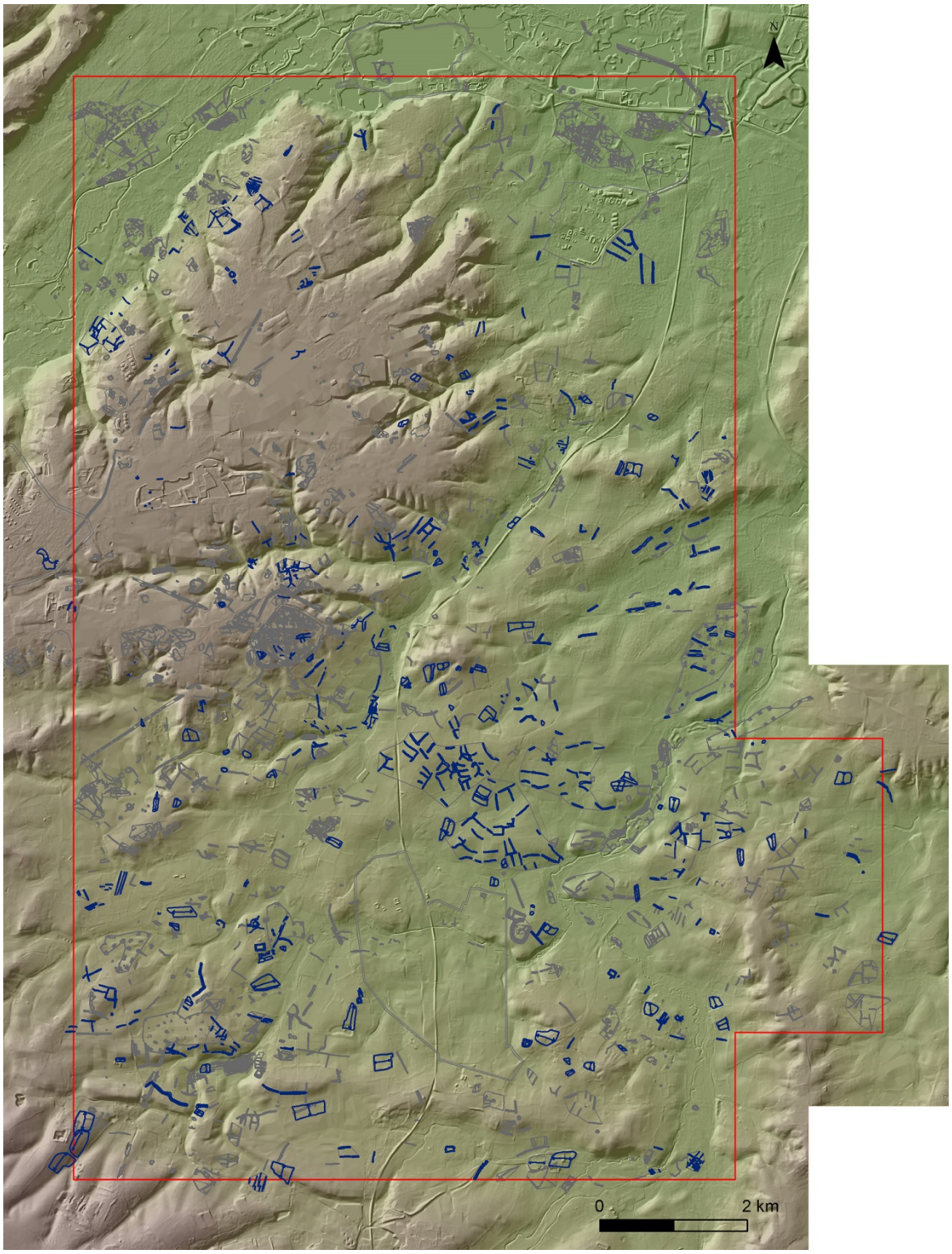

Figure 91 Medieval features recorded in the survey area shown in blue. All other features recorded are grey.

The end of Calleva

The Roman town of *Calleva* appears to have been abandoned at some point in the early medieval period, but it is unclear for how long it still served a function of some kind. The lack of material dated to this period from either field walking or

excavation appears to suggest that the site was not settled in the early post-Roman period. The name for the village was recorded as Silcestre in the Domesday survey, which might also indicate a complete break in settlement here. The origin of the name has been a matter of some debate but there seems to be a general agreement that, whether it is derived from Saxon or from a British-Latin root, it evokes the memory of the Roman town. The element 'ceaster' is an Anglo-Saxon word meaning city, town or fort, but the 'Sil' element has been variously interpreted as being: an individual *Silius;* a dwelling house (Anglo-Saxon); a term derived from the word for wood in Welsh or Gaelic; the Saxon for good or pre-eminent, *sēl*; or the Anglo-Saxon for sallow, *sealh* (Creighton with Fry 2016, 443-4).

The height to which the walls remain suggests that it was necessary to retain them for some purpose. It is one of a small number of Roman towns with either chartered status of *colonia* or *municipium* or *civitas capital* that did not develop into early medieval centres. Comparative examples are Caerwent (Gwent), Aldborough (Yorks), Caister-by-Norwich (Norfolk) and Wroxeter (Shropshire). These, like Silchester, are the sites of villages developed in the medieval period, but with few buildings beyond the parish church situated inside or adjacent to the Roman town walls (Fulford 2012, 331).

Apparent deliberate infilling of wells and some degree of structured deposition suggest a deliberate abandonment of the town, but it possible that some buildings continued in use. Red-streaked window glass was found during excavations of Insula IX, material previously associated with late 7th to 9th century monasteries in north-east England (ibid, 338), perhaps indicating a religious house of that approximate date at *Calleva*. It is possible that the basilica was reused as a church within a monastic precinct defined by the former town walls (ibid, 345). Silchester is located in a frontier zone between the Anglo-Saxon kingdoms of Wessex and Mercia, and Fulford suggests that replacing a town full of people with a monastery might have been seen as a way to keep the peace (ibid, 347- 348).

Other evidence of early medieval reuse of the town is scarce: just two sherds of pottery were recorded during excavation in the amphitheatre, which was found to be the location of a 12th century medieval hall (Fulford 1989, 59); and a single sherd, dated to the 10th to 11th centuries AD, was collected from the south gate during a field walking campaign carried out between 1981 and 1989. However, the field walking also identified a cluster of medieval pottery immediately to the east of the Roman town walls, perhaps indicating a settlement there during that period (Ford & Hopkins 2011, 26).

It is therefore possible that undated cropmarks to the east of the town may be the remains of early medieval or medieval settlement. An area of enclosures and trackways is located outside the east gate, outside the town walls which may have been focussed on the church and manor house within them. It could be suggested that the features are associated with Roman period ribbon development alongside the road to London leading from the east gate, but they may relate in part to early medieval settlement (Figure 92).The modern village is situated to the west of the Roman town walls, although it is unclear when this was first established.

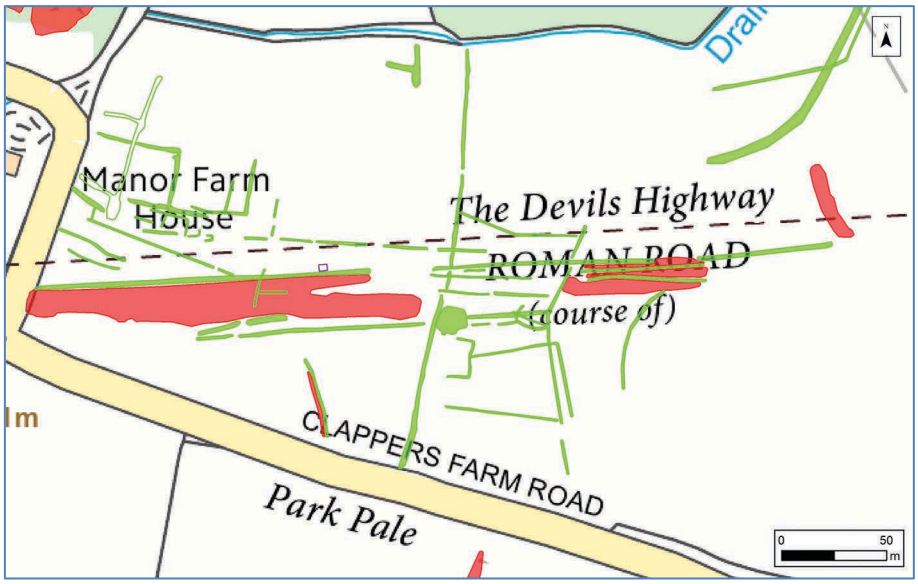

Figure 92 Cropmarks alongside the Roman road leading from the East gate of Silchester which may be the remains of early medieval settlement © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Administrative changes in the Early Medieval period

Political and social changes occurred during the early medieval period relating to land ownership. It has been suggested that the land holdings controlled by Roman villas and towns may have formed the basis of the administrative units of the early medieval period (e.g. Hammerow 2004, 102). The large areas of land defined by these administrative units have been referred to as 'multiple estates' by historical geographer Glanville Jones and may have previously been significant land units (Dyer and Everson 2012, 17). These large estates were broken up into smaller holdings in the late Saxon period, which gradually became the parishes and manors of the medieval period (Dodd 2014, 197).

Parish boundaries can be defined by substantial earthworks consisting of linear banks and ditches. There is an example of this on the border between Silchester and Bramley parishes, on the northern edge of Bramley Frith Wood (Figure 93). The boundary is formed of a broad bank which truncates or overlies earthwork enclosures within Bramley Frith (see above). It is thought to have originated in the Saxon period (Berkshire Archaeological Services 2001 in Hampshire AHBR 42779).

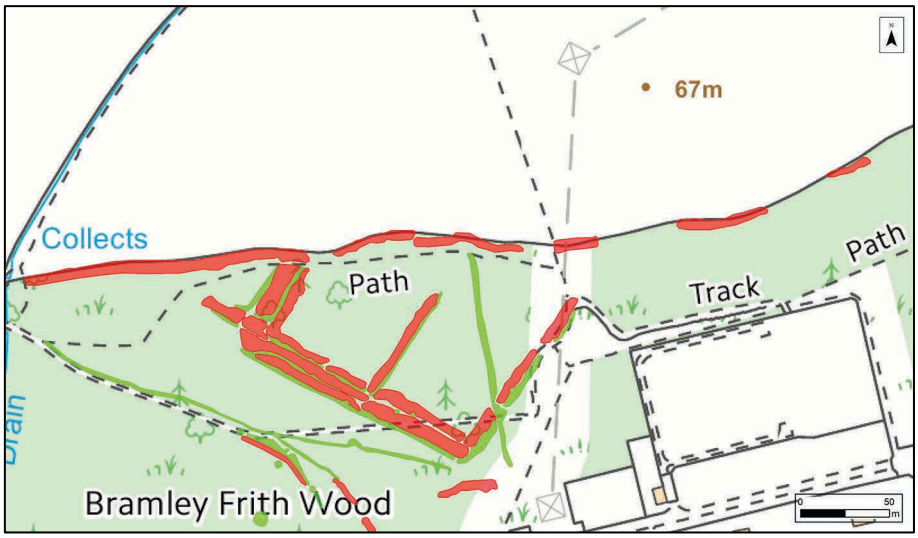

Figure 93 Silchester-Bramley parish boundary located along the northern edge of Bramley Frith Wood. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Settlement and agriculture in the early medieval period

The administrative changes and alterations to layout of the countryside during the early medieval period probably occurred over several centuries. The south-east of England was characterised by Rippon as having a complex landscape of closes (areas enclosed by agreement) and small areas of open field (Rippon 2010). This description would appear to suit the landscape within the Silchester project area, with its mix of small settlements, dispersed farms, open fields, woodland and common.

Place name evidence, while unreliable as a source of dating, suggests the wooded nature of the project area during the early medieval period. Places with –ley/-leah endings, such as Bramley, indicated piecemeal woodland clearance (Stamper 1988) and Pinge meaning 'place at the end of the wood' (Dils & Yates 2012). Woodland was an important resource, used for fuel and construction, as well as for overwintering pigs, while wood pastures were used for grazing land. There is some indication in Domesday Book that the Royal hunting forest of Pamber was established by 1086 (Stamper 1983) and may even pre-date the Conquest.

The chronology of changes to landscape management and use in the survey area during this period is unclear. Although good for identification of potential remains there can be lack of detail for features recognised through aerial survey. There is also very little evidence from either excavation or surface collection. A sherd of late Saxon pottery, dated to the 9th century AD, and a second dated to the 11th century AD were collected in a field to the south-east of the Roman town during the Silchester Field Survey (1981-1989). Excavations in 1961-2 on a site of Iron Age and Roman occupation to the north-west of Ufton Nervet uncovered a single Sunken Featured Building dated to the 6th century AD from pottery evidence (Manning 1973, 49), while burials dated to the 6th-7th centuries AD were found in the vicinity of a Bronze Age barrow cemetery at Field Farm, Burghfield (Butterworth & Lobb 1992).

The Silchester-Bramley parish boundary was the only site that could be recorded for the early medieval period during the aerial photograph and lidar survey. Recent excavations by the University of Reading as part of the wider Silchester Environs Project uncovered further evidence at Pond Farm. Here there was a phase of re-cutting of in the 7th century (610-680 cal AD (1377+/-29 BP, SUERC-65360). No evidence for settlement was identified and it is possible that the enclosure was used for seasonal agricultural activities, such as sorting stock (Fulford, Barnett & Clarke 2015,7).

While the precise locations of early medieval settlements are unclear, it is possible that villages largely maintained their sites, with medieval development overlying earlier settlement. Considerable continuity of boundary use has been demonstrated in some areas, such as at Pingewood, where boundary reuse appears to span the Later Bronze Age to the 19th century (see above).

Similarly, although early medieval features can be hard to identify on aerial photographs and lidar due to later activity, it is possible that some medieval agricultural features recorded during the survey, might have an earlier origin. Features of uncertain date, such as field boundaries, trackways, or the possible settlement to the east of Silchester may also date to this period.

Medieval (11th to 16th centuries AD) – Settlement and agriculture

Medieval sites identified during the survey are more numerous than for the preceding period and predominantly relate to settlement and agriculture. Evidence of high-status living is apparent in the remains of deer park boundaries, fish ponds and moated sites. Many of these features were previously recognised, but extensive evidence of cultivation, communication systems and abandoned settlement were newly identified through the survey.

The patterns formed in the landscape by the 11th century probably persisted into the medieval and early post medieval periods. A generalised view of rural settlement patterns in agriculture in England during the medieval period posits two models: nucleated villages set within communally farmed large open fields, or champion land; and dispersed farms and hamlets within a mixture of woodland, common land and enclosed fields (Roberts and Wrathmell 2002, 1; Williamson 2003, 4-5; Hooke 2003, 95). The former pattern is most frequently identified in the Midlands, while the latter is associated with west and south-east England, generally in areas with a higher proportion of woodland.

However, there were local variations within these broadly defined patterns. There were open fields in more heavily wooded areas, but they were generally smaller and more numerous than the communally farmed large open fields and might be associated with a number of hamlets rather than a single nucleated village. Pockets of dispersed, rather than nucleated, settlement are also found within the Midland system, such as on the Bedfordshire Greensands (Williamson 2003, 5; 71). Lyveden (Northants) was shown through landscape study to be part of a pattern of

dispersed settlement within a wooded landscape, with small areas of cultivation and extensive woodland which provided fuel for local iron and pottery industries (Dyer and Everson 2012, 17).

The medieval settlement pattern in the Silchester area appears to fit the same pattern as seen at Lyveden. There is little evidence for large open fields, while villages are small in size and do not appear to have been planned. It is probable that smaller communally tended fields were attached to each settlement, but they too were probably small in size.

John Bluet, who held the manor of Silchester between 1287 and 1317, was granted the right to create a series of *purprestures* of different sizes within land covered by the Royal Forest of Pamber. The use of this term suggests that he was establishing individual holdings which included dwellings, rather than agricultural closes. The discrepancies in sizes of land holding imply that he was not creating a planned extension to the village, but rather irregular infilling or a dispersed settlement pattern (Stamper 1983, 50).

Within parish areas there was a pattern of smaller estates which, as discussed in the previous chapter, were probably established in the early medieval period. Manors within the parishes could be designed to give the residents a mix of resources, but where something might be lacking, for example woodland, an arrangement of linked estates gave them access to timber supplies and pannage elsewhere. The same would be true for grazing land. For example, the tenants of Overton in the Test Valley (Hants) had rights to woodland at Tadley in the Forest of Pamber (Bettey 2000, 36).

Changes to settlement

Many of the existing villages possibly have their origins in the early medieval and medieval periods, and the earthwork remains of deserted areas demonstrate that the pattern of settlement continued to change after their establishment. There is an example at the northern edge of the village of Sherborne St John where the earthworks of building plots and hollow ways suggest that the village has decreased in size or shifted (Figure 94). Evidence of further desertions and other fluctuations in settlement are also seen in the post medieval period in this area, at Pollards End (see below).

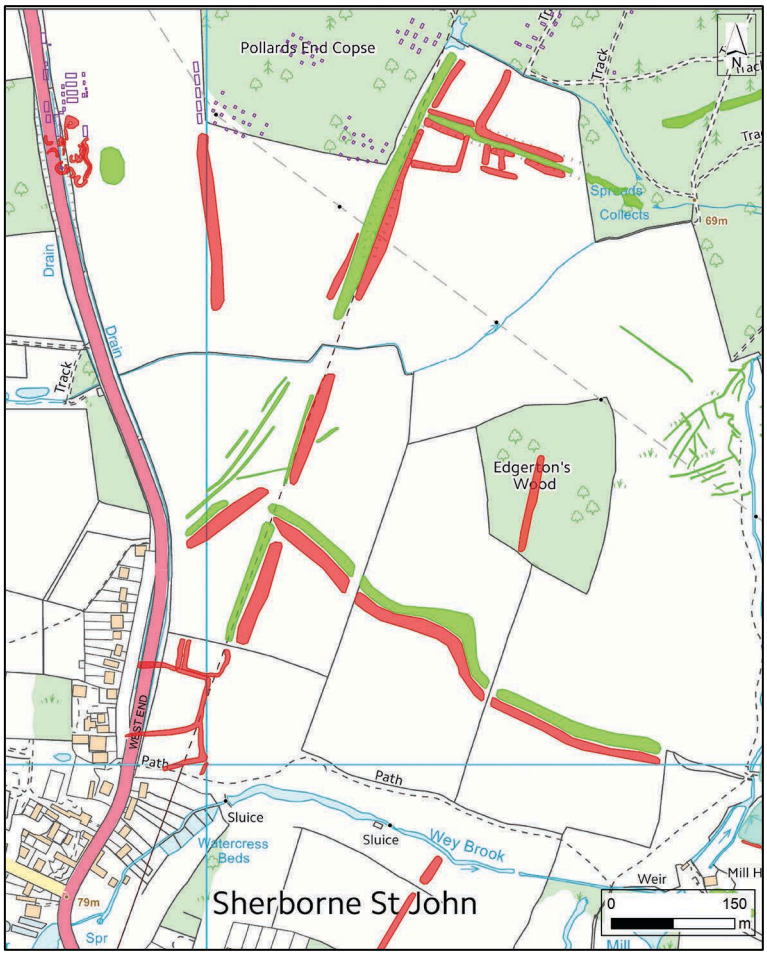

Figure 94 Settlement plots and trackways to the east and west of the route of the Roman road to Winchester, immediately north of the village of Sherborne St John. The remains of a deserted post medieval hamlet can be seen to the east of Pollards End Copse. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

The earthwork remains of trackways and land divisions, which may have formed part of the medieval village of Padworth, were recorded from aerial photographs during the survey. These features may be in part associated with the post medieval garden earthworks of 18th century Padworth House (Figure 95).

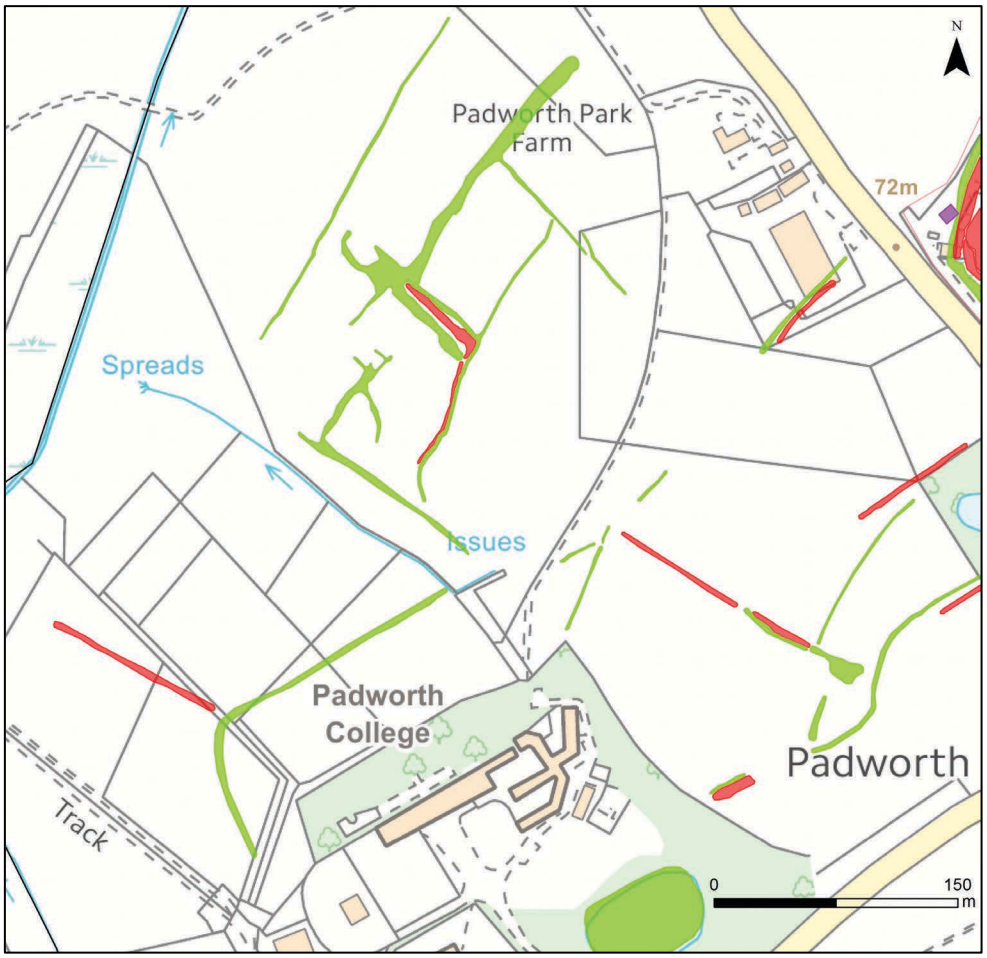

Figure 95 Banks and ditches forming possible croft boundaries, possibly the remains of an abandoned settlement, at Padworth. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Changes in land use: Forests and deer parks

While there was no obvious large-scale reorganisation of the landscape as seen in the areas of champion land in central England, there were significant changes to the landscape around Silchester by the medieval period, which are connected with forest and woodland. Evidence of these changes were recorded during the survey, principally the remains of deer park boundaries. Ownership of a deer park was a status symbol and woodland was also an important part of the medieval economy (Steane 1985, 159).

The impetus for the creation of deer parks came from a desire to emulate the enthusiasm of the Crown for hunting, which had led to large areas of land being designated as royal hunting preserves or forests (Dalglish 2012, 274). A forest could contain wood pasture, ordinary farmland, private woodland and parks, as well as villages or larger settlements. The areas thus designated were covered by Forest Law, that prevented actions which might conflict with the maintenance of habits for deer and other game, such as woodland clearance without licence (Dalglish 2012,

274). To add further layers of complexity to the rights of access in these areas, forests might also contain privately owned deer parks and rabbit warrens, but also have areas where local communities exercised common rights on grazing or gathering of wood for fuel (Short 2000, 123).

Figure 96 Christopher Saxton's map of 1575 showing Pamber Forest and the deer parks of Beaurepaire and The Vyne.
(http://www.wikiwand.com/en/Pamber_Forest_and_Silchester_Common)

Pamber Forest is located to the south-west of Silchester and is the remains of the Royal Forest of Pamber (Figure 96). The date of creation of the Royal Forest is uncertain but it appears to have been established by the Domesday survey of 1086, and it came under Forest Law by the mid-12th century. The legal extent of the forest (the area covered by Forest Law) was recorded in perambulations made in 1279 and 1298, when it covered an area of approximately 112 sq km, extending from the central part of the Hampshire woodlands up to the Berkshire county boundary (Stamper 1983, 44-45). No evidence of earlier perambulations exists, but the approximate size of the forest before this time can be inferred from places named within Chancery and Exchequer records as being 'within the forest', for example, disputes over infractions of Forest Law or grants for licences to impark. (*ibid*, 43).

The granting of licences to impark within the forest refers to the creation of deer parks by members of the aristocracy. The creation of smaller estates in the early medieval period meant an increase in the number of landowners in the Silchester area. These lesser nobles desired the status that ownership of a deer park would confer, and an increasing number were created, some within the Royal Forest area, particularly in the mid- to late-13th century. They were wholly privately-owned

land surrounded by characteristic earthworks and fences, usually called a park pale (Steane 1985, 168).

Most of the parks in the survey area are clustered around the southern (Hampshire) half of Pamber Forest, but there were two deer parks in the northern half, both lying within the modern county of West Berkshire. Licences to impark were granted within Hampshire for: Robert de St John in 1245 at Bramley, Privet and Morganstone (now Morgaston Wood); William de Saye at Stratfield Saye in 1261 (Bilikowski 1983); Peter Coudrey at Cufaude, the deer park for The Vyne, in 1268 (Hampshire AHBR); Sir Bernard Brocas at Beaurepaire in 1369; and at an uncertain date, although probably also within the medieval period, to the Brocas family at Bullesden, Bramley (Bilikowski 1983). A park was created at Sherfield, or an existing one enlarged, around 1273, and was identified as a deer park from around 1299.

Saxton's map of 1575 (Figure 96) and Blaeu's 1646 maps of Berkshire and Hampshire (Figure 97 and Figure 98) demonstrate that the deer parks were still in existence in the early post medieval period within the survey area. They are illustrated as woodland surrounded by a fence, but the shape is depicted as a circle in each case rather than their true shape.
The earliest licence to impark an area of the forest was in 1204 by Ralph Bluet at Silchester (Bilikowski 1983). Sections of the enclosing boundary adjacent to Clappers Farm Road are recorded as an earthwork on lidar and were visited on the ground (Figure 99). The sub-surface remains of the southern part of the boundary were mapped from cropmarks on aerial photographs. The park is rectangular with rounded corners, a characteristic shape designed to minimise the costs of construction (Short 2000, 127).

Another feature of the park earthworks was the deer leap, designed as a bank topped by a fence with a ditch, or multiple ditches, on its interior. This was designed to enable deer to leap into the park but once in, prevent them from escaping (Short 2000, 126). There may be an example of this at Silchester Park where part of the boundary is defined by triple-ditches located immediately south of Great Scrub Copse.

Figure 97 Detail of Joan Blaeu's map of Berkshire (1646)
(https://www.antiquemaps.com/uk/mzoom/24492.htm)

Figure 98 Detail of Joan Blaeu's map of Hampshire (1646)
(http://www.geog.port.ac.uk/webmap/hantsmap/hantsmap/blaeu1/blaeu1.htm)

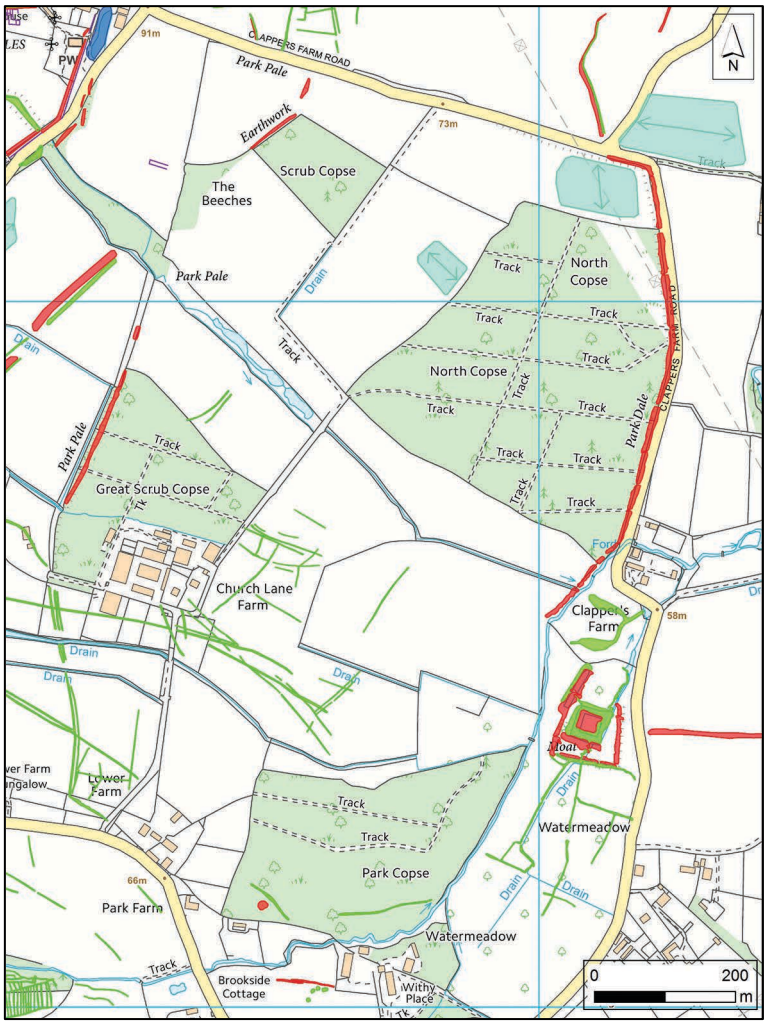

Figure 99 Silchester deer park. The names of the areas of woodland, such as North Copse and Park Copse, probably relate to the original compartments of the deer park. A triple-ditched section of the park pale, which may have been a deer leap, extends immediately to the south of Great Scrub Copse © Crown Copyright and Database Right (2017) OS (Digimap Licence)

A surviving section of Morganstone Park pale was newly recorded from lidar during the survey within Morgaston Wood (Figure 100). There is a linear bank on a northeast-southwest orientation on the western side of the wood but inside the current boundary. The internal ditch of the pale could not be identified clearly from lidar, but a field visit (Field and Truscoe 2017) identified a modern trackway which runs along the eastern edge of the bank that may be overlying the ditch. The bank survives as a substantial earthwork in this area, but trackways which cut through it have damaged the earthworks. It is possible that earlier field boundaries in the eastern half of Morgaston Wood were reused during the creation of the park. There is also a deeply defined ditch aligned on the southernmost field boundary at the southern edge of this system (Fig 103).

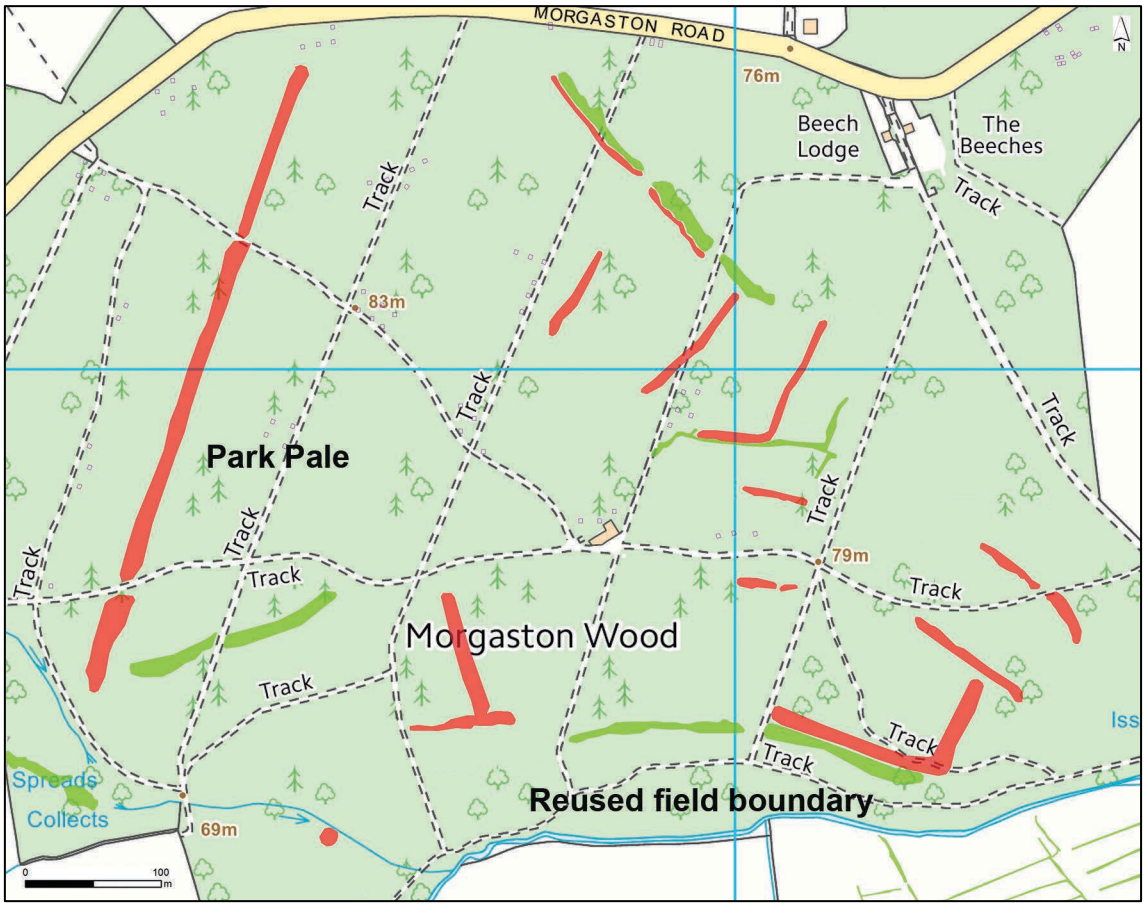

Figure 100 The probable remains of Morgaston park pale consist of a linear bank seen on the left side of the picture. A linear ditch, which may be associated with the park is located at the southern edge of the wood, possibly a reuse of earlier field boundaries. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

There is an earthwork section of the park pale of Basing deer park recorded on the lidar at the edge of Basingstoke (Figure 101) and it continues to the south beyond the scope of the current survey. A small moated site located nearby may have been associated with this deer park (NRHE 240278 and see below). This is now within a housing estate in Chineham, at the southern edge of the survey area.

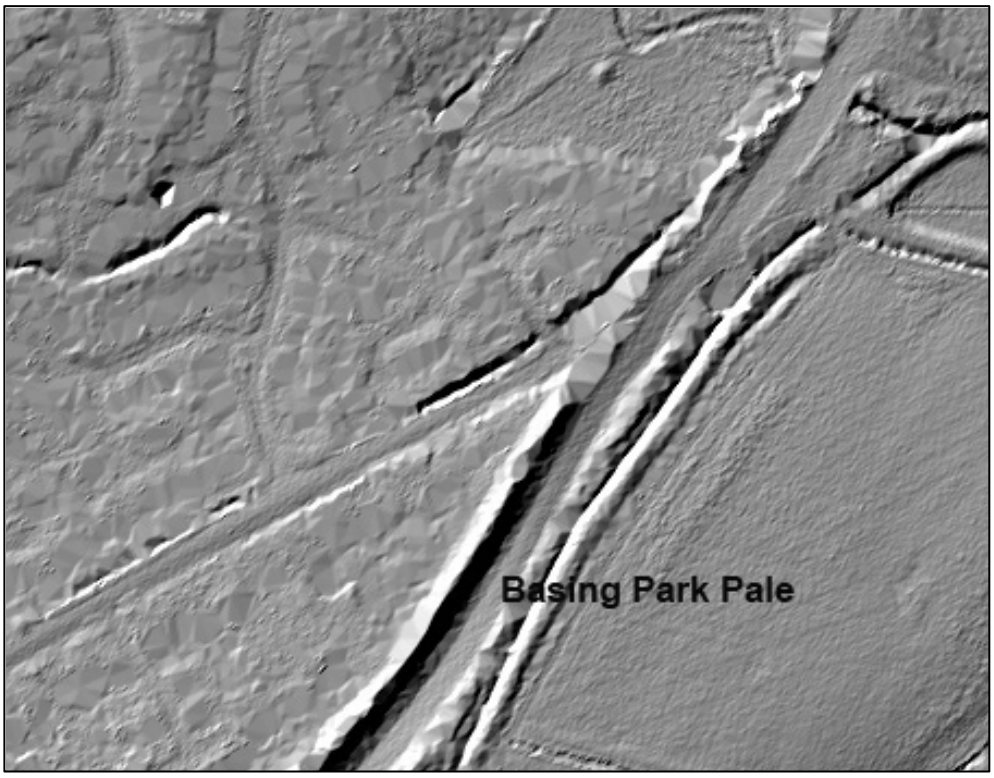

Figure 101 Basing park pale surviving as a large bank and ditch at the edge of modern Basingstoke. Lidar DTM hillshade model © Environment Agency/University of Reading

Bullsdown Copse, located to the south of Bullsdown hillfort, may have been a compartment within Bullesden deer park (Hampshire AHBR 54082). An earthwork bank with an adjacent ditch is visible on lidar at the northern edge of the copse and may have been part of the park pale. The bank and ditch possibly continue to the east as a low earthwork and also to the west to join up with the banks of the Iron Age Bullsdown hillfort (Figure 102 and Fig 106). The bank was observed during a walk over survey (Bayer & Truscoe field visit 2017).

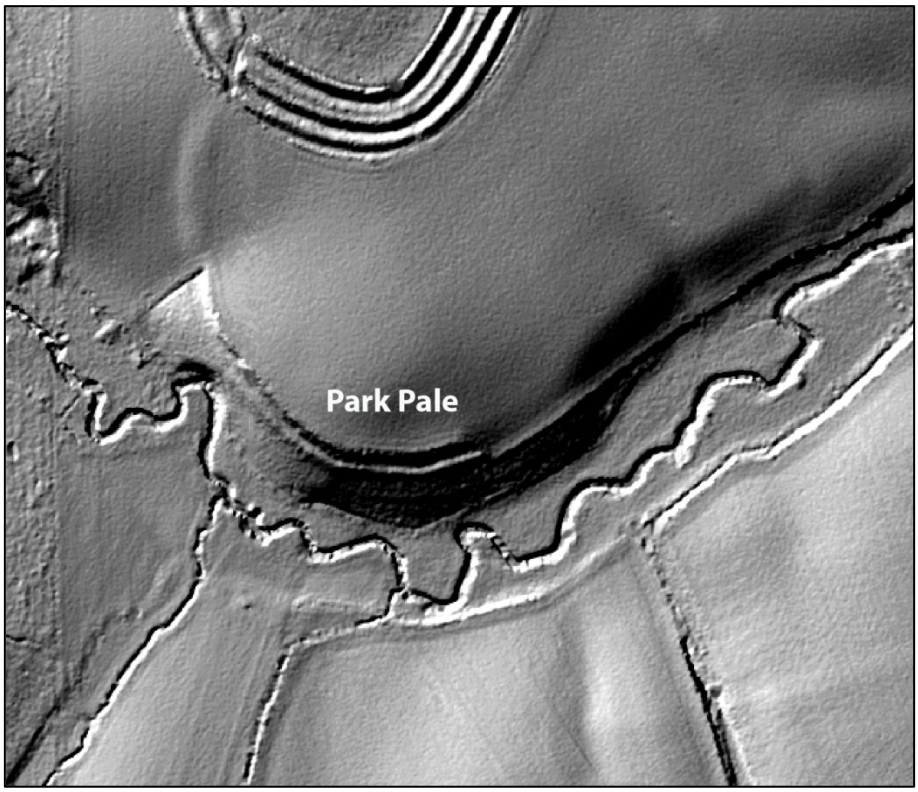

Figure 102 Possible park pale at the northern edge of Bullsdown Copse, south of Bullsdown hillfort. Hillshade model of lidar DTM. ©Environment Agency/University of Reading

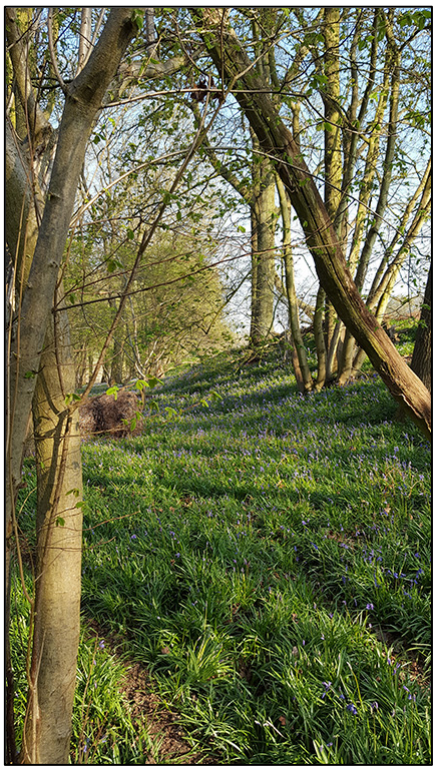

Figure 103 Bank at the northern edge of Bullsdown Copse seen from the southern side. © University of Reading

Deer parks changed in character in the post medieval period as landowners began to build their houses within them. Areas of land previously set aside primarily for the breeding of deer were gradually transformed into the gardens of country houses. There are examples of transformed deer parks at Morgaston Park where The Vyne house was built in the early 16th century and at Beaurepaire Park where the moated manor house, Beaurepaire House, was constructed in the early 17th century. This was not the case with all deer parks in the survey area and, for example, most of Silchester deer park remains as woodland and pasture and its internal compartments can still be identified.

The shape of other parks may be fossilised in modern field boundaries, such as to the east of Sherborne St John, where an hour-glass shape to the south of Stratfield Saye Park might be interpreted as a double deer park. However, these could also be examples of types of enclosure of formerly common or communally farmed land identified by Roberts and Wrathmell as looped or curvilinear enclosures (2002, 152).

Ostentatious living: moated houses

A new development in the medieval period that appears to be designed to advertise the status of the owner was the moated house. They have been described as "a social phenomenon" which conferred status on their owners as well as providing protection for their property (Roberts and Wrathmell 2002, 58). There are eleven moated sites across the Silchester environs survey area (Fig 99), often associated with fishponds and surrounded by systems of leats controlling the supply of water to the moat.

Most moated sites in England were constructed in the 12th and 13th centuries usually, but not always, in low-lying, sometimes wooded, regions (Creighton and Barry 2012, 66). The moats were easily recognised on aerial photographs and lidar but no traces of abandoned buildings were identified within them in the survey area but some continue in use today. Moated sites vary in size and would have accommodated houses of different sizes reflecting the status of their owner. They were not exclusively lordly residences but could be created by those of lower status who had accumulated enough wealth to acquire land.

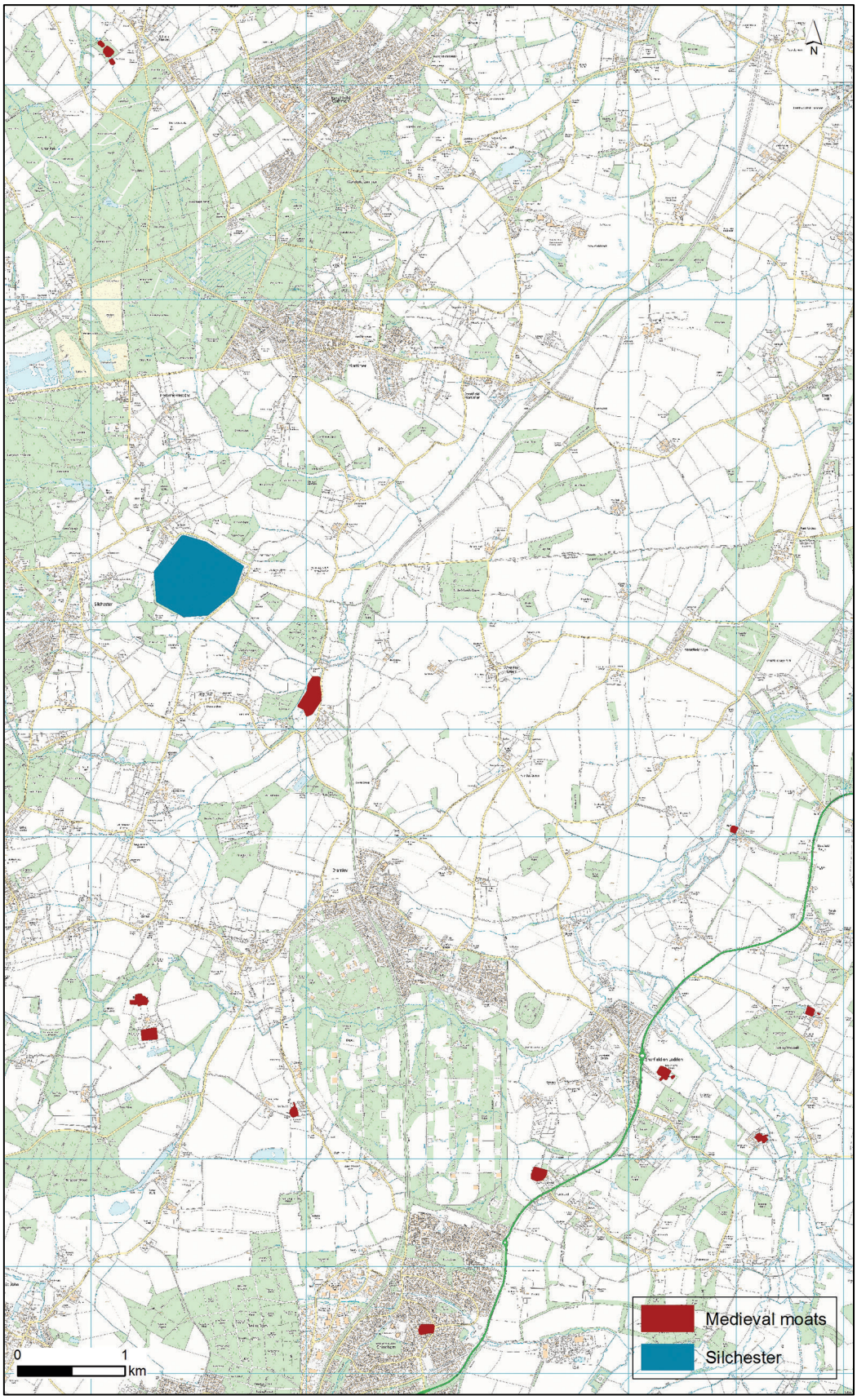

Figure 104 Moated sites within the survey area. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Nearly all the moated sites, of varying sizes, are in the southern part of the survey area, with five adjacent to deer parks. While a direct correlation between the size of the moated site and the degree of wealth and power of the inhabitant cannot be assumed, it is possible that the larger examples were residences of manorial lords and that the smaller sites were the homes of the lower status gentry.

Some moated sites were associated with fishponds, such as the site at Ufton Nervet, which had a fishpond to the north and two to the south (Figure 105).

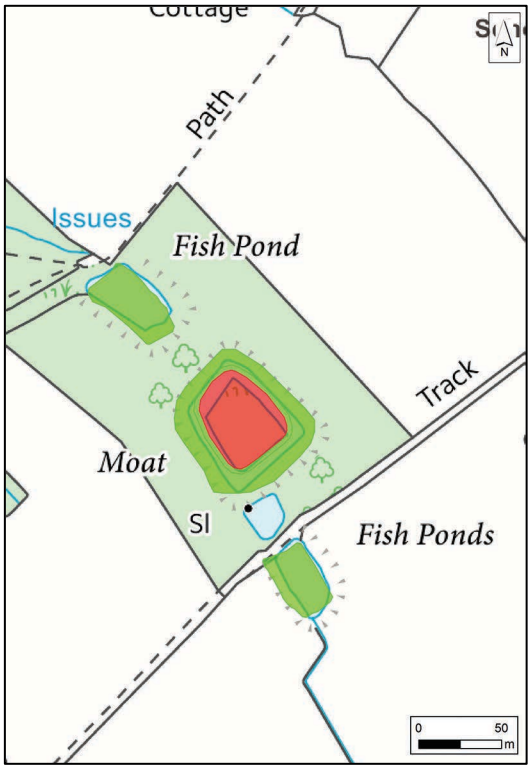

Figure 105 Moat at Ufton Nervet © Crown Copyright and Database Right (2017) OS (Digimap Licence)

There is a moat and fishponds adjacent to the eastern boundary of Silchester deer park at Clapper's Farm (Figure 106). A field visit could not establish a relationship between the site and the park pale (Field and Truscoe 2017) but its location suggests that it may have originated as a building associated with the park.

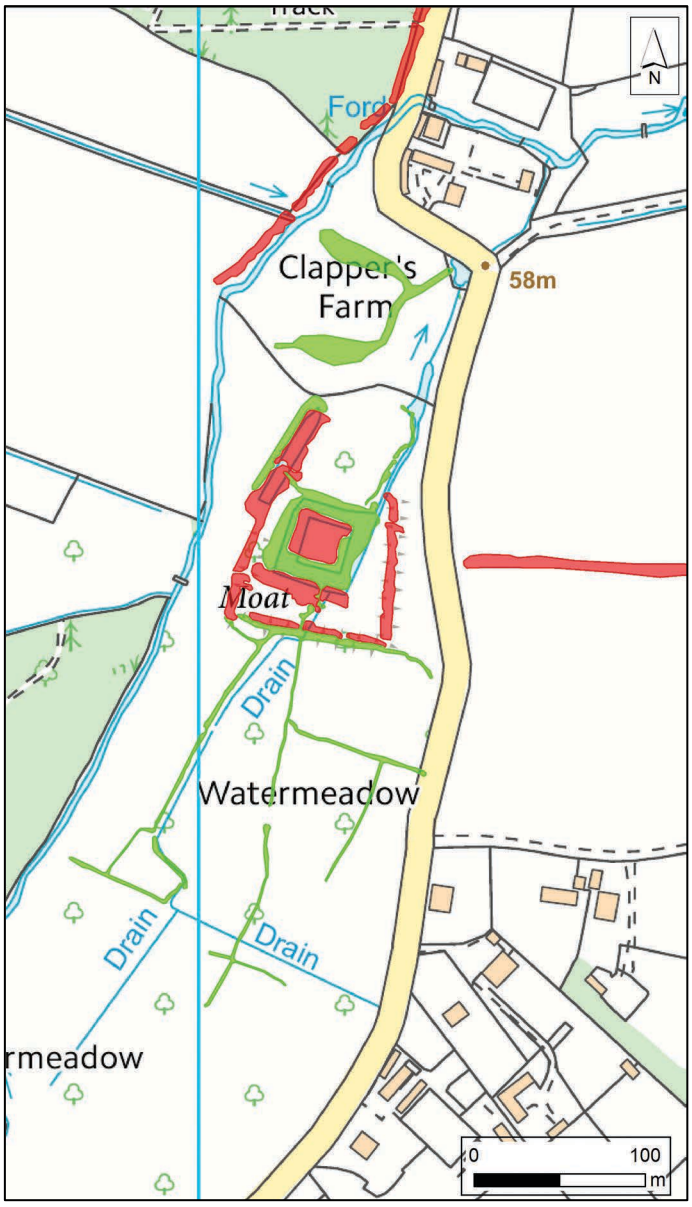

Figure 106 Moat at Clapper's Farm at the eastern edge of Silchester deer park © Crown Copyright and Database Right (2017) OS (Digimap Licence)

There is a moat within the former deer park of Beaurepaire, which later developed into a country estate. A new house was built to the north and the moat was retained as a garden feature (Figure 107). The site of a lodge is marked to the north of the house on a map of 1613, but no above ground remains have been identified (Stamper 1983 in Hampshire AHBR 20205). The buried remains of the lodge could be indicated by a second possible moated site, identified from cropmarks on aerial photographs. The site comprises a sub-square platform surrounded by a spread ditch.

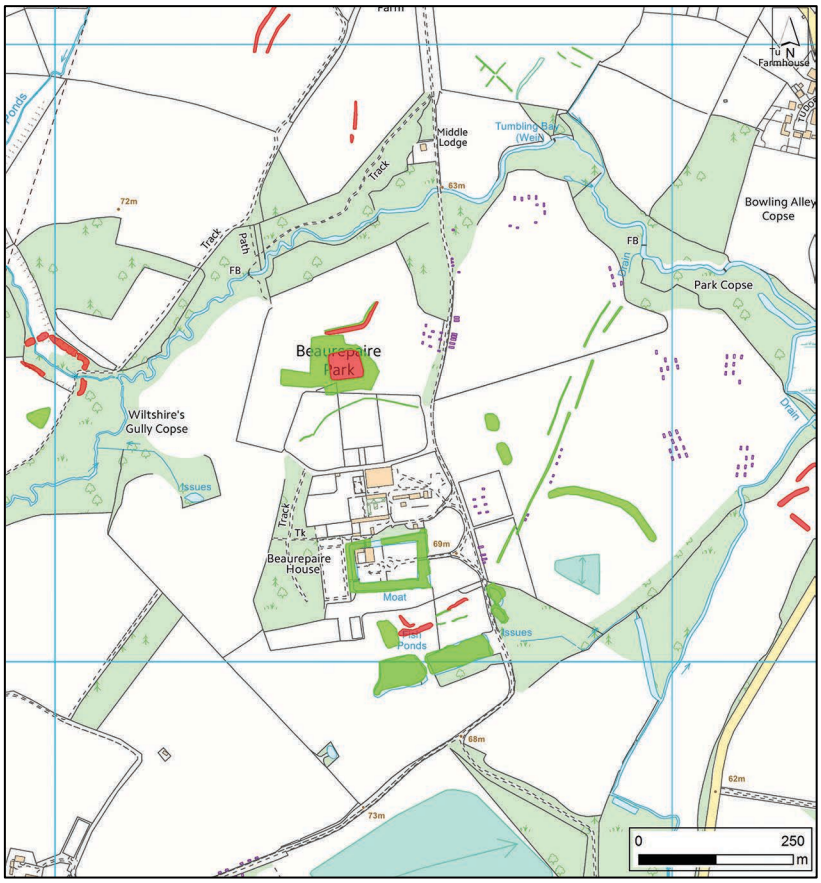

Figure 107 Moated site to the south of Beaurepaire House and a possible second moat to the north which may be the site of a hunting lodge © Crown Copyright and Database Right (2017) OS (Digimap Licence)

A moat at Cufaude Farm (SU 64890 57439) was probably also associated with a deer park on this site (later The Vyne). This was the site of the manor-house of the Cufaud family (Page (ed) 1911). The Cufauds estate was held by a family of this name from at least 1167 until the mid-18th century (NLHE 1013074). The moat and central platform survive as earthworks recorded from lidar during the survey (Figure 108).

A moat rcorded from lidar at Breach Farm, east of Sherfield-on-Loddon (SU 6833 5780) has evidence of modification and settlement in later periods (Figure 109). Buildings dating from the 17th century up to the modern period have been constructed within it. The lidar data demonstrated that the south-western quadrant of the moat, not shown on current OS maps, survives as a low earthwork.

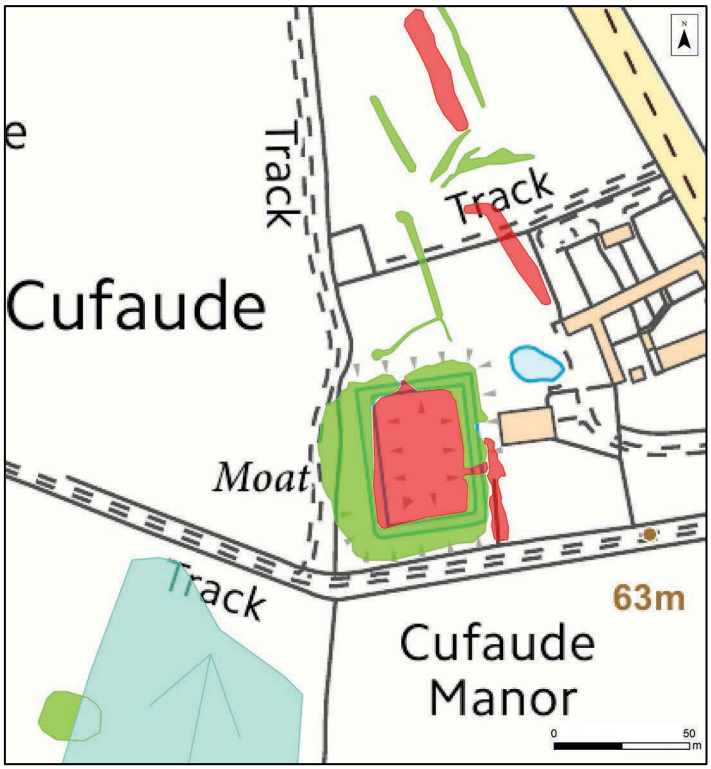

Figure 108 The moated site of Cufaude Manor. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

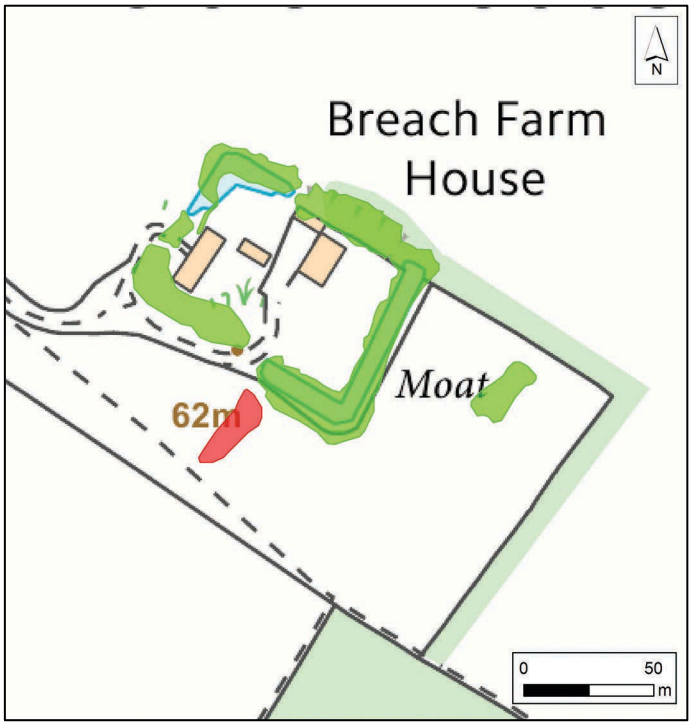

Figure 109 Moat at Breach Farm, with the 17th century and modern buildings within the original moat island © Crown Copyright and Database Right (2017) OS (Digimap Licence)

There is a well-preserved moat at Sherfield Court to the south-west of Sherfield-on-Loddon (SU 6717 5684) (Figure 110). There was a manor house, of unknown date, on the moat platform but it was replaced by an Elizabethan house standing to the south of the moat. The moat appears to have been extended and adapted in the post medieval period in order to make it an ornamental garden feature. The moated medieval manor and church of St. Leonard are thought to have once formed the nucleus of a medieval village. The location of the present village of Sherfield, about one mile to the north, is thought to postdate the moat, possibly to around 1270 (NRHE 240292).

Figure 110 Moat at Sherfield Court ©APGB SU6756 06-JUL-2013

What might be considered a remarkable survival is a moat located within a modern housing estate in the Chineham area of Basingtoke. This site lies within an area formerly covered by Basing Park and may have been associated with it. Observations by Burton (Ordnance Survey Field Investigator) in 1956 described the moat as being partly filled in and occupied by an orchard and the farmhouse of Four Lanes Farm which was probably 18th century in date. No trace of an earlier house could be identified (NRHE 240278). The site is now surrounded by a modern housing estate but can still be seen to be to survive as an extant earthwork on lidar (Figure 111).

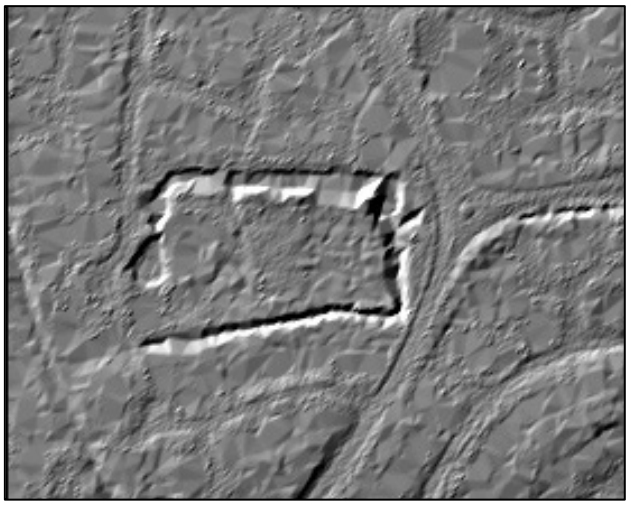

Figure 111 A moat recorded from lidar within a housing estate in Basingstoke. Lidar DTM hillshade model © Environment Agency/University of Reading

Agriculture in the medieval period

It is unclear why open fields developed differently in the south-east and west of England compared to the Midlands. For example, Williamson found no correlation between the distribution of open fields and and soil types or patterns of social or tenurial organisation (Williamson 2003, 6). There is no evidence of extensive open fields, such as those found in the champion lands of the Midlands, in the Silchester survey area. The medieval agricultural use of much of the survey area may therefore have consisted of small, irregular fields, perhaps associated with individual farmers in closes. Small blocks of ridge and furrow which may have originated in the medieval period are found across the survey area. They are not generally grouped together which might suggest that ploughing was being carried out over small dispersed areas, rather than in a system of open field farming (Figure 112).

However, there is a suggestion that arable cultivation was carried out over larger areas. A 17th century map of Silchester parish by John Whiting shows the area within the Roman town walls, to the west of the church and manor house, divided up into three open fields: north, middle and south (Hampshire Record Office reference 6M63/1, see Figure 113). These could be the remnants of open fields developed during the medieval period which continued in use into the post medieval period. Field boundaries which were recorded from cropmarks within Silchester town walls correspond to boundaries around a meadow mapped by Whiting to the east of Middle Field. This map is also the first to illustrate the true shape of Silchester. Prior to this, the town had been depicted as being the shape of a Roman camp, a rectangle with rounded corners (Creighton with Fry 2016).

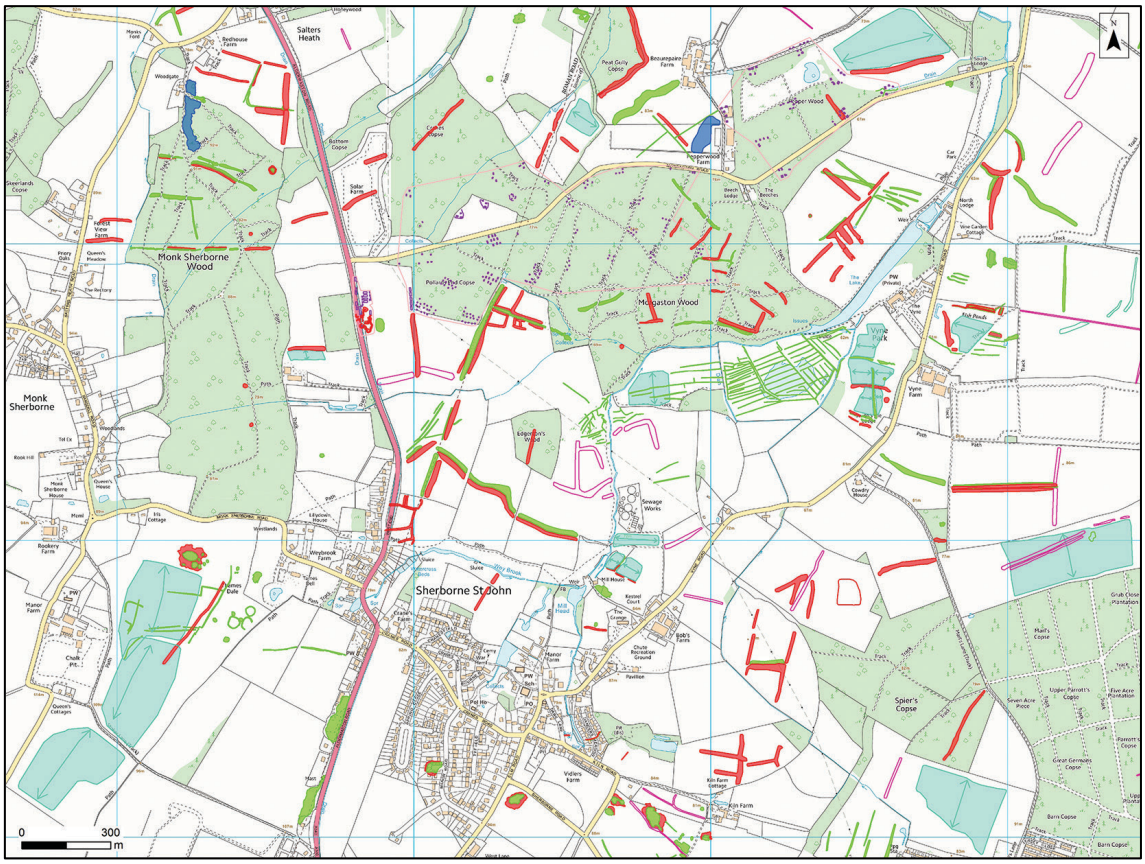

Figure 112 Scattered blocks of ridge and furrow (shaded light blue) recorded around Sherborne St John © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Figure 113 Part of a map of Silchester parish by John Whiting (1653) showing three open fields within the Roman town walls. Hampshire Record Office: 6M63/1 (copy of original)

Evidence of common fields can be inferred from place name evidence, although the term `field' is problematic. It is derived from an Old English word meaning `open country' and may not have a particular connotation with arable land. Gelling suggests that it may have first been used to denote Anglo-Saxon encroachment onto pasture land, leading to the numerous place names with the affix -field (Gelling in Roberts and Wrathmell 2002, 21). Examples within the survey area are Burghfield, Stratfield Saye and Sherfield upon Loddon.

The boundaries observed in the survey area suggest a pattern of small, irregular fields, either pasture or arable. There are numerous disused field boundaries recorded in the eastern half of the survey area which may have origins in the medieval period. However, they may also be the product of piecemeal enclosure in the post medieval period, predating the large-scale Parliamentary enclosures, (discussed in the next chapter).

Changing ownership, rights and land use

The post-Roman, early medieval and medieval periods were times of great change in England. A succession of new landowners and administrative systems meant that the way the country was governed changed substantially. The leisure interests of the lordly class also had a dramatic effect on the countryside and the common rights of people who lived there. These national trends were expressed in the area around Silchester through the laying out of new administrative (eventually parish) boundaries, changes to agricultural practices, and the creation, first, of the Royal hunting forest of Pamber, and then, numerous deer parks. The forest was governed by its own set of laws, but common rights were still preserved within it. Deer parks, however, were an entirely private venture, within which no-one but their aristocratic owner had any rights.

The effects of these changes to the landscape can be identified in the survey results. The remains of park pales were recorded from surviving earthworks and from cropmarks, including newly identified sections within Morgaston Wood. The use of different sources to record Silchester deer park has meant that its shape can be correctly inferred as a rectangle with rounded corners, rather than the way that it depicted as circular on 16th and 17th century maps. While many moated sites within the survey area were previously known, the use of lidar means that the extent of their survival could be more fully recorded. The possible site of a moated hunting lodge was also newly identified within Beaurepaire Park.

The locations of villages appear to have been largely fixed from the medieval period on, but the deserted areas recorded during the survey show that the settlement pattern is more dynamic than might first be assumed. The most dramatic example of this is the change in location of all but the church and manor house of Silchester from the east side of the Roman town to the west. The original village location has not been previously identified, but the cropmarks recorded to the east of the church may indicate sub-surface remains of the original settlement.

POST MEDIEVAL (16TH CENTURY TO 19TH CENTURY): A PRIVATE LANDSCAPE

Through the early post medieval period there were gradual changes in land use and ownership that resulted in a situation more akin to the large estates that probably existed at the beginning of the early medieval period. The parish system remained intact but by the mid to late 19th century, a large proportion of the land within the survey area was under the control of two main landowning estates, the Englefield Estate (associated with Englefield House) and the Wellington Estate (associated with Stratfield Saye). The 19th century records of the Wellington Estate include numerous deeds of conveyance recording the purchase of parcels of land in the surrounding area, demonstrating this consolidation of landholdings (Wellington Estate papers, Museum of English Rural Life). The Victoria County History notes that the first Duke of Wellington became lord of the manor of Stratfield Saye (the location of his country house) and the adjoining parishes of Silchester, Stratfield Turgis and Bramley during this period (Page (ed) 1911, 57-63).

The 18th and 19th centuries saw widespread enclosure of agricultural land, a profound change in the organisation and management of the countryside. Consolidation of holdings by large landowners enabled them to undertake large-scale improvement works, such as the creation of water meadows. The settlement pattern in the Silchester area as mapped on the first edition 25" OS maps for Hampshire and Berkshire (1872-3) is one of small villages and dispersed farms. This pattern concurs with Roberts and Wrathmell's assessment for the south-eastern province of England for the mid-19th century as having a high number of hamlets and isolated farmsteads within the overall settlement pattern (Roberts and Wrathmell 2000, 53). There was also a gradual change in the role of deer parks throughout the post medieval period. In many cases, they were no longer regarded solely as hunting preserves, but instead became the settings for the large country houses whose owners controlled much of the agricultural land around them.

Post medieval changes to the landscape, both in settlement and agriculture, are reflected in the results of the survey. The remains of garden earthworks and decorative planting were recorded within the bounds of landscape parks. Numerous field boundaries, removed within the modern period, possibly attest to piecemeal enclosure. The remains of a squatter settlement on Mortimer Common and a removed hamlet at Pollards End recorded from aerial photographs and lidar show the effects of enclosure and the actions of wealthy landowners.

Figure 114 The Vyne © Historic England SU 6356/047 NMR 24694/19 29-AUG-2007

Figure 115 Section of Isaac Taylor's map of Hampshire (1759) via www.geog.port.ac.uk. Tree avenues can be seen in the landscape parks of Stratfield Saye and Heckfield (both top right). A decoy pond and turnpike road are marked between Shirfield and Basing (mid-bottom).

Enclosure: changes to land ownership

The process of enclosure was recognised as a major change to the ownership and use of land and was a factor in increasing productivity (Williamson 2002, 7). Enclosure here means the taking of common land and open fields into private ownership. Enclosure was not just the process of creating new boundaries around plots of land but also involved a change in common rights such as the ending of agreements on common grazing (Yelling 1977, 6). Enclosure could occur in a number of forms; on a piecemeal basis; by formal agreement; by the lord of the manor; or by Act of Parliament (Chapman and Seeliger 1997, xiv). There is a difference in scale in the types of enclosure. Piecemeal enclosure was generally concerned with small areas of land, while formal enclosure or parliamentary enclosure could transform all of the land within a township in one action (Williamson 2002, 7). The processes were not mutually exclusive; partial piecemeal enclosure could be followed at a later date by more wholescale enclosure by means of a Parliamentary Act within the same township (Yelling 1977, 10).

Piecemeal enclosure was the result of private agreements on the consolidation of contiguous open field strips of land (Williams 2002, 7). Enclosure carried out by a lord occurred when all land and rights had fallen into their hands, either by waiting for leases to expire or by buying out copyholds and leaseholds, leaving the way clear for reorganisation. The latter situation occurred at Heckfield (at the eastern edge of the study area) in order to bring grazing rights on the heath under the lord of the manor's sole control (Chapman & Seeliger 1997, xv).

The various types of enclosure are evidenced in the landscape by the shapes of fields and the overall appearance of the system of which they are a part. Large-scale parliamentary enclosure generally resulted in a uniform pattern of rectangular fields and sections of roads and rivers may also have been straightened as part of this process. A more gradual process of piecemeal enclosure tended to leave a system of more irregularly-shaped fields, often interspersed with areas of woodland and common land (Williams 2002, 7). A large part of Hampshire was enclosed in this way either as part of a legal agreement, or illegally through the encroachment of tenants onto common land. Creation of squatter settlements often occurred in parishes with a large proportion of heathland (Chapman & Seeliger 1997, xvii and see below).

While there is some evidence for medieval open field farming (see previous chapter), the pattern of small, irregular fields which can be discerned from aerial photographs and lidar within the south and centre of the survey area suggest that much of it was enclosed on a piecemeal basis. There is also evidence of encroachment onto common land and woodland. The gradual process of partial enclosure was followed by parliamentary enclosure in the 19th century and most of the survey area was enclosed between 1802 and 1866 (Chapman & Seeliger 1997; http://www.berkshireenclosure.org.uk/).

However, not all common land was enclosed by landowners. The Duke of Wellington refused to enclose a common near his estate at Stratfield Saye when it was recommended by his architect and agent Benjamin Wyatt stating: "It is much better that it should continue a common than that I should give or sell a piece of

land that should have become mine in consequence of the Enclosure" (Wellington to Farrar & Co Solicitors, 25 February 1816, in Longford, 1972, 122).

There are large, regular, rectangular fields in the northern part of the survey area, within the parishes of Ufton Nervet, Sulhamstead and Burghfield, suggesting that enclosure took place here in a unified manner. The woodland to the east of Padworth Common also shows signs of centralised management, with straight forestry tracks and roads laid out throughout. The changes brought about by enclosure made it possible for landowners to carry out improvement works on a large scale. For example, water meadows were developed as a means of improving pasture.

In addition to new roads being laid out, the courses of others might be straightened or abandoned. Watercourses could also be managed and there is a possible example of this at Foudry Brook, Mortimer. Palaeochannels recorded from cropmarks on aerial photographs suggest that the Brook previously had a more meandering course. These curving sections pre-date the course of the Foudry Brook as it is shown on the first edition OS map (1:2500, 1872) demonstrating that it was straightened before this date, possibly during the process of enclosure of the surrounding land.

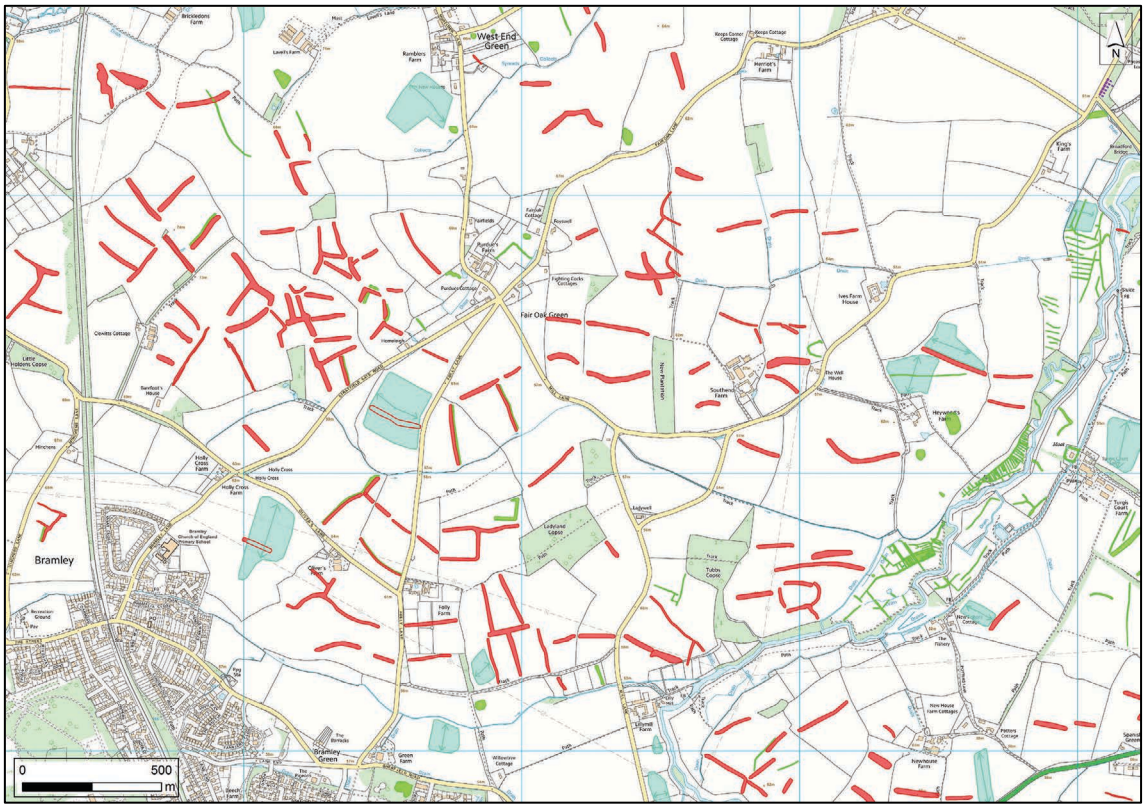

Figure 116 Field boundaries recorded from earthwork banks on lidar to the north of Bramley. Some of the boundaries are shown on the first edition OS map (1:10560, 1875) but may be the product of earlier piecemeal enclosure. © Crown Copyright and Database Right (2017) OS (Digimap licence)

The effect of enclosure: Squatters and settlement removal

Encroachment onto commons and waste by landless people was a phenomenon which may have begun as far back as the 16th century in Britain but appears to be particularly related to the 18th and early 19th centuries, at a a time of rising population (Silvester 2007, 56). Squatter settlements would typically consist of a few cottages with small plots around them forming irregular patterns (ibid, 57).

There is an example of possible squatter settlement on the edge of Mortimer Common (Figure 117). Earthworks seen on lidar indicate a group of probable house platforms and field boundaries or land divisions, over an area measuring 210m by 150 m, immediately to the north of the modern village of Mortimer (SU 65153 65152). These remains could be the hamlet of Long Moor. This is shown on Rocque's map of 1761 as an irregular scatter of smallholdings around a stream. Alternatively, the earthworks could relate to 19th century occupation of this area. Research by the Mortimer Local History Group found that most houses in Long Moor were built between 1810 and 1840 but were mostly abandoned and demolished by the early 20th century (Mortimer Local History Group in West Berkshire HER MWB15476).

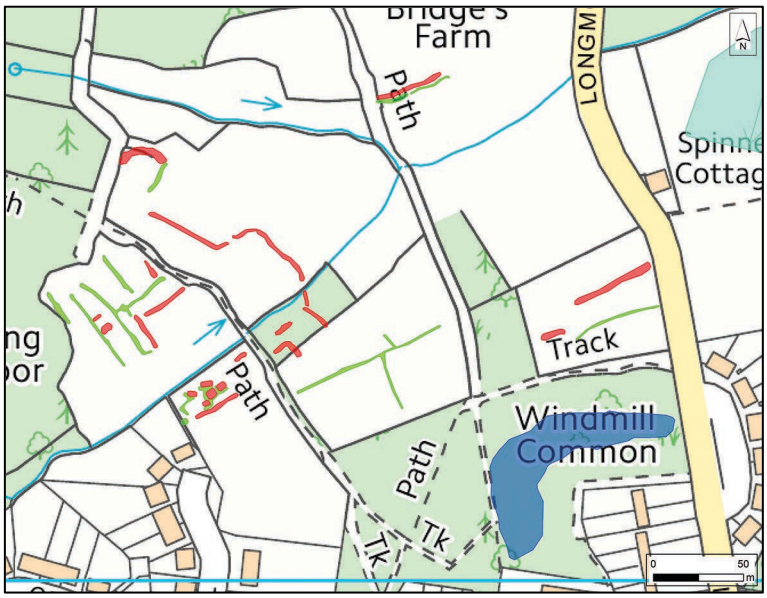

Figure 117 A group of house platforms (red rectangles) on Mortimer Common with field boundaries and trackways (green and red lines) to the east and north-west. © Crown Copyright and Database Right (2017) OS (Digimap licence)

Landscape change over a large area is often assumed to occur at the behest of those at the top of the social scale, but these smaller transformations of common and waste land have been described by Silvester as “landscapes of the poor” (2007, 67). Many such sites were ultimately removed through the process of parliamentary enclosure, or reorganisation of estate holdings, but the current survey demonstrates that physical traces of them can still be identified in the modern landscape.

There is an example of the removal of a hamlet by wealthy landowners at Pollards End, first mentioned in 1313 as 'Pollardscroft', located to the north of Sherborne St John. This site was recorded from earthworks, visible on aerial photographs and

lidar, which have the appearance of being formed in an assart in Morgaston Wood (SU 62323 56766, Figure 118). Property boundaries are located to the north and south of a hollow way, visible over an area measuring 280m by 140m. The hamlet abuts the line of the former Roman road between Silchester and Winchester at its western end. Pottery from the 12th century up until the later post medieval period, as well as much brick and tile, were found across the site. The date range of the pottery indicates occupation right up to its clearance in the 1830s, although it was still shown on the 1840 tithe map. (Hampshire AHBR 33452).

The settlement was cleared by the landowner of The Vyne, William Lyde Wigget Chute in the early 19th century. Wigget Chute was making improvements to the estate and decided that the cottages were located too far to the north of the church and school in the village of Sherborne St John. The construction of Morgaston Road in 1829-32 also appears to have led to Pollards End being cut off. Wigget Shute encouraged the residents to emigrate from England to Canada rather than rehouse the inhabitants closer to the village centre (October 2001 Villager).

Figure 118 Roads and property boundaries of the former hamlet of Pollards End seen as cropmarks on aerial photographs at the southern edge of Morgaston Wood. © EA/AF/95C/251 7963 23-MAR-1995. NCAP / ncap.org.uk

Landscape change: The development of landscape parks

A number of deer parks within the survey area developed into landscape parks and gardens in the post medieval period. A deer park was generally some distance away from the house of its owner and the only building within it might be a lodge, but, as fashion for hunting declined, the parks developed as the direct foil for a country house. In many instances, the families who developed the deer parks continued to be the owners of these estates into at least the 19th century.

The design of parks and gardens changed with fashion during the post medieval period. They developed gradually from very formal, geometric, designs in the 16th and early 17th centuries to more naturalistic layouts by the 18th century, with the house set in open parkland. The 19th century saw the garden return to the front of the house, with areas of formal planting and geometric patterns again becoming

more common. The fortunes of the owners of country estates declined after the First World War and many were redeveloped or underwent conversion, for example into a country park or golf course (Taigel & Williamson 1993; Taylor 1998). For example, Wokefield Park in the north-eastern part of the survey is now a conference centre with a golf course in the former parkland.

The parkland around The Vyne (SU 6356 5667) developed out of a deer park created when Peter de Coudray was granted a licence to enclose Cufaud Wood in Sherborne in 1268 (Page (ed) 1911, 158-171). Chaloner Chute acquired the estate from William Lord Sandys in 1653 and it remained in the Chute family until it was bequeathed to the National Trust in 1956. A park and formal gardens were laid out around the 16th century house during the 17th century. The formal gardens were removed in 1754 by John Chute who developed pleasure grounds, a landscape park and a walled garden. The estate was modernised by William Lyde Wiggett from 1827 and further developed during the 20th century. Garden features included a shallow terrace and lawns, an avenue of Red Twig Limes, a serpentine lake to the northwest of the house with formal gardens beyond it (NHLE 100087).

Figure 119 Garden features recorded to the north-west and south-east of The Vyne. Further evidence of post medieval management of the landscape can be seen in the water meadows to the west of Vyne Park and woodland boundaries within Morgaston Wood. © Crown Copyright and Database Right (2017) OS (Digimap licence)

A series of linear earthworks which are probably the remains of the formal gardens were recorded from aerial photographs and lidar during the survey (SU 63492 57060, Figure 119). The earthworks comprise banks oriented northeast - southwest

and northwest - south-east and probably delineated garden areas. Trackways on a different orientation to the garden earthworks and possibly cutting through them may be later in date. A path leads from the south of the house and appears to cut through an area of cultivation ridges. A possible prospect mound measuring 17m in diameter is located to the east of the path (SU 63592 56476).

Beaurepaire Park (SU 6354 5816) similarly evolved from a deer park with the park and garden of a house built, in 1777, on the site of the original medieval moated manor house (Page (ed) 1911, 140-145). Beaurepaire was held by the Brocas family for 500 years until it was sold in 1870. In addition to the park, the family were landowners with many tenant farmers in the local area. There are specimen trees, formal lawns and herbaceous borders in the gardens. A pagoda-like structure was built to the north east of the house and was apparently the centrepiece of an early 20th century Arts and Crafts garden, where stone flags, brick terraces and other associated structures still remain. The parkland today is situated to the south of the house, around a group of medieval fishponds. The original parkland to the east of the house is thought to have been ploughed to create arable land during the Second World War (Hampshire Gardens Trust http://www.hgt.org.uk). Possible evidence of this wartime ploughing was recorded during the survey, although the ridges recorded could be for tree planting.

A number of garden features, which may relate to different periods of use, were recorded within the park from aerial photographs and lidar (Figure 120). A sub-rectangular depression and linear banks and ditches were recorded to the south of the moat which possibly delineated planting areas.

Tree avenues were established in parks from the 17th century onwards and could extend for a substantial distance from a house. Clearly, they could not be established without prior control of the land that they covered through enclosure, since it would not have been possible to plant trees on open fields or common land. Therefore, they offer a clear indication of the extent of the holdings of their owners (Taigel & Williamson 1993, 43).

At Beaurepaire there are the remains of a possible tree avenue comprising two parallel ditches extend from the moat area through the parkland to the east of the house for a distance of 460m. A line of trees either side of a clump is shown on the first edition OS map (1:2500, 1872) at this location (Figure 121). They do not appear to follow the fairly straight lines recorded from cropmarks and may be a later feature. The first edition map also shows a tree avenue leading to Bramley Corner from the edge of the parkland.

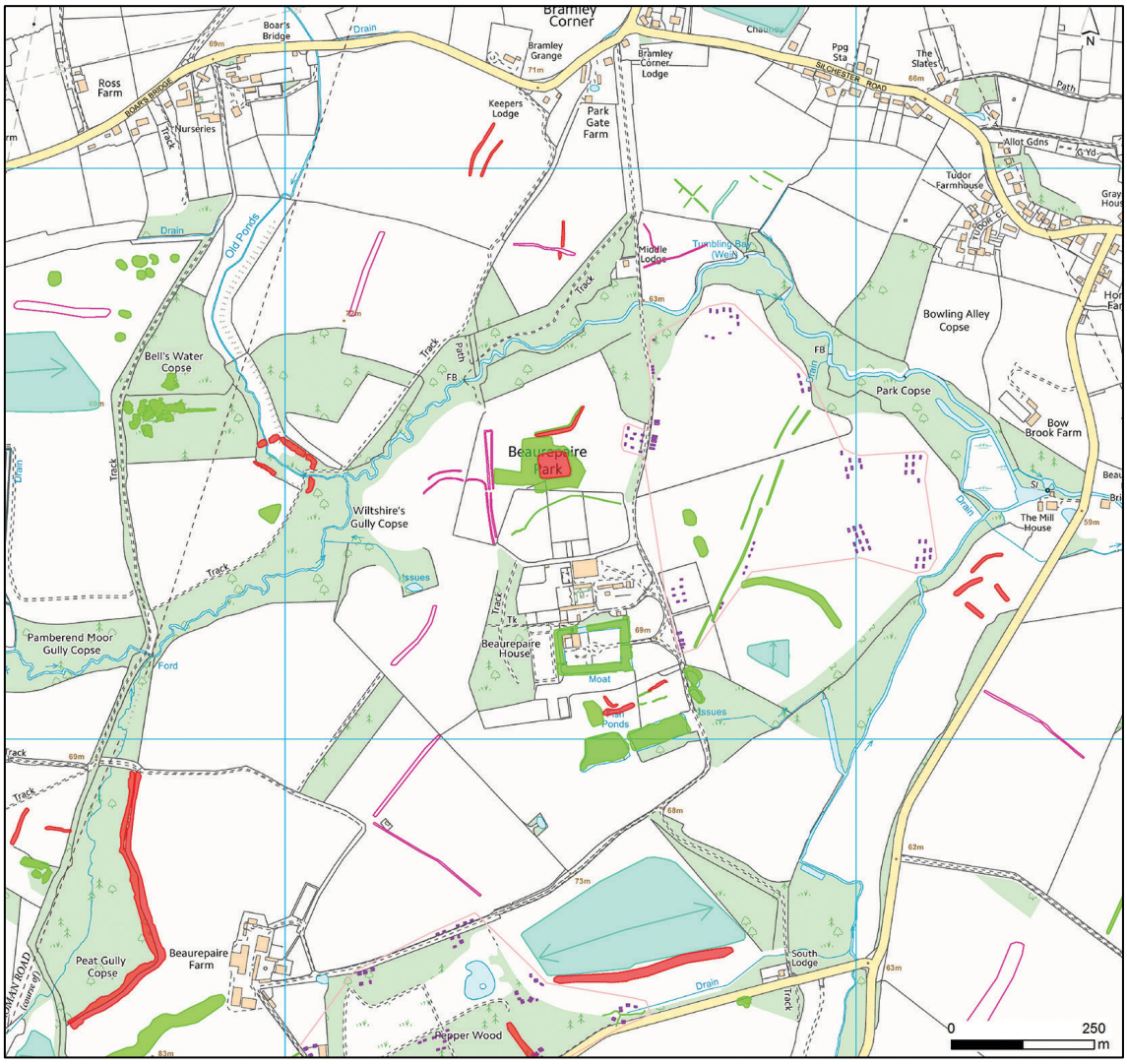

Figure 120 Features recorded within Beaurepaire Park, including two medieval moats. The purple dots within the parkland to the east of the house are the sites of Second World War dispersed ordnance storage. © Crown Copyright and Database Right (2017) OS (Digimap licence)

The park is surrounded by belts of trees which are typically an 18th century garden design feature. By then, there was a fashion for great houses to be separated off from the surrounding countryside, possibly a response to the ill feeling engendered by the process of enclosure (ibid, 71) or from a growing sense of privacy. Two sub-rectangular depressions, the physical traces of ornamental tree planting plots, which are marked on the first edition OS map (1:10560, 1877), were recorded to the west of the possible avenue. A curving ditched boundary to the north of the house approximately follows the same route as a woodland park boundary marked on the first edition OS map. The moat to the north of the house, a possible former hunting lodge, and adjacent ditch and bank to the north, may also be garden features but from an earlier period.

Figure 121 Beaurepaire Park in the 19th century as shown on the OS first edition map (1:2500, 1872). © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1872)

Ufton Court, previously the manor house of Ufton Pole and known as Pole Place in the time of Henry VIII, was originally constructed in about 1568, but enlarged and altered considerably in the 18th century and altered externally in the 19th century, when in the ownership of Benyon de Beauvoir (Page (ed) 1923, 437-444). There is a series of eight fishponds to the north of the house, probably associated with its earliest phase of use. The fishponds are Scheduled (NHLE 1006976) but, due to the nature of the tree cover and gaps in the lidar coverage in this area, could not be recorded as part of the survey.

Features associated with a formal garden and linear banks defining garden areas were recorded from aerial photographs around Ufton Court (SU 62534 66738) over an area measuring approximately 70m by 50m (Figure 122). A walled garden divided into four compartments is located to the north-west of the house and features recorded from aerial photographs correspond with those mapped on the first edition OS map (1872) for this area. A rectangular enclosure was recorded to the west of this feature, giving further evidence of formal divisions of the garden. A curving path was identified in the grassland to the north of the formal garden area.

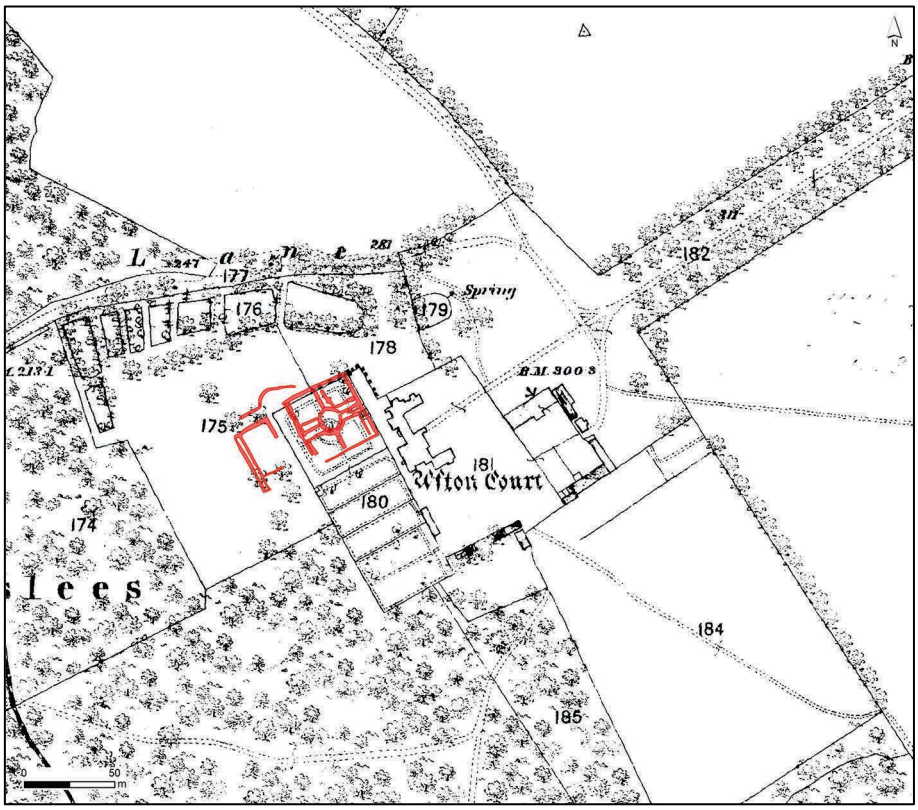

Figure 122 Formal garden features mapped around Ufton Court, shown on the first edition OS map (1:2500, 1872). © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1872)

Pleasure grounds and a landscape park, evolving from a deer park, were designed for George Pitt, Lord Rivers at Stratfield Saye House between 1745 and 1803 (SU 6950 6151). Additional work was carried out on the park by the Duke of Wellington. The Duke had been gifted a house by the nation in 1814, following his return from the Peninsula War and, after an unsuccessful search for suitable properties by his architect Benjamin Dean Wyatt (Longford 1969, 443-4), Stratfield Saye was eventually purchased for him in 1817 (NLHE 1000866).

The house is set within an area of walled and formal compartments, all situated within a landscape park. An arboretum established by Lord Rivers was expanded with ornamental planting by Wellington. Buildings include a rustic summer house constructed in 1848 and ornamental bridges, including a cast iron one of 1803. The grave of Copenhagen, Wellington's charger, is also present. Planting within the grounds continued throughout the 19th and 20th century.

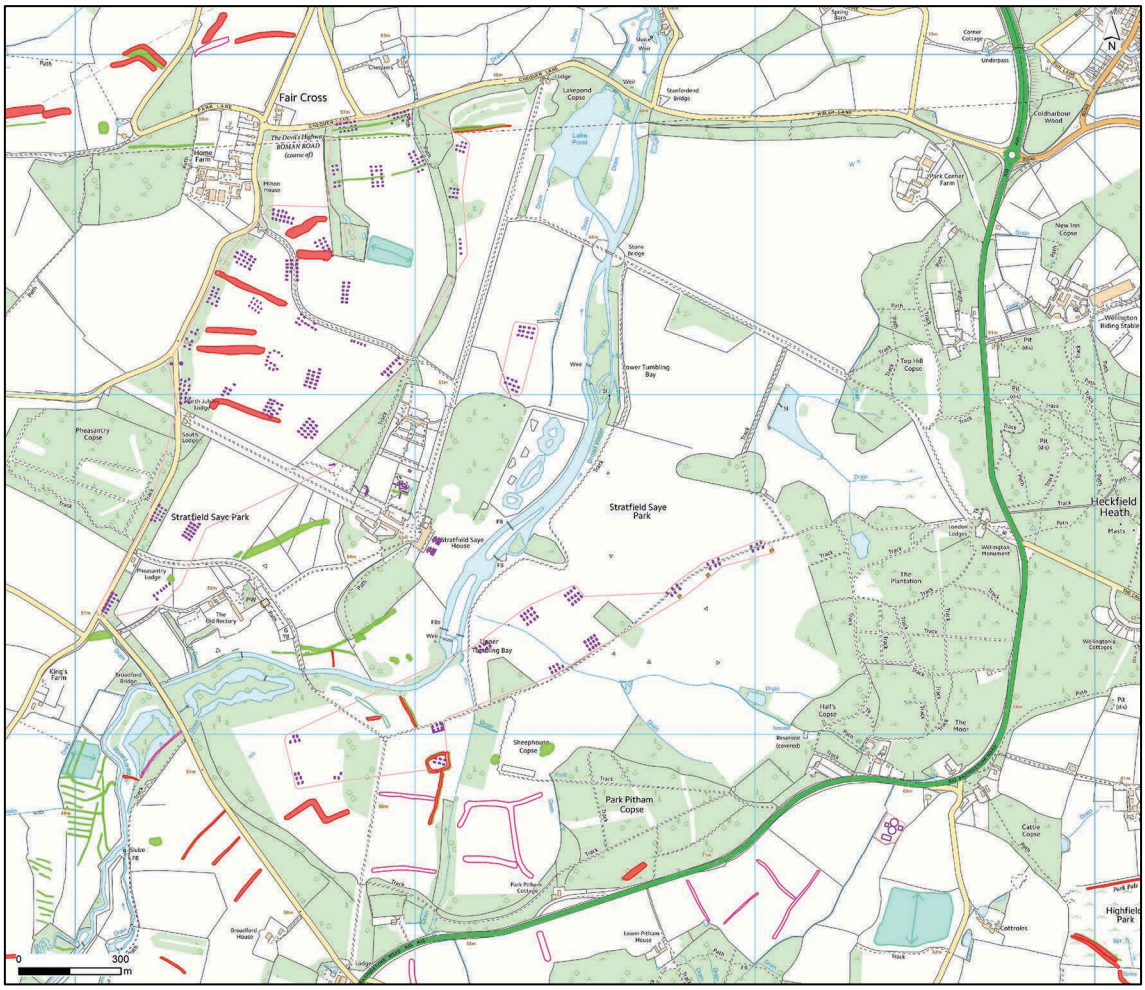

Figure 123 Features recorded within part of Stratfield Saye Park. The house is centre-left of frame. The purple dots are the sites of Second World War dispersed ordnance storage. © Crown Copyright and Database Right (2017) OS (Digimap licence)

Post medieval garden features within Stratfield Saye Park were recorded during the survey from parchmarks and earthworks on aerial photographs and lidar to the north and west of the house (Figure 123). The parchmarks mainly represent pathways and areas of planting, which probably belonged to a layout of the gardens that predates its modern arrangement. A path or boundary is visible as an earthwork linear ditch to the south of the icehouse and probably represents an earlier division of the garden. The tomb of Copenhagen and the icehouse were identified as structures on lidar imagery to the north of the house. The icehouse mound is sub-oval in shape and measures 20m by 16m.

Features were recorded within the land surrounding Padworth House (now, Padworth College) which may also be associated with the post medieval landscape park, although alternatively some of these earthworks may belong with the medieval village of Padworth (Figure 124). The features consist of trackways or paths defined by ditches and banks. A sub-rectangular fishpond is marked on the first edition OS map (1:2500, 1878) and was recorded as an earthwork on aerial photographs (SU 61449 66178).

Plans for the park were drawn up in 1767 by landscape designer Richard Woods, just prior to construction of Padworth House in 1769 (Berkshire HER MWB17639). Woods planned many landscape parks during the 18th century and was one of a number of designers working on similar lines to Lancelot 'Capability' Brown (Taigel & Williamson 1993, 67).

Features of the 18th century landscape park around Sulhamstead House (SU 64446 69209) were recorded during the survey from aerial photographs and lidar. The estate had been the property of Reading Abbey, part of the manor of Sulhamstead Abbots until the Dissolution, after which the manor was granted to Sir John Williams. In 1711 the second Earl of Abingdon sold Sulhamstead Abbots to Charles May, whose son Daniel commissioned Sulhamstead House and in 1744 created the landscape park around it. The manor passed to the Thoyts family after Daniel's death and remained with them until 1901, when it was sold to the Watsons (Ditchfield & Page (eds) 1923, 306-311).

Sulhamstead House was requisitioned by the War Office in October 1940 and in late 1941 passed to the Air Ministry for use as an RAF Elementary Flying Training School, and a nearby field served as a makeshift landing strip. However, no trace of the school could be identified on aerial photographs. Sulhamstead House was sold in 1949, which led to many changes including the levelling of park features to the north of the house (West Berkshire HER MWB20243). Comparison between the first edition OS map (1:10560, 1883) and the modern OS map (1:10,000) shows that decorative planting of trees have been removed from the centre of the park, but that the perimeter belts have been retained. It is now the Thames Valley Constabulary Training School

Roque's Map of 1761 shows the then-recently built house surrounded by fields and the park bisected by public lanes. North of the main house the layout is similar to that shown on later maps with open parkland sweeping down the slopes of the Kennet Valley and a long east-west drive. Many of the wooded areas marked on the first edition OS map (1878) are not shown and were probably the result of planting in the late 18th or early 19th century, when the fashion was for belts of trees around parkland (Taigel & Williamson 1993, 72).

Figure 124 Sulhamstead Park shown on Rocque's map of 1761

Figure 125 Sulhamstead Park on the first edition OS map (1:2500, 1878). Features identified include a tree enclosure ring (defined by a green ditch mid-right of frame), short banks relating to tree avenues (mid and top of frame) and wood banks (bottom and right of frame). © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1878)

Garden features were recorded during the survey and probably related to the formal parkland setting laid out by William Thoyts (Ditchfield & Page (eds) 1923, 306-311). These include two fragments of tree avenues in the northern part of the park, and a wood bank in the south-eastern corner of the park with a second possible wood bank or pathway immediately to the north of it. The wood bank extends along the edge of woodland shown on the first edition OS map (1:2500, 1878) and appears to continue into the field to the east on the other side of a road (Figure 125). A post medieval tree enclosure ring, also shown on the first edition OS map, was recorded from a cropmark on aerial photographs (SU 64334 69454) and measures 26m in diameter.

Significant changes made to the parkland by Mortimer Thoyts after 1848 are shown on the OS first edition map (Figure 125). These changes included removal and replacement of the old farm buildings and timber yard with a large garden, an enclosing woodland (the South Shrubbery), and the extension of the park around the south-east of the house. Alterations to the parkland continued to be made by the Watson family in the early 20th century in 1912 and during the 1930s under the direction of London architect Alan Brace (West Berkshire HER MWB20243).

Wokefield Park developed out of a deer park held by the Mortimer family (Hatherly & Cantor 1979-80, 70) and was later acquired by the Brocas family of Beaurepaire Park (West Berkshire HER). Post medieval paths and trackways are visible as earthworks on aerial photographs of the 1950s in the south-west of Wokefield Park (SU 67084 65575, see Figure 126). They are probably garden features associated with the 18th and 19th century house. A northwest-southeast oriented path is shown on the first edition OS map (1:2500, 1872) joining areas of decorative tree planting to the south-west of the house. Two trackways are located to the east and west of the path, measuring 60m and 150m in length respectively.

A possible tree enclosure ring was recorded from lidar on Wokefield Common (SU 65529 66209) and may have been associated with Wokefield Park although it is located outside the park. The earthworks consist of a circular bank up to 5m in width with a break on its western side and an external ditch on all but its west side. It encloses an area measuring 25m in diameter.

The estate appears to have been refurbished in the 1820s and the lake, shown on the first edition OS map (1:2500, 1872), may have been added at this time. The house has changed in use several times in the modern period and is now a conference centre. A golf course created in 1999 takes up much of the former parkland (Horvarth, J and Cook, P, No date, reproduced in West Berkshire HER MWB15997).

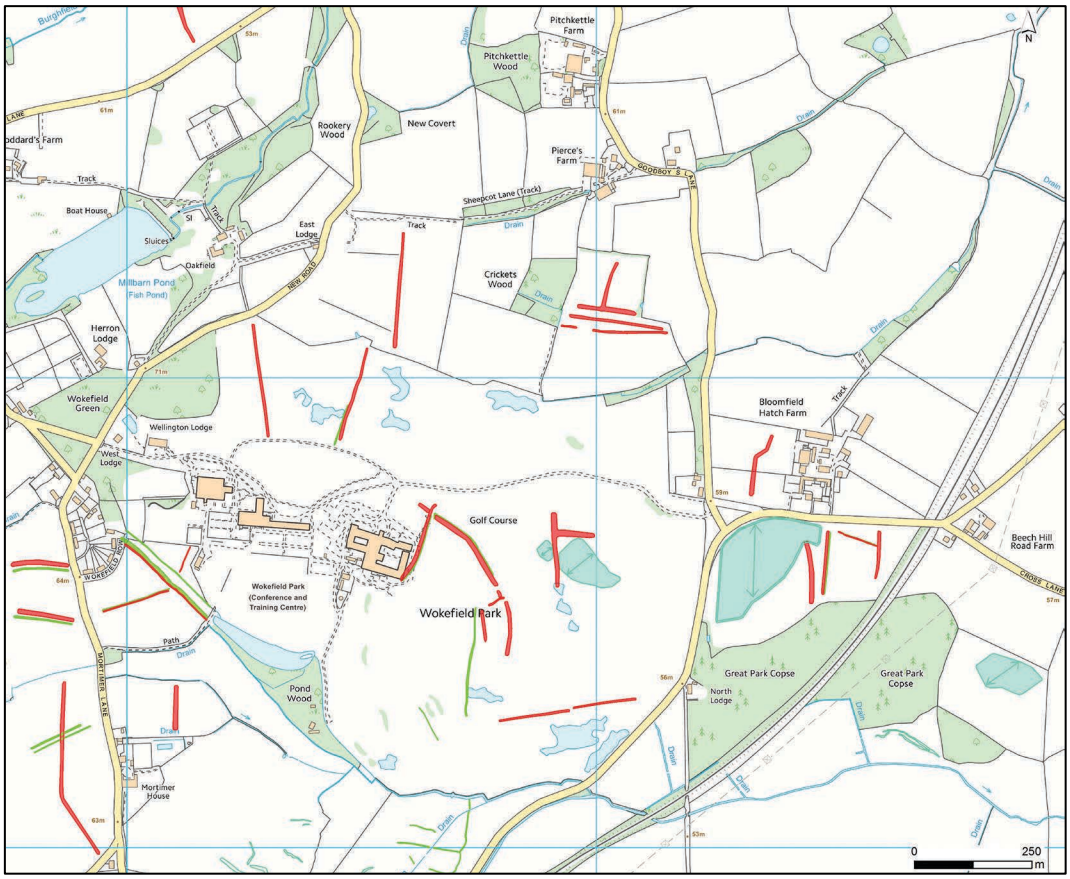

Figure 126 Archaeological earthworks recorded within Wokefield Park © Crown Copyright and Database Right (2017) OS (Digimap licence)

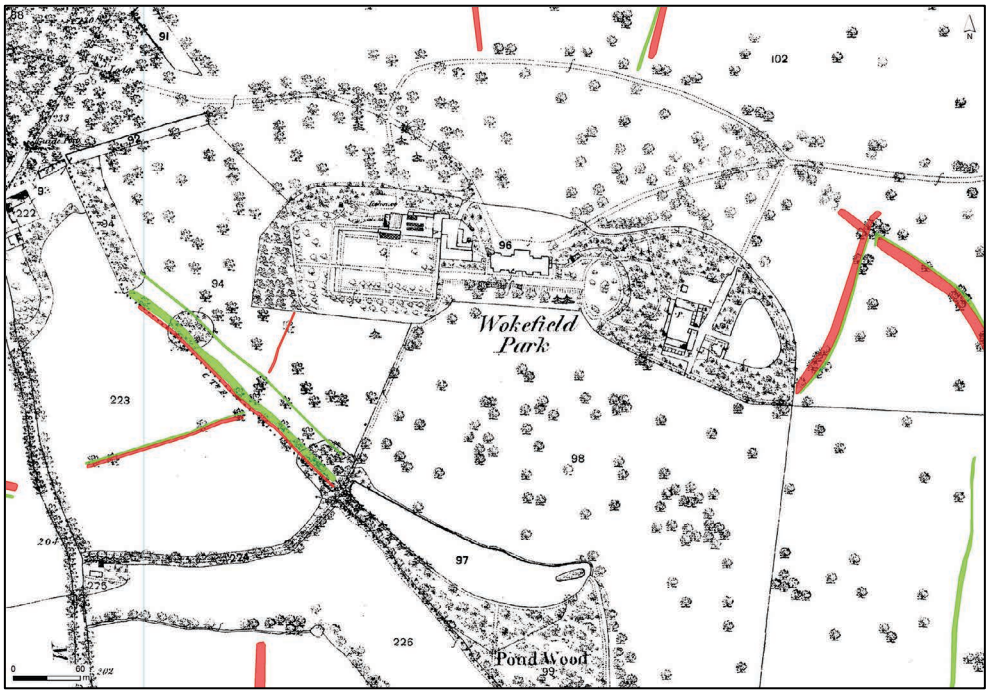

Figure 127 Detail of Wokefield Park on the first edition OS map (1:2500, 1872). © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1872)

Features associated with parks and gardens created in the 19th century were also identified during the survey. Two areas of decorative planting were recorded in the grounds of 19th century Hartley House. A square area divided up into triangular sections is centred at SU 69821 59003 and a flower-shaped area is centred at SU 69849 59051.

Garden features associated with 19th century Warrenneswood House were recorded as earthworks from lidar imagery (SU 65757 65783, see Figure 128). These include boundary banks, scarps and depressions which define areas of the garden. Three sub-oval depressions measuring between 5m by 4m and 7m by 5m may represent areas of planting. These seem to form part of a group of features located immediately around the house, some of which are shown on the first edition OS map. Two probable boundaries or wood banks are visible in the parkland around the house.

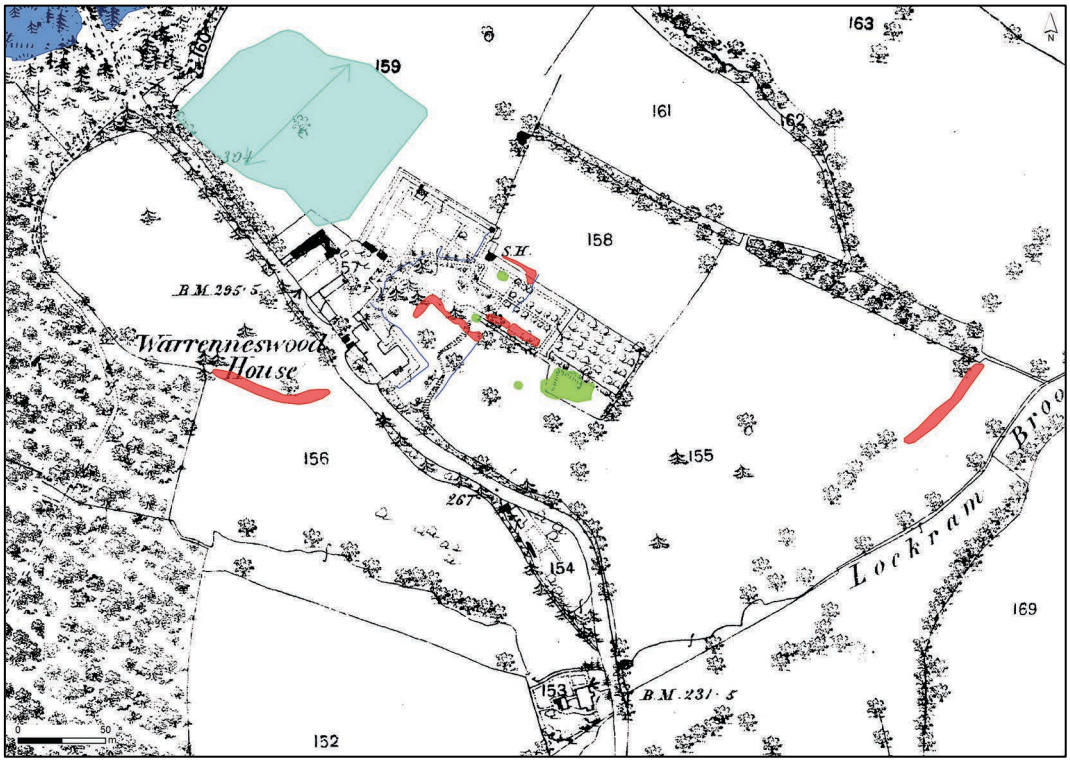

Figure 128 Features mapped in the parkland around Warrenneswood House, shown on the first edition OS map (1:2500, 1872) The light blue polygon is an area of ridge and furrow, suggesting earlier cultivation in the park area. © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1872)

Sherfield School sits within parkland with remains of 19th century formal gardens, paths and boundaries identified on aerial photographs as earthworks and cropmarks (Figure 129). The school building stands on the site of Buckfield House, which was constructed in Buckfield Wood by John Bramston Stane after he purchased the land in 1863. The school building was originally a house built for Mr J B Taylor in 1898 and stood in a park of about 250 acres to the east of the Basingstoke road. After buying the estate in 1896, Taylor increased the park and laid out extensive grounds and gardens. Three areas of formal planting were recorded in the area immediately around the house (centred at SU 68255 56948,

SU 68273 57161 and SU 68320 57324). Trackways and boundaries to the south east of the house and were recorded over an area measuring 560m by 378m.

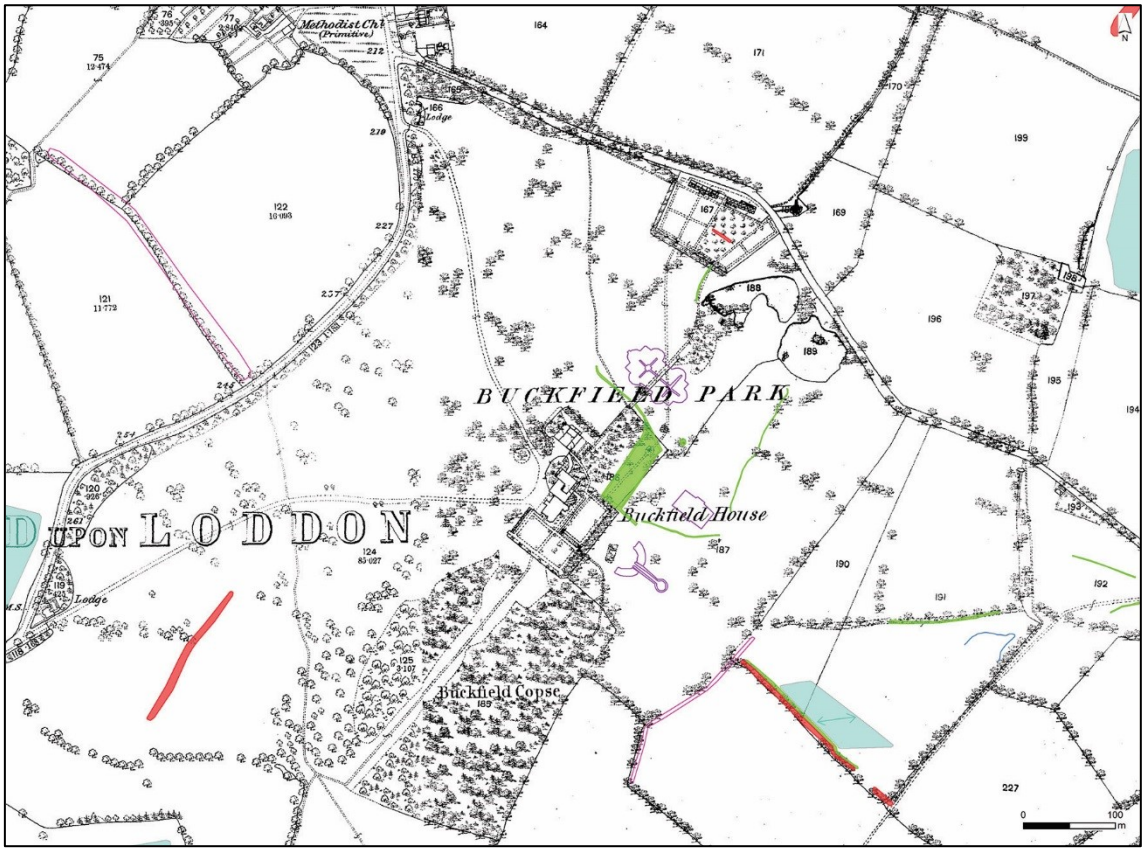

Figure 129 Buckfield House, later the site of Sherfield School shown on the first edition OS map (1:10560, 1872). Elements of a formal garden recorded from cropmarks are shown in purple. © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1872)

19th century garden features were recorded from historic aerial photographs adjacent to Sherfield Hall (SU 66714 56075). The remains of a formal garden were recorded from cropmarks on aerial photographs around Sherfield Hall (SU 67060 55839) over an area measuring 48m by 57m. Sherfield Hall was formerly known as Hill House and the Sherfield Hill Park estate developed out of a farm homestead purchased by Baron Pigott, son of Paynton Pigott Stainsby Conant, lord of the manor of Sherfield upon Loddon from around 1817. Additions were made to the land holdings in the late 19th century (Page (ed) 1911, 102-108). The western half of the surrounding parkland now lies within an area of Basingstoke redeveloped for housing.

The estate economy

The large areas of land controlled by post medieval country estates enabled ambitious improvement works could be carried out, for example, to maximise the yield of grass from meadows. Agriculture was an important part of the economy of these estates but they also made use of other natural resources, such as the trapping of wildfowl in decoy ponds and the management of woodland.

Decoy ponds

Decoy ponds attract wildfowl, an important source of food (Aston 1985, 117). The birds could be forced to move from the main body of water into narrower channels, or pipes, where they were captured. The pipes could be covered by nets to prevent the birds from escaping. The ponds were often located in areas subject to seasonal flooding as large numbers of wildfowl were common there.

A decoy Pond once lay within Aldermaston Park but is currently within the grounds of the Atomic Weapons Establishment. It was recorded during the survey from lidar and the extent of the depression suggests the decoy pond was previously larger in size covering an area measuring 295m by 145m (SU 60635 63418, Figure 130). It is broader at its southern end and narrows at its northern end. A pipe leads from the eastern side for a distance of approximately 70m. A dam formed of narrow curving banks cuts across the neck of the pond.

The Aldermaston decoy pond was probably constructed in the 18th century or a little earlier. It was listed as being out of use in Payne-Gallwey's late 19th-century survey of duck decoys, which states: "At Aldermaston Park, 10 miles WSW of Reading, the residence of Mr Higford Burr, may be seen the remains of an old Decoy long disused. It has not been worked within the memory of man, but numbers of ducks still resort there in hard winters, as many as from 200 to 300 being seen at one time" (Payne-Gallwey 1886,60). The presence of the pond is reflected in some local place names, with Decoy Cottage located to the south and Decoy Plantation shown on the first edition OS map (1:2500, 1872) to the east.

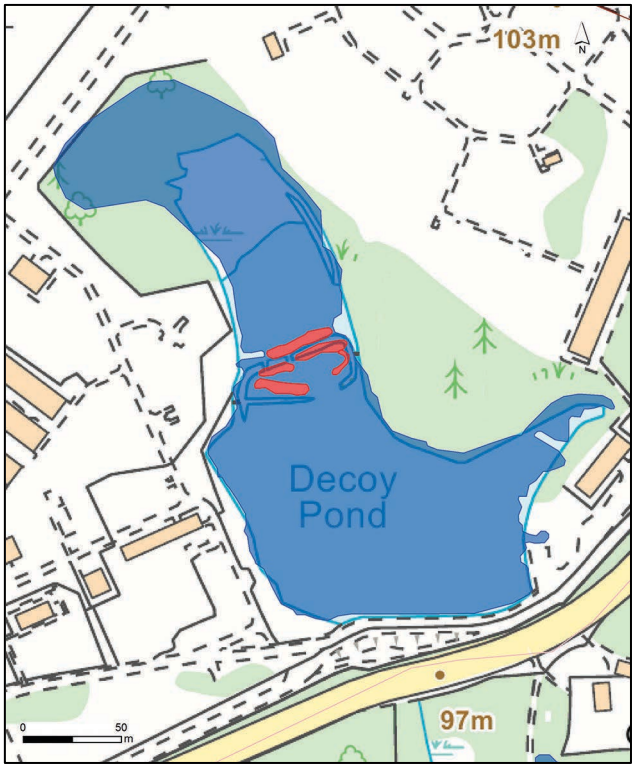

Figure 130 Decoy pond originally in Aldermaston Park © Crown Copyright and Database Right (2017) OS (Digimap Licence)

There is decoy pond to the east of Basingstoke, probably on the lands of the Paulett family, lords of the manor of Basing during the 15th to 19th centuries (SU 67738 54934, Figure 131).

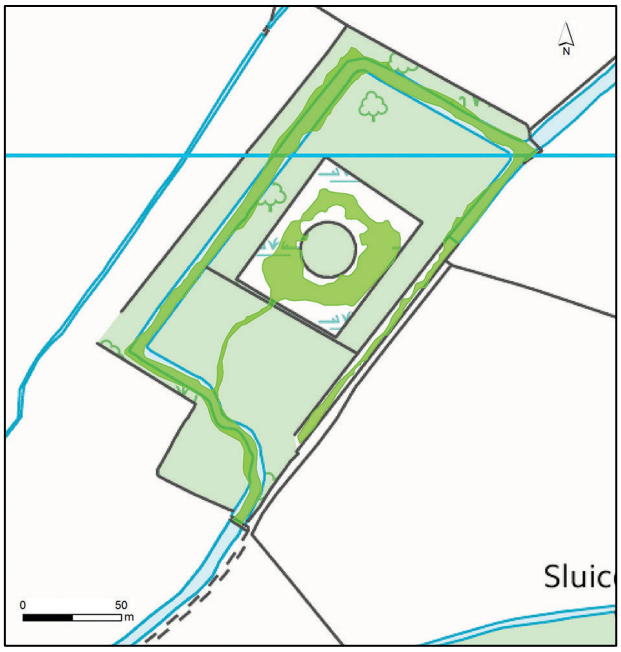

Figure 131 Decoy pond to the east of Basingstoke © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Figure 132 The decoy pond shown on a detail of Isaac Taylor's 1759 map of Hampshire (accessed via www.geog.port.ac.uk/webmap/hantsmap/hantsmap/taylor4/taylor4.htm)

The decoy comprises a central sub-circular pond sitting within a rectangular water-filled channel to which it is connected by a drain. The earthworks cover an area measuring 244m by 110m. The decoy pond is marked on Taylor's map of 1759 (Figure 132).

Water meadows

The system of floated meadows or the artificial irrigation of meadows was developed from the 16th century onwards, but construction increased greatly in the 18th and 19th centuries (Cook, Stearne & Williamson 2003, 155). The aim was to prolong the growing season and to increase the amount of grass and hay that could be produced from meadow land by conducting water over grassland using a system of artificial channels and sluice gates (Aston 1985, 117).

There are two main methods of floating meadows: the catchwork system generally found in upland areas and the bedwork system commonly found in lowland floodplain areas. The water meadows recorded within the survey area are all of the bedwork type. The meadows are formed of a series of ridges and channels adjacent to a watercourse. A network of channels extended parallel to ridges or `beds' and there were narrower channels which ran along the tops of the ridges. Water was diverted from a river, by means of a weir or dam containing sluices placed across it, frequently at a bend, into a main carrier channel. Water flowed from this main channel into a network of progressively narrower and shallower carrier channels aligned with the gradient of the meadow. The water was made to overflow from tapering channels which ran along the apexes of the ridges onto each part of the meadow in succession and run-off was removed through a network of drains between the ridges (Smith & Stamper 2013, 4).

Bedwork systems can cover large areas of land and this type of improvement was made possible for landowners by the creation of larger farms through enclosure. The rapid increase in construction of bedwork water meadows from the 17th century was in part enabled by an expansion in the market for meat and dairy products. Landowners were prepared to undertake such a large-scale construction project because of the potential good returns from the investment (Crossley 1990, 20).

These systems of earthworks cover large areas and can result in the masking or destruction of earlier features. For example, Crossley (1990, 20) highlights the large-scale drainage carried out in Yorkshire post-enclosure and the destructive nature of drain construction as shown through its effect on earlier features.

There are extensive former water meadows along the waterways within the survey area. These are known as local features, but their form and extent were newly mapped and recorded for the NRHE and local HERs during the survey. Examples of these extensive systems can be found at: Three Ashes to the south of Silchester (SU 64090 61007, Figure 133); to the west of The Vyne Park on part of the land owned by the Chute family (SU 63010 56527, Figure 134 and Figure 135); and to the south of the Kennet and Avon canal, Sulhamstead, possibly associated with Sulhamstead House (SU 63024 69395, Figure 136). Possible water meadow earthworks were also recorded: to the east of Beaurepaire Park (SU 64219 58268), probably part of land improvements made by the Brocas family; and along the River Loddon to the south of Stratfield Saye Park (SU 68846 60045, Figure 137).

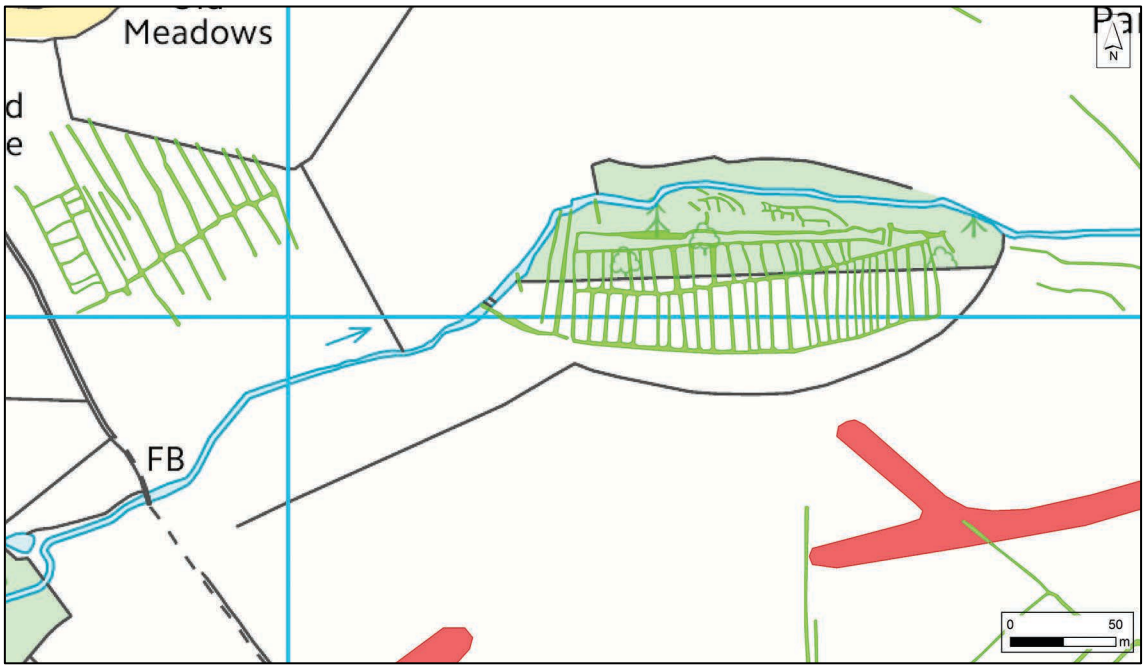

Figure 133 Water meadow at Three Ashes to the south of Silchester. The water meadow sits in a bend in the river and the main carrier drain can be seen leading from it on the western side of the bedwork system. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Figure 134 Water meadow to the west of The Vyne RAF 106G/UK/1082 3073 20-DEC-1945 Historic England Archive (RAF Photography)

Figure 135 The central area of the water meadow west of The Vyne in 2008, with flooding showing the system is no longer managed © Google Earth 19 Aug 2008

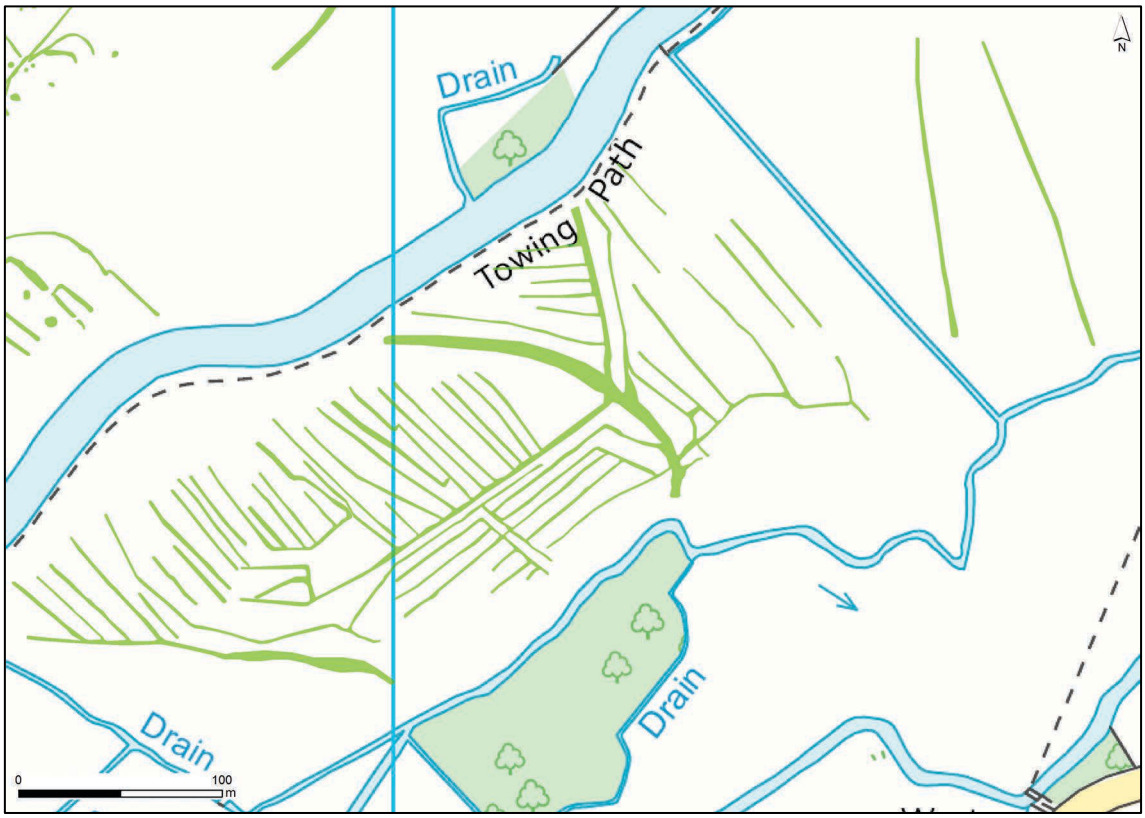

Figure 136 Water meadow to the west of Sulhamstead, south-west of the Kennet and Avon Canal. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

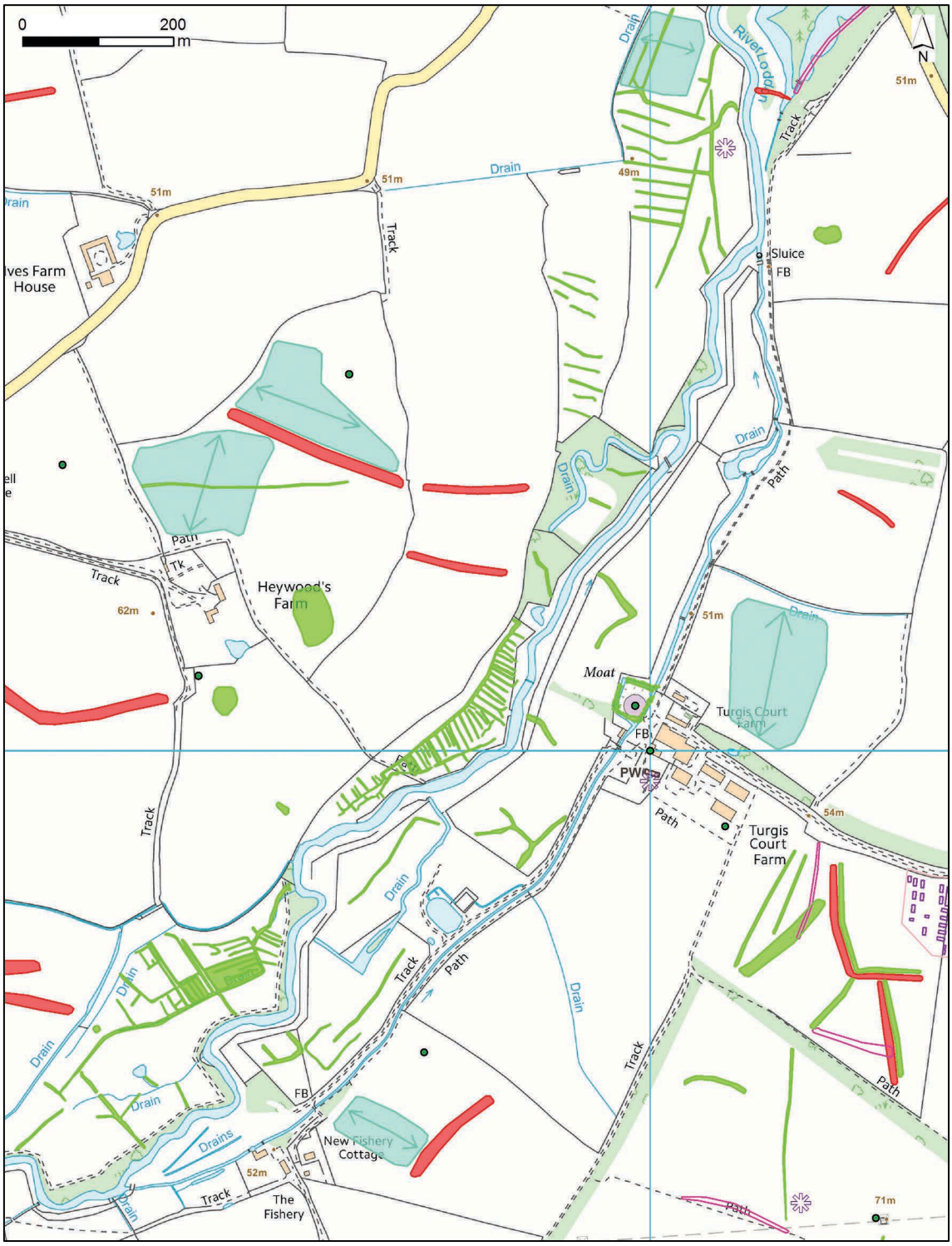

Figure 137 Water meadow along the River Loddon to the south of Stratfield Saye Park, probably developed by the owners of the estate. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Woodland

Woodland was, and continues to be, a major part of the economy of the estates within the survey area. Comparison of maps and aerial photographs demonstrates some fluctuation in the amount of woodland around Silchester between the 19th century and the early 20th century, but overall, it remained substantially unchanged. There has been an increase in conifer planting over other types of trees from the early 20th century.

Evidence of woodland management during the post medieval period was recorded from extant earthworks on lidar and also from cropmarks on aerial photographs during the survey. Post medieval wood banks differ from the large earthworks used to define boundaries in the medieval period. They are formed of slight banks and ditches that are often straight (Rackham 1986, 98). An example of a removed post medieval wood bank was recorded from a cropmark to the south-west of Ufton Green. Two parallel linear ditches form an L-shape at the north-western corner of Ashen Wood, probably defining an earlier block of woodland (Figure 138).

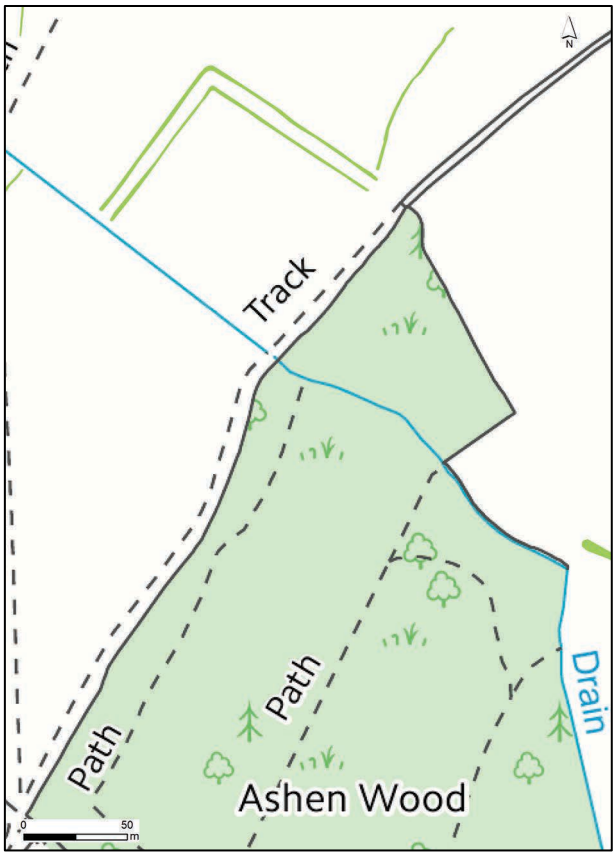

Figure 138 Probable continuation of the woodland boundary of Ashen Wood seen as two parallel lines leading from the north-west corner. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

There is another example of woodland removal around North Copse to the east of Silchester. In this case two blocks of tree planting ridges were recorded from cropmarks on aerial photographs to the north and west of North Copse (SU 64968 62108). The block to the west of the extant woodland is shown as on the OS first edition map (1:2500, 1878).

Field boundaries and wood banks were also recorded from cropmarks on aerial photographs to the north of Black Wood, west of Mattingley (SU 71735 57809). Some of the boundaries are shown on the first edition OS map (1:2500, 1872) and define areas of woodland which have since been removed (Figure 139).

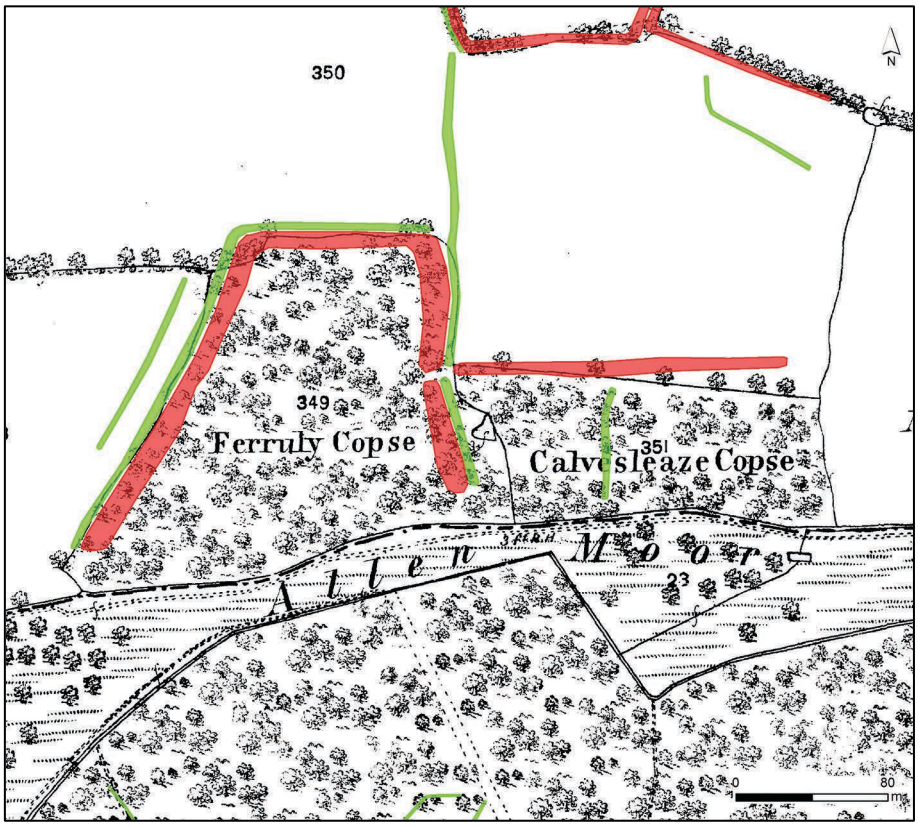

Figure 139 Wood banks at the northern edge of Black Wood delineating areas shown as under tree cover on the first edition OS map (1:2500, 1878) but since removed. © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1878)

Examples of post medieval wood banks were recorded in Pamber Forest (SU 61582 60205), Pepper Wood (SU 63419 57464), Park Pitham Copse (SU 70647 60599), Collins Copse, north of Silchester (SU 64347 62804) and Sherfield Hill Park, part of a 19th-century landscape park (SU 66951 55987). The wood banks here form an L-shape, one bank is oriented north-south and the other east-west.

Existing features were also used to aid the laying out of woodland boundaries. For example, there are post-medieval wood banks laid out along the top of the Iron Age ramparts at Pond Farm hillfort (Figure 140). The wood bank along the top of the bank forming the hillfort's western side appears very insubstantial in comparison to the rampart. A wood bank recorded from lidar immediately to the north of the hillfort, is part of a system of woodland management in the area of The Frith (SU 62740 63152). The bank is oriented northwest-southeast and runs almost parallel to the line of the hillfort's northern side. There are also wood banks overlying earlier earthworks at Bullsdown Camp (Bayer Historic England survey 2017 pers comm) possibly delineating property boundaries or planting areas within the hillfort.

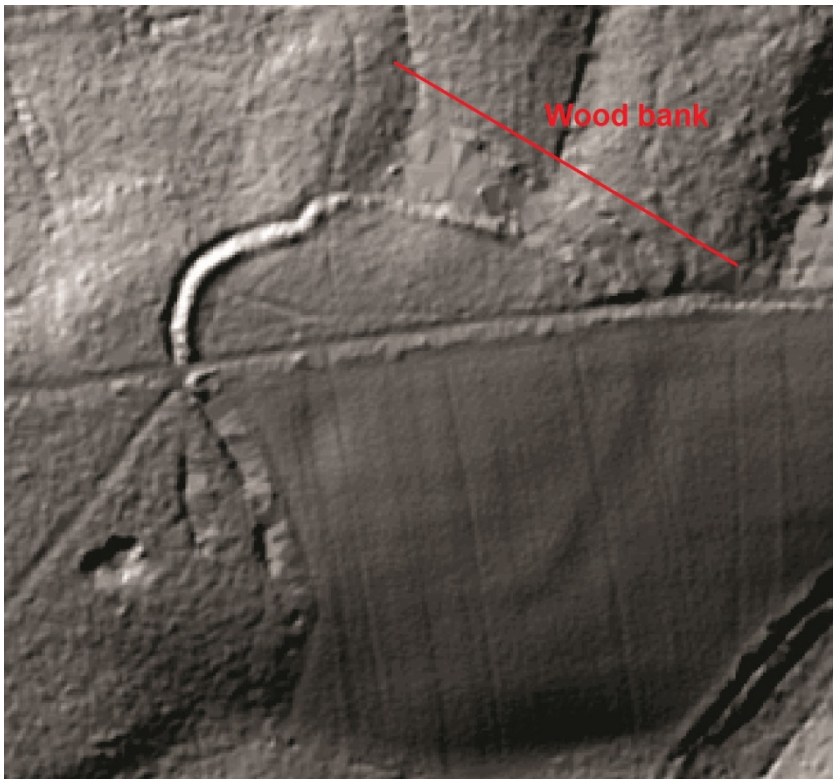

Figure 140 Pond Farm hillfort shown on a hillshade visualisation of lidar DTM. A wood bank to the north of the hillfort echoes the line of its northern bank. © Environment Agency/University of Reading

New routes through the landscape

During the period from the 16th to 19th centuries there were a number of changes to transport infrastructure in the Silchester area. New roads were constructed, and a section of the River Kennet was canalised. The only railway that passes through the survey area was developed towards the end of this period, a line which connects the South Western Main Line at Basingstoke with the Great Western Main Line at Reading. In addition to being an important cross-country link the railway was probably integral to the siting of a large First World War ordnance storage depot at Bramley (see below for more details).

Roads

The road system around Silchester changed radically in the mid- to late-post medieval period. Silchester itself was no longer a focal point for a number of main roads as it had been in the Roman period. Some or all of these routes may have continued in use into the medieval period but had been largely abandoned by the post medieval period. Margary stated that the metalling was removed from outside Calleva's east gate on the route of the road to London, although he does not specify when this happened (Margary 4a, known as The Devil's Highway, Margary 1973, 88-89).

The new main roads created by the 18th-century Turnpike Acts bypass the centre of the survey area and appear to have been laid out with a view to greater connectivity

with the Kennet and Loddon rivers. A route between Reading and Basingstoke was established by an Act of 1718 and a road between Aldermaston and Basingstoke by an Act of 1772 (Dils and Yates 2012, 88). Turnpike roads were established to meet the growing demands of trade and personal travel. They were managed by trusts responsible for collecting tolls and carrying out repairs, and most were established from the early 18th century. Turnpike trusts gradually declined in importance with the rise of the competing transport systems of canals and railways and were largely redundant by the 1840s (ibid, 189).

Canals

Turnpike roads were not the only innovation in infrastructure during this period. Commercial pressure on waterways during the 17th and 18th centuries led to the creation of river navigations. Thesecould be large-scale engineering projects including water control devices and artificial cuts bypassing the parent river (Crowe 1994, 15).

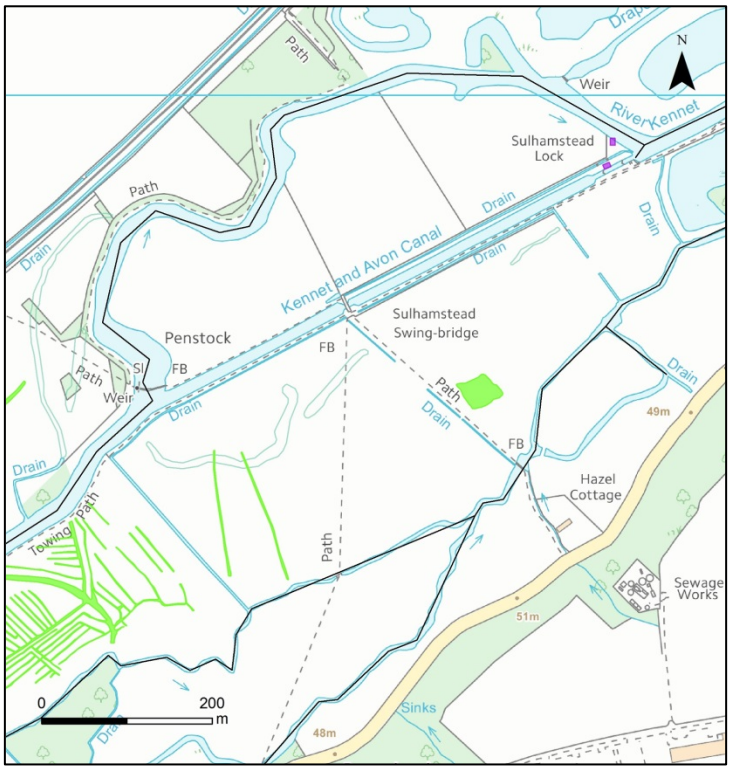

Figure 141 Former meanders of the River Kennet mapped from cropmarks in pale green to the south of the Kennet and Avon Canal. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

The River Kennet Navigation was authorised by an Act of 1715 leading to locks being enlarged along its course between Newbury and Reading (Dils and Yates 2012, 90). Former meanders were identified as cropmarks adjacent to the canalised river to the north of Sulhamstead showing how much the course of the river moved around in the past (Figure 141).

Industry

Evidence for a number of local industries was recorded during the aerial photograph and lidar survey. This included earthwork remains of extractive pits for clay, gravel and chalk, as well as brickworks, and dams across ponds which were probably associated with mills.

Clay pits and brick and tile works

Local clay continued to be used in the post medieval period, while extraction of sand and gravel was carried out on a greater scale and became more widespread. Clay was extracted in the Silchester area up until the earlier 20th century, generally on a small scale and with most used for tile-making (Babtie 2001, 3). The exploitation of the sand and gravel resources continues to meet the need for aggregates for new infrastructure plans, but the use of clay in this area has declined (Hampshire County Council 2013; Babtie Group 2001).

Earthworks associated with 19th century and early 20th century brickworks were recorded on clay soils across the survey area in the parishes of Sherborne St John, Mortimer West End, Stratfield Mortimer (Figure 142) and Pamber. Place names such as Kiln Yard Copse and Kiln Pond, to the east and north-west of Silchester respectively, point to the long association with brick and tile-making in this area.

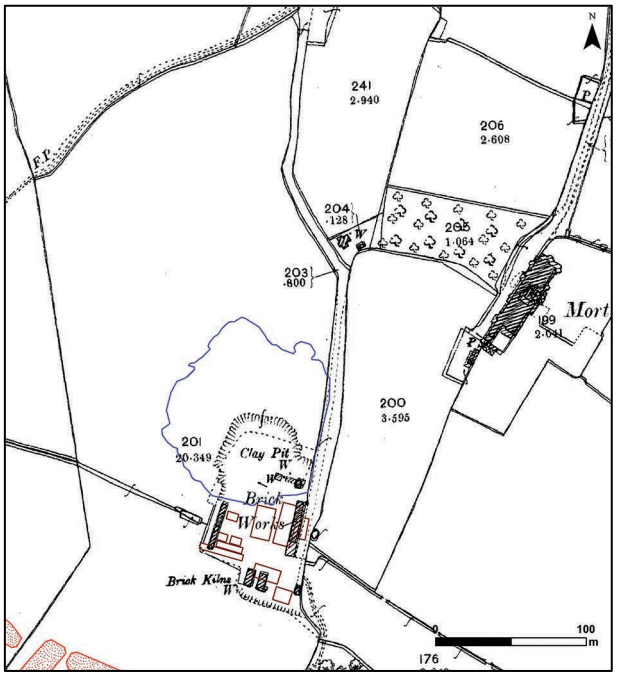

Figure 142 Brickworks to the south-east of MortimerThe extent of a large pit (blue line) as mapped from RAF 106G/UK/1646 4112 10-JUL-1946 (Historic England Archive (RAF Photography) is shown against the pit as marked on the second edition OS map (1:2500, 1896) when the brickworks are first shown. © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1896)

The remains of pits and trackways associated with a 19th century brickworks were recorded from lidar during the survey in an area under tree cover in Home Wood, south of Stratfield Mortimer (SU 67259 63333, Fig 146). A brickfield and brick kiln

are marked here on the first edition OS map (1:2500, 1878) but are not shown by the 2nd edition (1899-1900).

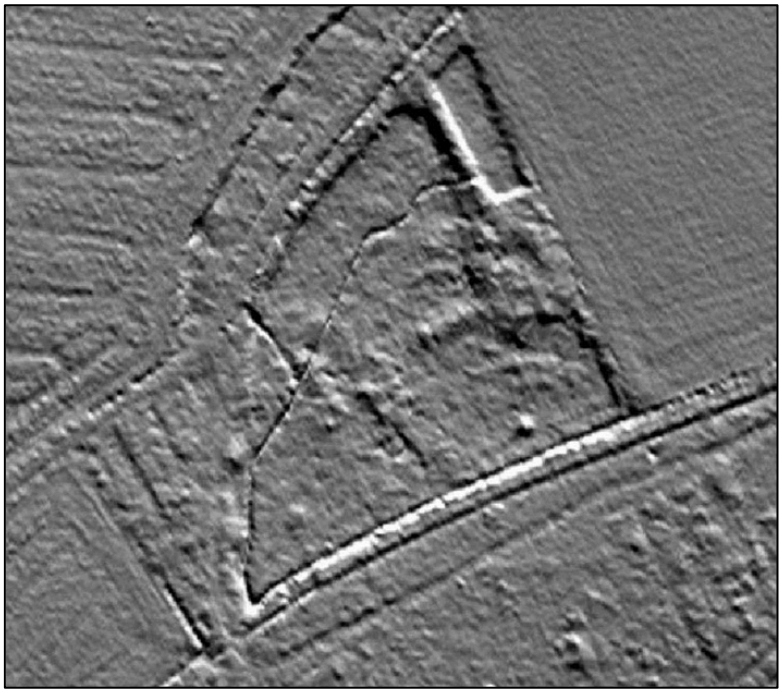

Figure 143 Brick pits and trackways within Home Wood on this hillshade visualisation of lidar. The features are under tree cover and could not be seen on aerial photographs ©Environment Agency/University of Reading

A clay pit associated with a 19th century brick and tile works is visible as an earthwork on lidar to the east of Mill Copse, Mortimer West End (SU 65495 63504, Figure 144). The pit is sub-rectangular and measures approximately 38m by 25m. The site is marked on the first edition OS map (1:2500, 1878) as a Brick and Tile Yard.

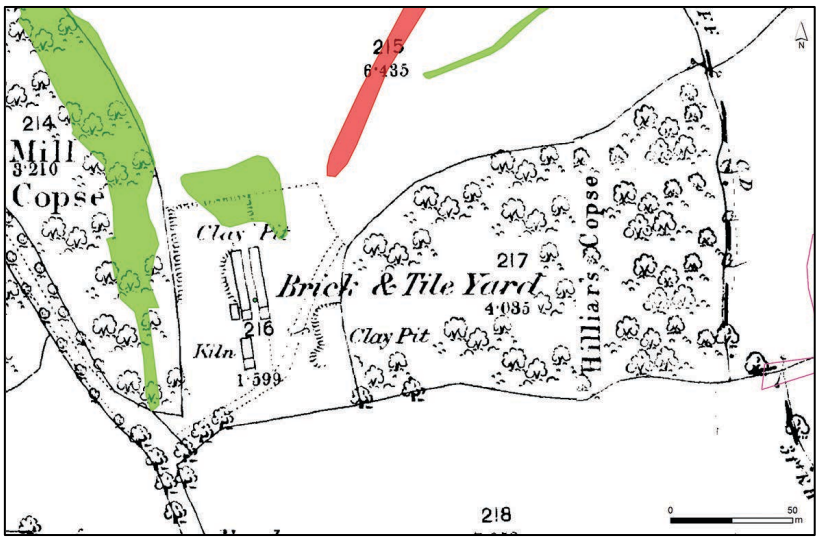

Figure 144 Clay pit east of Mill Copse associated with a 19th century brick and tile yard recorded as an earthwork on lidar, shown over the first edition OS map. © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1872)

19th century clay pits (now disused) are visible as earthworks on lidar to the north of Kinghern Copse, Little London (SU 62250 59758, Fig 148). A brickworks is marked here on the first edition OS map (1:2500, 1872) and appears to be disused by the date of the 2nd edition OS map (1:2500, 1896). The pits were recorded over an area measuring approximately 397m by 222m. The Little London site is also the location of Roman period tile kilns, and features were recorded in this area during the survey that may relate to that earlier phase of exploitation of the clay (see above).

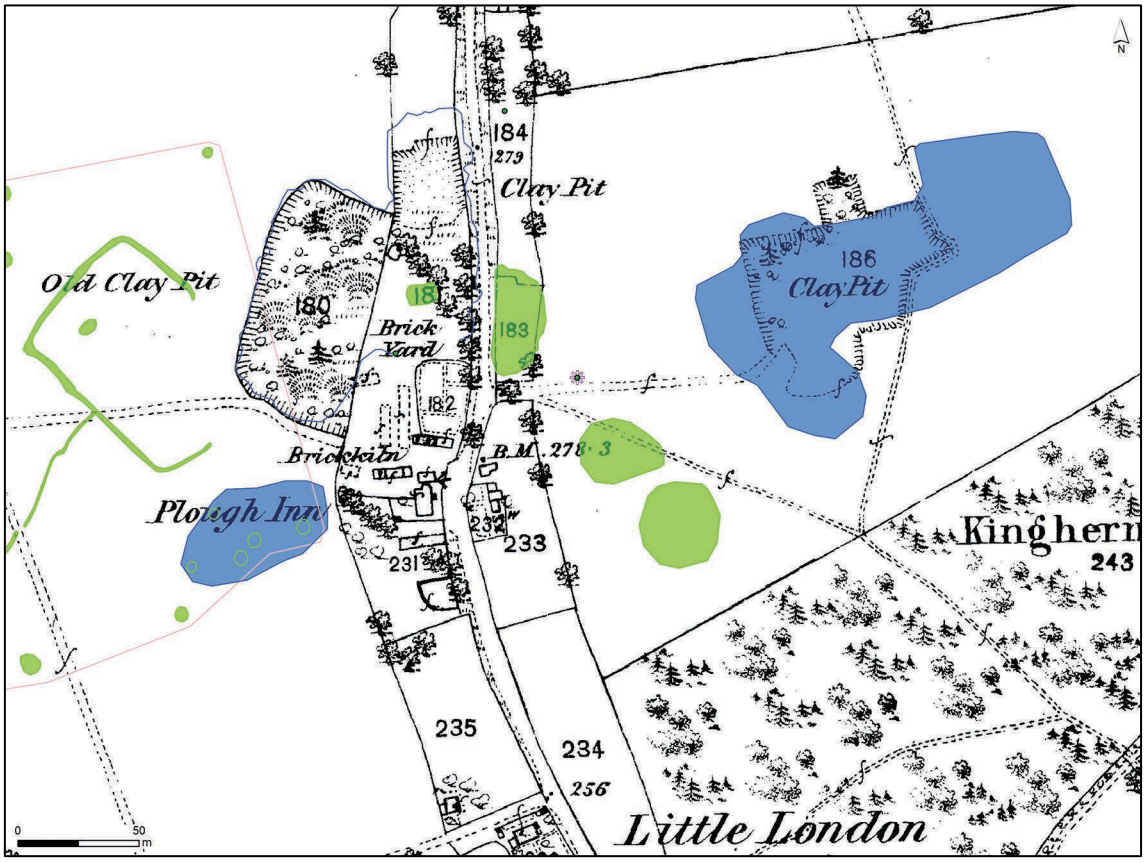

Figure 145 Brickyard and clay pits at Little London shown on the first edition OS map (1872) with features mapped during the survey overlaid. The pits may be on the site of earlier, possibly Roman, workings. (blue for larger pits and green for smaller pits. © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1872)

Brick pits of probable 19th century date are visible as earthworks on lidar within Roundwood Copse (SU 61073 63140). There was a brick kiln here that probably went out of operation between 1841 and 1877 (Hampshire AHBR 59550). The area of extraction consists of an L-shaped pit with two smaller sub-rectangular pits to its north and south. The pits are visible over an area measuring approximately 115m by 60m.

Two post medieval clay pits, which were reused as ponds by the 18th century, are visible as earthworks on lidar within Vyne Park (SU 63980 56949). The clay pits are sub-rectangular in shape and measure 60m by 30m and 47m by 33m. The ponds are shown on the tithe map in 1840 within Hog Orchard. Brick debris and fired clay has been found around them suggesting that they were probably

originally clay pits supplying a local brick kiln (Hants AHBR 33449).The use of old clay pits for stocks of fish, while new fishponds are being constructed, is mentioned in the house accounts (Howard & Wilson 2003, 121). A third possible clay pit is located to the south of the others (SU 64013 56685, Hants AHBR 20722).

Earthworks associated with clay extraction at the 19th century Vyne brick kiln on Marl's Lane are also visible on lidar imagery (SU 63777 56026). The earthworks consist of a sub-rectangular pit measuring 17m by 13m and a sub-rectangular bank, possibly spoil, measuring 41m by 13m (Figure 146).

Gravel extraction

Gravel was quarried in two main locations in the survey area: the Silchester Gravel in the central part and the Thames Gravel at the northern edge. The Thames gravels were quarried extensively in the 20th century and appear to have been exploited at a later date, but on a much larger scale, than in the Silchester area. Evidence of 19th century quarrying is almost exclusively from the Silchester Gravel, on Wokefield Common, Silchester Common and to the west of Mortimer.

Gravel extraction occurred on a large scale from the 20th century onwards, but there are a large number of smaller gravel pits which probably originated in the 19th century and continued in use. Frequently pits of a relatively small size are shown on the first edition OS map (1:2500, 1872) and modern-day extraction has subsequently expanded across the same area. Other pits survive as earthworks but appear not to have changed markedly in size, probably having gone out of use.

The area of gravel extraction on Wokefield Common (SU 65476 65964) was recorded from lidar over an area measuring approximately 260m by 93m. This was a small gravel pit at the time of the the first edition OS map (1:2500, 1878) and can be seen to gradually increase in size on the later editions into the 20th century (second edition 1:2500, 1899 and fourth edition 1:2500, 1936). An extensive area of dispersed shallow gravel extraction that probably also spans the late post medieval to 20th century was recorded from aerial photographs of 1946 and lidar imagery on Silchester Common: to the west of Pamber Road (SU 62137 62351); to the east of Pamber Road (SU 62497 62400); and scattered pits are seen across the rest of the common. Post medieval or early modern gravel extraction was also recorded on aerial photographs of 1946 and lidar immediately to the north of Silchester (SU 62841 62173).

Similar 19th and 20th century workings were recorded from lidar imagery immediately to the west of Mortimer over an area measuring 48m by 260m (SU 64192 64638). A small quarry is shown in this area on the first edition OS map (1:2500, 1872) and is recorded as gradually expanding in size on the 2nd edition (1:2500, 1899) and 3rd edition maps (1:2500, 1911). The quarry area expanded to take in the site of a possible Iron Age settlement enclosure marked on the first edition map (see discussion of Pickling Yard above), which was presumably quarried away.

A small area of gravel extraction was recorded to the north-east of Basingstoke and north of Wildmoor within Gravel Pit Copse (SU 68862 56618). The area consists of two shallow pits, one of which is marked on the first edition OS map (1:2500, 1872), recorded over an area measuring 131m by 74m.

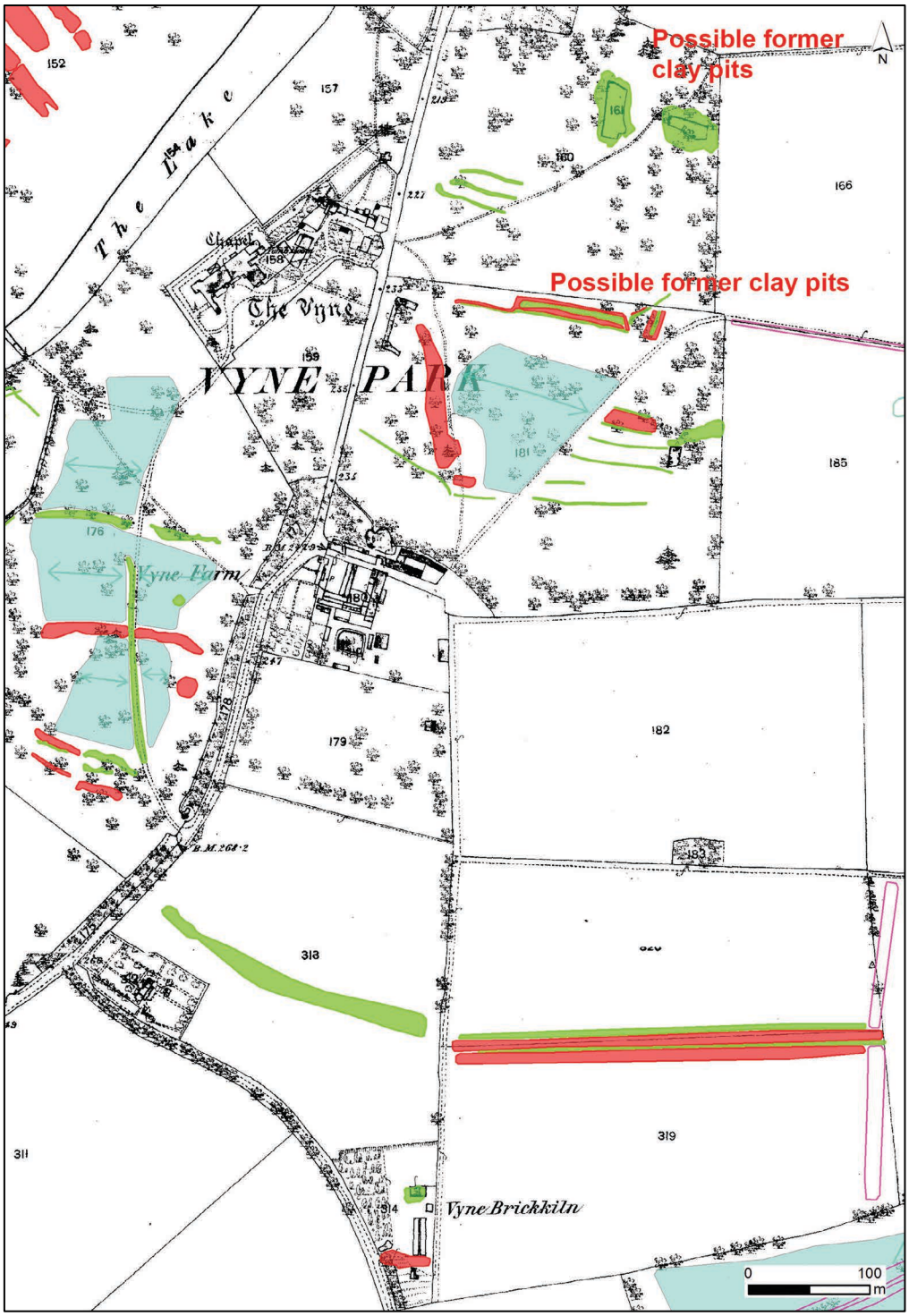

Figure 146 Ponds which may have originally been clay pits to the east of The Vyne. The Vyne brick kiln is at the southern edge of the map. (OS first edition map, 1:2500, 1872). © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1872)

Chalk pits

Chalk occurs at the southern edge of the survey area around Sherborne St John and was quarried on a small scale in the post medieval period, probably for agricultural use to improve soil. Chalk pits were recorded from cropmarks on aerial photographs to the south-east of Sherborne St John (SU 62823 55037). The chalk pits, some of which are surrounded by banks of spoil, are visible over an area measuring approximately 370m by 190m. Chalk pits are shown in this area on the first edition OS map (1872) but appear to have gone out of use by the time of the 2nd edition (1896).

Two possible post medieval chalk pits were also recorded in the southern area of Sherborne St John. The pits are sub-oval in shape and surrounded by spoil (SU 62216 55179 and SU 62343 55128). They measure 50m by 33m and 54m by 30m. The westernmost of the two pits was in an area now developed for housing.

Ponds and mills

Watermills are numerous in the survey area along the Kennet and Loddon rivers and played an important part in a variety of local industries (Dils & Yates 2010, 96). The buildings of many are still extant and no new information could be identified for them from aerial photographs and lidar during the current survey. However, evidence for the construction of dams across ponds associated with former mill sites was recorded in three locations.

There are earthwork remains of a large dam at the southern end of a pond in a steep-sided valley to the west of Pickling Yard Plantation, Mortimer (SU 6396 6459, Figure 147). The dam is formed of two sections of bank with a gap between measuring approximately 2m in width. Ordnance Survey Archaeology Division field investigators visiting the site in 1957 observed a cutting for a sluice or overflow at the west end of the dam but could not find any trace of buildings or industrial debris (NRHE 241058).

The earthworks of a dam were recorded from lidar between the southern boundary of Windabout Copse and the northern boundary of Mill Copse, Mortimer West End (SU 6529 6361, see Figure 148). The place name suggests the dam was created for a supply pond for a mill. Three water courses meet just to the north of the dam, and then continue as one channel running through it into Mill Copse. The dam is formed of two parallel banks each with a breach in the centre, the same type of construction as seen in the example above. Again, no industrial debris or evidence of former structures was observed by Ordnance Survey field investigators visiting the site in 1957 (NRHE 241016), which may indicate that the dam had been out of use for some time. The dam is mapped on the first edition Ordnance Survey map (1:2500, 1872), but the water channels are not shown.

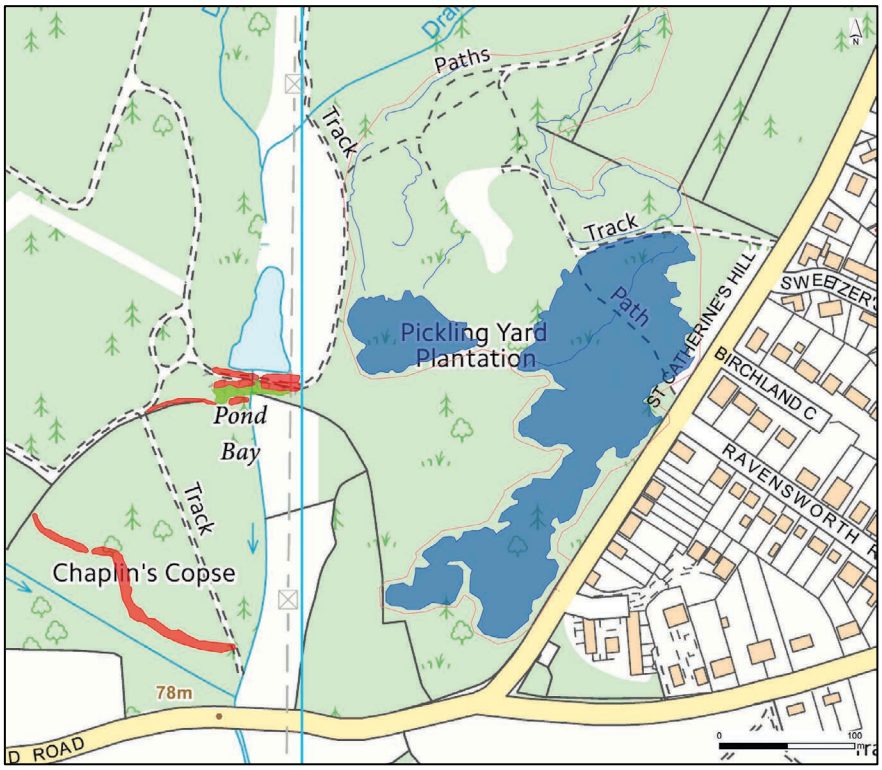

Figure 147 Dam at the southern end of a pond adjacent to Pickling Yard Plantation. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Figure 148 The substantial earthwork of a dam across the southern end of water channels in Windabout Copse. ©Environment Agency/University of Reading.

The possible remains of a dam (Figure 149) were recorded as earthworks from lidar and observed during woodland survey in Morgaston Wood, Sherborne St John (Field pers comm 2017). A bank measuring approximately 6m in width, with a ditch measuring approximately 13m in width alongside it appear to dam the end of a possible former pond. There is a break in the centre of the bank measuring approximately 11m in width. The earthworks are not marked on the first edition OS map (1:2500, 1872), but their appearance, compared with the two examples above, suggests that they may be the remains of a dam.

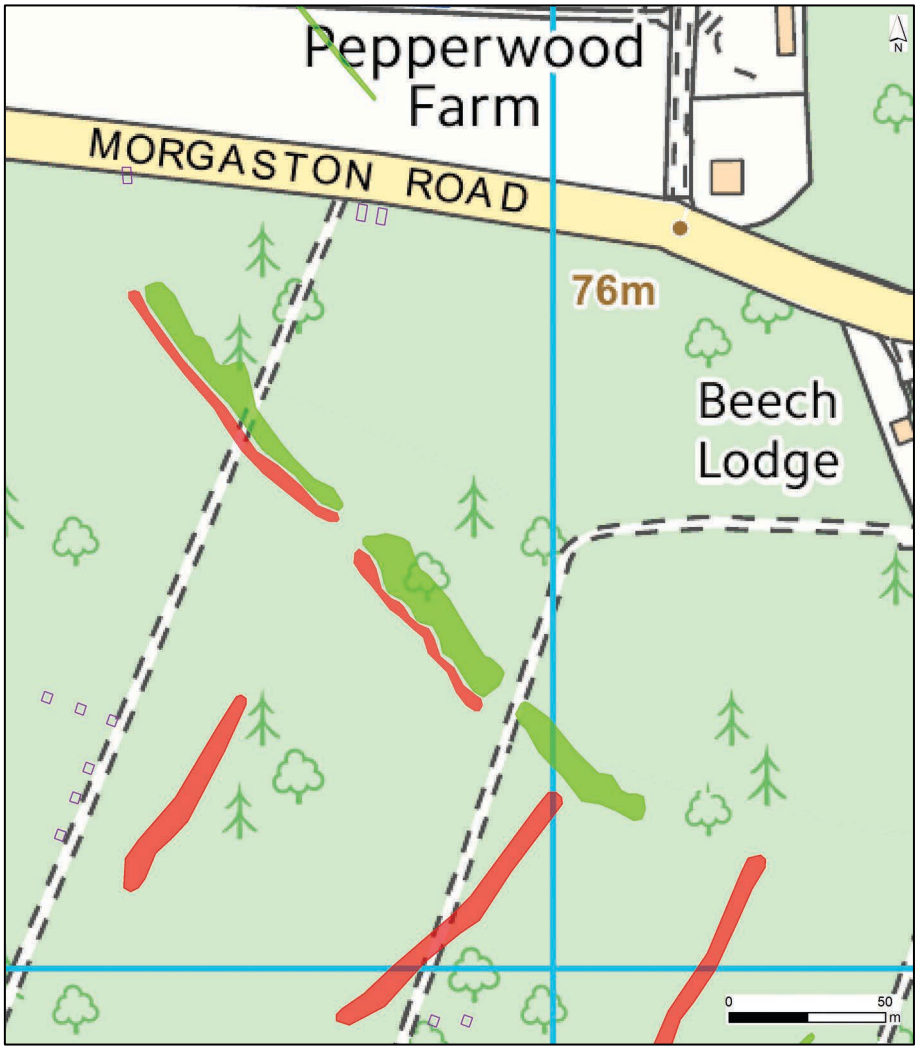

Figure 149 A ditch (green) with a narrow bank running alongside it (red) which may be the remains of a dam. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Changes in the rural settlement pattern

Although the later pattern of settlement does not change dramatically, changes were observed during the survey. There are several instances of now-abandoned farms plotted on 19th and early 20th century maps. Remains of these sites were identified from cropmarks on aerial photographs or from earthworks on lidar.

The remains of a 19th century farmstead are visible as cropmarks on aerial photographs to the south of Mortimer (SU 62704 61700). The site is marked as Stephen's Farm on the first edition OS map (1:2500, 1872) but had been removed by the date of the 3rd edition map (1:2500, 1911). (NRHE 1601356)

There are two farms, possibly 19th century or earlier in date, recorded on 1940s aerial photographs to the west and south west of Eight Acre Copse (SU 71349 57830 and SU 71475 58096). The farms appear on the first edition (1:2500, 1871-2), second edition (1:2500, 1896) and third edition (1:2500, 1911) OS maps but have since been removed. The farms consist of groups of buildings identified over an area measuring 37m by 25m and 39m by 37m respectively.

A cottage and outbuildings were shown on the Silchester tithe map (1841) to the east of Little London Road, but appear to have been demolished by the time of the first edition OS map (1:2500, 1872). A square depression surrounded by spoil or disturbed ground visible on lidar may indicate the site of the cottage and its surrounding buildings. The depression measures 25m by 15m.

Buildings associated with a 19th to 20th century farmstead are visible on aerial photographs of the 1950s to the east of Island Farm Road (SU 64283 66047). The farm, which consisted of at least six buildings closely grouped together, is shown on the second edition OS map (1899) as Little New Farm but is no longer extant and the area is now covered by woodland.

Pond Farm to the north-west of Silchester is shown on the first edition OS map (1:2500, 1872) and 2nd edition map (1:2500, 1899). The farm was demolished after this time but building platforms could be identified on lidar imagery (Figure 150). Two “Kiln Ponds” are depicted on the first edition map and were probably used for breeding fish. A sluice is located between the two ponds, and hatches and a fish grating are marked to the east. An area of woodland to the north is marked as “Old Kiln Yard”, pointing to exploitation of clay here at some point previously. The farm is no longer extant but one of the ponds remains and is still known as Kiln Pond.

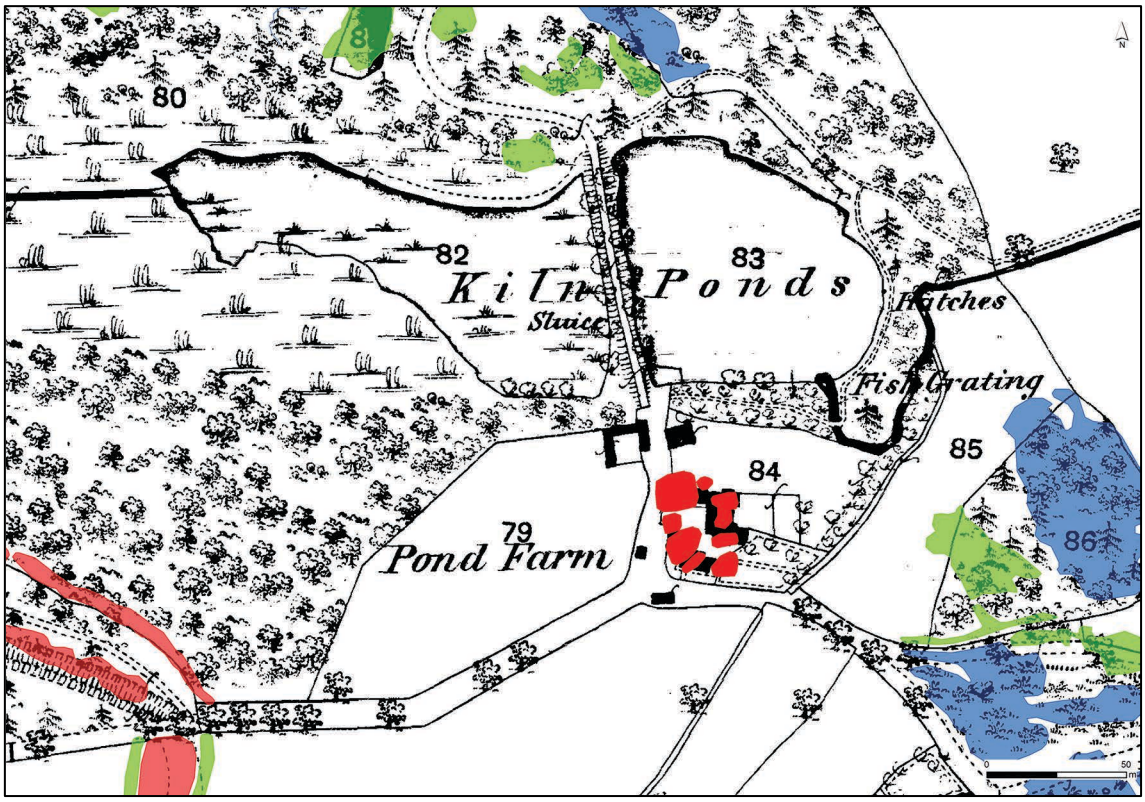

Figure 150 Pond Farm shown on the first edition OS map (1:2500, 1872). Platforms, probably the remains of the farm buildings, were identified on lidar (mapped in red). Extractive pits are located to the north and east of the farm (larger pits in blue and smaller pits in green). © Crown Copyright and Landmark Information Group Limited (2019). All rights reserved. (1872)

Summary

The post medieval period is one of substantial re-organisation of the landscape around Silchester which can be observed in the survey results. Large country parks were developed and the changing fashions for their design left traces in the remains of formal gardens and tree avenues recorded from cropmarks and earthworks. The process of enclosure enabled new types of large-scale land improvement works such as water meadows, but also led to the newly landless creating squatter settlements, such as was recorded on Mortimer Common. Changes to settlement continued during the period as can be seen from the earthwork or sub-surface remains of abandoned farms recorded across the survey area. Clay extraction for brick and tile manufacture, known from earlier periods, continued during this time and brickworks and pits were recorded from aerial photographs and lidar imagery. Evidence of other industry was identified, such as extensive gravel extractive pits and the dams at the entrance to ponds indicating the sites of mills.

THE TWENTIETH CENTURY (1900-1950): MILITARY OWNERSHIP AND AGRICULTURAL CHANGE

The process of transference of land into private ownership that accelerated during the latter part of the post medieval period continued into the 20th century, but now with military interests coming to the fore. The need for better transport infrastructure meant that some sections of land were taken out of local ownership in the 18th and 19th centuries for canals, toll roads and railways, but the development of military installations from the First World War onwards monopolised access and ownership of far greater areas.

There were other changes in the farmland around Silchester, particularly in the post-Second World War period. A large number of field boundaries were removed at this time, necessitated by modern agricultural practices. This is illustrated clearly on the lidar coverage of the clay soil areas where numerous spread banks survive as low earthworks within the extents of modern fields (Figure 151).

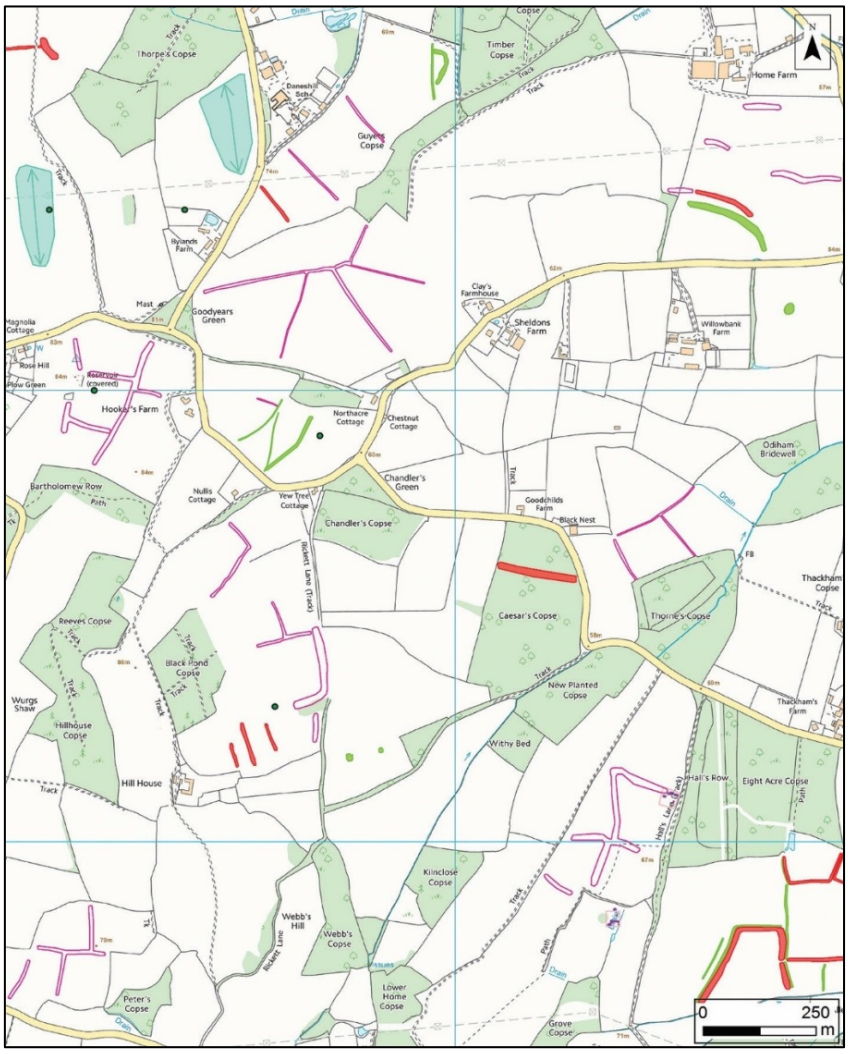

Figure 151 Post medieval field boundaries removed in the 20th century around Stratfield Turgis (mapped in pink). © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Many of the boundaries are marked on the third edition OS map (1:10560, 1912) but appear to have been removed in the post Second World War period. For example, around Stratfield Turgis some boundaries shown on the third edition map are not seen on RAF photographs of 1947. A comparison of maps and historic aerial photographs demonstrates the extent of development around many of the villages in the area and particularly around Basingstoke. The M4 motorway cuts through the northern edge of the project area and aerial photographs show where it truncated prehistoric and Roman settlements. Large scale gravel extraction, a key industry in the Kennet Valley destroyed earlier archaeological sites, both ancient and comparatively recent, such as the Second World War Theale Airfield, which was removed without any archaeological investigation taking place.

The construction and use of military sites, however ephemeral in nature, affected the landscape around them. For example, the structure of the Roman road between Silchester and Speen was damaged during the levelling of parkland prior to the construction of Aldermaston airfield during the Second World War (Aldermaston Archaeological Society 1962). The road could not be identified from aerial photographs or lidar in the park, but above ground remains were mapped during the survey, within woodland to the east of the former airfield.

20th Century Military Sites

During the First and Second World Wars a number of large military installations were set up, with a particular focus on the manufacture and storage of ordnance (Figure 152). Bramley Ordnance Depot was established during the First World War and the manufacture and storage of ordnance in this area continued into the Second World War. The relatively level open areas of heathland lent themselves to the construction of large-scale military sites, and a number of Second World War airfields were also established around Silchester.

Numerous smaller military sites were identified from aerial photographs, including a Second World War Prisoner of War camp at Mortimer, the remains of Heavy Anti-Aircraft batteries, and dispersed accommodation areas for the larger sites. For example, a large camp was located outside the survey area to the east at Heckfield, and one of its ancillary sites was recorded within the survey area from 1940s aerial photographs to the south of Stratfield Saye. Evidence of more transitory military activity was also recorded. Dispersed ordnance storage is recorded on 1940s aerial photographs within woodland and landscape parks. The Blue stop line, part of the General Headquarters (GHQ) extended across the north-eastern corner of the project area, following the line of the River Kennet. This was part of a short-lived programme of linear anti-invasion defences constructed from 1940.

Many of the earthworks and buildings associated with military activity were removed immediately after the conflict had ended and some will not have left traces which can be identified on aerial photographs or lidar, or even from modern ground survey. For example, the Canadian Forestry Corps were called in to fell timber on Mortimer Common during the First World War. Documentary evidence suggests that they were accommodated in a camp at Ufton, but the precise location is unknown. It may have been to the west of Camp Road, a pre-existing road

apparently renamed after the site, within Roundoak Piece (West Berkshire HER MWB21452). However, no evidence of this temporary camp could be identified during the survey.

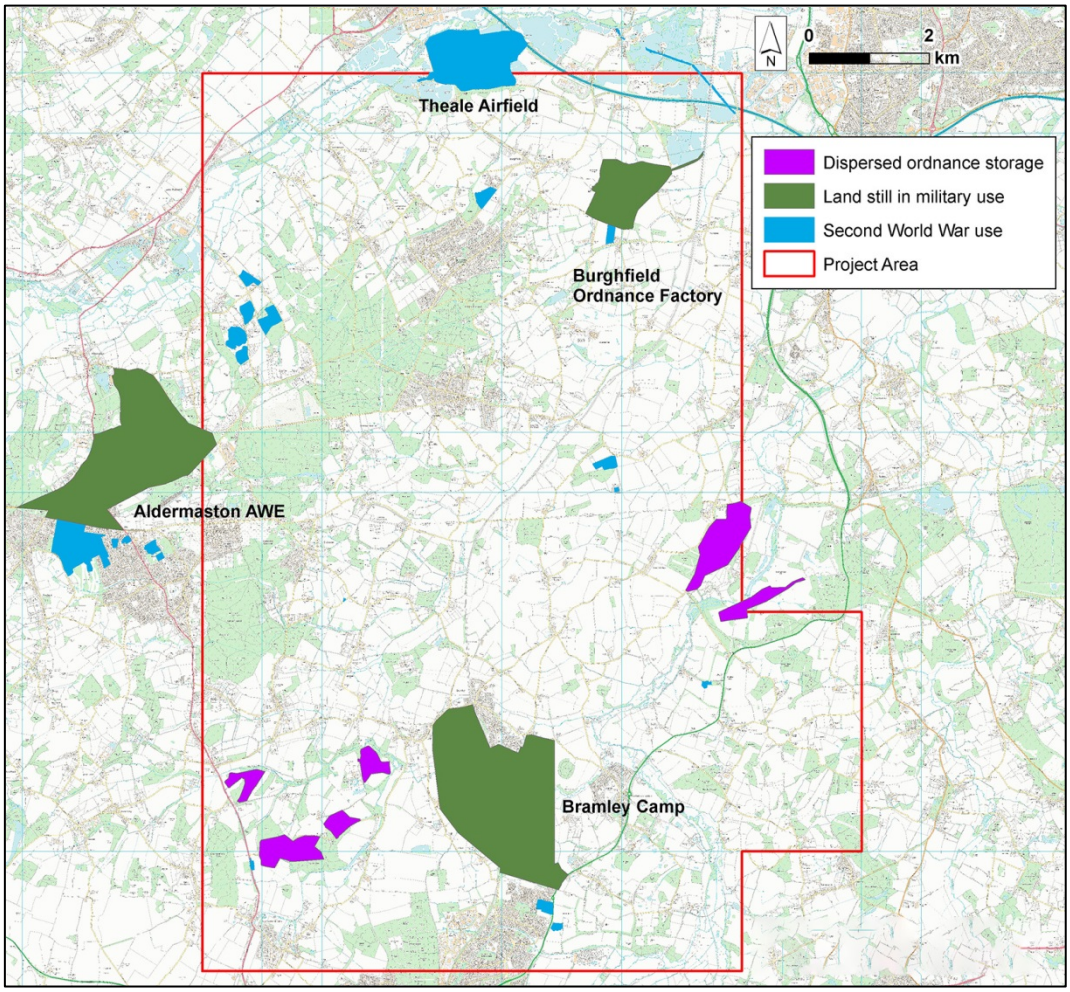

Figure 152 Location of known military sitesin the survey area. © Crown Copyright and Database Right (2017) OS (Digimap Licence)

Ordnance production and storage

Bramley Ordnance Depot

Bramley Ordnance Depot, later known as Bramley Central Ammunition Depot, opened during the First World War in 1917 for the manufacture and storage of ammunition. This extensive site covers an area of approximately 6 square kilometres to either side of the Reading to Basingstoke railway line and to the east of the village of Bramley (british-army-units1945on.co.uk). Railway tracks were built on both sides of the Great Western Railway line, through two tunnels constructed underneath the main line (Tolley on www.bdrs70d.co.uk). The Royal Army Ordnance Corps School of Ammunition was established at Bramley in 1922 and was located here until 1974. In 1987 the British Army left the depot, which was

taken over by the US Army and the facility was renamed Bramley Training Area (british-army-units1945on.co.uk). The pattern of well-spaced factory and ordnance storage buildings linked by tracks survives in woodland today with some hard standings still with modern and older buildings on them.
can still be seen today. Photographs from 1946 record the camouflage painting on the roofs at the facility (Figure 153).

Figure 153 South-western quadrant of Bramley Camp. Camouflage painting can be seen on the roofs of the line of buildings second from the left. RAF 106G/UK/1647 2033 10-JUL-1946 Historic England Archive (RAF Photography).

Burghfield Royal Ordnance Explosives Filling Factory

Burghfield Royal Ordnance Explosives Filling Factory started production in 1942 (Figure 154). In 1954 its function became related to that of the Atomic Weapons Establishment (AWE) at Aldermaston and it was redeveloped for warhead

manufacture, assembly and inspection and it is still in use today in the same capacity (Cocroft 2004).

Figure 154 Burghfield Royal Ordnance Explosives Filling Factory in 1946. RAF 106G/UK/1646 3201-2 10-JUL-1946 Historic England Archive (RAF Photography).

Figure 155 Detail of the Burghfield AWE site showing the warhead production buildings surrounded by banks of gravel. © NMR SU 6768/001 NMR 26343/10 23-JUN-2009 ©Historic England Archive

Two new warhead assembly buildings were constructed during the period when the British H-bomb was introduced, around 1960 (Fig 158). These buildings were designed to minimise external risk if an explosion occurred during assembly. Their concrete domed roofs would contain the risk of flying debris, and loose gravel packed around the outside would fall in to smother an explosion, leading to their nick-name of 'Gravel Gerties' (*ibid* 2004).

Dispersed storage of ordnance

A proportion of the survey area was given over to the production and storage of ordnance during the Second World War (Figure 152).

Figure 156 Piles of shells dispersed in groups in Beaurepaire Park seen as groups of black dots. RAF CPE/UK/1973 3245-7 11-APR-1947 Historic England Archive (RAF Photography).

An examination of aerial photographs taken in the late 1940s shows the large-scale storage of ordnance in country parks and areas of woodland. For example, shells were piled in regular groups around the edges and alongside paths in woodland and spaced regularly within both Stratfield Saye and Beaurepaire parks (Figure 156).

Second World War airfields

Theale

Theale was one of the smaller Thames Valley airfields, originally built as Sherfield Farm in the interwar period (Figure 157). It was requisitioned by the Air Ministry in 1940 for use by the No 8 Elementary Flying Training School (EFTS) Woodley. The grass airfield was renamed Theale and opened in August 1941 after delays caused by flooding (Ashworth 1985). The airfield eventually had four grass strips approximately 800 yards (732m) in length (Delve 2007). A technical site, including

a T1 hangar, two Over-Blister hangars and three Double Standard Blisters, were located in the south-west corner. Training was initially carried out with 24 Tiger Moths and 60 pupils. One of the Blister hangars was used by No 128 Gliding School, who formed in 1944 for ATC training, and continued in use after the closure of the EFTS in June 1945. The site was de-requisitioned in June 1948 and gravel extraction began there soon after. The T1 hangar was then used as a store for vehicles working on the adjacent workings. Flooding had been a constant issue throughout the life of the airfield (Ashworth 1985) and now the disused gravel pits are filled with water. They are currently used for water sports.

Figure 157 Theale airfield seen in 1946, prior extensive gravel extraction in the area. RAF 106G/UK/1646 4206 10-JUL-1946 Historic England Archive (RAF Photography).

Aldermaston

Aldermaston airfield was constructed on part of the Aldermaston Court Estate (Figure 158). It was opened in 1942 and occupied by the United States Army Air Force, designated as USAAF Station 467. The airfield had concrete runways, a technical area on its southern side and 52 loop dispersal pads and ancillary sites around it. The airfield briefly came under Royal Air Force (RAF) control in 1943 before being occupied successively by the 315th Troop Carrier Group, 71st Fighter Wing and the 434rd Troop Carrier Group. Aldermaston Court, historically the home of the Congreve family, was requisitioned in 1943 as the IXth Air Force Air Support Command Headquarters, changing in 1944 to the XIXth ASC HQ (Ashworth 1985).

Figure 158 Aldermaston airfield in 1944, prior to the reuse of the site as the Atomic Weapons Establishment ©US/7PH/GP/LOC35 5038-9 19-AUG-1943

The airfield was associated with a fuel depot on Padworth Common, of which extant structures can be seen on aerial photographs taken in 1946 (Figure 159). Aldermaston Petroleum Storage Depot was built in 1941-2 and was expanded in 1942-3. The depot was used to receive, store and distribute aviation fuel (Defence Equipment & Support Secretariat letter 2012). Aldermaston temporarily became a civil airport in the post-war period before most of the site was redeveloped as the Atomic Weapons Establishment. (Cocroft & Thomas 2014).

Figure 159 The groups of circular structures that formed storage areas as part of the Aldermaston Petroleum Storage Depot. RAF 106G/UK/1646 4119 10-Jul-1946 Historic England Archive (RAF Photography).

Anti-invasion defences

Concrete pillboxes can still be seen today along the Kennet and Avon Canal. They are the remains of a Second World War anti-invasion measure – a Stop Line, part of the General Headquarters line which ran from the Bristol area to Maidstone in Kent. The area between Newbury and Basingstoke was identified as being vulnerable to enemy attack through airborne landings (Dobinson 1996). The General Headquarters line was one of a network of linear defences, or stop lines, constructed inland from coastal defences, generally utilising existing obstacles, such as waterways or railway embankments. Pillboxes were placed at regular intervals along these defensive lines. The GHQ line was envisaged as being the final position of resistance in anti-invasion defence plans instituted by General Sir Edmund Ironside in June 1940 (Alexander 1998).

The section of the GHQ stop line within the survey area was constructed by Southern Command and known as GHQ line Blue (Dobinson 1996). The stop line followed the course of the Kennet and Avon Canal then turned to the south and east around Reading. Where there was no existing obstacle on the route of a stop line, artificial anti-tank ditches were excavated. An anti-tank ditch is recorded on aerial photographs taken in 1944 as the route leaves the canal and turns to the south where it meets a gravel quarry which appears to have been used as an obstacle. It then continues to the east of the quarry and turns to the southeast (Figure 160).

Figure 160 The GHQ Blue Line anti-tank ditch to the southwest of Reading. The ditch route extends to the south from the Kennet and Avon canal to a water-filled quarry, then continuing to the east and then turning to the southeast. US/7PH/GP-LOC140 8013 04-JAN-1944 Historic England Archive (USAAF Photography).

The network of stop lines was short-lived and work ceased on their construction after the appointment of Ironside's successor General Sir Alan Brooke as Commander-in-Chief Home Forces in July 1940. Brooke favoured a more mobile defensive approach concentrating on expanding the system of defended nodal points rather than using linear defences (*ibid*). The anti-tank ditch was already partly filled in by the summer of 1946 (Figure 161) and can be seen as a cropmark on later photographs.

Figure 161 The filled in anti-tank ditch can be traced from a cropmark on this photograph from 1946, running diagonally across the oval area of land either side of the Reading-Basingstoke railway line. RAF 106G/UK/1646 4199 10-JUL-1946 Historic England Archive (RAF Photography).

Heavy anti-aircraft (HAA) batteries

Earthwork remains of two Second World War HAA batteries were recorded from aerial photographs taken in 1946. They were located at Pollards End Copse (Figure 162, SU 6183 5679), which formed part of the Bramley defences. The other was to the west of Stratfield Turgis adjacent to a military camp of unknown name and function (Figure 163, SU 69413 59787). The gun emplacements had been dismantled by this point and only the earthwork surrounds were identified on the photographs.

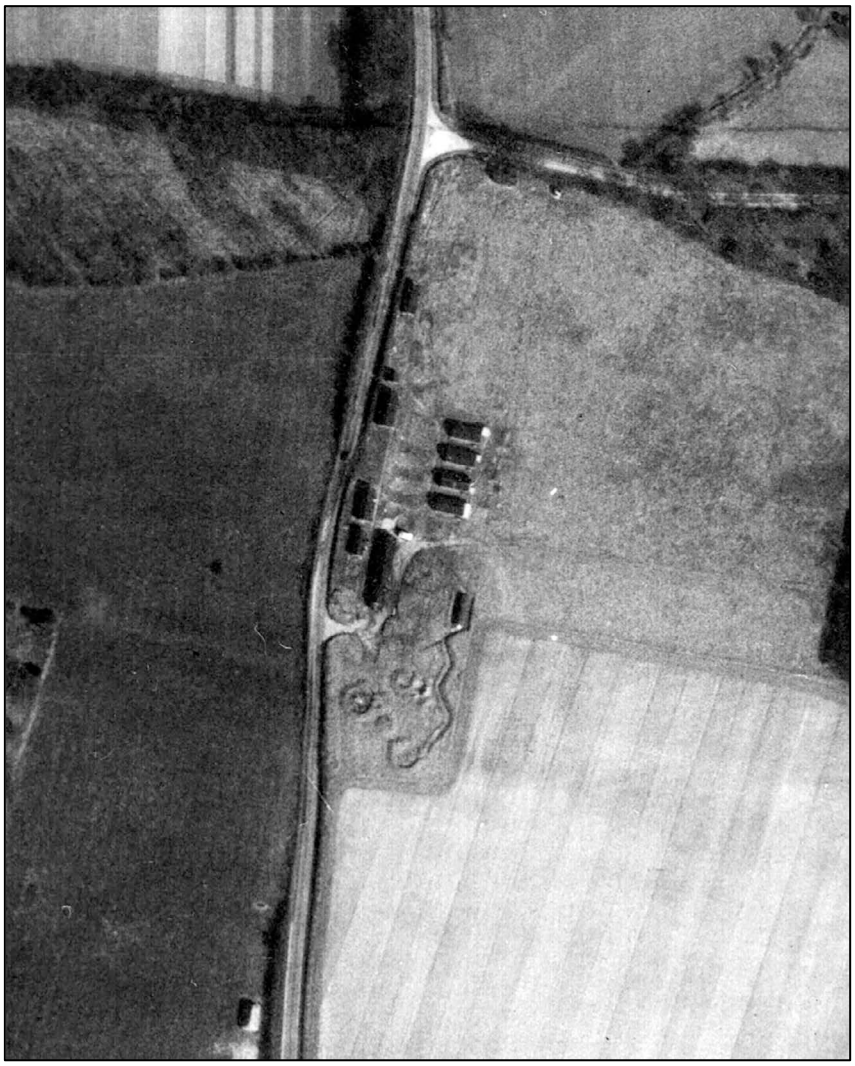

Figure 162 Earthworks of an HAA battery west of Pollards End Copse, consisting of circular gun emplacements with a group of ancillary buildings to the north. RAF CPE/UK/1973 4231 11-APR-1947 Historic England Archive (RAF Photography).

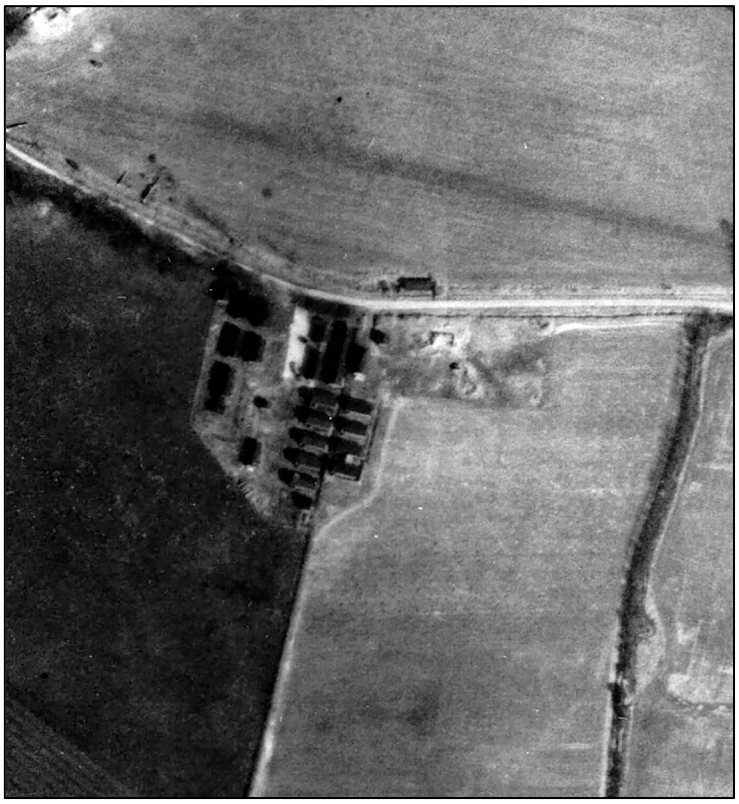

Figure 163 The earthwork remains of the gun emplacements of an HAA battery adjacent to the east of a military camp of unknown name and function. RAF CPE/UK/1973 3255 11-APR-1947 Historic England Archive (RAF Photography).

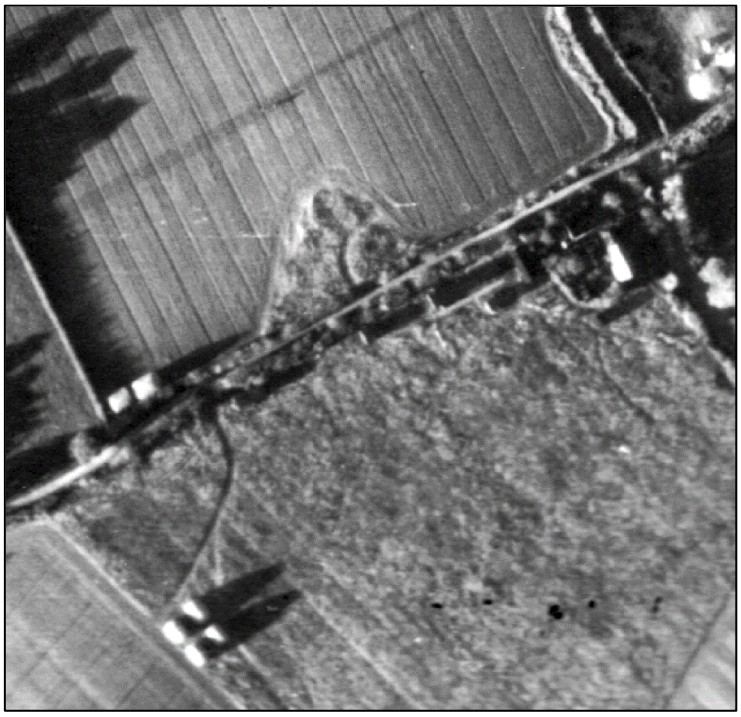

Figure 164 Possible remains of the circular gun emplacements of an HAA battery south of Silchester (SU 63370 61203). RAF CPE/UK/1827 4252 04-NOV-1946 Historic England Archive (RAF Photography).

A third possible site of an HAA battery was recorded on aerial photographs taken in 1946 to the west of Woodman's Cottage, south of Silchester (Figure 164, SU 63370 61203). It is possible that the earthworks relate to an HAA battery which is suggested to be south of Byes Lane, 83m to the south-east of the site (NRHE 1471603). No evidence could be found for an HAA battery in that location, although of course it is possible it had been completely removed by 1946, the date of the earliest aerial photographs available for the survey.

Mortimer Prisoner of War camp

This Second World War prisoner of war camp at Stratfield Mortimer, was known as Camp 88 (SU 67720 63494, Figure 165). It was a purpose-built, standard type construction, which functioned as a work camp for German prisoners. Such camps would typically include a tented camp, guards' compound, prisoners' compound, prisoners' garden plots, recreation ground, and a sewage disposal works. An inner barbed wire fence would enclose the prisoners' compound and the recreation ground, within a surrounding perimeter fence. Prisoners would be sent to work as labourers in the local area (Thomas 2003, 5). The fences separating areas are visible on aerial photographs of 1946.

Figure 165 Prisoner of War Camp 88 at Mortimer and possibly associated military buildings at the farm to the south. RAF 106G/UK/1647 5028 10-JUL-1946 Historic England Archive (RAF Photography).

Figure 166 Parchmarks in grass indicating the sub-surface remains of buildings at Mortimer Prisoner of War Camp. The photograph is taken looking to the west from the road which runs along the eastern end of the camp as seen in Figure 165 above. NMR SU 6763/1 (2169/1001) 20-JUL-1995 ©Crown copyright. Historic England Archive.

The buildings associated with the camp were recorded from aerial photographs taken in 1946 (eg Figure 165), but building outlines can be seen as parched lines in grass on aerial photographs taken in 1995 (Figure 166) and its footprint is visible as low earthworks on lidar.

Summary

The imposition of large military installations around Silchester is arguably the most significant recent change to the landscape of the survey area, but agricultural developments and large-scale gravel extraction have also had an effect on its appearance in the last 200 years. The widespread removal of field boundaries changed the character of an area which appears to have a long tradition of small, irregularly-shaped, fields. Most of the earthwork remains of these boundaries were identified on lidar imagery and, together with historic maps, provide a picture of earlier agricultural practices.

Gravel extraction caused considerable landscape change, an example being the large pits still present and recorded from lidar, on Silchester Common. To an extent, these landscapes have been reused by the people who live here. For example, the gravel pits along the northern edge of the survey area, south of the River Kennett, are water parks and nature reserves. One of these water parks was created out of an area already changed at the Second World War Theale airfield.

Most of the larger military sites, with the exception of Theale airfield, remain today including the two linked Atomic Weapons Establishment sites, and the Bramley

Camp training area. Smaller or more transitory military sites have been removed or adapted such as the Mortimer POW camp, the HAA batteries, or the dispersed ordnance storage sites found in woods and parkland. Historic aerial photographs provide a record of these more ephemeral military sites and also document the changes made to the Aldermaston and Burghfield sites during the creation of the AWE.

CONCLUSIONS

This survey was part of the Silchester Iron Age Environs Project, a project which focussed on the Iron Age/Roman transition. The survey recorded sites from all periods for which evidence could be recognised on aerial photgraphs and lidar, in order to establish a complete picture of the landscape and identify how later developments might have affected the identification of sites from earlier periods. 671 new records were created in the NRHE and 81 out of an existing 267 records were updated.

A primary objective of the parent project was to examine prehistoric settlement and agriculture to provide a context for the inception and lifetime of the Iron Age oppidum at Silchester and for changes that occurred during the transition to Roman urbanised living. A range of differing settlement types from the later prehistoric through to the Roman periods were recorded in the rural environs of Silchester, providing a more complete picture of the landscape prior and during the time of the *oppidum* and the Roman town. Settlement sites were newly identified from lidar and aerial photographs, surviving as earthworks in woodland (eg Pamber Forest and Round Copse) and as sub-surface remains seen as cropmarks (eg Sherborne St John and Ufton Nervet). Further detail was added to sites identified in previous surveys (eg, Windabout Copse, Simms Copse, Burghfield and Silchester).

The advantage of carrying out this survey as part of a multi-disciplinary research project has been the additional information gained about a number of the sites through subsequent archaeological investigation. The results of excavation and scientific dating inform both the current interpretation of features and aid the future identification of sites found using aerial photographs or lidar. A Middle Iron Age date was found through post excavation analysis for the construction of the Pamber Forest enclosures. Evidence from the excavation at Windabout Copse showed that it was a farmstead in use before and during the lifetime of late Iron Age *Calleva*. Both Middle Iron Age and late Iron Age dates were returned for linear earthworks around the *oppidum* adding important new information to aid the understanding of how this landscape developed. The work at the linear earthwork at Bridle's Copse shows how using complementary survey techniques has been successful. The north-western section of the earthwork was visible from lidar imagery and the south-eastern section was recorded from a cropmark on aerial photographs, but the central section was only identified through geophysical survey.

In addition to setting the scene prior to the establishment of the *oppidum* the survey identified how settlement types diversify during the Iron Age/Roman transition. Rectangular enclosures, possibly the locations of single farms and which may span the transition period, were newly identified across the survey area. It is often difficult to assign a monument identified through this type of survey to one particular period, but comparison with excavated examples of the same morphological type can aid interpretation.

Other forms of settlement more closely associated with the Roman period are also found in the hinterland of *Calleva*. Two ladder-type settlements, known from excavated examples to be farms formed of groups of adjoining enclosures, were

newly recorded in the northern part of the survey area and a possible third example was identified at Little London. The site of a possible villa was also recorded at Nelson's Field to the south of Silchester.

The aerial survey results were less conclusive in providing evidence of agricultural activity that might have taken place during the lifetime of the *oppidum*. Fragments of later prehistoric field systems were identified in several locations, but there is no evidence of coherent, large-scale, field systems of the co-axial type seen, for example, on the nearby Hampshire Downland. It is possible that there was a degree of specialisation in the type of farming in this area, with a concentration on livestock rather than arable. Certainly, the excavations at Windabout Copse uncovered very little evidence of grain storage which might support this view. The small areas of field systems recorded may represent a short-lived, or unsuccessful, phase of arable farming.

An alternate explanation for the lack of identification of later prehistoric field systems is the extent to which the visibility of features may be affected by either the geology and soil types or to later land improvement works. Cropmarks are more frequently visible on soils overlying the Silchester gravel plateau or the Thames gravel terraces, as compared to the heavier soils of clay areas. Cropmarks are very scarce on areas of London Clay, which accounts for most of the soils in the south and east of the survey area but can be seen on the clay of the Brocklesham Beds adjacent to Pamber Forest. Intrusive land improvement works in the medieval and post medieval periods, including ridge and furrow cultivation, water meadows and intensive tree planting, may affect the visibility and survival of earlier archaeological features. In general, a combination of these factors affecting visibility influences the distribution of sites that can be recorded using this type of survey.

Most sites from the post-Roman period were recorded from earthworks rather than cropmarks, possibly, as discussed above, demonstrating their effect on the visibility of earlier sites. Very little was recorded for the early medieval period which is a common issue in landscape survey as a whole in southern England. Sites from this period are frequently ephemeral in nature and often underlie later developments. A clearer picture emerges from the survey results for the medieval period, with the creation of deer parks, moated sites and fishponds. Post medieval developments have also impacted on the survey area including the development of large country estates with their garden features such as tree avenues and formal gardens and large-scale land improvement works. The military installations and increased gravel extraction of the modern period are the next big factors to affect the landscape of the survey area. Modern gravel extraction is capable of moving extensive areas of land, including the area covered by the Second World War Theale airfield in its entirety.

The ability to observe landscape change and thereby elucidate factors which affected the visibility of earlier archaeological features is one of the strengths of this type of survey. A systematic review of the historic aerial photographs, alongside historic maps, means that, for example, the increase in size of gravel pits can be observed, or the presence, then absence, of military sites can be recorded. The use of lidar imagery makes the identification of sites in woodland possible and also those which survive only as low, spread earthworks. Both types of airborne survey can be used

to identify archaeological features at a landscape-scale and enable identification and recording of features in inaccessible locations.

While the emphasis of the overall project is on the Iron Age, the process of recording visible archaeology from all periods provides a framework both for understanding how the landscape in the hinterland of *Calleva* has been altered over time and how this affects our understanding and perception of the Iron Age to Roman transition.

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