National Mapping Programme Project for the Suffolk Coast and Heaths AONB

Heritage Protection Commissions Programme
Project No. 7085

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with Ellen Ford

August 2016

Historic England

Norfolk County Council

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A report for Historic England
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Cover Illustration: Second World War anti-landing trenches visible as surviving earthworks on heathland at The Walks, Aldringham. NMR 23495/14 23-APR-2004 © Historic England

Mapping Conventions

The mapping conventions used by the project, summarised below, are based on the national standards used for NMP. In this report, deviations from these conventions for specific illustrations are noted in the figure caption.

Bank (also mound, track, platform, *etc*.)

Ditch (also pit, post hole, *etc*.)

Structure (also buildings, stonework, concrete, *etc*.)

Extent of area (used to define extensive sites comprising numerous disparate elements, or features that have not been mapped individually, also sites where the nature or extent of what is visible is unclear)

Ridge and furrow (used to define the extent of a block of ridge and furrow, arrow indicates direction of furrows)

Monument polygon (used to define the extent of a site, equating to a Suffolk Historic Environment Record Monument record

Suffolk Historic Environment Record Parish Code

SHER SOL 015

Abbreviations

ALSF	Aggregates Levy Sustainability Fund
AONB	Area of Outstanding Natural Beauty
CES	Community and Environmental Services (NCC)
CUCAP	Cambridge University Collection of Aerial Photography
DTM	Digital Terrain Model
HE	Historic England (formerly English Heritage)
HEA	The Historic England Archive
HER	Historic Environment Record
HPCP	Heritage Protection Commissions Programme
NCC	Norfolk County Council
NHER	Norfolk Historic Environment Record
NHLE	National Heritage List for England
NHPP	National Heritage Protection Plan
NMP	National Mapping Programme
NRHE	National Record of the Historic Environment
OS	Ordnance Survey
SCC	Suffolk County Council
SCCAS	Suffolk County Council Archaeological Service Conservation Team
SC&H	Suffolk Coast and Heaths [AONB]
SFB	Sunken-featured building
SHER	Suffolk Historic Environment Record

Acknowledgements

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The mapping was undertaken using aerial photographic material from the Historic England Archive (HEA) at Swindon, the Cambridge University Collection of Aerial Photography (CUCAP), Suffolk Record Office, Suffolk County Council Archaeological Service Conservation Team (SCCAS) and HE Aerial Survey (images supplied to Historic England by Next Perspectives through the APGB Agreement; Environment Agency lidar). Thanks are extended to all those who kindly provided access to the photographs and supplied loans of material, in particular Alan Martin (CUCAP), Luke Griffin (HEA) and Dr Richard Hoggett (SCCAS), and those who provided advice regarding lidar, chiefly Simon Crutchley, Fiona Small, and Krystyna Truscoe (HE). Extracts of Archaeological Records data held by the HEA were supplied by Graham Deacon of Archive Services.

The project was undertaken by Norfolk Historic Environment Service, the principal staff being Ellen Ford, Sarah Horlock and Sophie Tremlett, with Alice Cattermole and subsequently David Gurney acting as Project Manager; David Gurney acted as Project Executive. The project was undertaken in partnership with SCCAS, and the authors would like to thank Jude Plouviez (formerly SCCAS), Faye Minter, Dr Richard Hoggett, James Rolfe, Ben Donnelly-Symes and Grace Campbell for their help and advice. At HE, advice and support was provided by Dr Matthew Whitfield, Project Assurance Officer, Helen Winton, NMP Quality Assurance Officer, and Dr Will Fletcher (Inspector of Ancient Monuments). Dr Chris Scull (Cardiff University & University College London) Rendlesham Survey, along with the other project directors Jude Plouviez and Faye Minter mentioned above, also provided invaluable advice and data for the project and this report

Summary

This report summarises the results of the National Mapping Programme (NMP) Project for the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (SC&H AONB; HPCP Project 7085). NMP projects comprise large area archaeological surveys, which map and record archaeological features using aerial photographs and airborne laser scanning (lidar) as the main sources. The principal products are typically a digital map of the archaeological features, new and updated records for Historic Environment Record databases and the National Record of the Historic Environment (NRHE), a report, and recommendations for heritage protection.

The project was devised to enhance our understanding of the historic environment of the SC&H AONB, and to improve its protection. This aim was achieved by undertaking a landscape-scale assessment of the historic environment of the project area using Historic England (HE's) NMP methodology. This provided detailed site-specific data to complement information held within the Suffolk Historic Environment Record (SHER), and contributes to the delivery of Measure 3 of the National Heritage Protection Plan (NHPP); Activity 3A4, the identification of terrestrial assets via non-intrusive survey. The survey encompassed a total of 144 sq km of Suffolk's coastal hinterland, comprising almost all those portions of the AONB not already covered by NMP, plus a small area adjoining the AONB at Rendlesham; the latter is the site of an Anglo-Saxon high-status settlement.

The project has made a significant contribution to the study of the historic environment of the varied coastal, heathland, arable, and wooded landscapes within the project area, and has identified and enhanced our understanding of a wide variety of sites ranging in date from the Neolithic to the Cold War. It has created 446 new records in the SHER, representing an increase of 52% within the area surveyed, and has amended and enhanced a further 233 existing SHER records. Together, these records represent a 379% increase on data held for the area by the NRHE. It has created a digital archaeological map covering 144 sq km, bringing NMP coverage of Suffolk to more than 20%.

The project has provided baseline locational and interpretative data that will facilitate planning, management, preservation and research decisions concerning

the historic environment of the project area at every level, from strategic planning and national designation to local interventions, site visits and research. This report provides a synthesis of the types of archaeological sites encountered, including a summary of the results by period and more detailed discussions of specific research themes addressing particular *foci*: Rendlesham, and the character and survival of archaeological sites on the coastal heaths. The significance of the results for heritage protection is also discussed, and a list of sites where further heritage protection measures are recommended is provided as an appendix.

The project was undertaken and managed by Norfolk Historic Environment Service, part of Norfolk County Council (NCC), in partnership with Suffolk County Council Archaeological Service Conservation Team (SCCAS). Funding was provided principally by the Heritage Protection Commissions Programme (HPCP). Project and NMP quality assurance was provided by HE. The SC&H AONB team were fully supportive of the project.

1. Introduction

1.1 Background to the Project

Heritage Protection Commissions Programme (HPCP) Project 7085 was designed to continue the use of Historic England's (HE's) National Mapping Programme (NMP) methodology in Suffolk, extending the survey across 144 sq km of the county's coastal hinterland. NMP projects comprise large area archaeological surveys, which map and record archaeological features using aerial photographs and airborne laser scanning (lidar) as the main sources. The principal products are typically a digital map of the archaeological features, new and updated records for Historic Environment Record databases and the National Record of the Historic Environment (NRHE), a report, and recommendations for heritage protection.

The project area encompassed the majority of those portions of the Suffolk Coast and Heaths (SC&H) Area of Outstanding Natural Beauty (AONB) for which there had previously been no NMP data, nor an active NMP project (Fig. 1.1). AONBs and other designated landscapes were a particular focus for Measure 3 of English Heritage's National Heritage Protection Plan (NHPP), since replaced by Heritage 2020. AONBs were also identified as a priority by the NMP Strategy (Horne 2009, 29), being an area where NMP can provide the greatest benefit. In 2014, English Heritage (now Historic England) and the National Association of AONBs signed an accord, declaring their joint interest in, and responsibility for, the historic environment within AONBs (www.landscapesforlifeconference.org.uk/2014/07/renewal-and-signing-of-the-accord-between-english-heritage). At the request of Suffolk County Council Archaeological Service Conservation Team (SCCAS) the project also encompassed a small area (4 sq km) at Rendlesham, outside but adjoining the AONB, which is the site of a high-status Anglo-Saxon settlement and an ongoing research project (Section 5).

The project has helped to address a gap in coverage, where NMP had been completed for only *c*. 11% of the county, with a further *c*. 6% then in progress. This compared poorly with the adjacent counties of Norfolk and Essex, with coverage of *c*. 40% and 100% respectively. The project has contributed to national, regional and local heritage protection by identifying, locating and

characterising sites of national or regional significance, and by enhancing the knowledge base available to those engaged in heritage protection at a local level, including members of the public. The survey has taken place within the SC&H AONB, an area characterised by heathland landscapes, where earthworks were known to survive and where there was a high potential for new earthwork sites to be discovered in a region where these are comparatively rare. This location also provides good opportunities for constructive heritage management to take place, with the results presented in this report providing baseline information to ensure that the location, extent, character and significance of heritage assets within the AONB are better understood and taken into account in future management strategies.

The project was developed and undertaken by the Air Photo Interpretation Team at Norfolk Historic Environment Service, part of Community and Environmental Services (CES) at Norfolk County Council (NCC), in partnership with Suffolk County Council Archaeological Service Conservation Team (SCCAS).

1.2 Aims and Objectives of the Survey

The principal aims of the project were:

- to contribute to the recognition, understanding and protection of heritage assets within the project area, much of which is part of a nationally designated landscape;

- to make recommendations for sites where further protection, including designation, might be appropriate;

- to contribute to ongoing research, both academic and developer-led, into the historic environment of eastern England; in particular, by identifying and interpreting former and extant earthwork sites within the AONB, a nationally designated landscape where the survival of such sites has the potential to be relatively good. The substantial contribution to ongoing research made by interpretative surveys such as the NMP was recognised in the review of the Regional Research Framework for the Eastern Region (Medlycott 2011);

- to provide baseline locational and interpretative data that will facilitate planning, management, preservation and research decisions concerning

the historic environment of the project area, particularly that within the SC&H AONB, where there are good opportunities for heritage protection, and where the results of the survey can be incorporated into the statutory AONB Management Plan;

- to inform and encourage the promotion of the historic environment of the project area as a valuable resource, through the provision of web and outreach materials for HE, SCCAS and other key organisations, such as SC&H. The heritage of the SC&H area is a significant driver for the local tourist industry.

- to make recommendations for future work; for example, providing a summary of sites where further ground survey might be of particular benefit for heritage protection.

The project's main objectives can be summarised as:

- the identification, mapping, interpretation and recording to NMP standards of archaeological sites within the project area utilising all available aerial photographs and other remote sensed data;

- the integration of this data into the Suffolk Historic Environment Record (SHER; accessible online via the Suffolk Heritage Explorer website and Heritage Gateway), and ultimately the National Record of the Historic Environment (NRHE), through the provision of a GIS-compatible digital map layer linked to HBSMR database records;

- the analysis and dissemination of the results of the project, primarily through the production of this internal summary report, and the provision of material to 'signpost' the project from HE, SCCAS and SC&H websites;

- liaison with SC&H to promote the use of NMP data as a tool for informing and facilitating future management decisions, and for promoting engagement with the historic environment of the AONB.

1.3 Project Area

The SC&H AONB is an area of 155 square miles, stretching from Kessingland in the north to the Stour Estuary on the Suffolk/Essex border to the south. It

encompasses wetlands, heaths, shingle beaches, forestry, farmland and historic towns and villages. The variety and distinctiveness of the habitats available, together with the area's underlying geology and associated land cover, and its history of natural processes and human interaction, has contributed to a rich diversity of wildlife. As an AONB it is a nationally designated landscape, whose natural beauty – including natural and cultural assets – is to be conserved and enhanced for the benefit of the nation and future generations.

Prior to the project starting, NMP had already been completed for the coastal edge and estuaries of the SC&H AONB, as part of the Suffolk Coastal NMP project (HE Project 2912). The northern part of the AONB, between Southwold and Kessingland, had been mapped as part of the Lothingland, Greater Lowestoft and North Suffolk NMP project (HE Project 6642). An Aggregates Levy Sustainability Fund (ALSF) funded project covered its margins along the Felixstowe Peninsula (HE Project 3987). The project reported on here covered the substantial areas of the AONB that remained unmapped, together with a small adjoining area at Rendlesham (see above). These formed two separate, unequal blocks (Fig. 1.1), together covering 144 sq km.

1.4 Summary of Project Methodology

The general methodology and scope of the project was based upon the standard NMP methodology (Winton 2012), and continued that used for the Lothingland-Lowestoft-North Suffolk NMP project (HE Project 6642). The approach was also informed by the Air Photo Interpretation Team's previous experience of NMP projects in Norfolk (HE Projects 2913, 5241 and 5313), and the results of the Suffolk Coastal and Aggregates NMP projects (HE Projects 2912 and 3987).

The project looked at all available aerial photographs, held in national and local archives, which spanned 80+ years of photography, and included vertical photographs taken for non-archaeological purposes and specialist archaeological oblique photograph collections. Other airborne remote-sensed data were reviewed including lidar and online photo mosaics such as Google Earth. Additional standard sources were also used, for example, historic mapping, HER monument records, published and unpublished excavation results and archaeological syntheses; however, the constraints of time meant that the use of such material was by necessity limited.

All archaeological sites and landscapes were analysed, with dates ranging from the Neolithic period to the Cold War. The scope of NMP includes recording buried sites, usually visible as cropmarks, features seen as earthworks and stonework, and some structures and buildings. Standard mapping and recording techniques were used to produce an archaeological map of features visible on the aerial photographs with linked archaeological site descriptions. The site descriptions include references to the source aerial photographs, to inform any re-evaluation of a site, for example for development or research purposes.

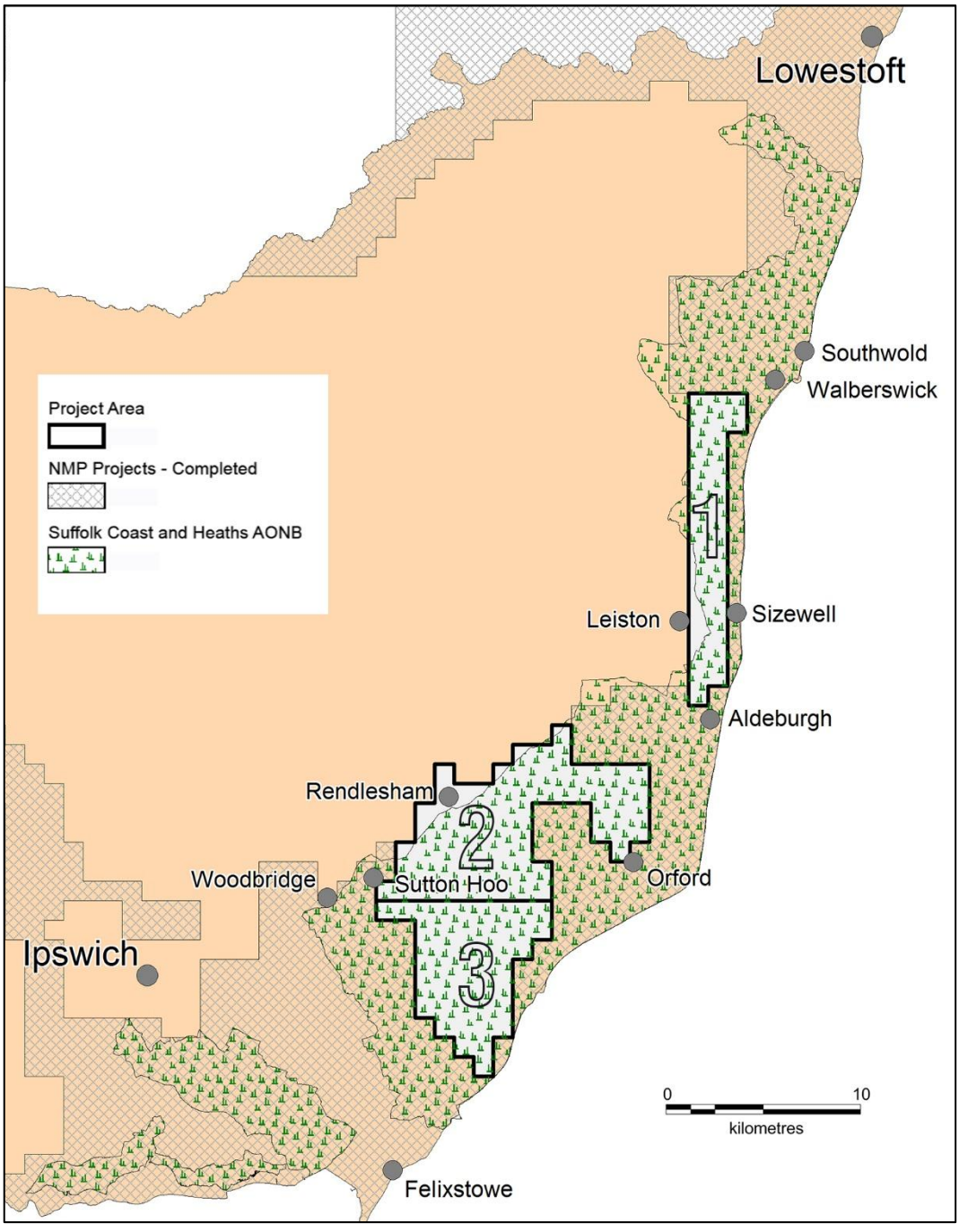

Figure 1.1. The location of the project's Mapping Blocks. AONB outlines © Natural England copyright 2016. Contains Ordnance Survey data © Crown copyright and database right 2016.

The archaeological map was created in AutoCAD from aerial photographs rectified and geo-referenced using Ordnance Survey (OS) MasterMap mapping (usually 1:1250 scale). Standard layers such as 'BANK' and 'DITCH' were used to record the form of the archaeological remains, and these were then exported and formatted in MapInfo. Polygons indicating the limits of each site were linked to associated HBSMR database records. Descriptive records with associated indexing were initially created as Word documents, the information being transferred to a live copy of the SHER in batches. The SHER records include a descriptive account and an index of the interpretation, form (cropmark, earthwork, *etc.*) and date of the features. The archaeological interpretations were based on evidence from aerial photographs and any contextual or supplementary sources used. Attribute data, comprising the Monument UID and Parish Code was attached to each object, to ensure full linkage between the mapping and the records.

The project's mapping and records can be accessed through the SHER; the database records are available on the Suffolk Heritage Explorer website (https://heritage.suffolk.gov.uk/) and the Heritage Gateway. Data will be supplied to the NRHE upon request, once a suitable migration mechanism is in place.

Potential candidates for designation or other forms of management or heritage protection identified by the project team are listed in Appendix 1 of this report.

The methodology of the project is described in more detail in Appendix 2.

2. The Character of the Project Area

The topography of the SC&H AONB, often referred to as the 'Sandlings' or 'Sandlands', is typically that of a low-lying, gently rolling landscape, with a long, distinctive coastline and prominent estuaries (some completely sealed off from the sea), with areas of saltmarsh, grazing marsh and mudflats. Away from the coast, much of the area consists of a low, sandy plateau, mainly lying between 20–30m OD, parts of which are still occupied by heath, although large tracts have been given over to arable, pig-farming and forestry (Williamson 2005, 1).

The geology and soils vary from north to south, but an essential feature is the contrast between the acid, sandy soils of the uplands, and the extensive areas of peat and alluvium found at or below sea-level (*ibid*., 3). Williamson also notes a marked distinction between the area to the north of Aldeburgh and that to the south. Soils of the Newport 4 Association dominate in both areas: these are deep and well-drained, but acid and very infertile, sandy and stony soils formed in fluvio-glacial deposits. However, to the north of Aldeburgh there are also large areas of Newport 3 Association soils, which are loamy as well as sandy, and more fertile (these lie mostly to the north of the area mapped, within a part of the AONB for which NMP had already been completed). Peat occupies the poorly-drained valleys of this area. To the south of Aldeburgh, the Newport 4 Association soils are inter-digitated with areas of the slightly less infertile and acidic soils of the Newport 2 Association. The valleys of this area, formed by larger rivers and originally tidal saltmarsh, are dominated by silt/clay alluvial deposits rather than peat (Williamson 2005, 3–8, fig. 5). Here the sandy coastal strip is also wider, extending some 10 km inland (*ibid*.), a feature that is reflected in the boundary of the AONB (Fig. 1.1).

For the purposes of mapping, the project area was divided into three blocks (Fig. 1.1). Each block comprised approximately 2000 Historic England Archive (HEA) vertical prints, but also reflected differences in topography, geology and soils.

2.1 Block 1 (33 sq km)

This block extended from Walberswick and the Blyth Estuary beyond its northern end to Aldeburgh to its south. It encompassed the narrow strip of low-lying coastal hinterland that makes up the AONB at this, its narrowest point. As

described above, soils of the Newport 4 Association dominate, with some loamier Melford and Newport 3 Association soils at its southernmost extent. Peat has formed in the poorly-drained valleys.

The northern part of the block is dominated by Dunwich Forest, a 20th-century Forestry Commission plantation, in part located on former heathland. The forested area has expanded since the 1940s. The central and southern parts of Block 1 are characterised by the continuing survival of large areas of coastal heathland.

Figure 2.1. Aerial view of the Sizewell Nuclear Power Stations A and B and the surrounding landscape in the eastern part of Block 1. NMR 26725_002 31-AUG-2010 © Historic England.

2.2 Block 2 (67 sq km)

This block covered the area to the north of an imaginary line drawn between Woodbridge and Orford, bounded to the north by the valley of the River Alde (mapped as part of the Suffolk Coastal NMP project, HE Project 2912). Historically, the soils of this area were often more loamy and farming more productive (Williamson 2005, 5). The block included the 4 sq km added to the

project area to cover the area of the Rendlesham Survey (as advised by Jude Plouviez, formerly SCCAS).

Large tracts of the formerly extensive heaths and 'walks' within Block 2 (and to a lesser extent Block 3) are now covered by Rendlesham Forest and Tunstall Forest, both Forestry Commission plantations where conifers dominate, which were largely established in the 1920s (Williamson 2008).

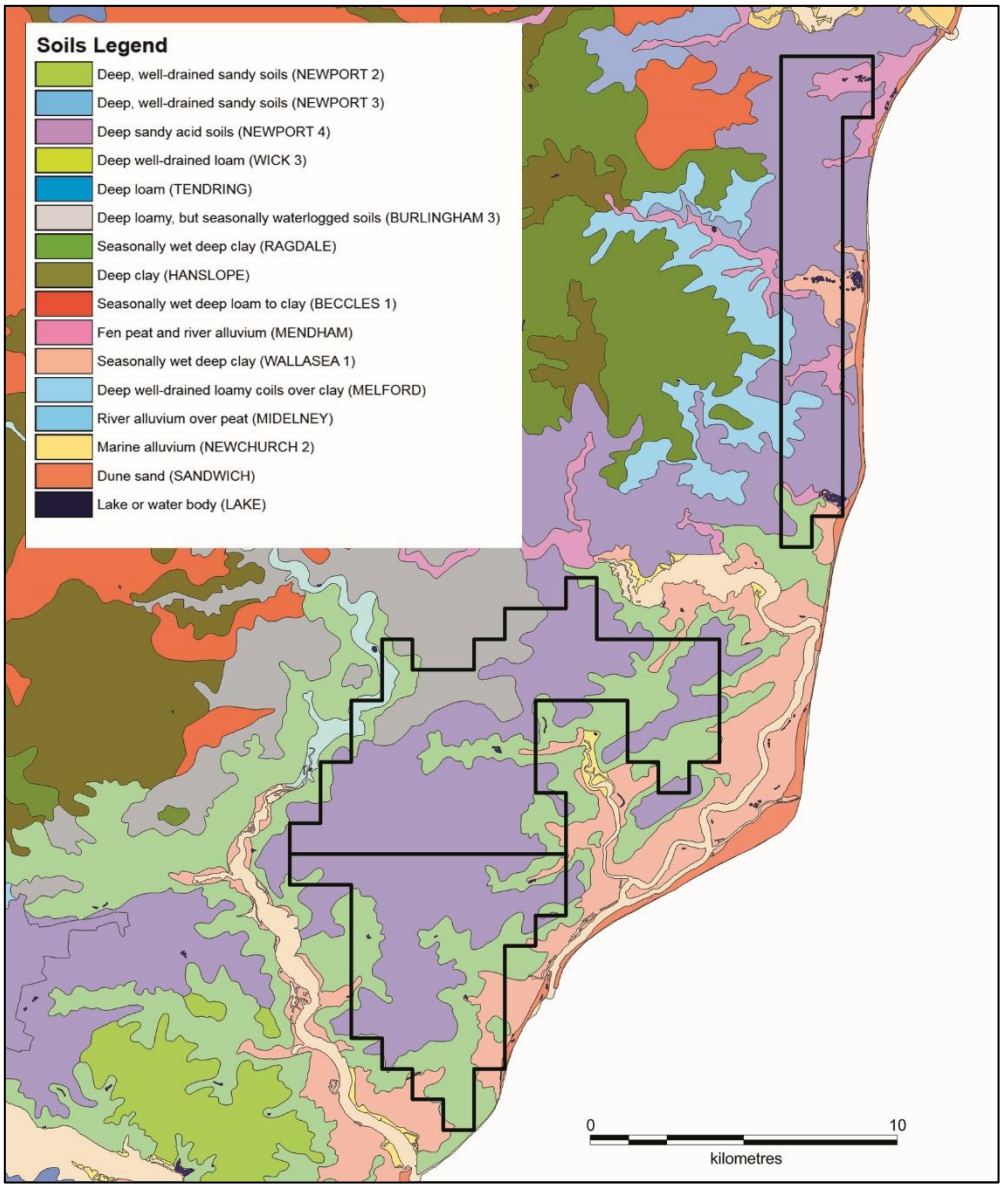

Figure 2.2. The soils of the project area. Soils data © Cranfield University (NSRI) and for the Controller of HMSO 2016.

2.3 Block 3 (44 sq km)

This block extended from Woodbridge at its northwest corner, almost reaching the coast at its southernmost point, and bounded by the Deben Valley along its southwest side (mapped as part of the Suffolk Coastal NMP project, HE Project 2912). Historically, the term ‘Sandlings’ was used particularly of this area, where the soils were especially sandy and infertile (Williamson 2005, 5).

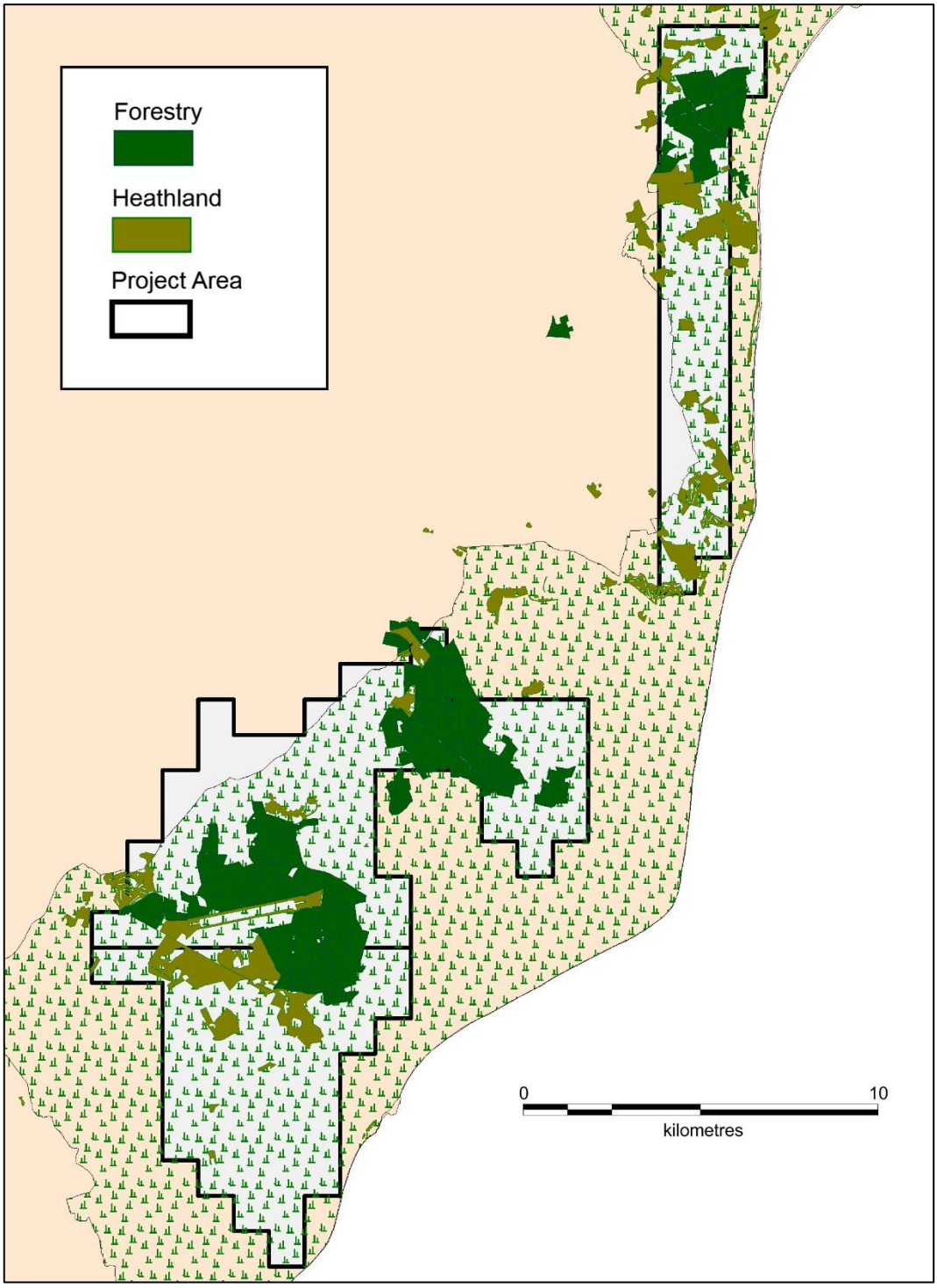

Figure 2.3. Land use within the Project Area. AONB outline © Natural England copyright 2016. Forest Estate outline © Forestry Commission. Contains Ordnance Survey data © Crown copyright and database right 2016.

3. Factors Affecting the Results of the Survey

As is the case with any archaeological survey, the results of the Suffolk Coast and Heaths AONB NMP have been influenced by a number of different factors. Some of these factors are inherent in the NMP methodology, or in the nature of aerial photographic evidence and its interpretation. Others relate to archaeological work undertaken both before and during the project's lifespan. The effects are evident in both the number and nature of sites recorded in different environments and under different conditions and these factors need to be borne in mind when interpreting the project results.

3.1 NMP Methodology

The comprehensive analytical and interpretative aerial photographic survey provided by the NMP methodology makes an essential contribution to the understanding and protection of the historic environment of any area it covers. It advocates the systematic use of all available aerial photographs to map and record all visible new and previously known sites, irrespective of their present-day survival and encompassing every period from the Neolithic to the Cold War. While some aerial photographic transcription of specific sites had been undertaken prior to the start of the project – usually under the auspices of commercially-funded projects undertaken in advance of development – for the most part such work has not made use of the full range of sources typically consulted for projects using NMP standards. This means that new sites, and new information about previously recorded sites, were recorded even in parts of the project area that had already been subject to intensive archaeological investigation, most notably at Rendlesham (Section 5). For most of the project area, the NMP survey was the first time that much of the historic, non-specialist photography had been consulted for archaeological purposes. Even specialist archaeological photographs, from which heritage sites had already been recorded, benefitted from re-examination, with new features and sites being recognised, and existing interpretations reappraised.

The NMP's use of historical aerial photographs is also of great benefit, in particular in the eastern region, across much of which industrial-scale agriculture has left few surviving earthworks. Such plough-levelled sites may be recorded as

soilmarks or cropmarks, or in some cases on 1940s (and sometimes later) photographs as earthworks that were subsequently levelled. The use of historical photographs is also beneficial in that they record landscape change across a time span typically of 70 years or more. The systematic assessment of all available aerial photographs for a particular site often allows for an assessment of monument condition and survival to be made, in particular when the most recent vertical coverage – usually Google Earth imagery – is utilised. It also allows sites to be recognised in areas later obscured by post-war development; this can be of benefit even in rural areas such as those covered by the project, where the expansion of towns and villages, road schemes or mineral extraction, for example, can mask or obliterate previously visible archaeological sites.

One of the key strengths of the NMP methodology, as opposed to more piecemeal or site-oriented aerial photographic surveys, is the large size of the areas investigated. This landscape-scale approach allows sites to be studied and understood within their wider context. The production of synthetic and thematic accounts to accompany the mapping adds value to the process and allows newly created data to be more easily understood and disseminated. Through the identification of dominant themes and characteristics within the data, and more specifically through the recognition of significance and survival, the approach allows the results to feed into and inform strategies and decisions regarding heritage protection, relating to designation, planning or landscape management, for example.

There were a number of methodological issues that affected the project during its lifetime. It was sometimes difficult to produce accurate rectifications, particularly of heathland areas where there were few control points (see Section 3.3 below). Using Digital Terrain Model (DTM) data for rectifications was also problematic where the landscape has altered radically since the photographs were taken; the area around Woodbridge airfield, in OS quarter sheet TM34NW, is an example. There were also problems related to the team working remotely from the Suffolk HER, and only having access to non-live data and digitised versions of secondary sources. These, however, were minimal, and relatively infrequent, in part because of the very limited time available to make use of non-photographic sources. Occasionally issues were caused by the time lapse between records being written and being inputted into the HER, but these again were minor and infrequent.

Further details of the project methodology are given Appendix 2; national standards and guidance for NMP can be found in Winton (2012) and English Heritage (2012).

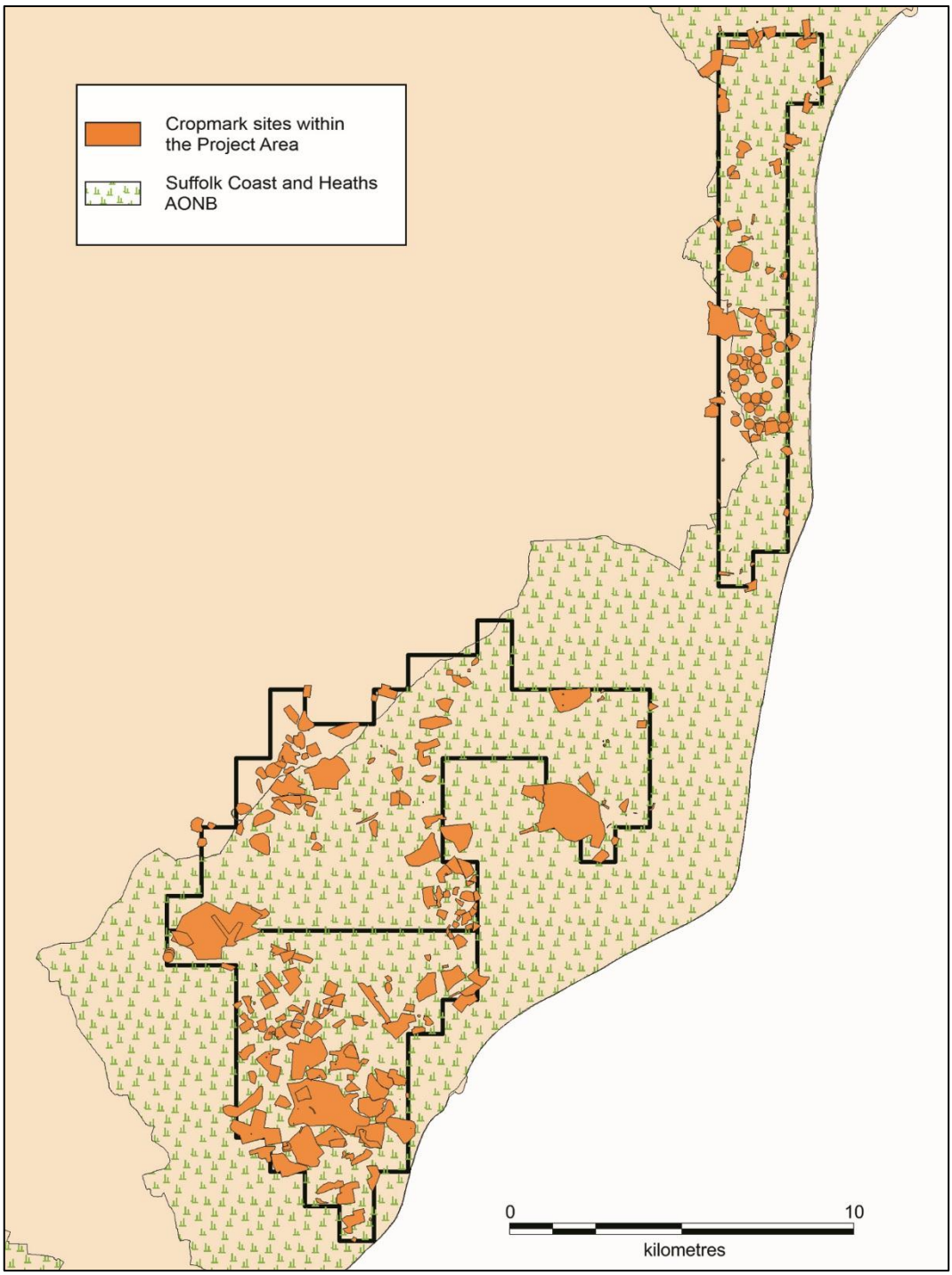

Figure 3.1. The distribution of cropmark/soilmark sites recorded by the project. AONB outline © Natural England copyright 2016. Contains Ordnance Survey data © Crown copyright and database right 2016.

3.2 Geology and Soils

The geology, soils and topographic formation of any geographical area all have a direct impact on the efficacy of using aerial photographs to record the historic environment, especially in arable areas, where sites predominantly consist of sub-surface remains. The influence of the timing and processes of aerial photography, and resultant aerial photograph archive, are discussed separately below (Section 3.4).

The complex and varied processes and conditions which lead to differential crop growth are described in detail elsewhere (*e.g.* Wilson 2000, 67–86). Within the project area, where the underlying geology is almost entirely Crag, the overlying soils were a more significant factor in variations in the results. In general cropmark formation tends to be most prolific over light, freely draining soils over sands and gravels, where the soil-moisture deficit has the most rapid and pronounced effect on the overlying crops. Much of the project area is covered by deep, sandy, acidic soils of the Newport 4 Association, which have proved to be highly conducive to the formation of cropmarks, although not universally so. The slightly more fertile, less acidic Newport 2 soils, which border the Newport 4 soils throughout much of Mapping Bocks 2 and 3, have also been productive of cropmark sites (see discussion in Section 4.10). While many of the gaps in the distribution of cropmark sites can be correlated with modern plantations or heathland cover, there is still a clear concentration of such sites in Mapping Block 3, and a relative scarcity within Block 1 (Fig. 3.1). This could reflect more nuanced, local variations in soils and geology, differences in land use (for example, the types of crops grown), or the targeting of aerial photograph reconnaissance along the River Deben towards Sutton Hoo; most probably a combination of all these factors has played a part.

The distribution of earthwork sites, whether levelled or extant, also varies across the project area (Fig. 3.2). The variations are difficult to analyse quantitatively, as there are considerable differences in the extent and nature of the sites, but it is clear that there is a preponderance of such sites in Mapping Block 1, and in the northeast corner of Block 2. The latter is the location of the very extensive Second World War Orford Training Area, accounting for the seemingly unbroken spread of surviving earthwork sites; in reality, the surviving features are relatively few and widely spread. In Mapping Block 1, the high density of earthwork sites – equivalent to 39% of all such sites across only 23% of the project area – is likely

to reflect both the considerable amount of heathland in the block, combined with the high incidence of 20th-century military defences recorded; approximately 55% of the extant and levelled earthwork sites recorded in the block relate to 20th-century military activity, principally dating to the Second World War. In general, across the project area as a whole, there seems to be a correlation between earthwork/levelled earthwork sites and former/extant heathland; this is discussed in more detail in Section 6. There is no obvious correlation of earthwork sites with soils.

Some areas were encountered where geology could easily be confused with archaeology. For example, Figure 3.3 shows cropmarks in the parish of Boyton in Mapping Block 3. Here periglacial frost cracks or ice-wedge features had previously been recorded as a possible prehistoric field system (BOY 002), and some of them are easily confused with archaeological features; for others an archaeological provenance cannot be ruled out, especially given their proximity to more convincingly archaeological cropmarks, including some that are Scheduled (HLY 005).

3.3 Topography and Land Use

The topography of an area and its land use (which are often related) can both have a significant impact upon the existence, survival and visibility of archaeological sites. Some topographic and/or land use settings will have been preferred or avoided in the past, for settlement, burial or land division, for example. Alluvial deposits within valleys, and undisturbed heathland vegetation, pasture or parkland can favour the survival of sites, while sites on light arable soils and exposed hilltops and ridges may be more affected by ploughing. In terms of visibility, the alluvial deposits protecting valley sites may also mask them, making them impossible to detect using conventional aerial photography, while ploughing may make sites visible as cropmarks or soilmarks, under the right conditions.

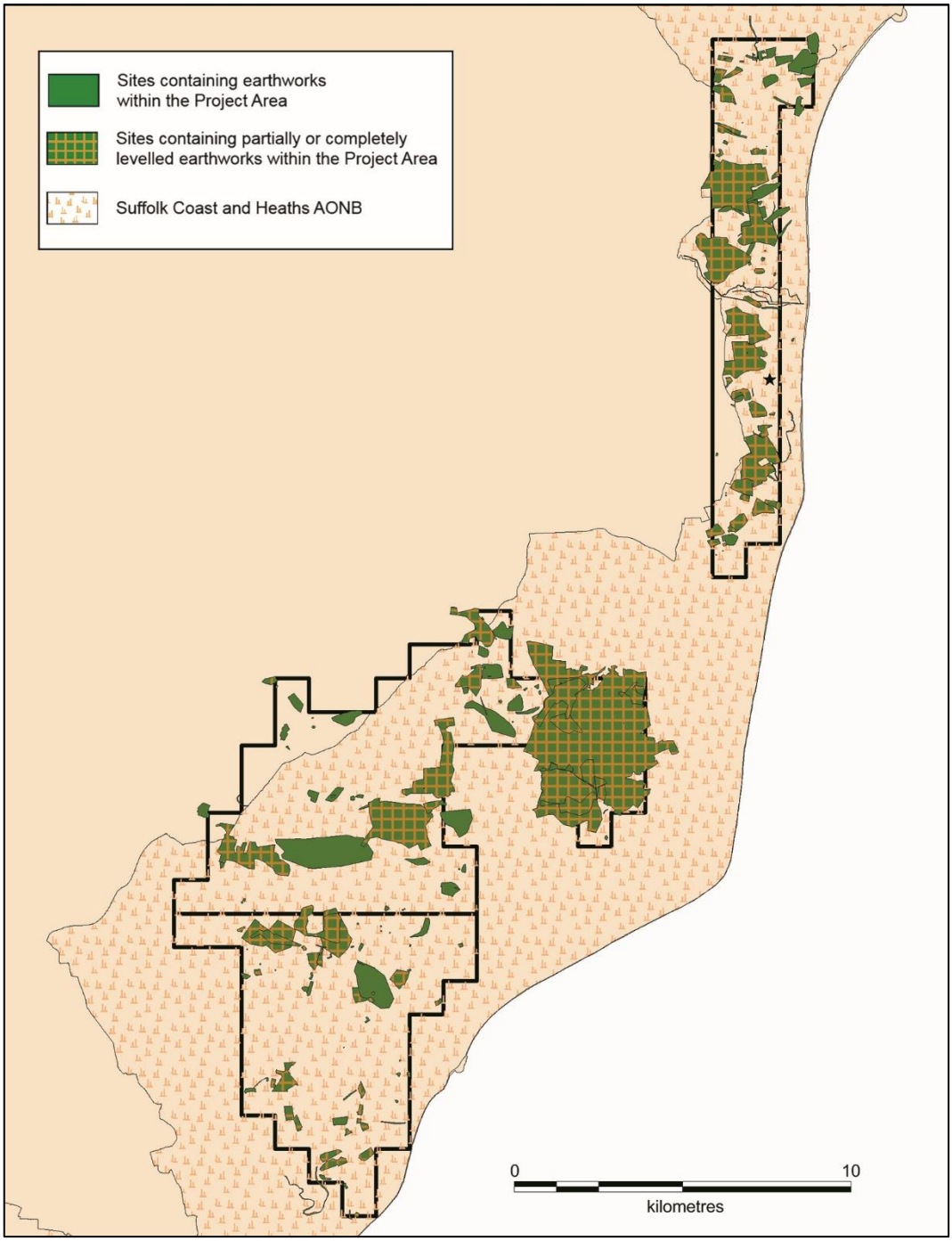

Figure 3.2. The distribution of earthwork/levelled earthwork sites recorded by the project. AONB outline © Natural England copyright 2016. Contains Ordnance Survey data © Crown copyright and database right 2016.

As with all NMP surveys, all these processes are likely to have affected the results of the project. For topography, this is not, however, particularly apparent from the distribution of recorded sites. For example, even cropmark sites have been recorded extending onto the marine alluvium of the valley bottoms. This is perhaps itself a reflection of the topography of the project area, which is generally

muted, often plateau-like, and skirts both the coast and most major river valleys. Land use has undoubtedly played a much larger role in affecting the results of the survey, with heathland, and to a lesser extent modern plantation cover (often located on former heathland), strongly influencing the siting, survival and visibility of earthwork sites in particular. Heathland was particularly attractive for siting 20th-century military defences and activity, including extensive training areas, as at Orford and Woodbridge. Both types of land use contribute to the survival of earthwork sites, by restricting ploughing; however, both heathland vegetation and particularly tree cover can render archaeological features invisible from the air. Conversely, the central and southern portions of Mapping Block 3, which had comparatively little surviving heathland even in the 1930s, and where the dominant land-use is arable, are almost entirely covered by cropmark sites.

Another way in which heathland has affected the results of the mapping is in the frequent lack of control points to use for rectifying photographs. This was a regular problem in mapping the heathland areas, and will have undoubtedly affected the accuracy of the mapping in these areas. This was less of a problem where features were visible on lidar or some of the digital vertical photography, when rectification was not necessary. There were also issues with the accuracy of some of the OS MasterMap mapping; this again could sometimes be solved by using a modern, geo-rectified vertical, in this case substituting it for the OS base map.

The relative existence, visibility and survival of sites on extant and former heathland across the project area is discussed further in Section 6.

3.4 Aerial Reconnaissance, Photo Coverage, Lidar and Previous Archaeological Work

The date, distribution and density of aerial photographs has a significant impact upon the results of any NMP project. The project consulted several photographic collections in order to ensure the best possible photographic coverage, but coverage was not even across the project area. It was not always certain that all available coverage had been viewed, as some of the SCCAS collection is unaccessioned.

Figure 3.3. A mixture of possibly archaeological and periglacial cropmarks visible as cropmarks at Boyton. SFU 11550/24 25-JUL-1975 © Suffolk County Council.

Most of the photographs consulted were vertical photographs, and included, amongst others, surveys by the RAF and OS, and the photo mosaics on Google Earth (see Appendix D2). These sources provide large area cover but most were taken for non-archaeological purposes and so were not always taken in optimal conditions for the study of the historic environment. Mapping Block 1 contained the highest level of vertical coverage, a consequence of dense coverage of the coast, particularly during the Second World War, but also much from the 1950s and 1960s. This may in part have contributed to the large number of sites recorded by the NMP survey in Block 1 (see Section 4.1 below); for example, the great quantity of photographs dating from the Second World War probably

facilitated greater numbers of sites from that period being recorded, and in greater detail. Mapping Block 2 had the lowest coverage of HEA vertical prints, and the lowest density of NMP sites.

The specialist oblique collections mainly provided good quality archaeologically focussed site-based aerial photographs. As with any source, the archaeological record derived from oblique aerial photographs depends on a number of factors. Results can be affected both by the visibility of sites from the air – for example, ground conditions affecting the formation of cropmarks – and whether or not what is visible is seen or recorded, dependent on weather conditions or the experience of the photographer/observer, for example.

The number of available photographs does not, therefore, necessarily correlate with the number of sites identified; a few good photographs from a 'cropmark summer' or a single clear vertical photograph of a Second World War military installation can be more useful than hundreds of non-specialist obliques or verticals taken at an unsuitable time of day or year. In practice, however, the quantity of photographs for a given area will in general be translated into a greater or lesser number of archaeological sites being recorded, and may also affect the amount of detail recorded at each site. This is particularly the case for sites visible as cropmarks, which are highly dependent on the right ground conditions and crop growth for their formation and visibility.

Mapping Block 3 possessed the greatest coverage of specialist oblique photography. Its arable landscape and light soils make it conducive to the formation of cropmarks, and it may have been targeted for reconnaissance for this reason. Furthermore its location on the River Deben, downstream of Sutton Hoo, may also have meant that air photographers flew the area more often, meaning that opportunities to photograph cropmarks (or other sites) in this area were more frequent than they might otherwise have been. Nevertheless, while many of the Block 3 cropmark sites are recorded on specialist oblique photographs, often from several years, many others, and particularly the intervening areas of field system and trackways between the 'honeypot' enclosure sites, appear only on non-specialist oblique surveys. The May 2011 layer on Google Earth proved particularly productive, as did a Cambridge University Collection of Aerial Photography (CUCAP) vertical survey from June 1982. There is a need for further specialist photography of this area, and/or non-specialist vertical photography flown under optimal conditions for cropmarks to

form. Such work would enable gaps to be filled and elements that were only partially visible to be mapped in more detail. For example, a field at Hollesley, containing the cropmarks of multiple, multi-phase enclosures (HLY 158), was only clearly visible on a single low-level CUCAP oblique taken in 1976; this lacked enough control points for accurate rectification, and failed to show the entire field.

In terms of the date of photography, the availability of both specialist and non-specialist photographs taken under fortuitous conditions has clearly aided in the identification and interpretation of sites. As just described, oblique and vertical photographs taken during 'cropmark summers', including 1976, were invaluable in mapping numerous cropmark sites, particularly in Block 3. More obviously, the very small number of pre-Second World War photographs available presented problems in identifying First World War or inter-War sites. This is reflected in the small number of such sites identified, when compared to the very large number of Second World War sites recorded (see too Section 4.9). Conversely, recent aerial reconnaissance by Historic England at Rendlesham contributed greatly to the NMP mapping and interpretation of the site. At the same time, Google Earth imagery was also of great value, as was the geophysical survey that had taken place. The results for Rendlesham are discussed in detail in Section 5.

Environment Agency 2m resolution lidar data was available for most of the project area, with higher resolution data available in some places. DTM datasets were used in preference to DSMs, where available. The lidar proved most useful in areas of plantation, such as Dunwich, Tunstall and Rendlesham Forests, and heathland. Notable sites recorded include earthworks within Staverton Park (WNN 027), which perhaps pre-date the medieval deer park (WNN 008) (these were also visible on infra-red photographs), and additional earthworks at the site of a probable medieval and/or post medieval enclosure within Grove Wood, Bawdsey (BAW 030). As with many sites recorded from lidar alone, ground truthing would be beneficial to establish the precise character of the features visible in the data. For example, several possible round barrows were identified from the lidar, but these could potentially represent mounds of vegetation or similar, non-archaeological features. Trial visualisations created by Simon Crutchley (HE) for a single grid square – TM4567 – demonstrated the usefulness of multiple visualisations, with different elements of a possibly medieval field

system on Westleton Walks heath (WLN 061) being more or less visible on different visualisations, depending the orientation of the light source, *etc*.

Other than Rendlesham, previous archaeological work in the area, including transcription from aerial photographs, was limited. A survey of aerial photographs for the Sizewell C Development Area had identified numerous cropmarks of potential archaeological significance (Richmond 1994), but most of these were dismissed as being of geological and/or modern agricultural origin by the NMP survey.

4. Summary of Archaeological Results

4.1 Overall results

The project created 446 new records in the SHER and amended 233 existing records; in total, the records relating to 677 individual 'sites' were created or enhanced. Although the ‘new’ records include a small proportion of previously recorded sites that were split into separate elements and renumbered, this still represents a very significant number of archaeological sites and landscapes recorded for the first time. Prior to the project starting the SHER had mapped 856 sites within the project area. The project results therefore represent a 52% increase to this record.

The results vary across the project’s mapping blocks, in terms of the number of sites recorded, their density and the percentage increase to the SHER (see table below). The greatest density of sites (6.6 per sq km) was recorded in Block 1, which encompassed a narrow strip of the coastal margin between Walberswick and Aldeburgh. This area also saw the greatest increase to the SHER (68%). The density is in part a reflection of the large number of amended records for the block, itself the consequence of a previous survey of aerial photographs for the Sizewell C Development Area (Richmond 1994). More significantly, both the density of sites and the percentage increase reflect the extensive 20th-century military activity in the area, much of it not previously recorded by the SHER. A considerable number of sites relating to undated, fragmentary cropmarks, soilmarks and earthworks was also recorded. The relatively low density of NMP sites across Block 2 is probably a reflection of the modern plantations – Tunstall Forest and Rendlesham Forest – that cover substantial parts of the block. It may also reflect a relatively poor visibility of cropmark sites, whether due to subtle variations in soil type, or variations in coverage by specialist aerial photography. The relatively low percentage increase to the SHER in Block 3 correlates with the large number of SHER sites that already existed for the area. This area also contained extensive cropmark sites, often resulting in a single site encompassing a large area and numerous archaeological features, rather than multiple smaller sites.

Mapping Block	Area (sq km)	Existing SHER Records (mapped)	Total NMP 'Sites'	New NMP Records	Amended NMP Records	Increase to SHER	NMP Site Density
Block 1	33	182	219	123	96	68%	6.6 per sq km
Block 2	67	310	205	160	46	52%	3.1 per sq km
Block 3	44	364	253	163	91	45%	5.8 per sq km
Project Overall	**144**	**856**	**677**	**446**	**233**	**52%**	**4.7 per sq km**

For sites recorded within the NRHE (formerly the National Monument Record) the increase is even more striking. At the start of the project, the project area contained 165 NRHE monument records of which only 52 correlate with a site recorded by the project, whether new or amended. Across the project area, therefore, a total of 625 new NRHE sites have been recorded, equating to an increase of 379%.

Unless otherwise stated, the sites referred to in the text relate to parish codes in the SHER (*e.g.* BLN 029). Those with the prefix 'NHER' relate to records in the Norfolk Historic Environment Record.

4.2 Neolithic Sites (4000–2351 BC)

As is typical of the aerial photographic evidence for this period, the record is dominated by 'monuments', *i.e.* funerary and/or ceremonial sites. Within the project area, even these are scarce, and their dating often uncertain.

Within Mapping Block 1, the only sites recorded as being of possible Neolithic date were a ring ditch at Theberton (THB 011), for which a Bronze Age date is equally if not more likely, and an oval mound of uncertain archaeological significance at Leiston (LCS 198). Within Block 2, seven sites were recorded with a very broad prehistoric, prehistoric to Roman, or prehistoric to post medieval date range, but none were recorded as being of exclusive or even probable Neolithic date. Most of the records relate to field systems, trackways and enclosures, which are difficult to date on the basis of morphology. These could have developed over a long time period, and while a Neolithic origin cannot be

ruled out for some elements, most of the sites and the features within them very probably date to later periods. One site (SUE123) included a possible ring ditch, perhaps a Neolithic or Bronze Age round barrow.

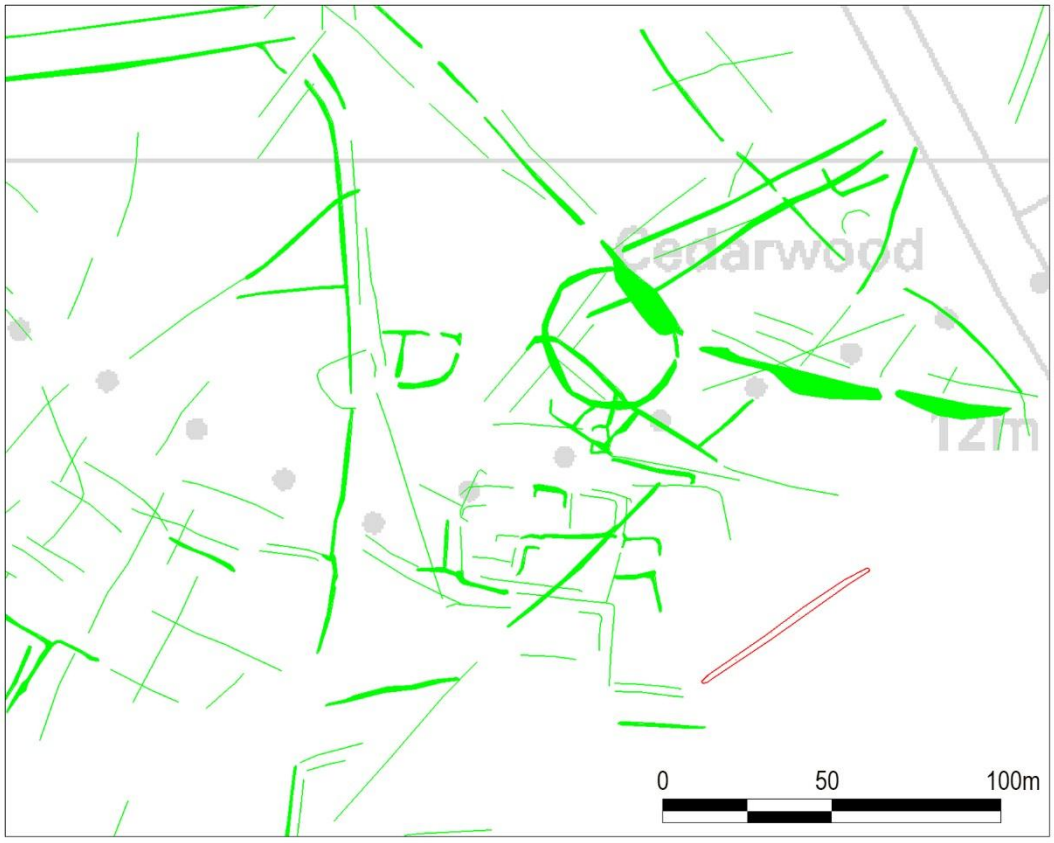

Figure 4.1. A sub-circular enclosure or polygonal enclosure of possible Neolithic date at Hollesley (HLY 154), co-located with a (conjectured to be later) trackway and farmstead (ADT 099).

In Block 3, a much larger number of potential Neolithic sites was recorded (26), together with more substantial evidence of possible Neolithic (or Neolithic to Bronze Age) activity. At least ten sites were recorded where a Neolithic date was thought plausible or even likely. These include the cropmarks of four oval or round barrows, or possible mortuary enclosures (RMS 008, STT 021, HLY 160 and HLY 153), comparable to examples mapped in Norfolk and elsewhere in Suffolk. The earthwork of a further possible oval barrow (SUT 262) was mapped south of Longwalk Plantation, Sutton. On the eastern edge of Block 3, a double concentric pit or post circle (BOY 068, part of BOY 013), was identified by the earlier Suffolk Coastal NMP Project (HE Project 2912). Two enclosures of possible Neolithic date were also recorded, again from cropmarks. At Ramsholt, an irregularly-shaped enclosure (RMS 007) was recorded amongst the more

extensive cropmarks of a field system and several trackways (RMS 006), at least part of which appeared to either pre- or post-date it. At Hollesley, a large (42m diameter) sub-circular or polygonal enclosure (HLY 154) was visible (Fig. 4.1). Given its size and morphology, it could be interpreted as relating to a hengiform monument of the later Neolithic to early Bronze Age. Alternatively the enclosure could instead have defined a large Neolithic or Bronze Age round barrow or similar funerary/mortuary monument, or relate to later prehistoric domestic activity. The northeastern side of the enclosure is either overlain by, or incorporates, the route of a braided trackway (ADT 099). The ditches relating to a possible enclosure or farmstead (also ADT 099) also overlap with the site. Excavation would be required to establish the sequence between all of these components.

Figure 4.2. Possible hengiform monument(s) and round barrow cemetery at Home Whin Farm, Shottisham (STT 064), overlain by a presumably later field system (STT 065). NMR 4578/19 28-MAY-1990 © Crown copyright. HE.

The most substantial site of possible late Neolithic date or early Bronze Age date mapped by the project was the Scheduled round barrow cemetery and hengiform monument(s) south of Home Whin Farm (STT 064, STT 004, STT 008; Fig. 4.2). The site comprises the cropmarks of at least two hengiform monuments, three

large and one small ring ditch, and a further large ring ditch to the west. The NMP mapping provided additional information about the location and character of the hengiform monument(s) and barrow cemetery, including the identification of further possible ring ditches to the northeast (STT 016) and further levelled mounds to the west (STT 066). The area was later (presumably) occupied by a field system (STT 065), perhaps of Bronze Age or later prehistoric date. This was laid out with some degree of respect for the earlier barrows and hengiform monuments, which must have remained as earthworks, at least in part. The NMP mapping illustrates how this field system extends into the surrounding landscape, with new elements such as STT 077, north of Home Whin Farm being recorded. It is now far clearer that this later phase of the site forms part of the extensive multi-period cropmark landscape visible across much of the peninsula between the Deben and the coast. This broader landscape is discussed in greater detail in Section 4.10.

The remaining sites of possible Neolithic date in Block 3 principally comprised enclosures, trackways and field systems, generally of unknown, but postulated prehistoric or later date; for these, a Neolithic is origin is possible but entirely speculative, and in most cases a later prehistoric date is more probable. Mention should also be made of a Scheduled site, SUT 020. This was originally interpreted as a possible Neolithic long barrow but had been reinterpreted, prior to the NMP survey, as more probably a medieval to post medieval pillow mound. The mound has been suggested as having been a ‘clapper’ – a breeding enclosure – within the wider warren by Williamson (2008).

4.3 Bronze Age Sites (2350–701 BC)

As for the Neolithic period, the record of Bronze Age sites was again dominated by funerary/ceremonial sites. In contrast to the Neolithic period, sites recorded as being of possible Bronze Age date were far more numerous, and their dating to that period more certain.

Of the 145 sites of possible Bronze Age date recorded, 87 (60%) relate to ring ditches or mounds, interpreted, with varying degrees of certainty, as round barrows. The vast majority of these were presumed to be of Bronze Age date, although in some cases an alternative (Neolithic) or later (Roman, Anglo-Saxon or medieval to post-medieval) date was also postulated. The site of one mound at Blythburgh (BLB 106), was interpreted as being more likely to represent the site

of a medieval and/or post medieval windmill mound, rather than a round barrow. This possessed a wide external ring ditch, and evidence of internal pits or post-holes. A single ring ditch, visible as a cropmark amidst undated field boundaries and/or enclosures at Butley (BUT 066) was interpreted as a possible roundhouse. At Sizewell, a considerable number of cropmark sites (on average 10 sites per sq km), had been recorded prior to the start of the project (Richmond 1994); a large number of these were identified as ring ditches. Very few of these sites were recognised by the NMP survey; most were reinterpreted as cropmarks of geological or recent agricultural origin.

Within Mapping Blocks 1 and 2, of the sites that were thought to probably be Bronze Age round barrows, a considerable proportion (71%) were recorded as possessing mounds, often still surviving as earthworks. Some of these were sites that had been recorded previously, a number of which are Scheduled. Others, particularly in Block 2, were recorded only from lidar imagery, often within areas of recently-felled forestry. The archaeological significance of these latter features was much less certain; site visits to verify their existence or survival on the ground would be beneficial. In Block 3, however, the very large proportion of cropmark ring ditches recorded – 47 sites compared to only 9 earthwork sites – reduced the average of those with evidence for a mound to only 36% for the project overall.

Eight sites were recorded as barrow cemeteries. In Block 1, four mounds were newly recorded in a broadly linear arrangement, aligned north-south, on heathland at Westleton (WLN 068). In Block 2, in Tunstall Forest, the earthwork of a large barrow mound had previously been identified on the ground (TUN 010), but a second possible barrow and a possible bank or elongated mound were identified by the NMP survey. Again at Tunstall (TUN 005), a small earthwork mound had previously been recorded during ground survey, but the project identified a further three possible mounds in close proximity. A group comprising three mounds was newly identified at Bromeswell (BML 042). All the new mounds relating to the possible barrow cemeteries just described were identified on lidar imagery alone, and the precise nature of the features and their archaeological significance is not certain. As described above, ground survey to better establish the existence and nature of these features is recommended.

In Block 3, only one of the four cemeteries recorded contained extant earthworks. This was the group of five surviving Scheduled round barrows on the southern

edge of Sutton (SUT 001). Here, in addition to the previously recorded barrows, a further two possible mounds were mapped, primarily from lidar imagery; these would benefit from ground truthing to establish their precise nature. The remaining three cemeteries were all recorded from cropmarks, and included the large group to the south of Home Whin Farm described above (Section 4.2), which included up to two possible hengiform monuments (STT 064). A far greater number of cropmark ring ditches was recorded in Block 3, either singly or in small groups. While many of these may represent the remains of ploughed out barrows, a considerable number might instead be the remains of prehistoric round houses. In certain cases (not included in the totals above) a domestic function is clear from their size, and location within enclosures and/or areas of settlement (see Section 4.10 for further discussion). A few of the ring ditches recorded could relate to non-Bronze Age features; for example, at Bawdsey, a ring ditch or circular enclosure with possible internal features (BAW 192) is co-located with a circular area of 13th to 14th century finds (BAW 014).

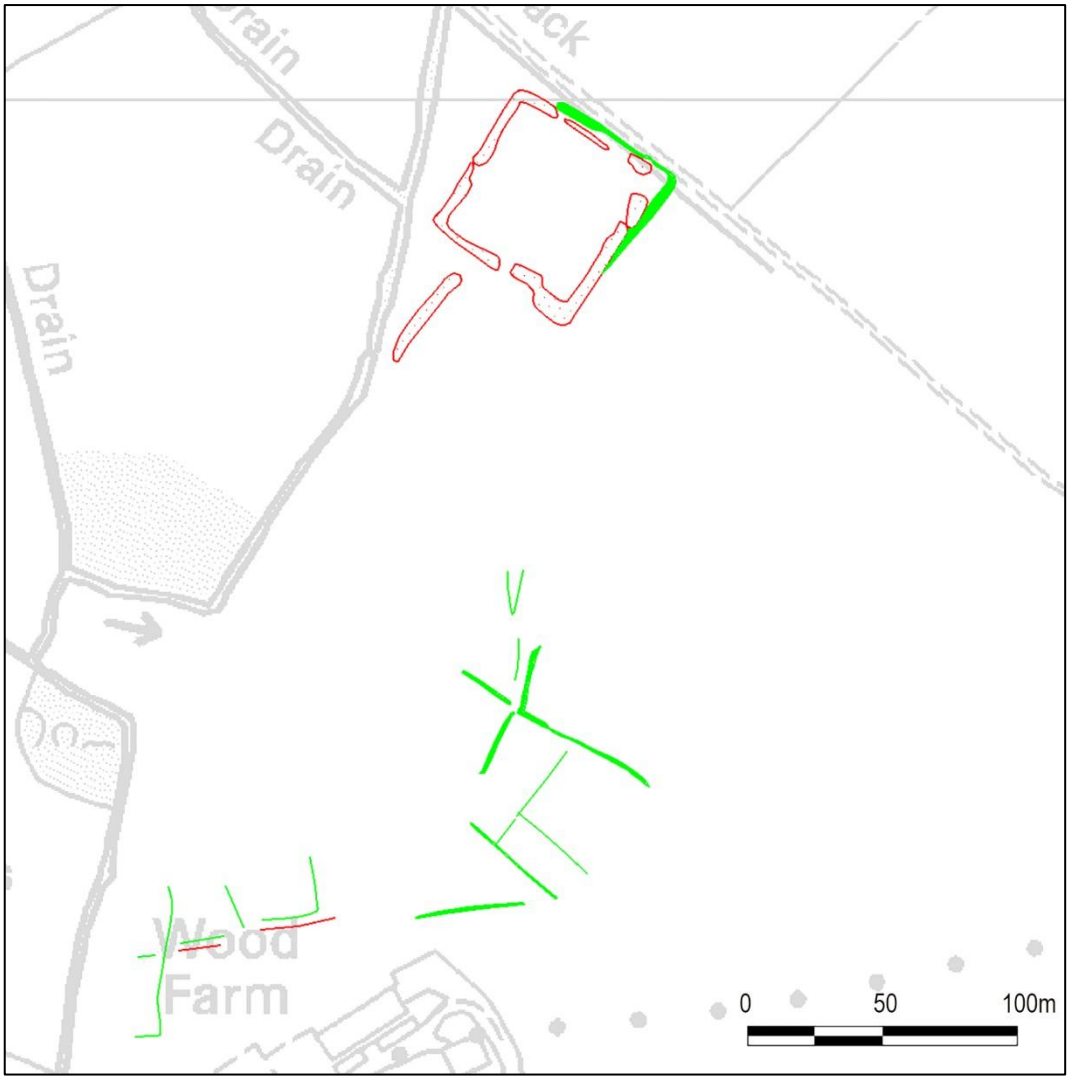

Figure 4.3. An enclosure (IKN 014), reminiscent of Middle Bronze Age enclosures identified elsewhere in eastern England.

A smaller proportion of the Bronze Age sites recorded by the project are classified as non-funerary/ceremonial. There is a clear variation within the distribution of such sites across the project area, with only one (an enclosure, LCS 214) recorded within Block 1, eight in Block 2 and 45 in Block 3. Three of the latter are the possibly Neolithic enclosures and double concentric pit or post circle described above (Section 4.2), and are arguably related to funerary and/or ceremonial activity, rather than domestic (to whatever extent this distinction can be meaningfully made). However, this is still a considerable variation; proportionally it equates to only 6% of the Bronze Age sites in Block 1 being non-funerary/ceremonial in nature, 32% of those in Block 2 and up to 43% in Block 3. The majority of the non-funerary/ceremonial sites are field systems, enclosures and trackways, recoded as discrete features or as a group, usually undated, and

with long potential date ranges, from the Bronze Age to the Roman period, or even the post medieval period. These multi-period sites are discussed in more detail in Section 4.10, with particular reference to the extensive cropmarks mapped in Block 3. The mapping from Block 3 includes a considerable density of settlement evidence, including round houses contained within enclosures. It is very likely that a proportion of these sites are of Bronze Age date, but at present an absence of any firm dating evidence makes it difficult to assign anything other than a broad, prehistoric to Roman (and sometimes later) date range.

Nevertheless, there are a few sites where a Bronze Age date seems more probable. At Butley, an area of enclosures, field systems, boundaries and trackways is visible as cropmarks (BUT 004). Although these are undated, finds from the area attest to a significant level of prehistoric activity at the site, in particular during the Bronze Age, and settlement during the period seems likely. At Iken, a square embanked enclosure was mapped that had previously been interpreted as a possible moat (IKN 014; Fig. 4.3). Although no corroborative dating evidence has been recovered, the enclosure bears a superficial resemblance to Middle Bronze Age enclosures typically found in low-lying positions on the edge of wetlands, along the Cambridgeshire fen edge, for example, or at Ormesby St Michael in the Norfolk Broads (Gilmour et al. 2014). The Iken enclosure lies adjacent to the River Alde, on the edge of its floodplain, but is smaller and less substantial than the Ormesby St Michael site. A second site reminiscent of Middle Bronze Age enclosures known from elsewhere was mapped at Alderton (ADT 109). Here a rectilinear enclosure complex is visible as cropmarks, the morphology of which bears striking similarities to Middle Bronze Age enclosures excavated at Fordham Road, Newmarket (NKT 047; Rees 2014). A triple-ditched enclosure, containing two roundhouses, at Hollesley (HLY 164), is also a good candidate for a Bronze Age, possible Middle Bronze Age, settlement site, but a later, Iron Age to Roman date, cannot be discounted.

4.4 Iron Age Sites (800 BC–AD 42)

The problems of distinguishing between later prehistoric, Iron Age and Roman domestic enclosures and agricultural landscapes has been discussed in detail in other NMP reports (for example Albone *et al*. 2007a). Of the 88 sites recorded by the project as possibly containing an Iron Age element, only one is known to be securely of Iron Age date: a curvilinear or D-shaped enclosure at Rendlesham,

(RLM 073; see Section 5). Most are recorded with a broad later prehistoric, or late prehistoric to Roman, date. As with sites of possible Bronze Age date, there is a marked variation in the density, and to a lesser extent character, of the Iron Age sites across the project area.

In Block 1 only four sites of possible Iron Age date were recorded. Two of these were Iron Age and/or Roman 'red hills' or saltern mounds, one of which (LCS 182) was newly recorded (although a 'ring ditch' had previously been identified in the same field). Two sites of undated, but possibly Bronze Age to Roman or Iron Age to Roman enclosures and boundaries were also identified, located only 550m apart, in the parish of Leiston. The northern site, LCS 059, is discussed below (Section 4.5). The southern site, LCS 214, comprised part of a double-ditched rectilinear enclosure and associated boundaries ditches and trackways.

In Block 2, sixteen sites of possible Iron Age date were mapped, twelve comprising field systems, trackways and enclosures, and four with possible evidence of settlement. Two sites at Rendlesham (RLM 028, RLM 073), one of which has been excavated and proved to be of Middle to Late Iron Age date, are discussed in greater detail in Section 5.

As for sites of Neolithic and Bronze Age date, sites of potential Iron Age date were recorded in greatest number and density in Block 3, where 72 sites (82% of the total) were recorded. The vast majority (54, or 75%) of the Block 3 sites relate to largely undated, multi-period enclosures, field systems, trackways and settlements. A further fifteen sites relate to ring ditches interpreted as possible roundhouses (but often with the alternative interpretation of a Bronze Age round barrow). These sites are discussed in greater detail in Section 5.10, but it is worth remarking that while the project team has previously encountered similarly extensive and complex multi-phase cropmark landscapes, the sheer density of evidence for distinct enclosures and settlement is unparalleled in the areas of north Suffolk and Norfolk covered by earlier NMP projects. A significant proportion of this evidence is likely to date to the Iron Age period, and further investigation and research into this landscape, to elucidate the dating and phasing of different elements, should be seen as a priority. In terms of potential Iron Age sites, particular *foci* could be the Scheduled cropmark enclosures and settlement evidence at Alderton (ADT 001), a previously recorded settlement site at Sutton (SUT 062), and two newly recorded settlement sites at Shottisham and Hollesley (STT 062, HLY 123).

Figure 4.4. A triple-ditched enclosure, of presumed Bronze Age or Iron Age date, visible as cropmarks at Hollesley (HLY 164). It contains two round houses, and is surrounded by the cropmarks of multi-phase trackways and field systems.

In contrast to sites of Neolithic and/or Bronze Age date, none of the sites of potential Iron Age date recorded by the project were thought to be funerary and/or ceremonial in nature. This reflects the difficulty of identifying such sites without the distinctive morphology evident in earlier periods, and also, almost certainly, changes in mortuary practices, which meant that such activity has left relatively few traces that are visible from the air.

4.5 Roman Period Sites (AD 43–409)

As for sites of Iron Age date, it can be difficult to distinguish Roman period sites in the absence of a characteristic morphology, as in the case of a military camp or a villa. The project recorded no Roman military sites or temples, and only one possible villa or farmstead (ADT 035, see below), and a single possible road of Roman (or later) date (EKE 039). Most of the sites of possible Roman date that the project recorded were in fact undated, often multi-phase sites, where a broad late prehistoric to Roman (or even later) date was suggested.

One hundred and three sites potentially dating to the Roman period were recorded during the course of the project. Almost all of these were in fact sites where a broader potential date range was suggested, and many related to boundaries, trackways, settlements, enclosures and field systems already discussed in the Bronze Age and Iron Age sections. A few sites were more characteristic of the period, or had other evidence suggesting or corroborating their postulated Roman date. These included six sites relating to 'red hills' or saltern mounds, located along the coastal margins of the project area. Also, a number of enclosures, boundaries and areas of field system had finds of Roman period material recorded in their vicinity. This was most notable at Rendlesham, where the inter-disciplinary project focussed on the Anglo-Saxon palace site has recovered considerable quantities of Roman material; these sites (for example, RLM 028) are discussed in more detail in Section 5. The cropmarks of a trackway and fragmentary ditches at Leiston (LCS 032) and the cropmarks of enclosures and possible settlement at Eyke (EKE 048) both had significant amounts of Roman period material found nearby. At one site in Leiston, multiphase field boundaries and enclosures were mapped, with an Iron Age to Roman date being postulated for the more regular, rectilinear elements (LCS 059). The findings of a recent evaluation excavation in the northeast corner of the field (LCS 161), which encountered some of the features recorded from the aerial photographs, are consistent with this interpretation, with the correlating features provisionally dated to the Romano-British period.

The only possible villa site was mapped at Alderton, in Block 3. The site consists of a complex areas of enclosures, trackways, and boundary ditches relating to more than one phase of activity, potentially spanning parts of the later prehistoric and Roman periods (ADT 035). The most significant part of the site is a group of enclosures, possibly indicating the site of a farmstead or similar small settlement (Fig. 4.5). The morphology and subdivision of the enclosure complex has some similarities with Roman villa sites, although it must be noted that the cropmarks coincide with the location of a medieval surface scatter (ADT 035/MSF19899) perhaps indicating a later date. The trackways and boundary ditches within the western part of the site are likely to be broadly contemporary with a large swathe of field system and trackways recorded to the north (ADT 099). A second farmstead at Rendlesham (RLM 028), could arguably also be interpreted as a villa in its broadest sense.

Figure 4.5. A possible villa, farmstead or settlement at Alderton (ADT 035).

4.6 Anglo-Saxon Sites (AD 410–1065)

Forty-one sites incorporating an element of possible Anglo-Saxon (early medieval date) were recorded by the project. For many of the sites, however, and as has been seen for earlier periods, the date range given to the sites was extremely broad, and/or any links with Anglo-Saxon activity somewhat tenuous. For example, many of the multi-phase cropmark sites recorded in Block 3 could contain an Anglo-Saxon phase, but interpretation of morphology alone cannot demonstrate this with any certainty. The most securely dated sites are those at Rendlesham, where a multi-disciplinary research project has been investigating the site of an Anglo-Saxon royal palace; these are discussed in greater detail in Section 5.

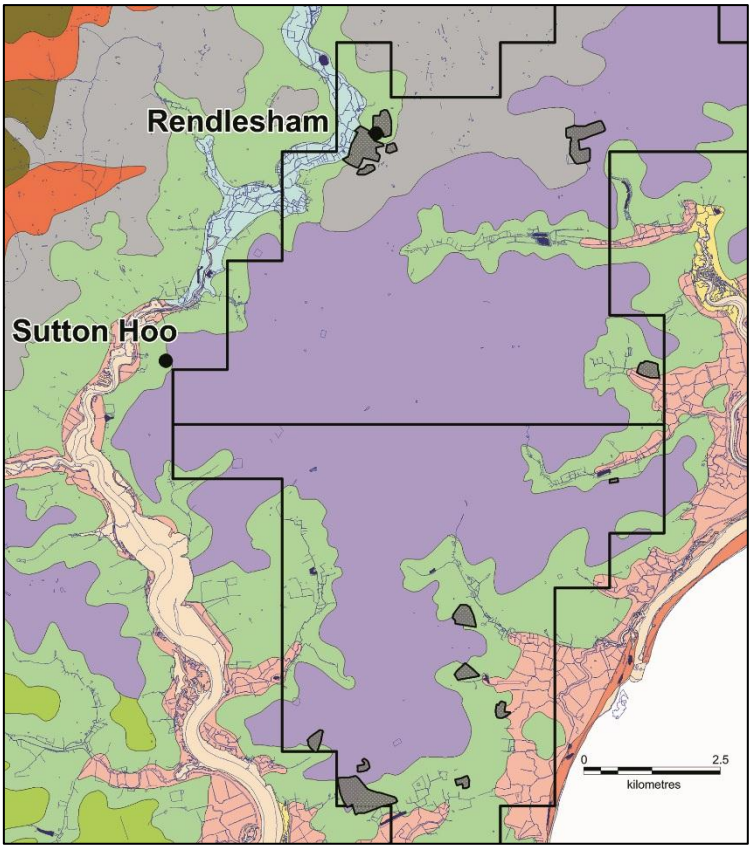

Figure 4.6. The distribution of SFB sites in Mapping Blocks 2 and 3. Shown with hydrology and soils. Soils data © Cranfield University (NSRI) and for the Controller of HMSO 2016.

One of the most distinctive features of the period for aerial archaeology is sunken-featured buildings (SFBs) or Grubenhäuser, although their cropmarks can sometimes be confused with more recent extraction or agricultural pits. A total of fifteen sites with evidence of SFBs were recorded by the project, all located within Mapping Blocks 2 and 3 (Fig. 4.6). This is a considerable number when compared with the results of earlier NMP projects in Suffolk; only two such sites were identified by the Suffolk Coastal NMP project (Hegarty & Newsome 2005, 61-70), none by the ALSF-funded project (Hegarty 2010a; 2010b), and only two further sites by the Lothingland, Greater Lowestoft and North Suffolk NMP project (Ford *et al*. 2015, 28-29). However, the number of sites recorded is not entirely unexpected, given the clear evidence for Saxon settlement and burial in the area (for example, Newman 1992). The also has also been the subject of a high degree of research and reconnaissance, focussed on the high-status sites of Sutton Hoo and Rendlesham, and their environs.

The distribution of the SFB sites is notable, in that they are all located on the edges or at the head of river valleys (Fig. 4.6), and also on or close to the margins of the more fertile, less acidic Newport 2 soils. This conforms to the pattern of Anglo-Saxon settlement described elsewhere (Hegarty & Newsome 2005, 72; Newman 1992). The extent to which the NMP record is biased towards the lighter soils, which are more conducive to the formation of cropmarks, is unclear, but the fact that extensive cropmarks have been mapped across much of Block 3 means that the pattern in this area at least would appear to be at least partly genuine.

Figure 4.7. A complex multi-phase settlement and enclosure site at Hollesley (HLY 006). It includes the cropmarks of several SFBs.

Several of the Block 3 SFB sites are co-located with multi-phase cropmarks of presumed earlier and/or later date. A particularly complex and densely utilised site at Hollesely (HLY 006; Fig. 4.7) has been Scheduled as a consequence of the existence of SFB cropmarks on what was perceived to be an 'RB type "Native Settlement"' (HLY 006 HER record). The cropmarks at the site in fact indicate at least two and possibly more phases of enclosure and settlement, and a Roman period – rather than Bronze Age or Iron Age – date for the earlier phases is far

from certain. Up to nearly 13m long, the biggest SFB cropmarks are somewhat larger than is typical, although cropmarks at Ramsholt included pit-like marks of a similar size also interpreted as SFBs (RMS 060).

4.7 Medieval Sites (AD 1066–1539)

A total of 176 sites were recorded as containing components of known or possible medieval date. Clearly, an analysis of such a large and varied dataset is beyond the scope of this report. A number of highlights, however, are outlined below.

Within Block 1, several areas of field boundaries, enclosures and, in some cases, possible settlement were mapped. They include the cropmarks of a series of possible enclosures of potential medieval to post medieval date, located along the edge of the marshes at Leiston (LCS 189). These could perhaps represent common-edge stock enclosures and ponds; the area was formerly known as Common Fen, and lies close to Leiston Abbey, with which the site could be associated. On heathland at Westleton Walks, several areas of field system and enclosures were mapped, parts of which appear to still survive as earthworks (WLN 060, WLN 061). Further features were mapped from cropmarks and soilmarks visible to the east (WLN 097) and north (WLN 094, WLN 098). A surviving earthwork enclosure, perhaps a stock enclosure, was also mapped on heathland at Broome Covert, Leiston (LCS 023). Possible evidence of former peat cutting was recorded at Aldringham (ARG 006) and Walberswick (WLB 092). More unusual features were part of a causeway linking the 'island' occupied by Leiston Chapel and Abbey to the 'mainland' (LCS 144), and a linear entrenchment on Westleton Heath (and extending onto arable land to the east) that could date from the besieging of Dunwich during a rebellion of 1173 (WLN 093).

In Block 2, the most significant medieval sites include those at Rendlesham (discussed in Section 5), and at Staverton Park (Fig. 4.8). A deer park is thought to have been created at Staverton between the 11th and 13th centuries, potentially as early as 1178 (WNN 008). It is now notable for containing one of the best surviving medieval wood pastures in England (Williamson 2005, 105-108). The project mapped a Scheduled earthwork within it – Cumberland's Mount (WNN 001) – the date and function of which are uncertain, although it does seem to date to the same period as the park, and was perhaps used in the

management and hunting of deer. The NMP mapping has added a possible D-shaped annex enclosure to the southern side of the broadly C-shaped enclosure, and two sections of linear bank to the east and west.

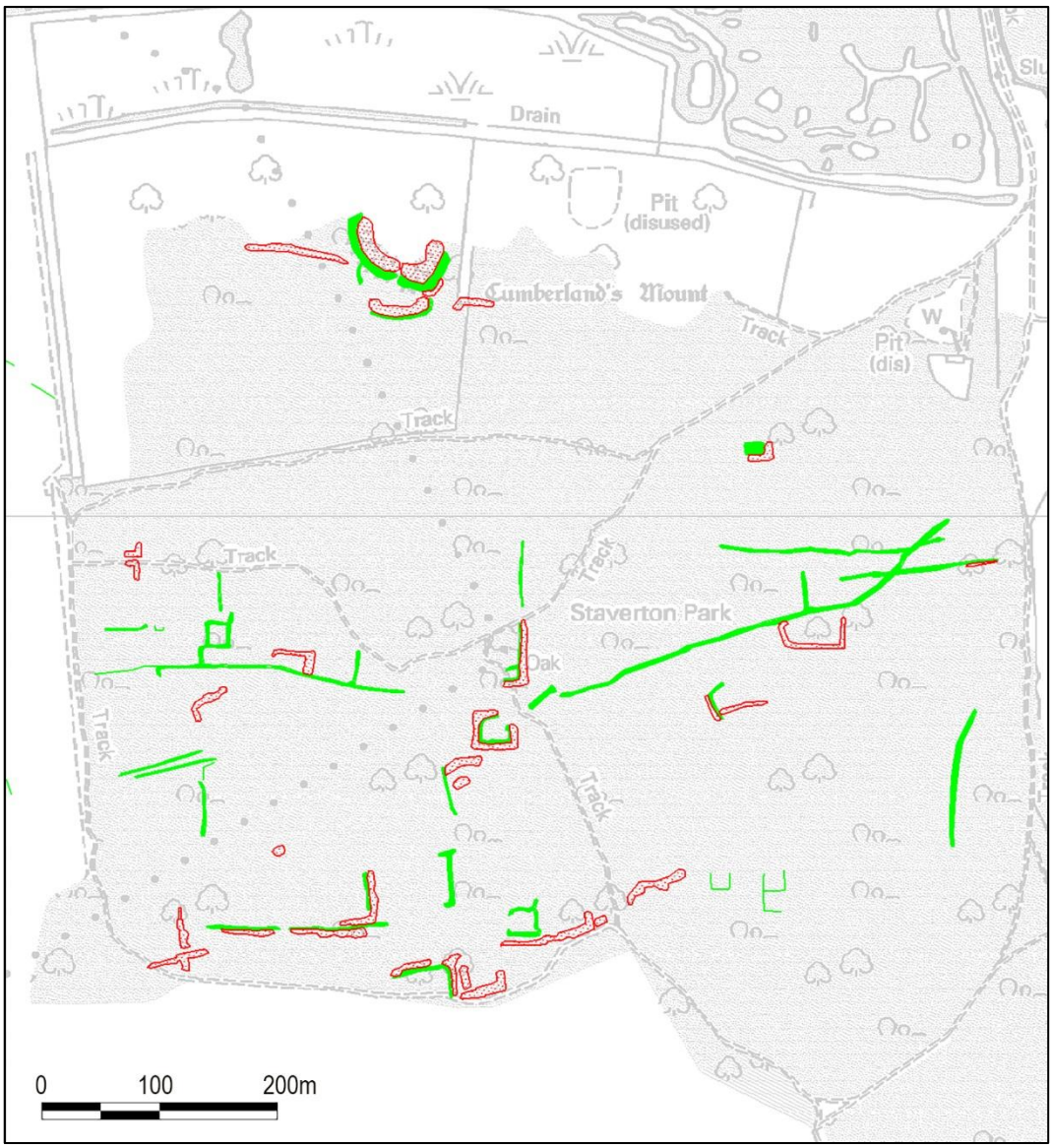

Figure 4.8. Features of known or probable medieval date recorded within Staverton Park (WNN 008).

Also within the park, the project recorded a series of small rectangular enclosures, boundaries and trackways of probable medieval to post medieval date, visible on lidar imagery and infrared aerial photographs within the 'ancient' woodland contained by the park (WNN 027). Their date is uncertain; they could pre-date the park, although it has been postulated by Williamson (2008) that a hunting reserve could have been established here as early as the middle Anglo-Saxon period, associated with the nearby royal residence at Rendlesham. It is

perhaps more likely that they relate to the management of livestock or rabbits within the park; a warren is known to have existed there in the 14th century (*ibid.*). Areas of enclosures and possible settlement were also recorded in the area surrounding the park at Wantisden and Butley (BUT 087, BUT 086, WNN 026, WNN 029), and further to the north (WNN 035) and south, at Capel St Andrew (CSA 031). A rectangular enclosure, formerly interpreted as a moat, was recorded at Butley (BUT 032), and features possibly relating to warrening at Bromeswell (BML 043).

Possible evidence of warrening was also recorded in Block 3, at Hollesley (HLY 021, HLY 127) and at Sutton (the Scheduled site previously interpreted as a Neolithic long barrow, SUT 020). A possible pound was recorded from cropmarks at Alderton (ADT 015), although, as described above, this could instead represent a building, and/or be Roman in date. At Bawdsey, a ring ditch and/or circular enclosure (BAW 192) was mapped that could relate to a Bronze Age round barrow, but the location of which is almost entirely consistent with that of a circular area of medieval, 13th to 14th century, finds (BAW 014). This suggests that it relates to an enclosure or ring ditch of medieval date, perhaps a windmill or similar structure. Also at Bawdsey, a complex of earthworks previously recorded within Grove Wood (BAW 030) were mapped from lidar, being obscured by tree cover on conventional aerial photographs. Additional elements to those already recorded were mapped in the northern part of the site, including a possible northern ditch suggesting a square enclosed area. Finds of 12th to 15th century date recovered nearby suggest the earthworks are medieval, perhaps relating to occupation, warrening or stock management. At Hollesley, the earthworks of a field system are likely to still survive (at least in part) on Upper Hollesley Common (HLY 108). These have been suggested as being of possible 'Napoleonic or earlier' date (HEA Monument Number 1031368), and certainly a medieval to post medieval date seems plausible, although an earlier origin cannot be ruled out. Two areas of possible cultivation ridges were also evident as part of this site, while elsewhere at Hollesley two further areas of ridge and furrow or dole strips were identified (HLY 109, HLY 120).

4.8 Post Medieval Sites (AD 1540–1900)

In total, 210 sites were recorded with a known or possible post medieval date. Many of these are sites where in fact a medieval to post medieval date is

suggested, or multi-phase sites with a very broad potential date range. Again, only highlights can be presented here.

Most of the sites recorded relate to land boundaries (parish, field, wood, *etc.*), field systems and enclosures. This was despite the fact that, in general, post medieval field systems and boundaries were not mapped; in most cases historic maps provided comparable or superior information. Agricultural features dating to this period were usually only plotted when they formed part of a complex multi-period site, where it was hard to confidently distinguish them from earlier components, or where the mapping and recording of these boundaries made the site more comprehensible and facilitated the identification of earlier cropmarks. Those sites that were mapped included the field system of post medieval or earlier date evident as earthworks on Upper Hollesley Common (HLY 108), already described in the preceding section (Section 4.7). Remnants of possibly similar field systems were also recorded in the adjacent parish of Sutton (SUT 238, SUT 271). Features relating to warrening, additional to those already described above for the medieval period, were recorded principally at Sutton (SUT 096, SUT 097, SUT 226, SUT 227) and possibly Eyke (EKE 035). Features relating to landscaping around the project area's more substantial houses were recorded at Sudbourne Hall (SUE 023) and Alderton Hall (ADT 093). A new medieval to post medieval post mill site, comprising the cropmarks of a ring ditch with a central 'cross' mark, was recorded at Sudbourne (SUE 124).

4.9 20th-Century Military and Defensive Sites (AD 1914-91)

As the value of 20th-century military archaeology has increasingly been recognised, the mapping and recording of such sites from aerial photographs has become a routine part of any NMP project. The use of historical photography, where available pre-dating the RAF National Air Survey of 1945-7, means that many features destroyed in the immediate post-war period can be mapped and recorded. The use of historical aerial photographs has had a particular impact on the recording of Second World War sites, as large numbers of contemporary photographs are available, providing a record of the sites when they were actually in use (or very soon after). Large numbers of such photographs were consulted for the project area, concentrated particularly on the coastal fringes and Lowestoft. This is also true of Cold War military sites, although restrictions on over-flying may limit the amount of photography available.

As for many NMP projects, a comparative lack of photographs pre-dating the Second World War meant that very few First World War sites were recorded. Fifteen sites were recorded as being of possible First World War date, of which only five were assigned to this period with any degree of certainty. These were all circular pillboxes, of known or presumed First World War date. The remaining sites were generally areas of undated or Second World War military activity (for example, military training sites), where a First World War date was plausible for some features. They include a site at Alderton (ADT 084), visible in the 1940s as the earthworks of crenelated slit trenches cut around the edge of a former pit. To the immediate west of the site, further sections of crenelated trench, which were not visible in the 1940s, were recorded from cropmarks visible on aerial photographs in 2011. Several small square emplacements were located along the line of the trenches. Their crenelated form, which is characteristic of First World War trenches, together with the fact that parts of the site may have already been destroyed by the 1940s, could indicate that the trenches are of First World War date. However, a date early in the Second World War cannot be ruled out. One of the emplacements, along with some areas of trench, were still extant as late as 1979. However it appears from more recent photography that further expansion and extraction of the quarry pit has largely destroyed the earthworks and the structural remains.

A far greater number of sites relating to the Second World War were recorded by the project. In total, 183 sites of known or possible Second World War date were recorded. A concentration is evident in Mapping Block 1, reflecting the concentration of military sites and activity on the coast. Certain types of site were particularly notable, or particularly dominant. Fifteen sites relating to 'Diver' anti-aircraft batteries were recorded, ten of which lay within Block 1. Multiple areas of military training were identified. These included features on Westleton Heath associated with 'Exercise Kruschen'; constructed in 1943, these were meant to mimic German defences and strongpoints or 'Stunkputz', known as 'hedgehogs' (WLN 073). Parts of the very extensive Orford Battle Area tank training site (ORF 137) and Woodbridge Training Area (SUT 250) were also recorded. Up to three possible Direction Finding (D/F) stations were identified (LCS 206, BUT 074, EKE 041), as were two possible locations for an Auxiliary Unit Operational Base (LCS 164, LCS 184). Two airfields were recorded – RAF Butley/Bentwaters (RLM 047) and RAF Woodbridge (SUT 197). At least one decoy site, and two possible decoy or temporary runways, the latter perhaps constructed as part of training

exercises, were mapped (HLY 124, SUT 213, HLY 098). The crater relating to an aircraft crash site at Sudbourne (SUE 129) was also identified. At least twelve sites relating to anti-landing trenches were identified; these were mainly visible on the heathland areas – extensive, open and relatively flat, they were clearly seen as vulnerable to an airborne invasion.

Figure 4.9. The Second World War and Cold War airfield RAF Butley/Bentwaters (RLM 047). NMR 12647/55 12-APR-1995 © Crown copyright. HE.

The scope of the NMP methodology now includes the recording of military sites dating to the Cold War period (1946–91). The project recorded six relating to Cold War military activity. The two most significant and/or substantial, were RAF Butley/Bentwaters (RLM 047; Fig. 4.9), with its associated military camp (RLM 069), and RAF Woodbridge (SUT 197). At all these sites, the Second World War phase of use was mapped, as many of the Cold War features were depicted on Ordnance Survey maps. Other Cold War sites comprised the Direction Finding

Station at Leiston (LCS 206), a Royal Observer Corps post at Alderton (ADT 076), and a circular bank on Sutton Walks (SUT 226), which is of unknown but possibly Cold War date.

4.10 Multi-Period Sites

Multi-period and/or multi-phase sites were recorded across the whole project area. They are a typical feature of air photo interpretation and mapping projects, where palimpsest landscapes are frequent (particularly in cropmark areas), and dating evidence (other than by morphology, context and analogy) scarce. Such sites were, however, a particular feature of the mapping in Block 3, and have therefore been selected for more detailed discussion here.

The Block 3 mapping can be characterised as fairly large and multi-period cropmark landscapes extending between the River Deben and the coast. The Suffolk Coastal NMP mapping (HE Project 2912), which bordered much of Blocks 2 and 3, had previously indicated the presence of fairly complex prehistoric and Roman field systems and trackways (Hegarty & Newsome 2005). These were clustered around the margins of the project area and were either on, or on the edges of, the deep, well-drained and sandy Newport 2 soils, which are located along the Deben Valley. As initial assessments of the productivity of Google Earth imagery for the more acidic Newport 4 soils suggested (Tremlett & Horlock 2014), these soils offered good potential for cropmark formation under the right conditions and the NMP mapping results for these areas were therefore busy. A change in the character of the archaeology recorded on these more acidic soils was however apparent, probably reflecting the predominant use of that landscape for grazing, woodland and intermittent agriculture, with some evidence for prehistoric settlement and/or enclosure.

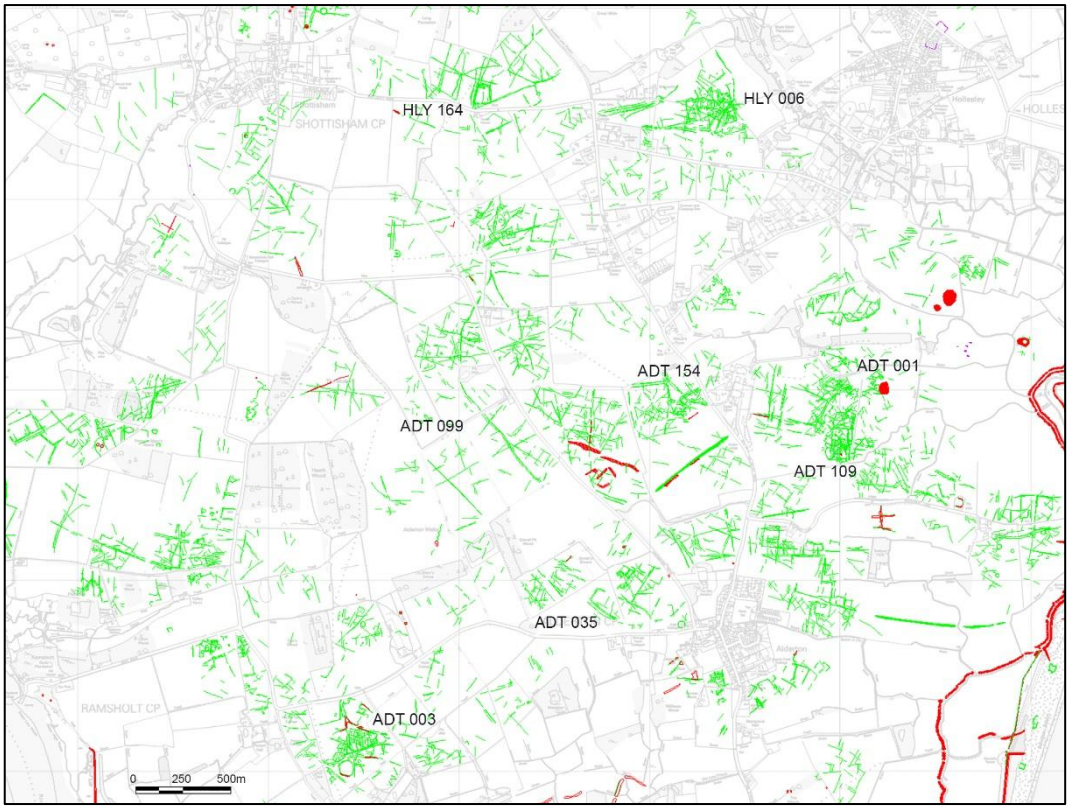

Figure 4.10. The multi-period cropmark landscapes mapped in Block 3.

Landscape approaches to the archaeology of this area of Suffolk (Newman 2005; Williamson 2008) have indicated that settlement throughout prehistory and into the historic period has been dispersed and largely located on the more fertile soils of the Newport 2 Association on the lower slopes of the valley margins, close to water sources and other resources. The poorer, sandier Newport 4 soils are thought to have attracted little settlement, as suggested by the finds distributions for most periods (Williamson 2008), and would have mainly been heathland and to lesser extent woodland, predominantly utilised for grazing. As discussed in more detail below, the results of the NMP mapping for this area largely supports this pattern of land use, although it does highlight some potential variation within the model. The mapping also produced significant new evidence for what had previously appeared to be a 2km long 'blank area', breaking the pattern of settlement spread around the valley margins to the north of Alderton (*ibid.*).

The NMP mapping also fills in some blank areas of the multi-phase field systems previously recorded within the wider environs of Sutton Hoo, mapped as part of the Suffolk Coastal NMP (HE Project 2912). Sutton Hoo site provides one of the few complex and multi-period sites within the area to have seen extensive

excavation (Carver 1998; Hummler 2005; Fern 2015), the results of which indicate the potential complexity and time depth represented by the cropmarks recorded in Block 3, and to a lesser extent Block 2. The Sutton Hoo landscape appears to have been first enclosed during the Early Bronze Age, when a series of boundaries and tracks or droves were established across the promontory and were associated with contemporary settlement (Hummler 2005). These boundaries appear to have been long-lived and were maintained and recut over time. After a period of disuse, a large stock enclosure was constructed of wooden fences or palisades, possibly during in the Middle to later Bronze Age or Early Iron Age (Hummler 2005). The most extensive phase of activity and boundary construction appears to have been during the Middle Iron Age, when a network of coaxial rectilinear fields are thought to have been established across the terrace (Hummler 2005); these have been mapped from aerial photographs (SUT 057; Copp 1989).

Major boundaries and field systems excavated more recently at Tranmer House, to the north of Sutton Hoo, were also assigned an Iron Age date (Fern 2015). However no convincing dating evidence was recovered and therefore it remains a strong possibility that some represent pre-Iron Age fields and divisions. The paucity of finds within these sorts of agricultural boundaries often means that, without the application of scientific dating techniques, the chronologies of the landscapes they represent are hard to establish. The landscape appears to have been cultivated during the Roman period, but no evidence of boundary construction or maintenance, or indeed intensive activity, was recovered during the excavations (Hummler 2005; Fern 2015). The prehistoric boundaries are thought to have persisted as grassed over landscape features into the period of the Anglo-Saxon burials, and were potentially referenced in the siting of Sutton Hoo burials. The persistence of the earlier prehistoric landscape is also suggested in the 'Hogg Earthworks' (SUT 057), originally suggested to be prehistoric, but now reinterpreted as being post medieval. However the aerial photograph mapping suggests that the banks represent several phases and appear to be related to parts of the prehistoric field system, suggesting that at least some are likely to be pre-medieval in date. Williamson (2008) has noted that although the main area of excavated prehistoric fields, located on the poorer soils, do not share any obvious relationship with later boundaries and tracks, the cropmark evidence for the coaxial fields to the west of Sutton Hoo, located on the more fertile soils, does follow the same alignment as later furlongs and lanes.

This suggests a degree of continuance of cultivation and boundaries from prehistory to later periods.

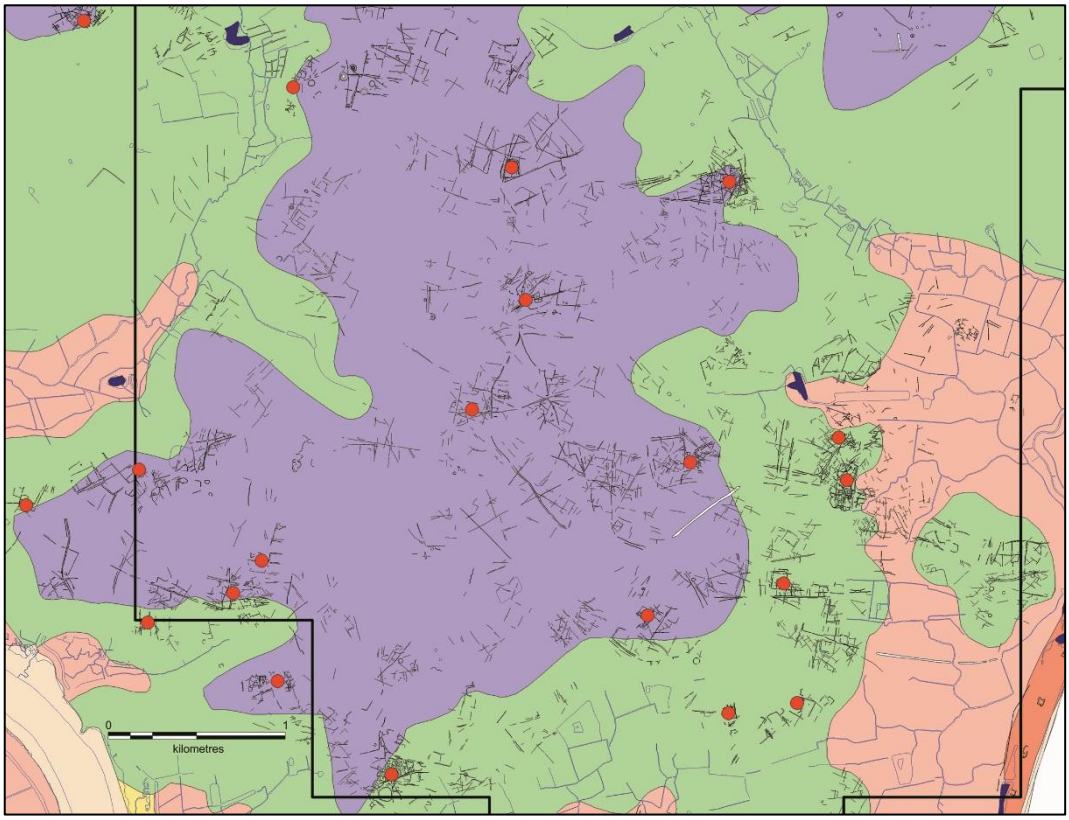

Figure 4.11. Settlement sites in Block 3, shown in relation to hydrology and soils. Soils data © Cranfield University (NSRI) and for the Controller of HMSO 2016.

NMP Mapping of the Shottisham, Hollesley and Alderton Landscape

The complexity of the multi-period cropmark landscape within the parishes of Shottisham, Hollesley and Alderton meant that it could not be interpreted adequately without additional resources and dating evidence. This section will highlight some of the more exceptional sites and provide a brief overview of the types of sites and broad patterns within them. The diversity of the archaeological evidence in this area would undoubtedly warrant further research and investigation of the cropmark sites recorded. The Sutton Hoo excavations clearly reveal the potential time depth of the enclosed landscapes within the project area.

Settlement Sites

The NMP mapping within the project area, combined with that previously completed for the valley margins (HE Project 2912), reveals a pattern of settlements and substantial enclosures located on or near the more fertile soils on the valley margins; as mentioned above, this pattern was previously noted by Williamson (2008).

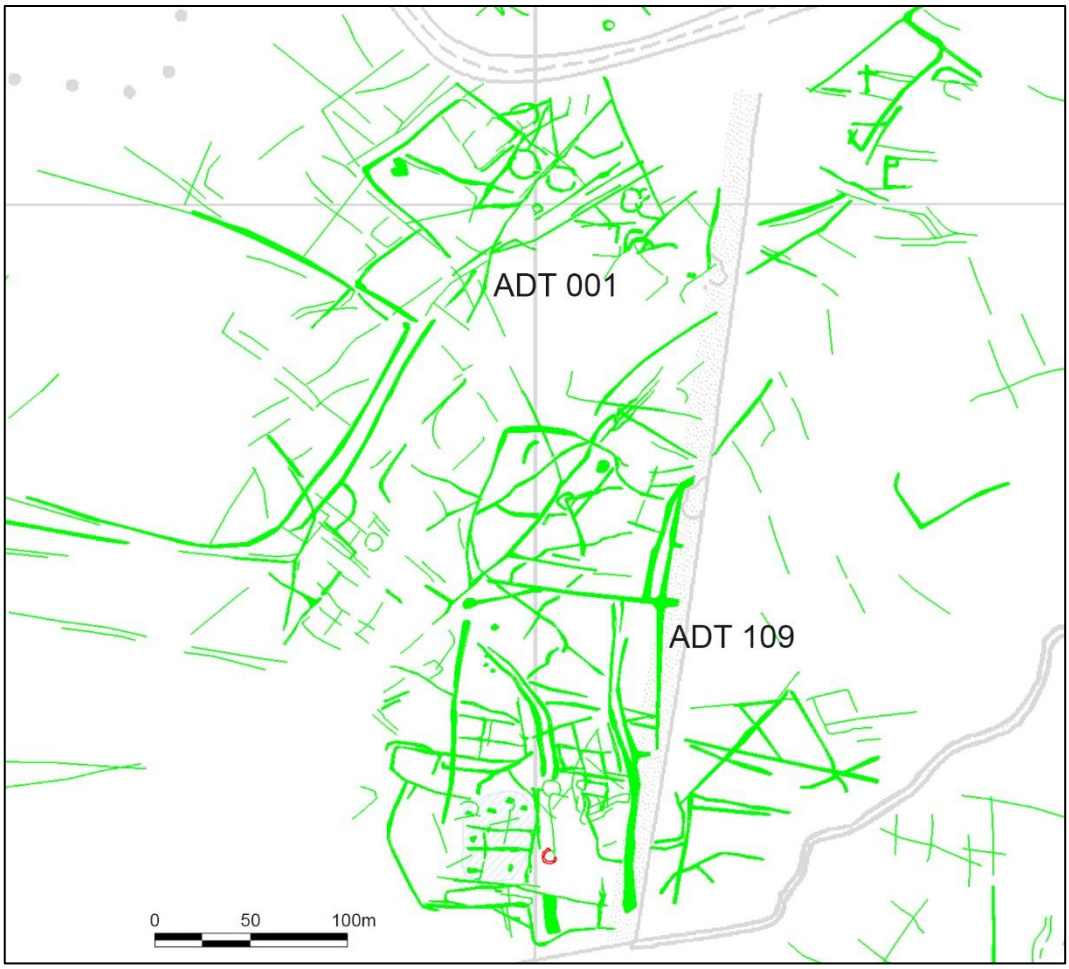

Figure 4.12. The Scheduled multi-period settlement site at Alderton (ADT 001).

The most significant site in terms of heritage protection is the Scheduled cropmark site at Cedar Farm, Alderton (ADT 001/SM SF178; Fig. 4.12). The extent of the site has been extended as part of the NMP mapping and its form and character have been mapped for the first time. It consists of a complex area of enclosures, trackways and fields, with evidence for contemporary structures in the form of round houses. The date of this settlement is unknown but is likely to date to the later prehistoric and/or Roman periods, and is itself likely to represent more than one phase of features.

Enclosures, boundaries and possible structures within the southern part of the site have been separated out and recorded under ADT 109, as they clearly to represent a different phase. This part of the site consists of a broadly rectilinear enclosure complex with quite significant evidence for internal subdivisions, associated boundaries, trackways and possible structures. The presence of large sub-rectangular pit-like features, possible sunken-features buildings, within the southern enclosure could indicate an early medieval/Anglo-Saxon settlement within the site. The cropmarks recorded under this number are aligned more broadly with the medieval to post medieval landscape than the remainder of those still recorded under ADT 001. This part of the wider cropmark complex also coincides with the location of a medieval (15th to 16th century) pottery scatter (ADT 001/ MSF2752). These finds are broadly located in the area of the enclosures and could suggest that this part of the site continued in use until the later medieval period. In the broadest terms the enclosures do share some similarities those identified by geophysics and aerial photographs at the Anglo-Saxon settlement complex at Rendlesham (Section 5). Alternatively these enclosures could relate to a Roman phase of settlement on top of earlier prehistoric settlement (ADT 001) and the medieval finds may be unrelated to the cropmark remains. It is, however, also worth noting the striking similarities between these enclosures and that excavated recently in Suffolk at Fordham Road, Newmarket, which was dated to the Middle Bronze Age (NKT 047; Rees 2014). There are also similarities with other Middle Bronze Age enclosures excavated in Cambridgeshire, for example Clay Farm (Gilmour *et al.* 2014). The discovery of these sites has started to overturn previous assumptions, including the supposition that Norfolk and Suffolk were largely devoid of examples of pre-Iron Age enclosures and fields (Ashwin 2005; Yates 2007). Given the potential importance of the cropmarks recorded, further work on assessing the date, form and survival of this scheduled site should be seen as a priority for further work.

The ADT 001/ADT 109 settlement enclosures, and others recorded in this part of the Alderton parish (Fig. 4.10), are especially significant as they are located in the previously ‘blank’ area of known settlement highlighted by Williamson (2008). The cropmark evidence suggests that this area in fact has a relatively high level of settlement sites, interpreted as ranging in date from the later prehistoric through to probable Anglo-Saxon and medieval settlement, and the blank area may have been a product of variations in the level of archaeological fieldwork and investigation.

One extremely interesting enclosure that stands out as potentially contrasting with this broader pattern with regards its location is a substantial triple-ditched enclosure (HLY 164) located at the Hollesley and Shottisham parish boundary (Fig. 4.4). The enclosure measures 110m by 85m and is surrounded by, and partially integrated within, a much more extensive area of fields, trackways and possibly additional enclosures (HLY 165), itself almost certainly the result of several phases of use over a long time period. Two small ring ditches visible within one corner of the enclosure almost certainly represent round houses, suggesting that the enclosure was used for settlement for at least part of its life. A Bronze Age and/or Iron Age date is suggested for this site, and it may be that excavated and dated parallels for the site exist in Suffolk or the eastern region more widely. There are some potential parallels between the site and two Middle Bronze Age enclosures recently excavated in Norfolk, one at Poringland and another at Ormesby St Michael (Gilmour & Mortimer 2012; Gilmour *et al*. 2014). The Poringland enclosure offers the closest parallels, being of broadly similar size and shape, although defined by a bank and ditch rather than a succession of ditches. The Poringland enclosure was also located on an area of 'upland' heath, and was perhaps associated with stock management, although it also revealed evidence for contemporary roundhouses and structures. These were centrally located within the enclosure, occupying the highest ground (James Albone, NCC, pers. comm.). The position of the Hollesley enclosure, located on the more acid soils of the former upland heaths, set within a system of fields and trackways, is in contrast to many of the other settlement sites recorded, that are located on the more fertile soils of the valley margins. This could suggest that like the large enclosures excavated recently, for example at Ormesby, the management of stock on grazing lands is likely to have been a key function. Nevertheless, it should be remembered, as noted by Williamson (2008), these upland sands may have been more fertile and less acidic in prehistory, and may have been more favourable to agriculture and settlement than in the more recent past.

Another complex settlement site located on the edge of the project area, and largely mapped previously by the Suffolk Coastal NMP project (HE Project 2912), is a site at Alderton House (ADT 003; Fig. 4.13). The site consists of an impressive series of curvilinear and/or D-shaped and rectilinear enclosures all set within a network of trackways. Additional cropmarks clearly visible on recent Google Earth imagery allowed for greater detail to be added to the site, most notably the area of dense subdivisions and enclosures within the main triangular

area defined by trackways. Also recorded within this area were large sub-rectangular areas of differential ground level or compaction. This may suggest that some of these enclosed areas were being used as paddocks or stock enclosures or perhaps for a particular activity. Finds in the area include Bronze Age, Iron Age, Roman and Anglo-Saxon material. The site has previously been interpreted as being of probable Iron Age or Roman date (Hegarty & Newsome 2005); given the morphology of the cropmarks, combined with an Iron Age artefact scatter at the site, this interpretation seems most likely. However, it is also worth noting that an area of pit-like features or ground disturbance was identified to the north of the northeastern trackway (Fig 4.13). This broadly corresponds with an area of finds, including Anglo-Saxon material, and could feasibly indicate late Anglo-Saxon settlement and/or funerary activity at the site. Newman (2005) suggests the location of a possible 9th to 10th century 'daughter' settlement – those that develop in parishes with evidence for middle Anglo-Saxon settlement, often small in scale and close to parish boundaries – in this general vicinity. It is interesting to note that the arrangement of tracks and enclosures around a central area has some morphological similarities with medieval settlement around a green. Domesday records do indicate a now ‘lost’ medieval vill of a relatively significant size associated with Peyton Hall (Williamson 2008), which is immediately adjacent to the cropmarks. A direct relationship has been suggested between late Saxon 'daughter' settlements and the lost medieval vills (Newman 2005). Nevertheless, at present a prehistoric or Roman date seems most likely on the current evidence.

Figure 4.13. The multi-phase settlement site at Alderton House (ADT 003).

Field Systems and Trackways

The remainder of the archaeology of this area can be broadly characterised as relating to the agricultural and grazing landscape, set within the framework of settlement and land use patterns described above. The historic map and documentary evidence for this area has been used by others to provide a detailed picture of land ownership and enclosure (Williamson 2008). This reveals a complex pattern within the parishes of Block 2 and 3, in part a product of the dispersed settlement pattern on these somewhat poorer soils.

The NMP mapping for the central 'upland' area of Block 3 is characterised by an extensive area of multi-phase field systems, trackways, droves and enclosures, potentially ranging in date from the later prehistoric to medieval to post medieval period; much of this was recorded under the parent site ADT 099 (Fig. 4.14). Within this wider area of field systems, trackways and boundaries, there appears to be isolated areas of settlement, most likely small farmsteads. Two rectilinear enclosures on the eastern edge of ADT 099 at Cedarwood have the appearance of possible settlement enclosures, and another possible farmstead may be identified to the south of Trotters Farm. As stated above, the main settlement evidence was located on the margins of this area, and the cropmark sites

described in the preceding section are likely to contain settlement contemporary with at least some of the main phases of the field system(s). It must also be noted that later prehistoric field systems may be accompanied by unenclosed and open settlement sites that may be hard to identify from aerial photography alone. A number of small ring ditches are recorded across the area and may represent the remains of round houses, although their interpretation as Bronze Age round barrows is considered more likely.

What appear to be the earliest parts of these field systems are coaxial in layout and are interpreted as being Bronze Age and/or Iron Age in date. Field systems of this type are increasingly being recognised as being Bronze Age, more specifically Middle Bronze Age, in date (Yates 2007). It is therefore feasible that significant parts of this landscape may have originated during this period, although clearly the excavation evidence from nearby Sutton Hoo reveals a much more complex history of boundary construction. Without further analysis, scientific dating and historic map research, it is hard to fully understand the phasing and dating of this landscape. Initial interpretations would suggest that the cropmark landscape represents several major phases of fields, droves, routeways and boundaries, large parts of which are likely to have their origins in the Bronze Age, Iron Age and Roman period, but with key boundaries and routeways persisting into the medieval to post medieval period. It is clear that boundaries which appear to form key parts of these early boundaries and land divisions persist into the historic landscape.

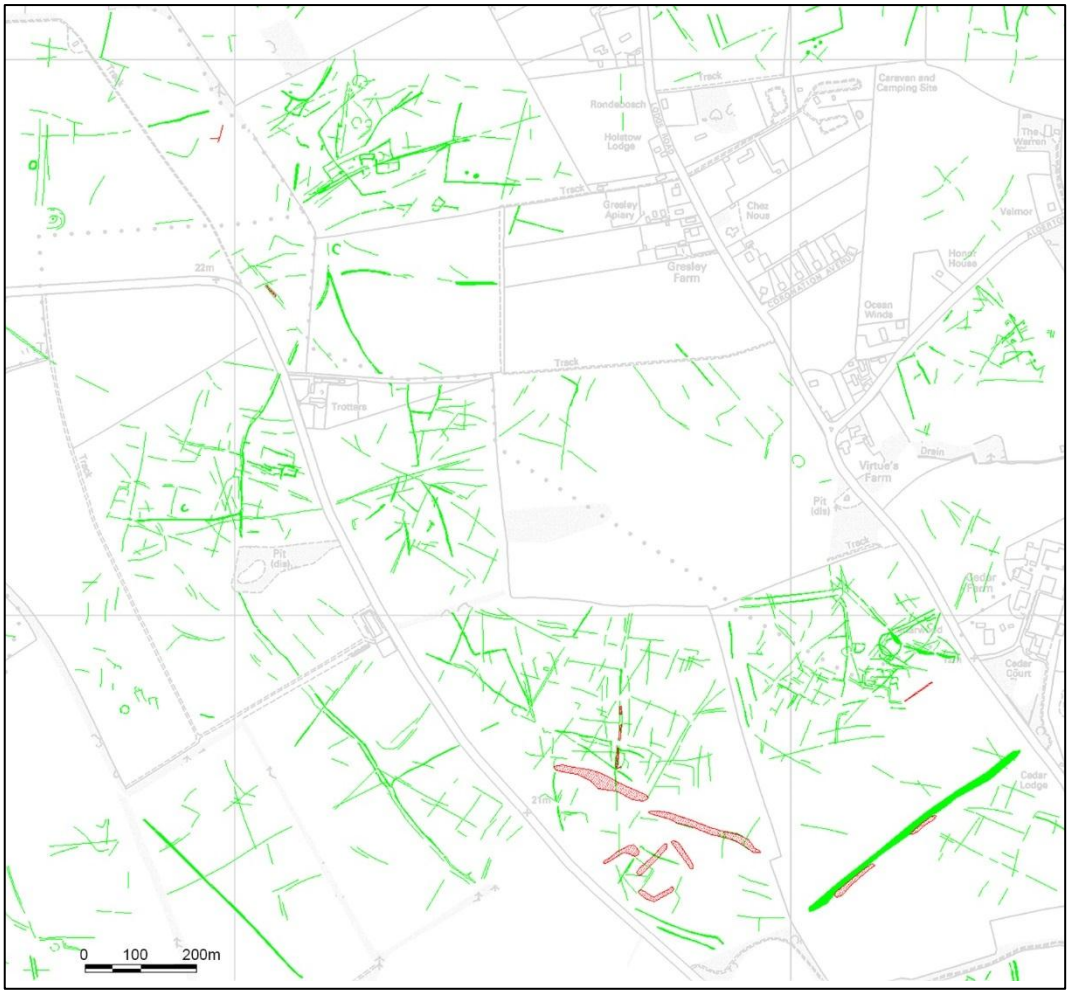

Figure 4.14. Multi-phase field systems, trackways, droves and enclosures on the central 'upland' of Block 3 (most recorded as ADT 099).

Indeed, some significant parts of this landscape have clear relationships with boundaries and routes depicted on the OS 1st edition map, and include field boundaries that remained in use as late as the 1940s. Most notably, this is evident with the trackway running south from Trotters Farm at the Shottisham and Alderton parish boundary. This route appears to initially follow the line of the Shottisham, Hollesley and Alderton parish boundary and runs broadly parallel to the Woodbridge Road for much of its course. It is possible that the trackway represents an earlier line of the road – one which has gone out of use prior to Hodskinson's map of 1783. Significant parts of the wider multi-period cropmarks run broadly parallel and perpendicular to this track and are potentially later in the sequence, perhaps being medieval in date. However it is feasible that the route itself is one of greater antiquity and it must be noted that it also shares alignments and relationships with the coaxial parts of the field system, which appear to pre-date much of the surrounding landscape and are assumed to be

Bronze Age to Roman in date. In fact, the Hollesley/Alderton parish boundary runs parallel to the main axis of this early field system. At the same time, it is worth stating that this road is defined by Williamson (2008) as one of the 'secondary' roads – those which appear to cut across patterns of open-field furlongs at an angle, or which are diverted around the margins of individual enclosures. This is despite it appearing to be a continuation of a 'primary' road, the two together running diagonally, broadly parallel to the Deben, across this whole block of land. The whole area warrants significant further work and research beyond the scope of what is achievable within this report, in particular in relation to the historic map and landscape assessment undertaken by Williamson.

5. Rendlesham

5.1 The Rendlesham Survey

As outlined above (Section 4.6), the evidence for Anglo-Saxon settlement recorded by the project represents a significant result in terms of aerial photograph derived information. There is a tendency for the Anglo-Saxon or early medieval period to be underrepresented in surveys using aerial photographs as the main source. The results of an extensive field walking survey in southeast Suffolk, around the head of the River Deben, which borders Blocks 2 and 3, suggests that early Anglo-Saxon settlements were relatively small-scale and widely dispersed on the more fertile soils on the valley margins (Hegarty & Newsome 2005; Newman 2005: Williamson 2008). The results of the NMP mapping in Block 3, and to a lesser extent Block 2, which recorded multiple small groups of possible sunken-featured structures spread out across the area, would tend to fit this model (see too Section 4.6).

One area that stands out from this pattern of small dispersed settlements is Rendlesham, which represents an atypical and exceptional focus for Anglo-Saxon activity in this part of Suffolk. The site is thought to represent the Anglo-Saxon *vicus regius* (royal settlement) referred to by Bede in *Historia Ecclesiastica* as 'Rendlaesham', and the location where King Swithhelm of the East Anglo-Saxons was baptised between AD 655 and 664 (Minter *et al*. 2016). The site is located on a spur alongside the River Deben and is approximately 6km upriver from the 6th and 7th century elite burials at Sutton Hoo.

Whilst archaeological work in the parish had produced some Anglo-Saxon evidence (Plouviez 2009), the location of the 'Royal' site at Rendlesham remained elusive until 2008, when SCCAS were called in by the landowner to monitor illegal metal-detecting in fields on the Naunton Hall estate (Minter *et al*. 2014). This intervention marked the start of the Rendlesham Survey. The project area, a large proportion of which is on the Naunton Hall estate, has since been the subject of an extensive and multi-disciplinary archaeological survey (including HE Project 6471), extending 2.5km along the east side of the Deben Valley and including metal-detecting, geophysics, air photo interpretation, geochemical sampling and excavation. The results of the survey, most significantly the metal-detecting and geophysics, followed by evaluation excavations (Plouviez 2009;

Caruth *et al*. 2014), has identified at least two Late Iron Age and Roman areas of activity. Most significantly, the work has shown that Anglo-Saxon activity covers some 50 ha, beginning in the early 5th century but particularly high status in the 6th to 8th centuries, with areas of domestic, funerary and industrial activity (Plouviez & Scull 2012; Minter *et al*. 2016, Scull *et al.* forthcoming).

Figure 5.1. Aerial photograph showing cropmarks at the main Rendlesham site in 2011. NMR 27102_018 30-JUN-2011 © Historic England.

5.2 Factors Affecting NMP Results

An assessment of aerial photographs was undertaken by Rog Palmer of Air Photo Services in 2008 (Palmer 2009). This concentrated on the likely focus of Anglo-Saxon activity, as defined by the results of a fieldwalking survey in 1982 (Plouviez 2009). However, the expansion of the known extent of the site through additional fieldwork, combined with the results of regular overflying of the area by Damian Grady (Historic England) (Fig. 5.1) and good cropmark response on Google Earth imagery from 2011, necessitated additional aerial photograph mapping being undertaken.

As the sparse 2008 aerial photograph mapping by Rog Palmer indicates, the cropmark response in the area of the main Rendlesham site was generally relatively poor on the available aerial photographs. Subsequent reconnaissance in 2011 achieved much better results than previous years. The site is situated on

the boundary between two underlying soil types overlying Cretaceous Chalk. An underlying deposit of glacio-fluvial drift (Newport 4) is covered on the eastern side by a chalky till and glacio-fluvial drift (Burlingham 3) (Palmer 2009; Williamson 2008). The Newport association soils are generally deep and well-drained and therefore should offer opportunities for cropmark formation. The heavier Burlingham 3 soils are less likely to be responsive due to poorer drainage (Palmer 2009). At the same time, the soils on the margins of this deposit are lighter than the soils associated with the plateaux, due to the presence of dissecting valleys, as at Rendlesham (Williamson 2008). A narrow band of river alluvium over peat is located along the margins of the site alongside the River Deben and this may have masked archaeological features.

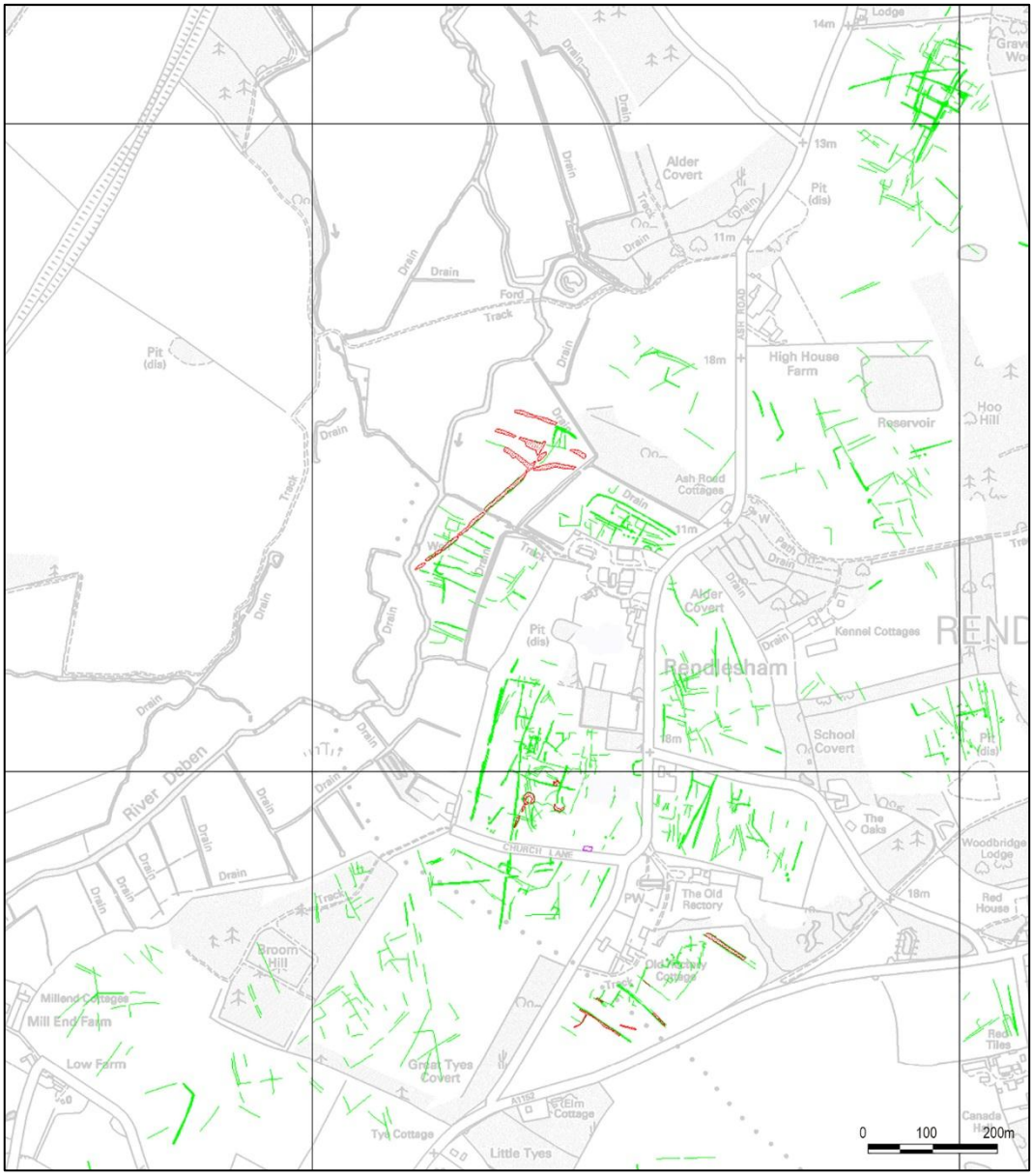

Figure 5.2. The NMP mapping for Rendlesham and its environs.

Extensive campaigns of geophysical survey were undertaken as part of the Rendlesham Survey, with a total of 46ha being completed to date covering much of the core area of early or middle Anglo-Saxon finds (Minter *et al*. 2016). Magnetometry was selected as the most effective technique for revealing buried remains and deposits relating to human occupation of the sort anticipated at the site and was expected to be successful given the geological conditions (Woodhouse 2008). When comparing the results of the early aerial photograph assessment (Palmer 2009) and the initial magnetometer results, the geophysics were clearly more productive than the aerial photographs. The magnetometer survey revealed clear traces of enclosures, boundary ditches and numerous pits against the geological background (Figs 5.3 & 5.4).

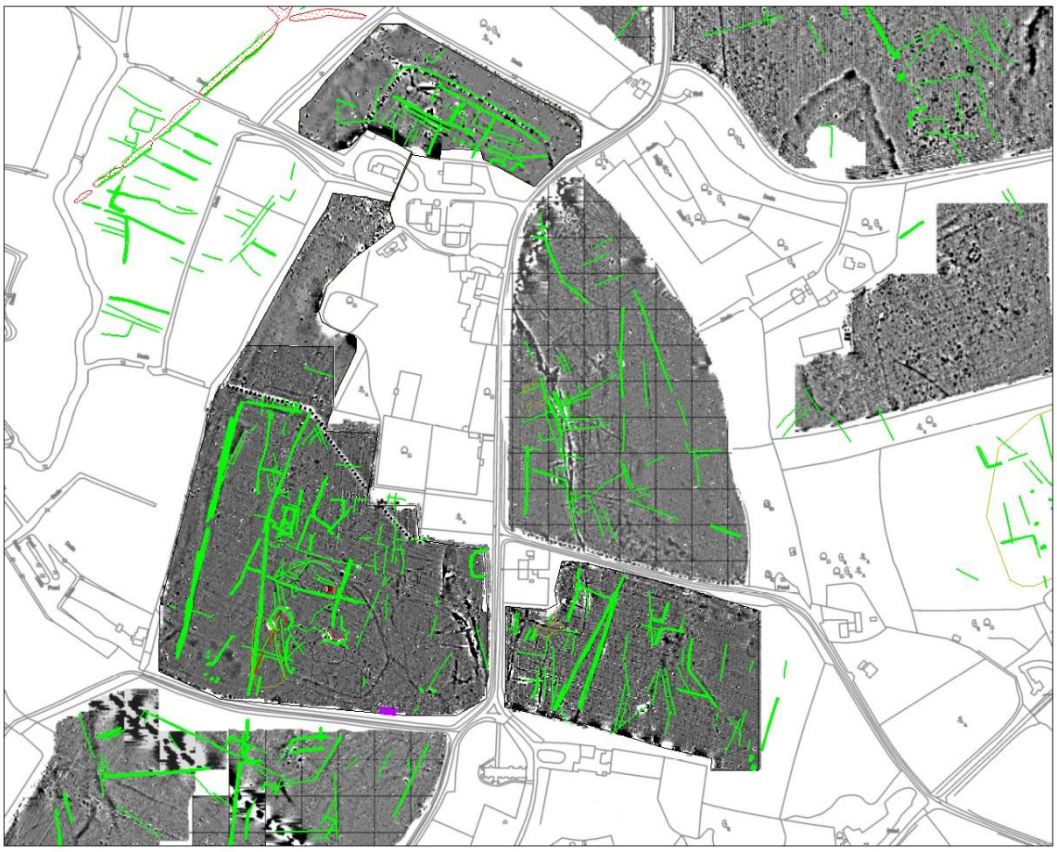

Figure 5.3. The NMP mapping overlain on the results of the geophysical survey. Rendlesham geophysics data supplied by Suffolk County Council © SCC.

The most notable of these discoveries was a large roughly D-shaped, double-ditched enclosure. Initial interpretations – unsurprising given the focus of the project – drew comparisons with middle Anglo-Saxon curvilinear enclosures,

although an Iron Age date was also postulated (Woodhouse 2008; Plouviez 2009). A late Iron Age date was later proved through excavation (Caruth *et al*. 2014; see below for discussion). Comparison of the aerial photograph mapping and the magnetometer survey (Fig. 5.4) in the area of this enclosure clearly shows the superior results of the geophysics in this part of the site, which approximately marks the edge of the more responsive Newport 2 soils. A series of enclosures, possible internal settlement features, ditches and pits were all detected by the geophysical survey, with little corresponding response being detected in the cropmarks on the aerial photographs. It is worth noting that the only archaeological features strongly visible on the aerial photographs in this area were two ring ditches, previously recorded as probable Bronze Age round barrows (RLM 007) (Palmer 2009). However the aerial photographic evidence from the 1940s, consulted for the NMP survey, proved that the ring ditches relate to Second World War activity, most likely a searchlight battery (RLM 062). This identification has subsequently been confirmed by the landowner (J. Plouviez pers. comm.) This recent date would explain their distinct cropmark response on oblique aerial photographs from 1949, whilst other features were barely visible.

Whilst the magnetometry results were productive overall, they failed to produce any definite evidence of structural remains of the type anticipated – sunken-featured buildings (SFBs) or grubenhäuser (Plouviez 2009), or indeed larger timber structures often associated with high status Anglo-Saxon settlement. Despite the generally poor results from the earlier survey of aerial photographs, the conditions were obviously more favourable in 2011, when both HEA oblique and Google Earth imagery – available for the NMP survey – captured significantly more archaeological features than had previously been visible. The most significant of these, in terms of the Rendlesham Survey at least, was the tentative identification of a timber hall and some possible groups of SFBs, within the main focus of the site.

The overall Rendlesham Survey Assessment Report (Minter *et al*. 2016) concludes that compared with the magnetometry, in the core area the NMP provides a less complete, but occasionally more informative picture of the sub-surface archaeology.

5.3 Summary of NMP results within Rendlesham Research Project Area and Environs

5.3.1 The Prehistoric Evidence

The siting of the Rendlesham Anglo-Saxon complex may be largely due the presence of a natural promontory overlooking, and accessible from, the River Deben. However, this is a landscape that had already been inhabited and altered. The incorporation of existing prehistoric monuments into elements of the Anglo-Saxon landscape is a well-known phenomenon (see, for example, Williamson 2008). Consequently, the siting of a Royal residence in close proximity to two potentially extant Bronze Age round barrows (RLM 007) at Rendlesham did not appear to be surprising. However, as stated above, the aerial photographic evidence from the 1940s proved that the ring ditches recorded within the complex relate to Second World War activity, most likely a searchlight battery (RLM 062).

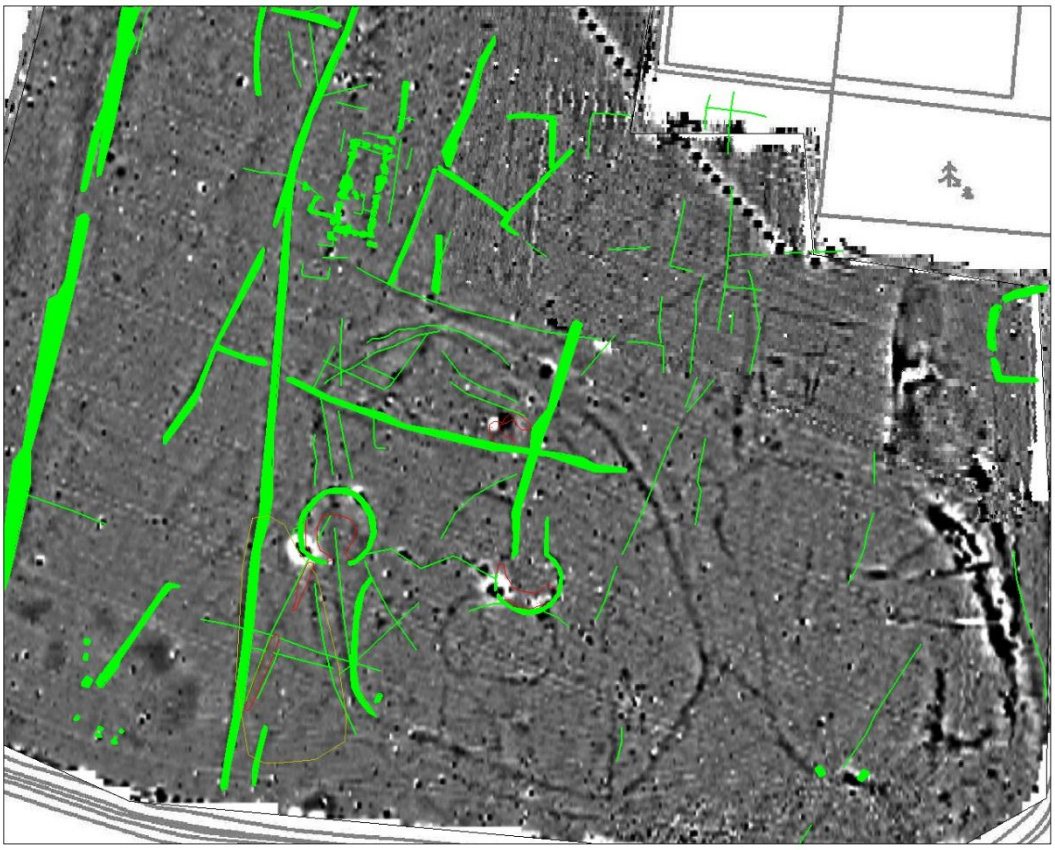

Figure 5.4. Results of the NMP mapping and geophysical survey in the area of the Iron Age enclosure. Rendlesham geophysics data (Woodhouse 2008) supplied by Suffolk County Council © SCC.

As described above, the presence of a large Iron Age curvilinear or D-shaped enclosure was recorded through geophysical survey, and to a lesser extent the aerial photographs, and evaluated and dated by excavation (Caruth *et al.* 2014; RLM 013, RLM 073). The excavations indicated a possible 1st or 2nd century BC enclosure that was backfilled early in the 1st century AD (*ibid*.). The fragmentary cropmarks visible on the aerial photographs revealed comparatively little of the concentric enclosure ditches known from the geophysics and, on their own, would not have allowed for the identification of a large enclosure on the site. Fragmentary cropmarks relating to part of an oval enclosure within the main enclosure – assumed to be contemporary – are also visible.

Within the wider Rendlesham and Eyke area several areas of a fields and enclosures, interpreted as being later prehistoric and/or Roman in date, were identified on the aerial photographs. To the northeast and southeast of the main Rendlesham site are two coherent areas of rectilinear fields, boundary ditches and trackway (RLM 067, EKE 031). The low magnetic response of the ditches to the northeast (RLM 044/RLM 067) on the geophysics would support their interpretation as agricultural fields (Minter *et al*. 2016). Both of these areas follow the same dominant alignment, approximately northnorthwest to southsoutheast and eastnortheast to westsouthwest. Evaluations on the site of a reservoir in this area revealed ditches containing later Bronze Age or Early Iron Age sherds (RLM 030, RLM 035; Minter *et al.* 2016). The aerial photographs revealed extensive field systems and enclosures in this area (RLM 067). The field systems and rectilinear enclosure cropmarks recorded to the south of the main Rendlesham site (EKE 031) correspond with the location of both prehistoric and Roman finds (EKE 019) (Plouviez & Scull 2012).

5.3.2 The Roman Period

Without further dating evidence or recognisably Roman ‘type-sites' being identified, it is hard to confidently distinguish Roman evidence from that of the later prehistoric and in the case of Rendlesham the Anglo-Saxon period. The results of the Rendlesham Survey indicate that the site was used extensively in the Roman period (Minter *et al*. 2016). Despite fairly high numbers of Roman finds, only one possible Roman feature was identified during the evaluation excavations (Caruth *et al*. 2014). However field walking in 1982 to the north of Naunton Hall revealed a concentration of Roman building material (Plouviez

2009). It still seems likely that a proportion of the ditches and enclosures recorded by the aerial photographic and geophysical surveys date to this period of occupation and/or activity. However, without further excavation it is impossible to determine which of the boundary ditches recorded within the main part of the Anglo-Saxon settlement focus are in fact Roman in date, or at least in origin.

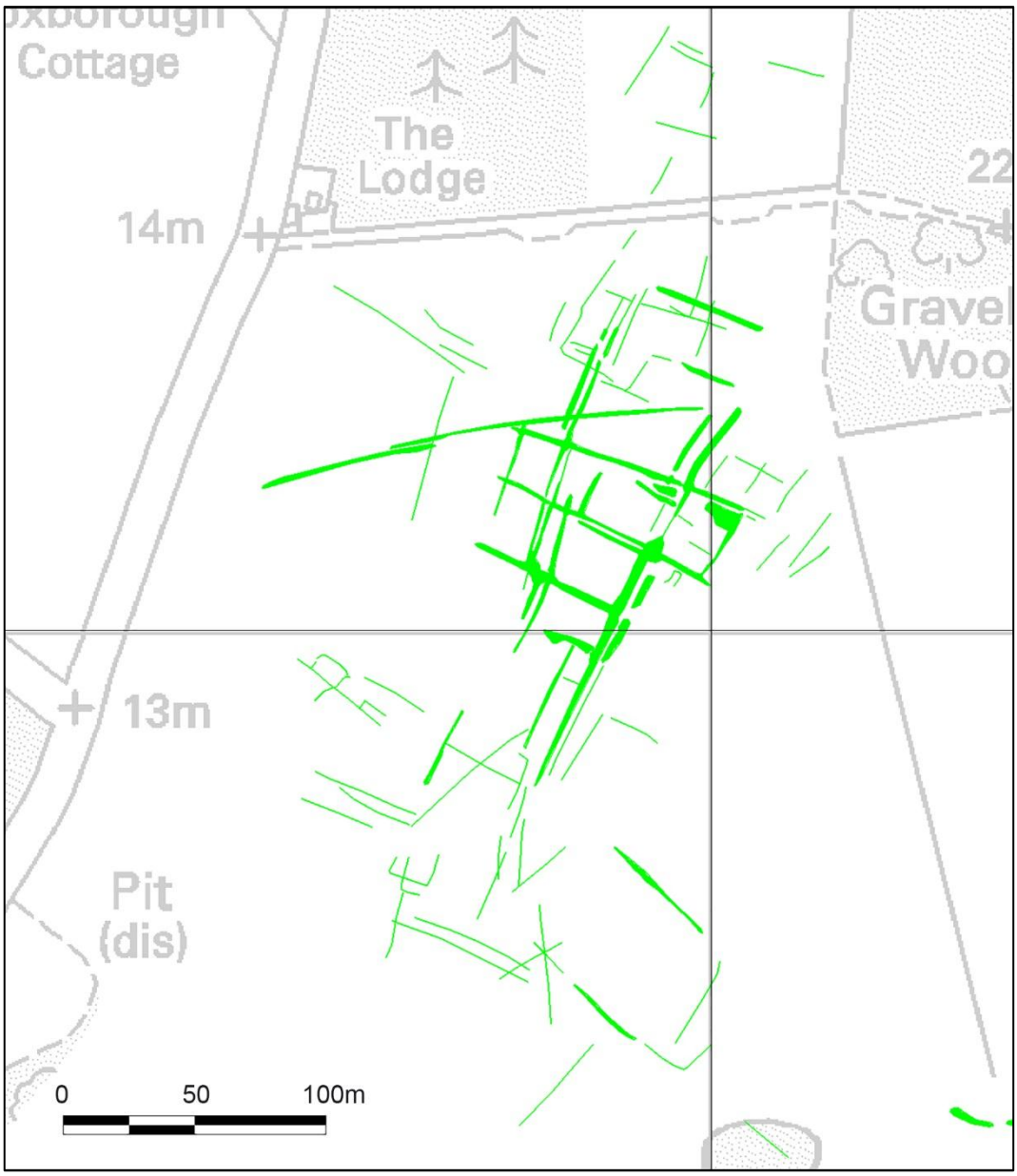

Figure 5.5. The NMP mapping of a possible Roman settlement at Rendlesham (RLM 028).

To the northeast of the main Rendlesham site a small enclosed settlement and/or farmstead of probable Roman date was recorded from on aerial photographs (RLM 028; Fig. 5.5). The site consists of a main complex of enclosures defined by double ditches and/or trackways, surrounded by fragmentary fields and

ditches. The layout and high degree of internal subdivision could suggest a relatively high status farmstead, or villa in its broadest sense. Finds in the area, pottery and a significant number of coins ranging in date from the 2nd to the late 4th century (RLM 037, RLM 039) broadly coincide with the location of the main area of the enclosures. It is also worth noting that these enclosures, boundary ditches and tracks (unlike the field system referred to above) share the same alignment as some of the main boundary ditches associated with the main Anglo-Saxon settlement to the southwest.

Other groups of enclosures (EKE 048) within the wider area of Rendlesham and Eyke have been interpreted as being of Roman date on the basis of a surface find in the area (EKE Misc/MSF12308) and the morphology of the site. The main component of the site appears to be a group of rectilinear enclosures and fields. The level of subdivision within these enclosures could indicate a specialised activity, such as settlement. A possible small incomplete ring ditch within this area may relate to a domestic or agricultural structure.

5.3.3 The Anglo-Saxon Settlement

The results of the Rendlesham Survey clearly indicate an intensive level of settlement and funerary activity during the early to middle Anglo-Saxon period, with the finds indicating several large concentrations of activity forming the core of the Rendlesham complex. The geophysical survey and aerial photographic mapping combined reveal a series of major boundary ditches and enclosures, in particular in the vicinity of Naunton Hall. The limited excavations to date show that significant parts of these boundaries relate to the early to middle Anglo-Saxon settlement (Plouviez 2009; Caruth *et al.* 2014; Minter *et al.* 2016). The western extent of the site appears to be defined by two major boundary ditches, which broadly follow the contour along the western edge of the site. The eastern boundary ditch appears to be associated with at least two phases, one of which is on a slightly different alignment and is associated with rectilinear enclosures and boundaries to the east. It could be speculated that these enclosures and the earliest phase of this ditch may be Roman in origin. However this was not proven during excavation and the shared alignment with boundaries excavated to the north of the Hall in 1982, and dated to the middle Anglo-Saxon period (RLM 011; Plouviez 2009), might suggest otherwise. Evaluation of a section of the eastern ditch – whilst it did contain significant amounts of Roman material – showed that

it was open during the early-middle Anglo-Saxon period and suggested that it was backfilled in the early-mid 8th century by midden material associated with the 6th- to 8th-century activity and settlement; this may have accumulated against a palisade at the east edge of the ditch (Minter *et al*. 2016, Caruth *et al*. 2014).

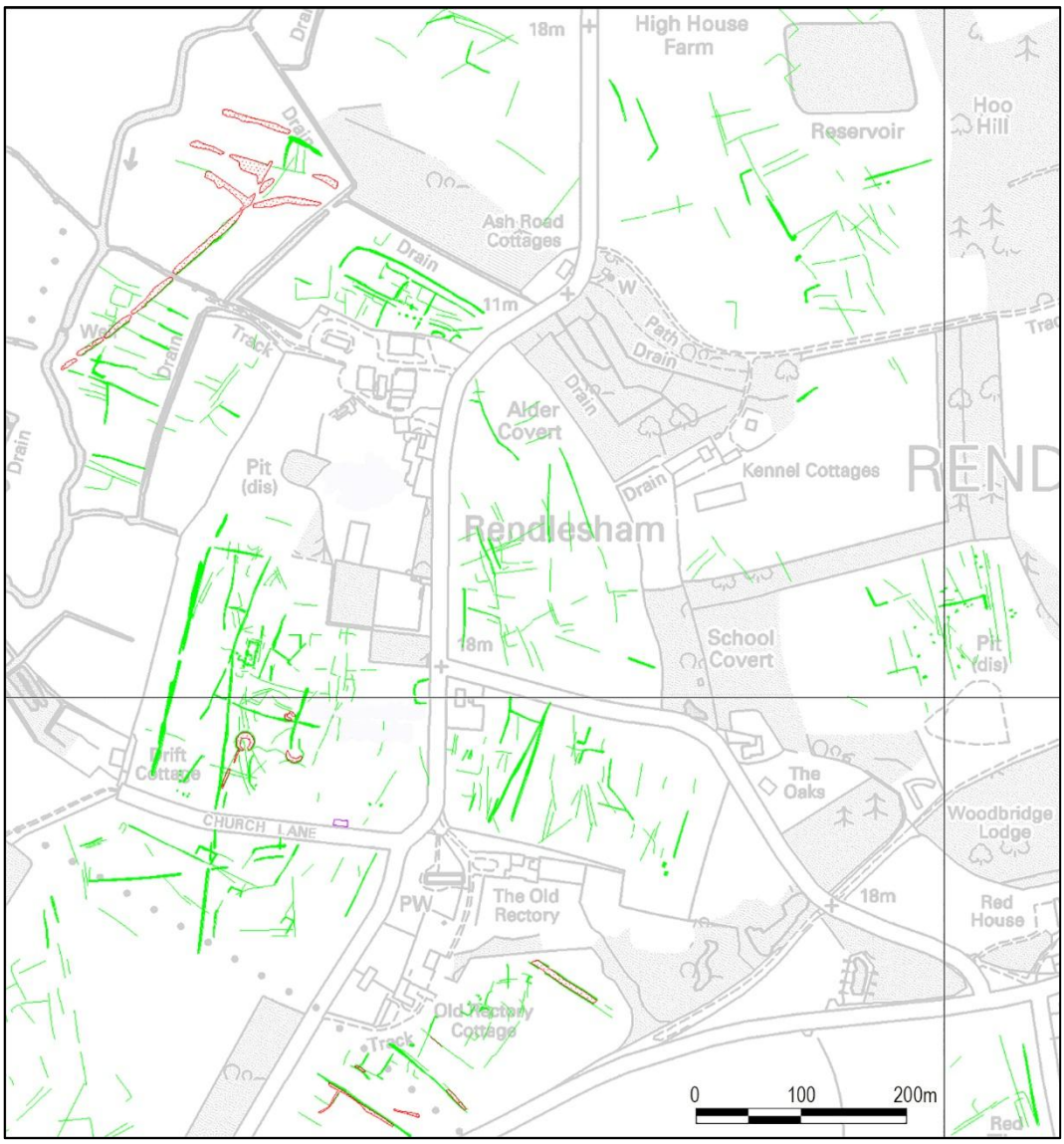

Figure 5.6. The NMP mapping for the core area of Anglo-Saxon activity at Rendlesham.

The most significant discovery of the NMP mapping is the identification of a possible rectangular post-built building, interpreted as a hall, of potential early to middle Anglo-Saxon date. This is visible on aerial photographs within the western part of the Anglo-Saxon settlement (Figs 5.1 & 5.7). This possible hall was tentatively identified from a rectangular arrangement of elongated pits – possibly

representing postholes and/or timbers set within a trench – which was visible on two sets of aerial photographs taken in 2011. It must be noted that the cropmark clarity was poor and somewhat confused by marks of agricultural origin, so the site was recorded with a degree of caution. Some components of this possible structure were detected on geophysics and interpreted as an L-shaped ditch segment (Woodhouse 2008), but further features possibly relating to the building can potentially be identified within the processed data.

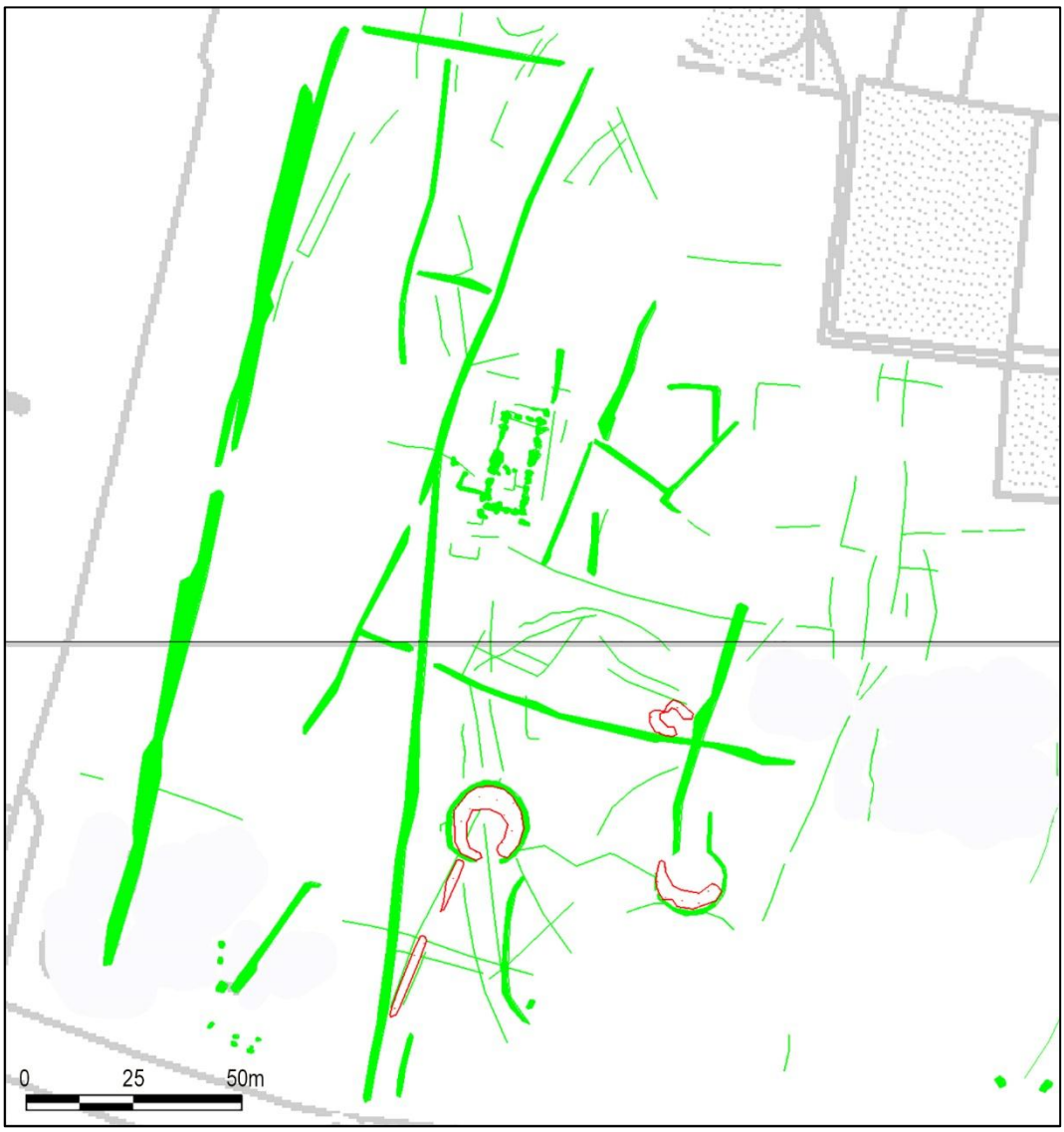

Figure 5.7. Detail of the NMP mapping for the possible timber hall at Rendlesham.

The finds distributions suggest that this possible hall or building is located within the main residential focus of the Anglo-Saxon site. It is broadly located within the area of the midden identified both and in the plough soil by field walking and metal detecting surveys and subsequently during evaluation excavations; the extent of which may itself be represented by a darker area on the aerial

photographs. However the deposit, though extensive, may have been localised, shallow or intermittent and indeed entirely absent in the area of the possible hall.

Given the high status of the site – as evidenced by the material culture and historical sources – the presence of a timber hall of substantial proportions, or indeed a sequence of several structures, would be expected. The plan and dimensions (23m by 9.5m) fit well within the range exhibited by excavated Anglo-Saxon palace halls, which are typically between 18m and 30m in length and between 6m and 9m in width (information derived from Monument Protection Programme Anglo-Saxon Palaces Monument Class Description). The Rendlesham example is on a scale with those excavated at Lyminge, Sutton Courtney and Yeavering (Hamerow 2012, Thomas 2013.).

In addition to this main structure a possible linear arrangement of large pits or sub-rectangular hollows was identified within the area of cropmarks to the north of Naunton Hall. These may also relate to a post-built structure and/or an alignment of posts. This group of features, along with the trackways and boundaries mapped in this area, follow the same alignment as a pair of middle Anglo-Saxon ditches excavated approximately 25m to the south (RLM 011; Plouviez 2009). It must be noted that this alignment persists in many of the boundaries through to the modern day, making dating without excavation speculative.

The NMP mapping also identified up to six groups of possible SFBs within the main Rendlesham site and its wider environs. Several of these small groups are located within the main cropmark complex around Naunton Hall (RLM 072) and one larger group was recorded separately to the north of Church Lane (RLM 063). This latter group of eight sub-rectangular pits, ranging in size from 1m to 2.5m, are located within a dispersed area of pits detected on the geophysics (Woodhouse 2009). The location of Anglo-Saxon metal-working evidence within this general area of the site (Minter *et al*. 2016) could indicate specialist activity taking place.

A small group of sub-rectangular pits (RLM 064) is located to the immediate southwest of St Gregory's Church. These are associated with a former road or well-established trackway heading towards the church and a number of boundary ditches and fields. The cropmarks within the northern part of the site, comprising fragmentary ditches and sub-rectangular pit-like features, possibly relating to

SFBs, could feasibly relate to settlement dating to the Anglo-Saxon period. This potentially is also indicated by finds of 5th to 8th date in this area (RLM 042). Another extensive spread of pits was identified to the east of School Covert (RLM 060), just to the east of the main project area. The sub-rectangular pit-like features, ranging in size from 1m by 1.5m to 2m by 4m, could represent SFBs, although they could instead relate to more recent activity. The cropmarks are located to the south of a concentration of Anglo-Saxon finds (RLM 036), perhaps suggesting an area of settlement, but the high concentration of dress accessories would also indicate the likely presence of an inhumation cemetery (Minter *et al*. 2016). Some preliminary survey work in the vicinity of the cropmarks suggests that they do not correlate to any concentrations of Anglo-Saxon material, rather the focus is elsewhere in the field, and that medieval predominates (RLM 059; Jude Plouviez pers. comm.); although further work may reveal further evidence of Anglo-Saxon settlement.

5.3.4 The Medieval Period

The results of the Rendlesham survey indicate that the settlement had undergone a reduction in size and status by the second half of the 8th century AD. By the 10th century AD settlement appears to have focused around the edges of a small green to the east (RLM 043) (Minter *et al*. 2016).

The geophysical survey revealed a series of enclosures clustered around the edge of the green (Fig. 5.3), as shown on Kirby's map of the Rendlesham estate, dated *circa* 1730-40 (Minter *et al*. 2016). Excavation within one of these enclosures and boundaries to the south of Naunton Hall revealed a sequence of use from the late Anglo-Saxon period through to the 13th or 14th century (Caruth *et al.* 2014; Minter *et al.* 2016). The NMP mapping revealed some traces of these green-edge enclosures, although often with less clarity and detail when compared with the geophysics. The field boundaries mapped to the east of the green may well be medieval (or late Anglo-Saxon to medieval) in date as they appear to be aligned with the track or drove which seemed to defined the eastern edge of the green. Alternatively, they may represent fragments of earlier agricultural enclosure and settlement at the site. As mentioned above, a road or well-established track and a series of boundaries were mapped to the southeast of the church. These are all parallel to the line of the parish boundary and a

medieval date is assumed, although some or all of these may well have originated during the Anglo-Saxon phase of the site.

To the west of the main Rendlesham site a group of earthworks was visible on grazing marsh alongside the River Deben (RLM 066). These consisted of an area of banks and drainage ditches visible on aerial photographs and lidar. Whilst it is possible that these features represent post medieval drainage and/or water meadows, the fact that they are overlain by a bank, presumed to be of at least post medieval date, means that they could instead represent land allotment of medieval or even Anglo-Saxon date. As stated earlier, the dominant alignment of the medieval to post medieval and extant boundaries within the northern part of the site follow the same alignment of a pair of excavated middle Anglo-Saxon ditches (RLM 011; Plouviez 2009), making confident identification of pre-medieval boundaries problematic without excavation.

5.4 The Impact of the NMP Results

The NMP mapping for the Rendlesham Survey project area and its environs has provided a significant level of new archaeological information to the multi-disciplinary research project. The results highlight the importance of continued reconnaissance of sites of known archaeological interest, as evidenced by the contrast between the 2008 aerial photograph mapping and the density of features mapped by the NMP project. The combined record provided by the 2011 HE reconnaissance and the 2011 Google Earth imagery meant that many more archaeological features could be mapped and interpreted. The beneficial impact of the geophysical surveys must also be acknowledged, as it allowed for a greater degree of confidence when recognising and interpreting sub-surface features on photography with relatively indistinct cropmark formation. The potential identification of an early to middle Anglo-Saxon building, with proportions similar to known palace or great hall sites, along with several other possible structures, is probably the best exemplar of the impact of the NMP survey results. The aerial photograph and geophysical survey results combined provide the Rendlesham Survey with future targets for excavation and evaluation (Minter *et al*. 2016). The NMP mapping outside of the main project area will undoubtedly provide greater context and understanding for the settlement and its wider environs.

6. Research Theme: The Archaeology of the Coastal Heaths

6.1 Background

The report for the previous Lothingland, Greater Lowestoft and North Suffolk NMP Project (HE Project 6642; Ford *et al*. 2015) contained a general, background discussion of issues relating to heathland archaeology, and undertaking NMP for heathland areas. Many of the general points made in that earlier report are equally valid for the results of the Suffolk AONB NMP project, and are therefore repeated below.

Heathland, both former and extant, is one of the defining characteristics of the Suffolk coastline and coastal hinterland. It is a particular feature of the area historically referred to as the 'Sandlings', which is now encompassed by the SC&H AONB. These heathlands, protected from ploughing, have the potential to have conserved earthwork sites, a comparative rarity in eastern England and a clear priority for heritage protection both within the region and nationally.

There are specific issues relating to the identification and protection of heritage sites within heathland. The nature of the vegetation cover can make it difficult to identify sites, both on aerial photographs and on the ground. Even when sites have been identified, during previous surveys or site visits, or from aerial photographs, these can be difficult to find without accurate maps and GPS equipment. The NMP methodology, which utilises a wide range of airborne data collected over a long time span (usually more than 70 years), maximises opportunities to identify sites when vegetation cover is low and surviving earthworks more visible. It also provides detailed, georeferenced digital mapping, ideal for using to locate sites on the ground using GPS. This mapping is usually accurate to +/-2m, although a scarcity of suitable control points, often a problem in heathland areas, can reduce this.

A further problem is that fragile heathland soils are easily disturbed, meaning that any surviving earthworks are easily damaged or destroyed. The needs of environmental conservation – a priority within designated landscapes such as AONBs, where key habitats are actively managed – often puts their survival at risk. Ground disturbance relating to heathland restoration can include tree felling,

scrub and heather clearance, turf and litter stripping, deep ploughing and rotovation, and this represents a significant heritage protection issue for heathland areas. Where available, NMP data can play an integral role in devising strategies to minimise the impact of such work on the historic environment. It can be of particular value within AONBs and other designated landscapes, where extensive management plans are in place and where it can inform an integrated strategy for heritage and environment conservation.

Designated landscapes such as the SC&H AONB may thus conserve earthworks – and other forms of archaeological site – by protecting the heathland landscapes on which they have survived, at the same time threatening them through ground disturbance undertaken for habitat management, but also offering good opportunities for long-term integrated management. As a consequence, the identification of new earthwork sites in particular, and the enhancement of records for those previously recorded on heathland within the AONB, was an important focus for the project.

In contrast to the area of the AONB covered by the previous Lothingland, Greater Lowestoft and North Suffolk NMP project (HE Project 6642), the project reported on here encompassed much more substantial areas of heath. Much of this survives as fragmented areas within Mapping Block 1, or as larger, more cohesive blocks around Tunstall Forest and Rendlesham Forest in Blocks 2 and 3 (Fig. 2.3). Heathland occupies approximately 10% of the project area as a whole, almost – but not entirely – confined to the very acidic, sandy Newport 2 soils. However, considerably greater areas of heathland existed in the past, as illustrated by Williamson, for example (2005, figs 30-31). The 1930s Land Utilisation of Britain Survey indicates that at that date heathland occupied closer to 24% of the project area. This too was found predominantly on the Newport 2 soils, but extended more frequently onto the less acidic Newport 3 soils, for example. The availability of 1940s (and occasionally earlier) aerial photography for the NMP survey allowed archaeological sites visible on these former heathlands to be mapped as they were before the area was converted to arable, forestry or other uses.

6.2 Results

Of the 566 sites mapped by the project, 149 or 26% were located wholly or partly on extant heathland (dataset provided by Norfolk Biological Information Service,

NCC). This compares to 226, or 40%, intersecting with an area of heathland shown on the 1930s Land Utilisation of Britain Survey. The significance of these figures, in relation to the area occupied by heathland, is uncertain, as the extent and shape of both the heathland and the mapped sites varies widely, and the degree to which the two datasets intersect geographically may not always be meaningful.

6.2.1 Earthworks

A total of 117 earthwork and/or levelled earthwork sites were recorded on extant heathland. This means that 79% of all the sites recorded on surviving heathland contained a surviving or levelled earthwork element, a considerable proportion in a region where earthworks are scarce. On areas recorded as heathland by the Land Utilisation of Britain Survey, 156 earthwork and levelled earthwork sites were recorded, or 69% of all sites recorded in these areas.

Eighty-five sites containing surviving earthwork elements were recorded on extant heathland across the project area. There is considerable variation in the location of such sites. A very large proportion of the sites, 48 or 56%, was recorded in Mapping Block 1. This probably reflects the greater number of small, fragmented heathland areas in Block 1, offering more frequent opportunities for intersecting with a recorded site, but also the preponderance of 20th-century military sites recorded here. The latter is a reflection of the proximity of the coast, often as little as a few hundred metres to the east of the area being mapped. A total of 24 such sites were recorded on surviving heathland in Block 1. There was also a high incidence of earthwork sites in the northeast corner of Block 2. Twentieth-century military sites, specifically of Second World War date, again dominate, at least in terms of extent; most relate to the very extensive Orford Battle Training Area (ORF 137), the only exception being an extensive area of anti-landing trenches (IKN 114). In comparison, surviving earthworks were relatively scarce on heathland in the remainder of Blocks 2 and 3, despite extensive areas of heath remaining here, such as Bromeswell Heath and Sutton Common, and around RAF Bentwaters and RAF Woodbridge.

Amongst the surviving earthwork sites recorded on heathland across the project area, there is, unsurprisingly, a strong bias towards sites of known or probable medieval, post medieval or modern date. The only likely prehistoric sites are

fourteen records relating to one or more mounds, interpreted as known or possible Bronze Age round barrows. Later sites include four possible pillow mounds, two sites relating to peat-cutting, dole strips and/or common division, four sites relating to woodland banks and boundaries, and six areas of braided trackways. The latter are a feature of heathland areas.

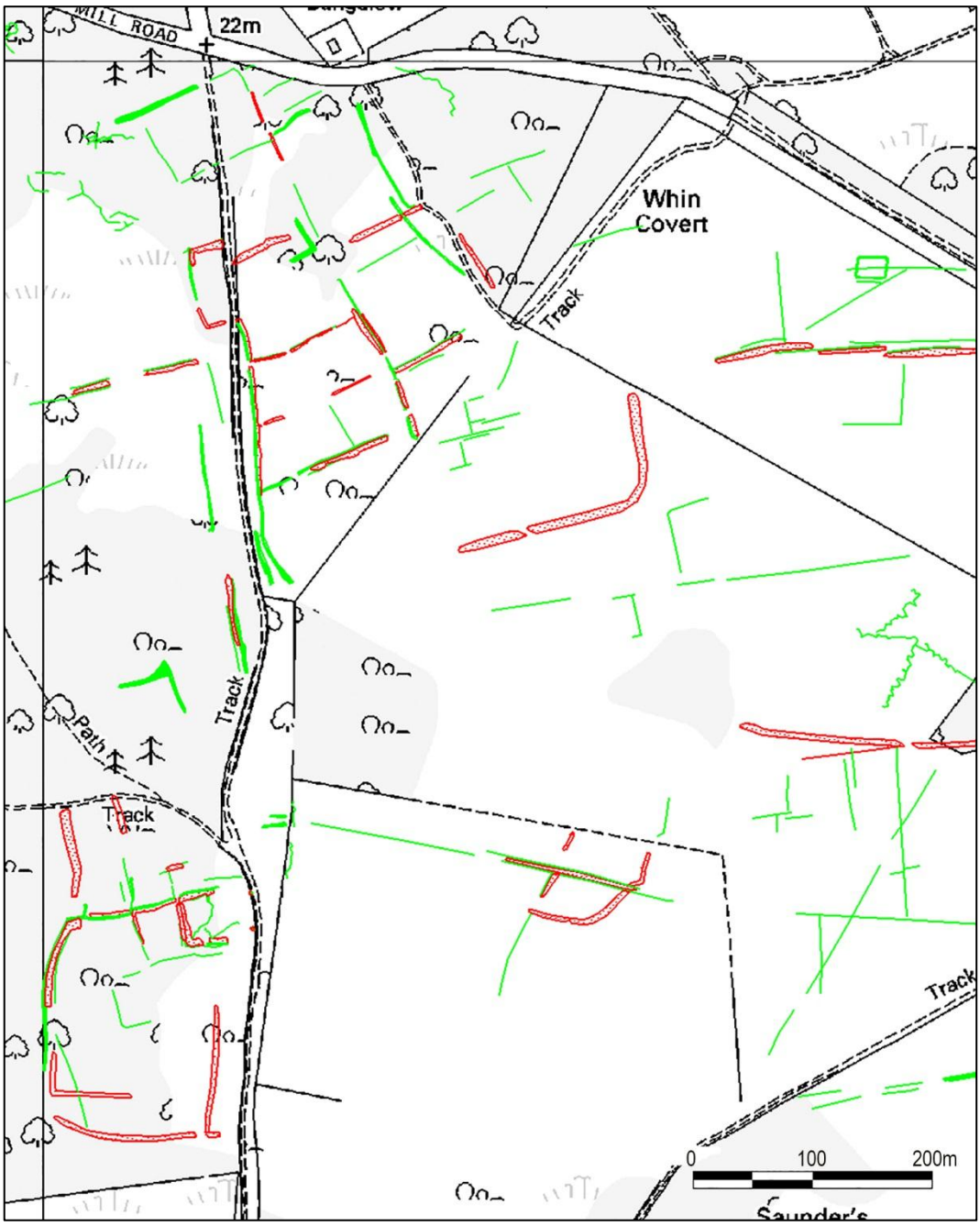

Figure 6.1. Boundaries, trackways and enclosures of probably medieval to post medieval date recorded as earthworks, cropmarks and soilmarks on Westleton Walks heath (WNL 060, WLN 061, WLN 075).

Fourteen of the surviving earthwork sites relate to enclosures and boundaries, some entirely undated but most of presumed medieval to post medieval date. A notably cohesive group survives at Westleton Walks (WLN 060, WLN 061; Fig. 6.1). The main component of WLN 060 is two conjoined rectangular enclosures, within a wider banked enclosure. The date of these enclosures and banks is likely to be post medieval or perhaps medieval to post medieval, although an earlier date is possible. They potentially relate to stock management or warrening on the edge of the heath. To the north, WLN 061 is likely to represent fields of broadly contemporary date (although an earlier date is also possible). These fields may relate to sporadic cultivation of the heaths, an activity taking place by at least the 16th century, recorded at several locations in the Sandlings (Williamson 2008). A relationship with field boundaries recorded as cropmarks and soilmarks to the immediate east (WLN 075) is also suggested by the mapping, and it is likely that at least some of them are contemporary, despite a slight change in orientation and layout. Lidar data clearly indicates the majority of the earthworks still survive, and further investigation, management and protection of the site is recommended.

On surviving heathland across the project area as a whole, 32 earthwork sites were recorded that relate to 20th-century military activity. As discussed above, many of these were located on the coastal hinterland covered in Mapping Block 1. Most were thought to date to the Second World War, but possible traces of First World War activity were also identified (Fig. 6.2, for example). Most were interpreted as relating to training activity; two very extensive training areas were established at Orford and Woodbridge, specifically sited to take advantage of the 'empty' tracts of largely uninhabited heathland. Anti-landing trenches were also frequently encountered on heathland areas, often co-located with evidence of training activity; unsurprisingly, flat, open areas of heathland were thought to be highly vulnerable to an airborne invasion.

6.2.2 Cropmarks

Although heathland vegetation is not conducive to the formation and visibility of cropmarks, the project recorded 41 cropmark (and/or soilmark) sites on areas of surviving heathland. Five of these, however, are previously recorded cropmark sites, which were dismissed by the NMP survey as being of negligible archaeological significance. Other sites in fact bordered areas of heathland, and

only slightly extended onto heath at their edges. Nevertheless, some cropmark sites were evident on areas of heath. They include a group of three sites to the north of Minsmere Level, comprising a possible undated ring ditch (WLN 064), an undated enclosure with associated trackway and ditches (WLN 001), and a Second World War military camp (WLN 037). On North Warren, Aldeburgh, two possible undated enclosures (ADB 202, ADB 203), and an undated field boundary and trackway (ADB 207), were all evident as cropmarks or soilmarks. Interestingly, on Sutton Common, an area of heathland where earthwork sites were notably scarce, several cropmark and/or soilmark sites were recorded. These included several sites relating to Second World War military activity, but also undated ditches (SUT 228, SUT 239) and trackways (SUT 236, SUT 240), and a possible undated field system and/or warren banks (SUT 229).

6.2.3 Structures and Buildings

Two sites with surviving structural and/or building remains were recorded on surviving heath. These were both within the parish of Leiston, in Mapping Block 1. On The Walks, Aldringham, trackways and hardstanding from a Second World War Diver battery (LCS 213) were evident on recent aerial photographs, or thought likely to still survive. Further north, on and around Black Walks, earthworks and part of a structure relating to a probable Second World War 'SOS' field artillery position and military training site were also thought to probably survive (LCS 204); some components of the structure appeared to be evident on lidar data. Given the number of sites recorded on heathland, and particularly those relating to 20th-century military activity, it is perhaps surprising that a greater number of surviving structural elements was not recorded. This perhaps reflects the difficulty of seeing such remains on the aerial photographs, or even on the ground, once they are covered with heathland vegetation. It might also indicate that military structures were sited in non-heathland locations, or locations, such as RAF Woodbridge and RAF Bentwaters, which did not convert back to heathland after the Second World War. The areas which have remained as heathland were perhaps preferred for activity such as training, which required only temporary structures or none at all, or were principally occupied by defences such as anti-landing trenches.

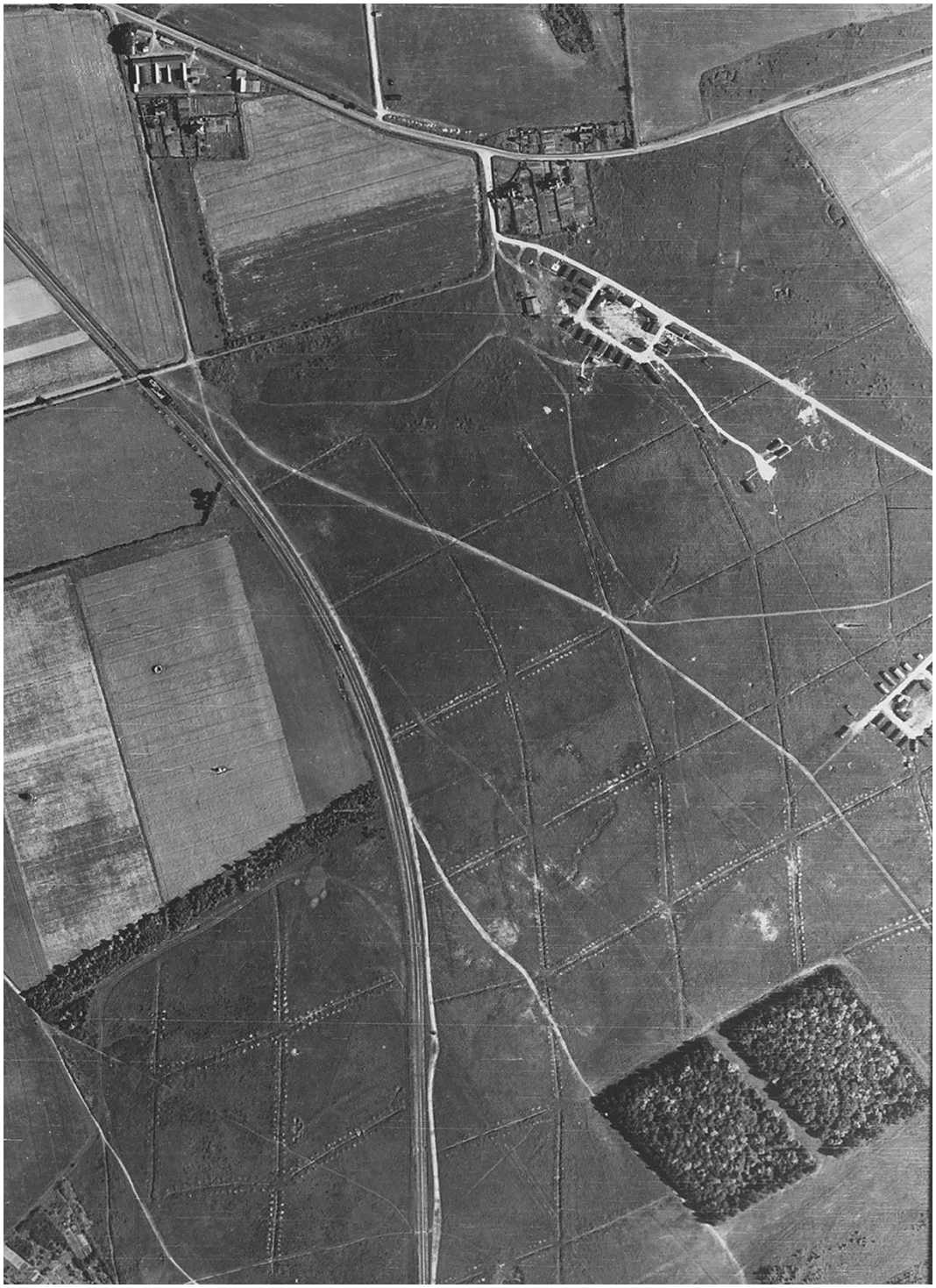

Figure 6.2. Heathland at The Walks, Aldringham, in July 1946. Clearly visible are a grid of Second World War anti-landing trenches (ARG 017), parts of a Second World War Diver battery (LCS 213, visible top right), and part of the Second World War and Cold War Direction Finding station at Leiston (LCS 206, the small circular structures visible in arable fields on the left of the photos). Traces of earlier trenches or ditches, perhaps dating from the First World War (ARG 017), are visible

in the centre of the photo, overlain by the anti-landing trenches. RAF/106G/UK/1673 RP 3233 28-JUL-1946 (HEA) Historic England RAF Photography.

7. Heritage Protection

The impact of NMP surveys on heritage protection was discussed in the report for the previous Lothingland, Greater Lowestoft and North Suffolk NMP Project (HE Project 6642; Ford *et al*. 2015). Many of the general points made in that earlier report hold true for the project reported on here, and are thus reiterated below.

7.1 National Frameworks

Identifying key heritage assets and providing protection for nationally important monuments and sites through designation is a crucial part of the heritage protection process. Heritage 2020, combined with the National Planning Policy Framework (Department for Communities and Local Government 2012) facilitates the heritage sector and local planning authorities in providing a streamlined and efficient approach to managing and protecting the historic environment.

Although originally developed to contribute to the NHPP (English Heritage 2012), since replaced by Heritage 2020, the broad-based geographical and multi-period approach of NMP survey and the resulting thematic accounts and syntheses can feed directly into Historic England's more recent Corporate Plan and Action Plan (Historic England 2015a; 2015b). Specifically, it contributes to the delivery of Corporate Aim 2: identify and protect England's most important heritage; Corporate Plan Objective 2.2: identify, record and define the significance of heritage that is poorly understood, under-represented or most at risk; Action 2.2.2.: discover our hidden heritage. The results of NMP play an important role in the heritage protection process by providing detailed and accurate mapping of the location and extent of existing and potential designated sites, and by assessing their significance and recording their condition through time. The NMP mapping and recording can also highlight new sites which may be suitable for designation, for example see Appendix 1.

NMP data for Suffolk is being utilised regularly for both strategic planning, and on a 'site-by-site' basis for providing planning advice and mitigation (Dr Richard Hoggett, SCCAS, pers. comm.). For example, data from both the current project and earlier NMP projects, is already being used to inform work related to the East Anglia ONE Offshore Windfarm development (http://www.scottishpowerrenewables.com/pages/east_anglia_one.asp). The

associated cabling comes onshore at Bawdsey, at the southernmost end of Mapping Block 3, and extends for 20km, crossing the River Deben and continuing around the north of Ipswich. The project entails extensive archaeological evaluation and mitigation, for which NMP is providing crucial information for affected sites and their wider landscape context.

The level of site description and interpretation offered by NMP records, combined with an accurate site plan and indication of the extent of monuments, also has many obvious benefits for heritage management. Information derived from NMP is proving invaluable to historic environment professionals providing land management advice in Suffolk (Dr Richard Hoggett, SCCAS, pers. comm.). The predominantly agricultural economy and land use within Suffolk means that NMP information has great potential for feeding into agri-environment schemes and management strategies. NMP also offers substantial and obvious benefits to the owners and managers of large landholdings. Ninety-five per cent of the project area is part of the SC&H AONB designated landscape, for which an integrated management policy and plan is produced (currently SC&H 2013). The NMP mapping and resulting HER records will feed into future formulations of this policy and inform decisions regarding the historic environment of the area. It also supports the signed accord between HE and the National Association for AONBs (see http://www.landscapesforlifeconference.org.uk/2014/07/renewal-and-signing-of-the-accord-between-english-heritage/).

The management of heritage assets within the AONB area offers both unique opportunities for site investigation, preservation and presentation, and unique threats. The digital NMP maps and records are ideal for feeding into the planning of land management regimes, providing accurate depictions of the location and extent of individual sites and features, often for the first time. The enhancement of the existing archaeological record, through the identification of new sites and the provision of new information about those previously identified, allows both the agencies involved and heritage advisors to be better informed in their assessment of significance and vulnerability.

7.2 Monument Management and Heritage Protection in the Project Area

The NMP mapping has the potential to affect monument management and heritage protection in a number of ways. The provision of accurate locational

information for monuments themselves, along with interpretative text and discussion, and information about their wider landscape context, is essential to ensure the continued protection of regionally and nationally significant and designated sites. Relevant information – accurate mapping of form and extent, written interpretation and indexing, references for aerial photographic and other sources, information on survival, and so on – is recorded for each site in the Suffolk HER database, together with a link to the designation record.

The National Heritage List for England (NHLE) lists twenty Scheduled Monuments within, or intersecting with, the project area. The project mapped sixteen of these sites; the remaining four were either out of scope, had been mapped by a previous NMP project, were adequately recorded by Ordnance Survey mapping, or were not visible. The majority of the mapped sites, and the Scheduled sites as a whole, were round barrows. Many were identified within areas of modern plantation, often formerly areas of heathland. The non-barrow sites comprised three areas of complex cropmarks, with evidence of settlement and enclosures (recorded as ADT 001 and 109, HLY 005 and HLY 006), the medieval earthwork of Cumberland's Mount (WNN 001), and the henge and/or hengiform monument(s) and barrow cemetery south of Home Whin Farm (STT 004 to 010 and 064).

At most of the mapped Scheduled sites, the record was improved by providing a digital map of the site, and more accurate locational information. Several of the barrow sites were recorded from lidar, and were therefore located to a high degree of accuracy. At a number of sites new features related to the designated site were recorded. In Tunstall Forest, additional mounds were recorded in the vicinity of a Scheduled round barrow TUN 010. At Cumberland's Mount, in Staverton Park (WNN 001), two sections of linear earthwork bank were recorded to the west and east of the main earthworks. At Home Whin Farm, the mapping identified possible traces of additional ring ditches in the field to the east of the Scheduled area encompassing the henge and barrow cemetery. At Alderton, where complex, multi-phase cropmarks had been recorded (ADT 001), the site was extended, distinct phases recognised (ADT 109), and similarities with Middle Bronze Age enclosures and with areas of Anglo-Saxon/early medieval settlement noted.

While not always offering fresh interpretations or major additions to the Scheduled sites, the greatest contribution of the NMP survey has often been in

providing significant new information relating to the landscape context and setting of the site. At Wantisden, boundaries and enclosures were identified to the south of Cumberland's Mount, which are also assumed to be medieval in date but could pre-date Staverton Park and the Mount (WNN 027). On a larger scale, our knowledge and understanding of the Scheduled cropmark complexes at Hollesley (HLY 005, HLY 006) and Alderton (ADT 001, ADT 109) have been significantly enhanced, both by the mapping of the sites themselves, and by the mapping of the surrounding landscape. These all form part of the dense, multi-period cropmark landscape evident across the peninsula between the Deben and the coast (discussed in Section 4.10). For the first time, the extent, coherence, character and significance of the archaeology of this area has been demonstrated by the production of a comprehensive record of the cropmarks. The Scheduled sites can now be understood as part of this broader landscape, with its dense evidence of settlement and enclosure, linked by extensive field systems and trackways.

There are a number of significant sites within the project area that are not, as yet, designated. They include those recorded at Rendlesham. The NMP results for this area, discussed in Section 5, should be considered within the context of the wider, multi-disciplinary project at Rendlesham, which is still ongoing. The combined results from the various forms of investigation that have taken place there would suggest that it is a site of international importance. Future management of the area should be informed by an improved understanding of the archaeology and its significance.

A list of candidates recommended for designation, or sites where further work and heritage protection measures would be particularly beneficial, including Rendlesham, is provided in Appendix 1. Some of the sites might be suitable *foci* for projects supported by the various funding strands managed by Suffolk Coast and Heaths AONB (www.suffolkcoastandheaths.org/grants-and-funding). In addition to the listed sites, it should be noted that virtually all of the areas of extant heathland covered by the project contained surviving earthworks of various kinds, in particular boundary banks, braided trackways and Second World War military features. While individually these sites are of relatively low archaeological importance, as a group these areas of heathland warrant further survey and investigation, to ensure the continued survival of the earthworks they protect, and locate any as yet undetected remains.

8. Conclusions

With the creation of 446 new sites (a substantial proportion of which were new discoveries), the amendment of 233 existing SHER records, and the formation of an archaeological map covering 144 sq km, the results of this NMP project represent a significant contribution to the SHER and to our knowledge and understanding of Suffolk's historic environment. The increase by 52% to the number of known sites within the project area represents a significant move forward in our understanding of the archaeological landscape of the SC&H AONB. In terms of the NRHE, the contribution has been even greater, with the results representing a massive 379% increase to the record as it stood at the start of the project.

In addition to highlighting a number of significant research themes, this report has provided a brief chronological overview of the entire NMP mapping results for the project area. The project mapped and recorded a range of sites, dating from the Neolithic to the Cold War, relating, for example, to settlement, agriculture, funerary practices and military activity. Perhaps the most spectacular product of the mapping has been the extensive cropmark landscape recorded between the River Deben and the coast, which attests to a long-lived, multi-phase process of settlement and enclosure, which has its origins in the prehistoric period but remnants or echoes of which persist in the modern landscape. At Rendlesham, survey and interpretation of the full range of photographs and digital sources available for NMP allowed the tentative identification and mapping of a possible Anglo-Saxon timber hall. To the south, comparatively large numbers of possible Anglo-Saxon settlement sites were also identified. Across the project area as a whole, but particularly in Block 1, numerous sites of 20th-century military activity were recorded, many for the first time, and many of which may still partially survive.

In recent years, and in response first to the formation and publication of the NHPP (English Heritage 2012), and subsequently Heritage 2020 and the Historic England Corporate Plan and Action Plan (Historic England 2015a; 2015b), NMP projects have increasingly focussed on heritage protection as one of their principal outcomes. The incorporation of the project's results into the SHER, and eventually the NRHE, will ensure better heritage protection across the project

area: those charged with the management and guardianship of the historic environment will be better informed as to the existence, location, nature and extent of archaeological sites within the project area. For the first time, this information will not be 'hidden' on a variety of aerial photographic sources, stored at several different locations, but readily accessible in a standardised and comprehensible format, namely SHER records and maps (accessible online via the Suffolk Heritage Explorer website, https://heritage.suffolk.gov.uk/).

A principal aim of the project was to improve heritage protection by identifying, mapping and interpreting sites – and in particularly earthwork sites – on areas of heathland. It is of particular significance in this respect that considerable numbers of sites of all periods were recorded on areas of surviving and former heath. Crucially, a significant proportion of the sites mapped on surviving heathland (85 or 57%) were recorded as containing surviving earthwork elements. The fact that 95% of the project area is a designated landscape means that this increase in knowledge of the historic environment of both heathland and non-heathland areas will undoubtedly benefit the way in which the landscape is managed and promoted, through the work of SCCAS and the SC&H AONB. In addition, a list of sites where further work and/or heritage protection measures are recommended is given in Appendix 1. This list is not exhaustive, nor is it intended to be proscriptive, but rather it includes the sites that appeared to the Air Photo Interpretation Team to be the most significant, best preserved or with the greatest potential to benefit from additional work or heritage protection measures.

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Appendix 1. Recommendations for Heritage Protection or Further Work

Possible candidates for designation, or revisions to existing designations, are listed in bold type. Detailed information – accurate mapping of form and extent, written interpretation and indexing, references for aerial photographic and other sources, information on survival, and so on – is recorded for each site in the Suffolk HER database, with a link to the designation record where applicable.

Virtually all of the areas of extant heathland covered by the project contained surviving earthworks of various kinds, in particular boundary banks, braided trackways and Second World War military features. While individually these sites are of relatively low archaeological importance, as a group these areas of heathland warrant further survey and investigation, to ensure the continued survival of the earthworks they protect, and locate any as yet undetected remains.

SHER Mon UID	SHER Parish Code	Parish	Description	Condition	Comments / Recommendations
MSF2751	**ADT 001**	**Alderton**	**Enclosures and settlement; existing HER record extended, and additional cropmarks relating to the site mapped to the north (HLY 009). Phasing recognised and some features split into 'child' record ADT 109. Similarities with Middle Bronze Age enclosures, and potential for Saxon/early medieval date features noted.**	**Cropmark.**	**Scheduled area may need to be extended. Further work would be beneficial to attempt to establish dates for settlement phases.**
MSF31664	**BLB 107**	**Blythburgh**	**Possible Bronze Age round barrow.**	**Earthwork.**	**Ground survey to establish whether site visible on lidar imagery is archaeological. Potential designation if this is the case.**

SHER Mon UID	SHER Parish Code	Parish	Description	Condition	Comments / Recommendations
MSF31665	BLB 108	Blythburgh	Possible medieval to post medieval earthwork bank.	Earthwork.	Ground survey to establish whether earthworks visible on lidar imagery survive.
MSF31666	BLB 109	Blythburgh	Possible post medieval stock enclosures.	Earthwork.	Ground survey to establish whether earthworks visible on lidar imagery survive.
MSF31614	BML 042	Bromeswell	Possible Bronze Age barrow cemetery.	Earthwork?	Ground survey to establish whether site visible on lidar imagery is archaeological.
MSF34632	HLY 158	Hollesley	Newly identified, dense area of undated cropmarks, comprising several enclosures, trackways, parts of one or more field systems, and ring ditches, almost certainly indicating settlement, plus a possible round barrow (HLY 157). It is clear that several phases of activity are represented, probably stretching from the Bronze Age or Iron Age, to the post medieval period.	Cropmarks; some elements visible on 2011 Google Earth imagery. Most features are only visible on a single CUCAP oblique from 1976; this only partially covers the field/cropmarks, and has inadequate control for accurate mapping.	Aerial reconnaissance when conditions suitable for cropmark formation, and/or geophysics to complete plan of site, add detail, and provide more accurate map.
MSF21616	LCS 082	Leiston	Possible saltern mound ('Red Hill').	Soilmark.	Fieldwalking to establish whether briquetage or other material present.
various	**various**	**Rendlesham**	**High-status (Royal?) Anglo-Saxon settlement, with earlier and later phases.**	**Cropmarks/soilmarks, sub-surface remains, ploughsoil artefacts**	**Results of NMP survey should be considered within context of ongoing extensive multi-disciplinary survey; combined results should inform future management of site(s).**

SHER Mon UID	SHER Parish Code	Parish	Description	Condition	Comments / Recommendations
MSF32047	SUE 133	Sudbourne, Orford, Iken, Tunstall, Chillesford	Second World War tank training area, part of Orford Battle Training Area (ORF 137).	Mainly levelled/dismantled, but some earthworks and structures may survive.	Specialist research (including collation of existing information), in particular using documentary sources and contemporary ground photography, to elucidate purpose of features mapped by NMP, and recorded more broadly by the various sources.
MXS19538	RMS 042	Ramsholt	Control building for Second World War Civil Starfish and Civil QL bombing decoy. Mapped by previous NMP project.	Noted by current project that structure still visible on recent Google Earth images (2007 and, less clearly, 2011) suggesting it is likely to still survive at least partially intact.	Site visit to check survival; subsequent liaison with land owner/manager to ensure continued preservation.
MSF32028 **MSF32029**	**STT 064, STT 065**	**Shottisham**	**Hengiform monument(s) ring ditches (presumed to be round barrows). Overlain (presumably) by a rectilinear, possibly prehistoric field system (STT 065).**	**Cropmarks; appearance suggests they may have been earthworks until relatively recently.**	**Revision of Scheduled area to include possible new barrows and greater portion of field system (Dr Will Fletcher, HE, pers. comm.).**
MSF3677	**SUT 001**	**Sutton**	**Additional possible barrows within round barrow cemetery.**	**Earthwork.**	**Ground survey to establish whether two extra mounds visible on lidar imagery are archaeological; potential inclusion within designation if they are.**
MSF33949	SUT 262	Sutton	Possible Neolithic oval barrow.	Earthwork.	Ground survey to establish existence and nature of feature visible on lidar.
MSF33479 MSF33478	WLN 060, WLN 061	Westleton	Field systems and enclosures identified on heathland. Date uncertain but most likely medieval.	Earthworks. Lidar suggests still surviving in places.	Would benefit from assessment on the ground and possibly historical map research.

SHER Mon UID	SHER Parish Code	Parish	Description	Condition	Comments / Recommendations
MSF31705	**WLN 068**	**Westleton**	**Possible Bronze Age barrow cemetery.**	**Earthwork.**	**Ground survey to establish whether site visible on lidar imagery is archaeological; potential designation if this is the case.**
MSF34507	WNN 027	Wantisden	Possible medieval settlement and/or landscape features pre-dating the deer park (WNN 008).	Earthwork	Ground survey to interpret further and assess archaeological significance.

Appendix 2. NMP Methodology

The methodology to be employed by the project conforms to that detailed in Winton 2012, but draws upon the Air Photo Interpretation Team's prior experience of undertaking NMP projects in Norfolk and Suffolk.

A2.1 Archaeological Scope of the Survey

All archaeological monuments, both plough-levelled and upstanding, dating from the Neolithic period to the 20th century, including industrial and military remains up to and including the Cold War, were recorded. Those features adequately depicted by readily accessible historic maps and existing surveys and excavation plans were usually ignored. **It should be noted that the NMP is intended to provide only assessment-level data, at a nominal scale of 1:2500.** Transcription was undertaken at 1:2500 scale; any detail not clearly visible **and comprehensible** at a 1:2500 output scale was omitted, *e.g.* internal features within buildings.

Plough-Levelled Features

All cropmarks, parchmarks and soilmarks representing sub-surface archaeological remains were recorded.

Earthworks

All earthwork sites visible on aerial photographs were mapped, unless existing and readily accessible earthwork surveys adequately recorded the information visible on the aerial photographs and at a comparable scale. Any existing information was augmented and complemented where necessary by the aerial evidence. Earthworks were recorded whether or not they were still extant on the latest aerial photographs. The accompanying HER records specify which elements of earthwork groups are surviving or plough-levelled; monument types were indexed with the evidence visible on the latest available photographs (usually Google Earth).

Buildings and Structures

As a rule, the mapping did not include buildings, other than where these were recorded as earthworks, masonry foundations or as cropmarks or soilmarks. Standing buildings that had been destroyed were recorded when there was no other adequate record (a map record existed in most cases). These were transcribed and the date and cause of their destruction, where known, was recorded. Buildings relating to military or industrial sites were mapped and/or defined by an 'extent of feature' where appropriate.

Industrial Archaeology and Areas of Extraction

The survey recorded basic-level evidence of industrial activity, such as salt-making, lime burning and brickmaking, where they were recognised as pre-dating 1945 and only where the sites were not already recorded adequately by map evidence. Areas of former extraction were only mapped where they were judged to be of archaeological significance or have a bearing on surrounding sites. Urban industrial areas were excluded from the NMP recording, unless archaeologically significant or if they contained evidence for the provision of public air raid shelters for workers, for example. In practice, no such areas were included in the project area.

20th-Century Military Archaeology

All former military sites and installations up to and including the Cold War which were visible on the aerial photographs were recorded. First and Second World War military remains, such as airfields and camps, were recorded to an appropriate level of detail, ranging from a dotted outline defining their extent, to the recording of individual structural components, depending on their significance and the amount of time available. Isolated military sites, such as pillboxes and searchlight batteries, were mapped and recorded, again to an appropriate level of detail. Small domestic air raid shelters, which are not readily visible at 1:2500 scale, were only mapped if time allowed or their location was of particular significance. Sites relating to military activity post-1945 were only mapped if they related to significant activities and were characteristic of the Cold War era and strategies, *i.e.* not merely relating to general military training activities.

Coastal and Inter-Tidal Archaeology

The project area encompassed parts of the coastal margins and estuaries where inter-tidal (or formerly inter-tidal) sites may have been encountered. These were mapped to normal NMP standards, although inadequate control may have reduced the accuracy of the mapping.

Post Medieval Field Boundaries

Where post medieval field boundaries were visible as cropmarks, earthworks or still extant on aerial photographs they were not plotted or recorded, in particular if they were depicted on the available Ordnance Survey mapping. If they were extensive or archaeologically significant, and/or could be confused with the remains of earlier field systems, their presence and extent may have been noted and in some cases mapped and recorded.

Ridge and Furrow and Water Meadows

All remains of ridge and furrow were recorded using a standard convention to indicate the extent and direction of the furrows. The distinction between earthwork and levelled ridge and furrow was made in the HER record. Any areas of water meadows were also mapped to a basic level of detail, using the bank and ditch layers.

Drainage Features

It is not within the usual scope of the NMP methodology to map drainage features. Where archaeologically significant, information can generally be derived from a detailed historic map-based search. Consequently drainage features were not recorded as part of the project.

Parks and Gardens

Earthworks and levelled landscape features associated with historic parks and gardens were recorded. If appropriate, other parkland features, such as tree avenues, may have been mapped or more likely a note made in the record; however this was done on a site-by-site basis and decisions were inevitably influenced by the amount of time available, the relative archaeological significance of the feature and whether it could be recorded adequately from non-aerial photographic sources. Modern or 20th-century parks and gardens were not

included, however any features of relevance to other sites of archaeological significance may have been noted in a record.

Transport

Major transport features, such as disused canals or railways, were not mapped as it was assumed that these would be adequately recorded already via other sources. Smaller features, such as tramways or industrial railways may have been included, as they are less likely to have been depicted on Ordnance Survey maps, and may be archaeologically significant in relation to a nearby industrial or military site. However, in practice no such features were encountered within the project area.

Geological and Geomorphological Features

Geological features were not plotted unless their presence helped to define the limits of an archaeological site. Geological and geomorphological features may have been noted in site records, as their presence in some instances could assist with an assessment of the archaeological potential of an area.

A2.2 Sources

Aerial Photographs

The principal sources of aerial photographs that were consulted by the project were as follows:

Source	Type	Media
Historic England Archive	Vertical, oblique, military oblique	Prints and digital
Historic England Aerial Survey	Images supplied to Historic England by Next Perspectives through the APGB Agreement (verticals, infra-red), Environment Agency lidar	Digital
Suffolk County Council	Oblique and vertical prints held by SCCAS and Suffolk Record Office, Environment Agency lidar	Prints and digital
CUCAP	Vertical, oblique	Prints
Online Sources	Google Earth, Bing Maps	Digital

Documentary and Historic Map Sources

The primary archival sources for the project were the Suffolk HER maps and records. However, due to time constraints and the location of the Air Photo Interpretation Team in Norfolk, Suffolk HER secondary files and paper records were not consulted as a matter of course, but requested when most relevant for NMP recording. The HEA records and digital Ordnance Survey maps for the 1880s were consulted for each mapping block.

Bibliographic sources were used were most relevant and when time allowed. However, due to the time constraints of NMP, only a limited amount of additional research could be undertaken for any given site.

A2.3 Digital Transcription

The transcription was undertaken in AutoCAD at a nominal scale of 1:2,500, Separate drawings were created for each OS 1:10,000 quarter sheet, or equivalent mapping area. Whenever possible, archaeological features were mapped from scanned images rectified in AERIAL, with control information derived from digital OS MasterMap layers (usually scale 1:1250). Where necessary, and where adequate control existed, the digital terrain model function in AERIAL was used to compensate for distortion due to slope and terrain. A level of accuracy of +/- 2m should have been achieved at this scale of mapping.

Rectified images were imported into AutoCAD. Archaeological features were transcribed onto the relevant drawing layer using a specific set of AutoCAD layers, derived from the standard NMP line and colour conventions (Winton 2012). Additional layers (*e.g.* DITCH_DOUGHNUT) were added to streamline the export process to MapInfo and to create 'filled' polygons where appropriate. Any deviations from the national NMP layer conventions (Winton 2012) were changed back to the required format before submission to SCC and/or HE. The original photographic scans and rectified images will be discarded, with the exception of complete scans of CUCAP aerial photographs which will be archived onto CD and given to CUCAP, as specified in the NMP CUCAP loan agreement.

The project also accessed several georeferenced digital photo layers, supplied by SCC and HE (images supplied to Historic England by Next Perspectives through the APGB Agreement), and on-line via Google Earth and Bing Maps.

These digital layers were inserted into AutoCAD and mapping undertaken directly from the image; Google Earth images were inserted and ‘aligned’ onto the map base. Given the limited time available to complete the mapping, rectifications were kept to a minimum, particularly where good vertical coverage showed the main components of sites. When appropriate, small amounts of additional detail were added directly to the plot by eye.

Once checked, a digital export of the NMP mapping was imported into MapInfo and any remaining formatting undertaken. Monument Polygons defining the extent of each site were then copied to the HER Mon layer and linked to the relevant database record.

A2.4 Database Records

NMP Drawings

Object Data tables were created and incorporated into each AutoCAD drawing. These recorded only the Mon UID and Parish Code/Pref Ref, but were attached to all objects within the drawing. This data was exported as Attribute Data along with the mapping into the MapInfo, which was then supplied to the HER. Any additional fields, for example ‘period’, ‘evidence, or ‘monument type’ can be exported from the HER and added to the mapping as and when required. This ensured that the time spent attaching Object Data to the mapping was minimised, and that any Object/Attribute data is up-to-date.

Suffolk HER (ExeGesIS HBSMR)

Suffolk HER numbers were allocated in liaison with the HER officer. A record of each number used was maintained, continuing the method used for the Lothingland, Greater Lowestoft and North Suffolk AONB NMP Project (HE Project 6642).

For each individual monument or group of monuments (both new and previously recorded), the Air Photo Interpretation Team created a temporary record, which contained their descriptive records, sources and indexing (for the latter, pick-lists were used to save time and increase consistency). This information was then transferred to the live HER in batches, team members travelling to SCCAS offices to undertake this task on a periodic basis; some records were inputted by members of the SCCAS HER team. Each record includes a short written

description and summary, an index of monument types and dates, evidence type, locational data, and links to sources, events and other monument records, as necessary. Once the mapping was completed and imported into the HER, each record was linked to a Monument Polygon defining the extent of the site on the HER Mon layer. Any sensitive sites have been flagged up to SCCAS by the Air Photo Interpretation Team and noted in the report. Once integrated into the HER, the NMP data feeds directly into Suffolk HER uploads to the Heritage Gateway, with sensitive sites handled in the same way as the core HER data.

Upon request, and once a suitable transfer mechanism is in place, copies of the mapping and records will be exported to the NRHE (see Appendix D7).

Event Records

A parent Event record for the whole project was created. An Event record was also created for each Mapping Block and OS quarter sheet (or equivalent mapping area). These were linked in a hierarchy and provide information on the compiler, date of work, associated events and any additional information that would have previously been included on the paper Map Note Sheets. The OS quarter sheet Event records, which form the bottom tier of the hierarchy, link directly to all their associated Monument records.

Progress Sheets

Records were kept of the progress of each quarter sheet or equivalent area, particularly of time taken for each task and the numbers of records created and amended. The Air Photo Interpretation Team uses a series of spreadsheets and proforma sheets to use for this. Information required for the archive has been transferred to the relevant Event record, and/or included in the NMP Report or Closure Report.

A2.5 Reports and Publications

NMP Report

This internal ‘grey literature’ report has been written to quantify and assess the results of the project. It summarises the main chronological trends and the character of the archaeological sites and landscapes recorded. It highlights any significant and/or sensitive sites and provides a synthesis of the results of the

mapping and interpretation, assessing its significance in the context of both the county and the region. It makes recommendations for future work, including further aerial reconnaissance, ground truthing and ground survey, in particular for earthwork sites within areas of surviving or former heathland, and publication.

A list of sites which might benefit from further heritage protection measures, including potential candidates for designation, are listed in Appendix 1.

A2.6 Data Access and Copyright

All NMP maps and accompanying monument records are copyright Historic England, licensed jointly to SCC and NCC. The provision of the NMP and SHER data will be subject to a series of existing data agreements for using SHER data.

A2.7 Storage, Data Exchange and Archiving

All photographic material on loan from HEA and CUCAP collections were stored in a locked fire-proof cupboard within the Norfolk Air Photo Library, which is itself locked and alarmed. HEA photographs were loaned on a rolling programme, and held according to their terms and conditions.

Provisionally, all digital mapping and recording data was stored on the NCC ETD shared drive for the duration of the project, as this has a daily back-up. The exported data is stored within the Suffolk HER, as part of the HER's ExeGesIS HBSMR database and GIS data, consistent with the NMP data from previous projects within Suffolk.

Copies of this report will be supplied to Historic England, to be made available to download from their website.

Copies of the digital maps and records will also be archived with NRHE, according to current guidelines for NMP projects, upon request and when a suitable transfer mechanism is in place. All other project data (report files, management and administration documents, etc.) will be rationalised before archiving on the NCC network (where appropriate, copies to be provided to SCC and HE on request).