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Aylsham and Brampton Aerial Investigation and Mapping Project, Norfolk

Jack Powell and Sophie Tremlett, Norfolk County Council

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Aerial Investigation and Mapping Survey of Aylsham and Brampton, Norfolk

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Norfolk County Council

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SUMMARY
North-east Norfolk has long been known as a landscape where extensive, dense, varied and complex buried archaeological remains were known to be visible as cropmarks. The propensity of the soils to form cropmarks, together with a long history of intensive archaeological and aerial reconnaissance, meant that the potential to record new sites in this area was extremely high, along with the opportunity to record new information about previously recorded sites. The area is also noted for its high density of prehistoric funerary monuments, the site of Brampton Roman town (the extent and character of which is primarily known from cropmark evidence) and the registered park and gardens associated with Blickling Hall.

The Aylsham and Brampton Aerial Investigation and Mapping (AIM) survey has made a significant contribution to our knowledge and understanding of the historic environment of the project area. It has undertaken a new baseline survey of 99 sq km of the Norfolk landscape, creating 458 new records in the Norfolk Historic Environment Record (NHER), and enhancing a further 129 records. Crucially, many sites have been accurately mapped for the first time, allowing them to be both better understood and better managed.

The survey has discovered, interpreted, mapped and recorded sites ranging in date from the Neolithic to the 20th century. Highlights have included numerous prehistoric funerary sites, including several of likely Neolithic date. Mapping of Brampton Roman town and the surrounding area has added significantly to our understanding of the environs of this Roman small town. A wealth of features relating to medieval and post-medieval fields, enclosures and routeways provides a fantastic resource for future research into the settlement and land use of the period. The six manorial and/or moated sites recorded by the project are an interesting group in their own right, as well as contributing to our understanding of the wider medieval and post-medieval landscape.

By collating the evidence visible on the huge variety of aerial sources consulted by the project, and by making this available via the NHER – and other platforms – in the form of digital maps and records, the information contained in the aerial sources has been 'unlocked', and can now be recognised, understood, disseminated and utilised by a wide range of users. Fundamentally, it will be an important resource for those managing and making decisions about the historic environment of the project area. The questions raised by the results, and their further analysis, will hopefully form the basis of much future research in the region.

CONTRIBUTORS
Survey, research and report by Jack Powell and Sophie Tremlett, Norfolk County Council (NCC).

ACKNOWLEDGEMENTS
Funding for the project was provided by Historic England. The project was undertaken and managed by Norfolk County Council's Environment Team, part of Community and Environmental Services. The principal staff were Jack Powell and Sophie Tremlett, with Martin Horlock initially acting as Project Manager and

Executive before that role was taken over by Daniel Voisey in 2022. Heather Hamilton provided support in relation to the Norfolk Historic Environment Record (NHER).

At Historic England, advice and support was provided by Helen Winton (Project Assurance Officer and Quality Assurance Officer), Matthew Oakey (Aerial Survey Principal) and Sally Evans (Aerial Survey Manager).

Professor Tom Williamson (University of East Anglia), Dr Natasha Harlow (University of Nottingham), John Percival (NCC), David Gurney, Kenneth Penn and Michael de Bootman all kindly read and commented on drafts of the report.

In addition to material held in the Norfolk Air Photo Library, the mapping was undertaken using aerial photographic material from the Historic England Archive (HEA) at Swindon. Thanks are extended to all those who kindly provided access to the photographs and supplied loans of material, in particular Luke Griffin, Fiona Matthews and Will Watchorn (HEA). Lidar visualisations were created using Relief Visualization Toolbox (Zakšek *et al* 2011; Kokalj and Somrak 2019).

ARCHIVE LOCATION

Community and Environmental Services
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DATE OF SURVEY

Survey, mapping and recording were carried out between April 2020 and March 2023

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Front cover: the landscape of the project area, with Blickling park in the foreground, looking south towards Aylsham. Photograph: NMR 27487_017 20-JUN-2012 © Historic England.

Abbreviations

AIM	Aerial Investigation and Mapping (formerly NMP)
CUCAP	Cambridge University Collection of Aerial Photography
HEA	Historic England Archive
HER	Historic Environment Record
HERR	Historic England Research Record
NAPL	Norfolk Air Photo Library
NCC	Norfolk County Council
NHER	Norfolk Historic Environment Record
NHLE	National Heritage List for England
NMP	National Mapping Programme (now renamed AIM)
NRHE	National Record of the Historic Environment
RAF	Royal Air Force
USAAF	United States Army Air Force

INTRODUCTION

The Aylsham and Brampton aerial investigation and mapping (AIM) project (Historic England Project 8000) comprised a survey of 99sq km of Norfolk, covering the town of Aylsham and the site of Brampton Roman town. The project area (Fig 1) was located in north-east Norfolk, an area covered by free-draining loams. It is an area that has long been notable for the density and clarity of its cropmarks relating to buried archaeological remains. These remains range in date from the Neolithic to the post-medieval period, but the area is particularly notable for prehistoric funerary monuments and Roman settlement. There are also significant archaeological remains relating to medieval settlement, and the Jacobean great house of Blickling Hall, surrounded by its park and gardens, is in the north-west corner of the project area.

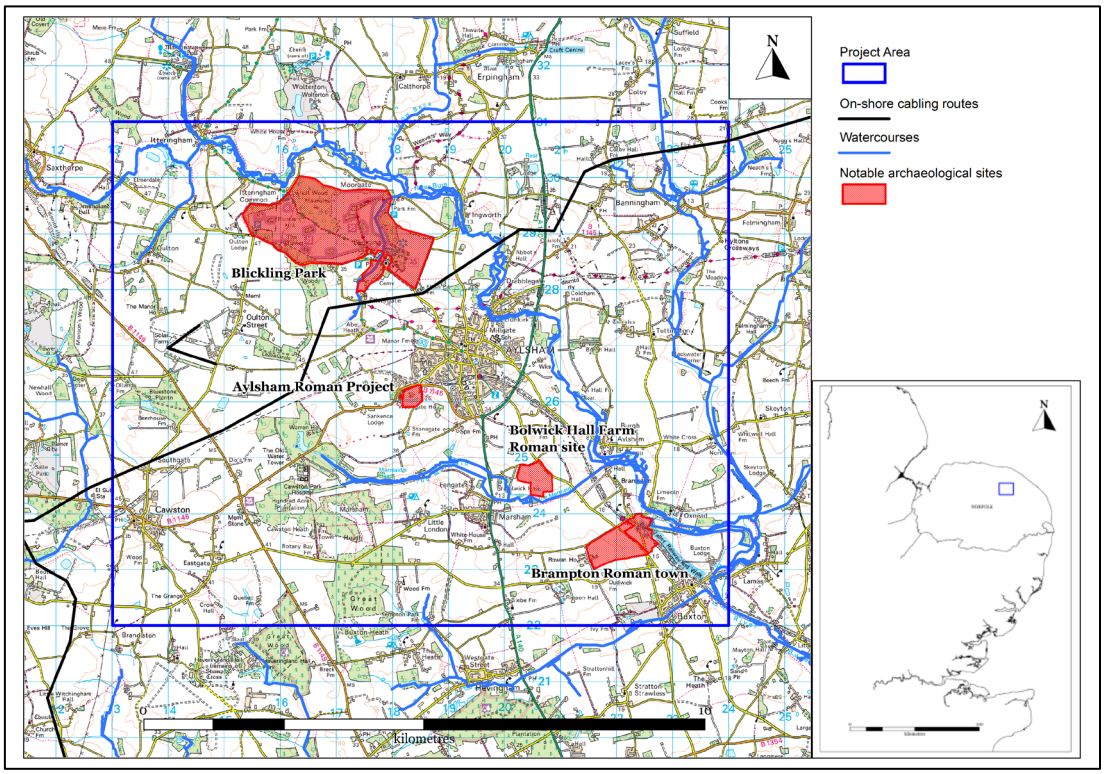

Figure 1 The project area; inset shows wider location. Base mapping © Crown copyright and database rights 2023 Ordnance Survey 100019340. Watercourse data contains Ordnance Survey data © Crown copyright and database right 2023. Additional data sourced from third parties, including public sector information licensed under the Open Government Licence.

The project was primarily intended to provide high quality, baseline data to better inform decision making concerning the historic environment within the project area. The area faces a number of threats and opportunities – such as changes to land use and ongoing development – which combined with its high

potential for new archaeological discoveries made it a priority for further investigation.

The project was devised to capitalise on the large quantity of specialist oblique aerial photography for the area, and the propensity of the soils to form cropmarks. By collating the evidence visible on images from the Norfolk Air Photo Library (NAPL) and Historic England Archive (HEA), alongside digital sources such as Google Earth, the potential of the aerial photographs could be unlocked. The information derived from the photographs would be recorded and interpreted in a standardised and comprehensive way, and the data would be made available through the Norfolk Historic Environment Record (NHER) and related channels (such as Heritage Gateway).

The main motivation for the project was the high potential for archaeological discovery from aerial sources, given the propensity of the soils to form cropmarks, the known density and complexity of the buried archaeological resource, and the consequent long history of aerial reconnaissance in this area. To this could be added the exceptional density and clarity of cropmarks visible on the 2006 Google Earth imagery for this part of Norfolk, most of which had not been subject to comprehensive analysis.

Much of the area is under arable cultivation, and there is the potential that archaeological sites are being actively damaged or destroyed. Changes in agricultural regimes – for example, as a result of the United Kingdom leaving the European Union and the introduction of new Environmental Land Management schemes – represent a potential threat but also have the potential to provide new opportunities for better heritage management. Forestry intensification as part of climate mitigation could also be a threat for parts of the project area, but could again offer opportunities to better preserve heritage sites.

There are also significant development pressures; currently, these include the on-shore cabling route for the Boreas and Vanguard off-shore windfarms (both Nationally Significant Infrastructure Projects). Although a survey using aerial sources was completed for a corridor along this route (Royal HaskonigDHV 2019), the project will allow the results of the survey – and of subsequent archaeological fieldwork – to be understood and re-assessed within the wider context of the surrounding landscape. Significant piecemeal development – for housing, business and infrastructure improvements, for example – is also expected around the market towns of Aylsham and Cawston, in neighbouring villages and along the A140, an important transport route linking Norwich to north-east Norfolk and the coast. The data created and enhanced by the project has the potential to better inform decisions regarding the location of development, forestry or agricultural regime changes, and any mitigation strategies that might be needed.

Another reason for doing the project at this time were the opportunities available to engage with researchers and users of historic environment data. The project included time for delivering a number of aerial archaeology events (talks, workshops, etc), to facilitate engagement with AIM data and aerial sources more broadly. With time also allocated for ongoing support and liaison, volunteers and researchers were encouraged to use the AIM data as a springboard for further work (potentially using different methods), to place their own work in a wider landscape context, or to use aerial sources to look at sites outside the archaeological or geographical scope of the project.

While primarily focused on the use of aerial sources, the project sought to incorporate the work of earlier fieldwork, including developer-led investigations. It engaged with local researchers and land managers, including the Aylsham Roman Project and the National Trust, in order to promote and facilitate the use of both aerial sources and AIM maps, records and reports in their own work. The data created by the project provides a high-quality baseline dataset for archaeological sites that will be impacted by future development. The work has both identified new archaeological sites that could be at risk, and allowed the results of site-specific research to be viewed within the context of its wider environs. The NHER has been substantially enhanced, through the identification of new sites, the addition of new information about previously recorded sites, and by the rationalisation and standardisation of records relating to aerial sources and the sites they show. The depiction of the form and extent of the sites visible on the aerial sources has been substantially improved. This will contribute to a better understanding of their character and significance, and in turn to better informed decisions concerning their management. The archaeological mapping, its associated records, and this report also provide a means for both professional and non-professional audiences to engage with the archaeology of the area in a more nuanced way than is normally possible with more rudimentary archaeological records.

The Aylsham and Brampton AIM survey has made a very significant contribution to baseline knowledge of the heritage of north-east Norfolk. It has identified, and enhanced our understanding of a wide variety of sites ranging in date from the Neolithic to the 20th century. It has identified 458 new records for the Norfolk HER, 359 of which relate to new discoveries, representing an increase of 28 per cent within the area surveyed; it has also identified amendments for a further 129 entries. This equates to a total average density of 5.9 records per sq km. The survey has also created a digital archaeological map covering 99sq km, bringing AIM coverage in Norfolk up to 43 per cent. The work has provided 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. The primary purpose of this report is to provide a summary of the project results,

highlighting significant discoveries, identifying important research themes and assessing the potential for further work.

Aims and Objectives of the Survey

The principal aims of the survey were outlined in the project proposal (Tremlett 2020, 4-6) as follows:

- To improve planning decisions at local, regional and national levels by providing significant amounts of new and improved information for the Norfolk Historic Environment Record. *Outcome: the survey created 458 new HER records, equating to a 28 per cent increase to the HER across the project area; it enhanced a further 129 existing records; combined, this equates to an average density of 5.9 sites per sq km.*
- To identify and describe local, regional and nationally significant archaeological sites and landscapes to enable appropriate levels of protection. *Outcome: the results of the project are summarised and discussed in this report, which identifies highlights, themes and areas for further work; a list of recommendations for sites where further protection, including designation, might be appropriate is included as Appendix 3.*
- To contribute to ongoing and future research by creating data that addresses specific questions. *Outcome:*
    - *The results of the project will contribute to ongoing and future research relating to Brampton Roman town and its wider landscape*
    - *They will provide comparative data for the Caistor Roman Town project and a possible 'Great Estuary' project (Dr Will Bowden and Dr Natasha Harlow, University of Nottingham, pers comm)*
    - *The project will contribute aerial archaeology mapping and records to aid and inform work by the Aylsham Roman Town project*
    - *It will contribute to ongoing work by archaeologists, curators and volunteers at the National Trust to investigate, record and manage the archaeology of Blickling Park and the wider estate*
    - *The results will contribute to ongoing work by Dr James Albone, Historic England, into the apparent absence of post-Bronze Age activity on Norfolk's heathland and commons.*
    - *By identifying sites and creating maps and records for an area where the buried archaeological resource is known to be extensive, varied, dense and complex, and where aerial sources are known to be a key resource, the project can contribute to regional and sub-regional analyses, including those undertaken in response to the Regional Research Framework.*

- To provide 'added value', by delivering information, training and ongoing support to local volunteers and researchers to enable them to access and make use of AIM data and aerial sources to undertake their own research, thereby expanding the geographical and/or archaeological scope of the project, and its impact. *Outcome: although hampered by covid restrictions, the project produced a poster presentation for the Bronze Age Forum 2022, delivered an aerial archaeology workshop for volunteers for the National Trust and Aylsham Roman project, and provided a talk to Aylsham Local History Society; the team have also been invited to participate in a proposed online event, hosted by the National Trust, bringing together recent research relating to Blickling Park and its environs, and to provide a talk on behalf of Norfolk Record Office.*
- To enable key research questions to be addressed by creating baseline data relating to: What? When? Where?. *Outcome: the project has created an extensive, accurate, feature-level archaeological map, indexed with basic interpretative data and linked to more detailed database records.*
- To provide extensive archaeological data that can both inform **and be informed by** future planning and mitigation decisions, and ongoing archaeological research. *Outcome: the project data will be accessible via the Norfolk HER and its online version Norfolk Heritage Explorer, Heritage Gateway and Historic England's Aerial Archaeology Mapping Explorer. The integration of the project results with the Norfolk HER means that it is readily available for consultation regarding planning and mitigation decisions.*
- To address a physical gap in coverage by AIM standard surveys, in an area of known archaeological potential, where aerial sources are a key archaeological source. *Outcome: the project has increased AIM standard coverage in Norfolk to 43 per cent, and unlocked the potential of the extensive archaeological aerial reconnaissance that has taken place there. The project has consulted more than 1700 specialist oblique aerial photographs from the NAPL and HEA collections.*
- To address themes in the Regional Research Framework. *Outcome: the results of the project can be used to address several of the themes in the most recent iteration of the Regional Research Framework.*
- To champion 'hidden heritage' by making information available on previously unrecognised and poorly recorded archaeological sites and landscapes. *Outcome: the survey represented the first comprehensive, large-scale mapping programme undertaken in this area in recent years; as well as identifying new sites and features, it also enhanced the record for previously recorded sites where there were issues relating to identification, interpretation, location and extent.*
- To champion the use of archives by demonstrating the archaeological value contained in physical and online archives with aerial photographs and lidar. *Outcome: the project not only unlocked and disseminated the information*

contained on the aerial photographs and lidar, but it also liaised with end users of the data, such as the Norfolk HER, the Aylsham Roman Project and the National Trust, encouraging and facilitating the use of both the data and of aerial sources by volunteers and researchers.

- To highlight where existing Scheduled Monument descriptions could be improved and 'Enrich the List'. *Outcome: a list of potential updates is included as Appendix 4.*

The project's main objectives were:

- The identification, mapping, interpretation and recording to AIM standards of archaeological sites within the project area. *Outcome: the project created a map of archaeological features visible on aerial sources covering the 99sq km project area; it identified, mapped, interpreted and recorded 587 individual 'sites' (defined as a single HER record).*
- The integration of the resulting data into the NHER, from where maps and records can be transferred to other platforms –the National Trust's HER, for example – as required. *Outcome: copies of the database records can be provided from the NHER as required; a GIS-compatible copy of the mapping, with associated data, will be submitted to Historic England for inclusion in the Aerial Archaeology Mapping Explorer once any final changes to the report, mapping and records have been made; liaison between project staff, the NHER and the National Trust regarding data provision are ongoing.*
- To develop a series of aerial archaeology events that will facilitate the provision of information, training and support in using AIM data and aerial sources to community groups, volunteers and partner organisations. This will enable them to make the most of the data and the sources in their own work, thereby extending the geographic and/or archaeological scope of the project, and its impact. *Outcome: although hampered by covid restrictions, the project produced a poster presentation for the Bronze Age Forum 2022, delivered an aerial archaeology workshop for volunteers for the National Trust and Aylsham Roman project, and provided a talk to Aylsham Local History Society; the team have also been invited to participate in a proposed online event, hosted by the National Trust, bringing together recent research relating to Blickling Park and its environs, and to provide a talk on behalf of Norfolk Record Office.*
- The analysis and dissemination of the results of the project, through the production of an Historic England Research Report, and 'signposting' on the Historic England website. *Outcome: the final version of this report will be submitted for publication as part of the Historic England Research Report Series; text and images have been provided for the Historic England website.*

- Liaison within NCC and with external bodies to promote the use of AIM data as a tool for informing and facilitating future management decisions concerning the historic environment. *Outcome: the project has actively engaged with the NHER, National Trust and Aylsham Roman Project regarding the project's results, data integration, and future use.*

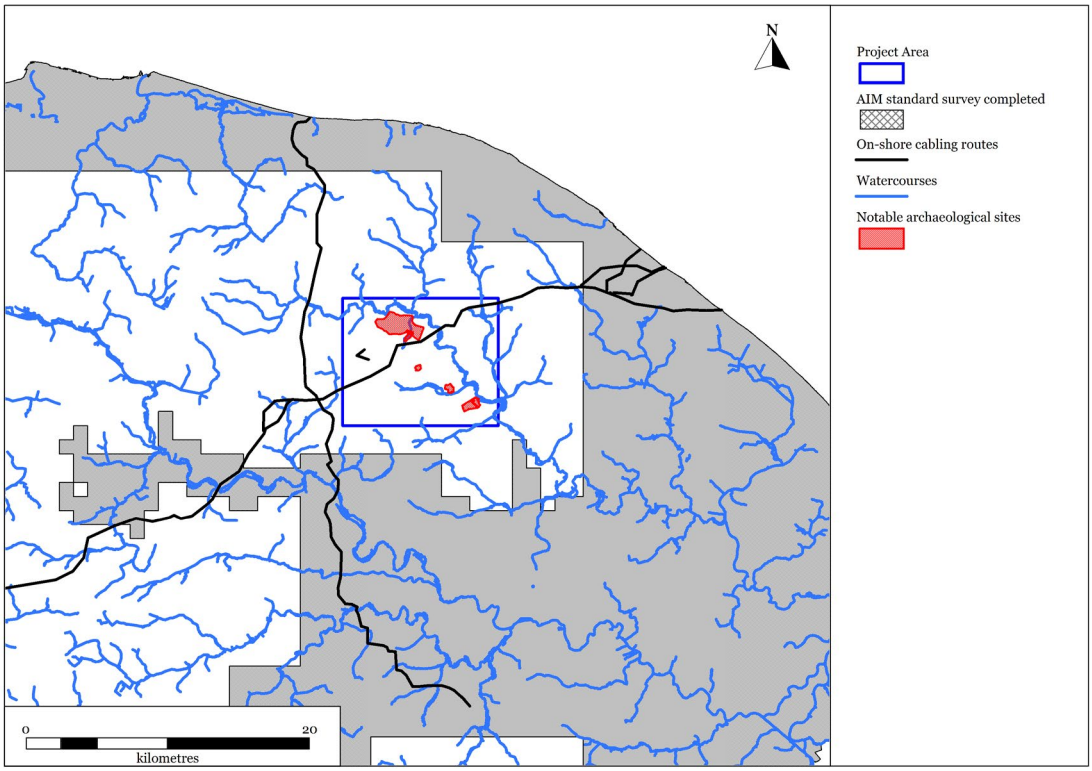

Figure 2 The project area in relation to previously completed AIM standard surveys. Watercourse data contains Ordnance Survey data © Crown copyright and database right 2023. Additional data sourced from third parties, including public sector information licensed under the Open Government Licence.

Project Area

The project area encompassed 99sq km of north-east Norfolk, comprising towns, villages, river valleys, parkland, forestry, former heathland and arable fields (Fig 1). It was selected to cover several notable archaeological sites. These consisted of several sites of Roman date: Brampton Roman town, Bolwick Hall Farm/Brampton Piece Roman villa, and a third site being investigated by the award-winning, community-led Aylsham Roman Project. It also included the important post-medieval house and landscape park at Blickling, which is managed by the National Trust. In addition, the area was chosen to cover a portion of the Vanguard/Boreas windfarms on-shore cabling route.

Completed AIM standard survey areas lie to the north, east and south of the selected area (Fig 2). This was chosen to focus on notable sites, a meaningful portion of the cabling route (Fig 3).

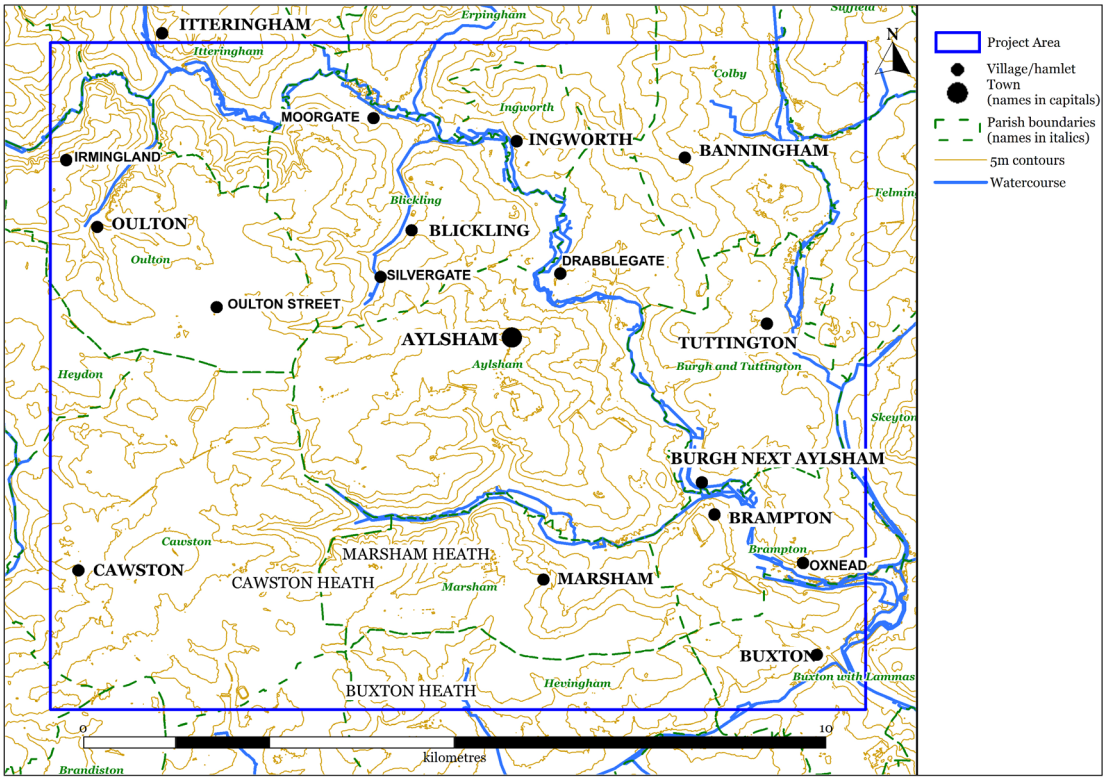

Figure 3 Locations mentioned in the text, shown in relation to topography and hydrology. Height data supplied to Norfolk County Council through the APGB agreement by Bluesky International Ltd and Getmapping Plc © Bluesky International Ltd 2018. Watercourse data contains Ordnance Survey data © Crown copyright and database right 2023. Additional data sourced from third parties, including public sector information licensed under the Open Government Licence.

Summary of Project Methodology

AIM 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 (HER) databases, a report, recommendations for heritage protection, including potential designation candidates, and suggested updates to the National Heritage List for England (NHLE).

The methodology employed by the project generally conformed to that detailed in the project proposal (Tremlett 2020, 9–11). It was based on *Aerial*

Investigation and Mapping Technical Specification (Evans 2019a), the 2019 revision of Historic England Standards and Guidance for Aerial Investigation and Mapping Projects (Winton 2019), and Morphe PPN 7. It was also informed by the Norfolk Air Photo Interpretation Team's previous experience of delivering AIM standard projects in the region.

The project looked at all available aerial photographs, held in national and local archives, which spanned around 85 years of photography, and included vertical photographs taken for non-archaeological purposes and specialist archaeological oblique photograph collections. Online photo mosaics such as Google Earth were also reviewed. The Environment Agency National Lidar Programme data was used, downloaded from the Survey Open Data website. This covered the entire project area at 1m resolution. For the lidar data several different visualisations were consulted, created using Relief Visualisation Toolbox (Zakšek *et al* 2011; Kokalj and Somrak 2019). In general, the hillshade, multi-direction hillshade and simple local relief model visualisations, created using the default settings, were found to be most useful; the hillshades were principally useful for identifying sites, while the openness or simple local relief model visualisations were often the easiest to map from. Additional standard sources were also used, for example, historical 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 AIM projects 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 sources with linked archaeological site descriptions. The site descriptions include references to the source aerial photographs and/or lidar, to inform any re-evaluation of a site, for example for development or research purposes.

The archaeological map was created in QGIS, either from sources that were already georeferenced or rectified (such as the lidar and Google Earth extracts), or from aerial photographs rectified and georeferenced to Ordnance Survey MasterMap base mapping (usually 1:1,250 scale). Rectification was undertaken using University of Bradford AERIAL 5.36 software. The GIS mapping shapefiles were created using the standards set out in the *Aerial Investigation and Mapping Technical Specification* (Evans 2019a), and consist of three shapefiles AI&M_Lines, AI&M_Polygons and Monument_Polygons. Archaeological features were transcribed following the standards for spatial data set out in Appendix 2. The monument polygons indicating the limits of each site were linked to associated HBSMR database records.

Attribute data including the HER number and Historic England Research Record (formerly National Record of the Historic Environment) UID was attached to each object, to ensure full linkage between the mapping and the records. The attribute data also included basic indexing relating to the interpretation of the feature and site (broad Monument type, narrow Monument type and period), the form of the feature when mapped and on the latest available source (earthwork, cropmark, structure, etc), and source references (source used for mapping and, when relevant, the latest source available). Basic categorisation of the feature (bank, ditch, structure, etc) was also included.

Descriptive records with associated indexing were added directly to the HER. The 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 or lidar, together with any contextual or supplementary sources used.

This report was then created, which discusses the results and provides a quantification, assessment and overview. 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 their significance in the context of both the county and the region. It makes recommendations for future work, including further aerial reconnaissance, ground truthing, ground survey, and publication.

The project's mapping and records will be accessible through the Norfolk HER and the database records will become available on the Norfolk Heritage Explorer website (www.heritage.norfolk.gov.uk) and the Heritage Gateway. In due course, the mapping will be added to Historic England's Aerial Archaeology Mapping Explorer.

An important impetus for the project was the need for baseline data to facilitate better heritage protection, for example by informing responses to planning issues, or providing precise information regarding the location and extent of features at risk from agricultural activity and forestry. Throughout all phases of the project, the Air Photo Interpretation Team has liaised with NCC and Historic England to highlight any significant discoveries. A list of potential candidates for designation or other forms of management, heritage protection or research is included as Appendix 3. Suggested updates to the NHLE record for designated sites is included as Appendix 4.

The methodology of the project is detailed more fully in Appendices 1 and 2.

THE CHARACTER OF THE PROJECT AREA

The project area lies in north-east Norfolk, an area of varied soils, geology and topography. A bedrock of Upper Chalk to the west and Norwich crag to the east, is overlain by a mix of glacial geologies, primarily comprising intermingled areas of Norwich Brickearth, boulder clay/till and glacial sands and gravels (Funnell 2005). The south-west of the project area is an interfluve, bounded by the valleys and tributaries of the River Wensum to the south-west and the River Bure to the north-east.

Figure 4 The project area (blue outline) in October 2022; note Blickling Park towards the north-west corner of the image (top left), the town of Aylsham (image centre) and forestry plantations on former heathland in the south-west (bottom left). Photograph: EARTH.GOOGLE.COM 06-OCT-2022 © 2023 Google.

This relatively level area is quite elevated for Norfolk, reaching 50m OD around Cawston. It lies within Williamson's 'North Norfolk Heathlands' soil landscape (Williamson 2005) and the area is notable for significant areas of heathland (Cawston, Marsham and Buxton heaths), and woodland, including extensive, coniferous forestry plantations. The north-east of the project area lies within Williamson's 'Rich Loams' region, where extensive areas of fertile, easily worked

soils and wide lush valleys led to this being one of the most densely settled areas of medieval England (ibid). Within the project area, the landscape is dissected by the River Bure and several of its tributaries, Blackwater Beck, Scarrow Beck and The Mermaid being amongst the larger ones.

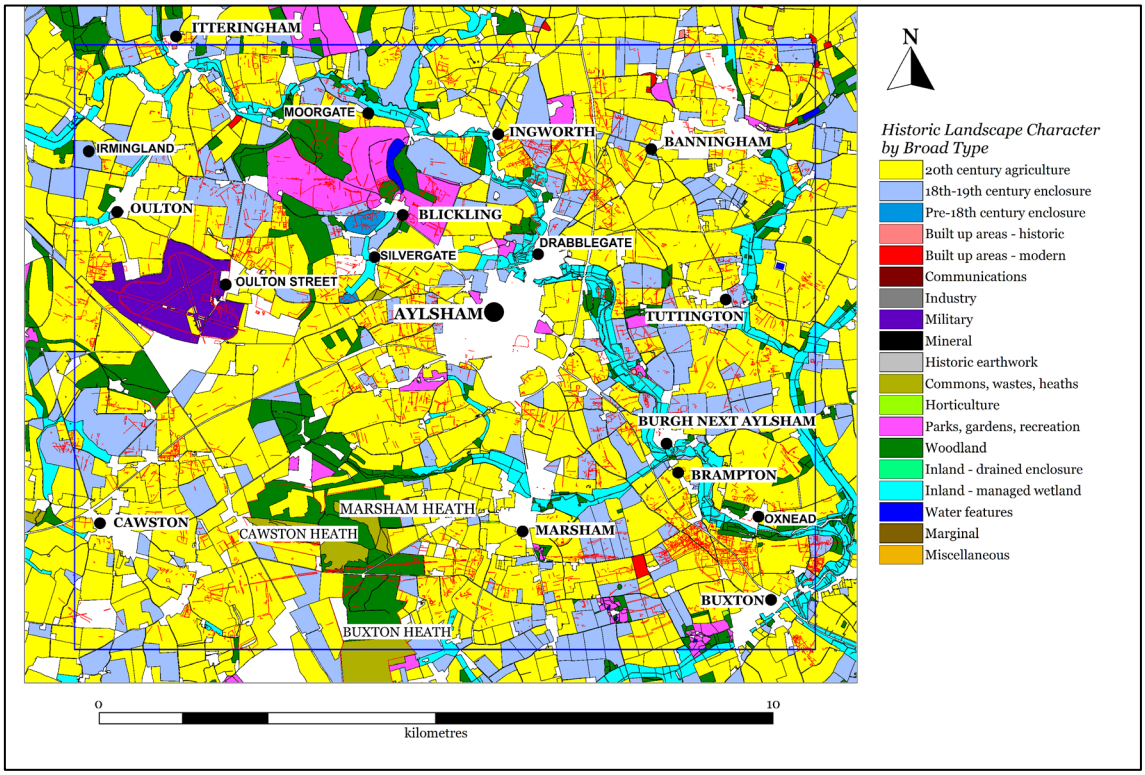

Figure 5 Historic Landscape Character data for the project area (outlined in blue), mapped by Broad Type and overlaid with the archaeological mapping from the project (outlined in red). Historic Landscape Character data © Historic England and Norfolk County Council.

The project area encompassed a landscape where extensive, dense, varied and complex archaeological remains were known to be visible as cropmarks. The free-draining loam soils of the area mean that cropmarks can readily form above buried archaeological remains, usually in dry conditions and particularly in 'drought summers'. Combined with extensive tracts of arable land, where such marks are more likely to be found and recognised, and a high level of archaeological aerial reconnaissance, cropmarks dominated the archaeological evidence encountered by the project. (More general information on the processes that lead to cropmark formation can be found in Wilson 2000, 67–80.) The project area also contained a variety of earthwork and levelled earthwork sites, clustered for the most part along the river valleys and around Blickling Park. The tendency for arable cultivation to be avoided in these areas (until recently at least) will have contributed to the survival of earthworks. The various factors contributing to the survival and visibility of sites within the

project area more generally are discussed in greater detail below (in 'Factors affecting the results of the survey').

The Historic Landscape Character of the area is dominated by a landscape of 20th-century fields (Fig 5), although potentially some of the individual boundaries defining these fields may have earlier origins. There are small patches of 18th to 19th-century enclosure widely distributed across the area, and very limited areas of pre-18th-century enclosure to the south of Blickling Park. Wetland is confined to narrow bands along the river valleys. Oulton Airfield and Blickling Park dominate the north-western corner of the project area. There is a notable expanse of woodland and heath in the south-west of the project area, covering Cawston, Buxton and Marsham heaths. There is a second concentration of woodland surrounding Blickling Park. There is little correlation that is immediately obvious between the features mapped by the project and the Historic Landscape Character of the area, other than a notable scarcity of sites within the areas of woodland and heath, where vegetation and land use will have reduced the visibility of sites on aerial photographs. More detailed analysis was beyond the scope of the project, but might identify more nuanced patterns in the distribution of specific types of sites.

FACTORS AFFECTING THE RESULTS OF THE SURVEY

As is the case with any archaeological survey, the results of the Aylsham and Brampton AIM project have been influenced by a number of different factors. Some of these factors are inherent in the methodology used for AIM projects, or in the nature of aerial photographic and lidar 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.

The project was put on hold at an early stage as a result of the COVID-19 pandemic. This led to restrictions being placed on access to Norfolk County Council offices, and consequently to both the NAPL and photographs loaned from the HEA. The project recommenced in June 2021 when access was restored.

Methodology

The comprehensive analytical and interpretative aerial photographic survey provided by the methodology used by AIM projects 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 and lidar to map and record any visible new and previously known sites, irrespective of their present-day survival and encompassing every period, usually spanning the period from the Neolithic to the Cold War (for a national overview see Evans 2019b). While some aerial photographic transcription of specific sites had been undertaken prior to the start of the project, for the most part such work had not made use of the full range of sources typically consulted for projects using AIM 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 archaeological investigation. In addition, for most of the project area, the survey was the first time that much of the historical, non-specialist aerial 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 Google Earth layers (especially the July 2006 and the August 2020 layers) were a key resource, often showing new sites or showing further features for sites that had been previously recorded from NAPL oblique aerial photographs.

The project encountered relatively few methodological issues during its lifetime. There were occasional difficulties in producing accurate rectifications of the

aerial photographs. This was mainly an issue for the historical aerial photographs (such as the 1940s RAF vertical photographs), where field boundaries visible on the photographs had subsequently been removed as a result of the intensification of agriculture or due to development, leading to a lack of control points to correlate with details on the modern Ordnance Survey base map. Similarly, there were occasional difficulties in producing accurate rectifications for some of the photographs held in the NAPL oblique collection. A very small number of oblique aerial photographs had to be secondary transformed, when they were taken at a very oblique angle or where archaeological sites were only visible in the background. This involved first rectifying an aerial photograph with good control, which could then be used to provide map control for rectifying the original photograph.

Further details of the project methodology are given Appendix 1.

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, and to a lesser extent lidar, to record the historic environment. This is especially the case in arable areas, where sites predominantly consist of sub-surface remains. The complex and varied processes and conditions which lead to differential crop growth are described in detail elsewhere (for example Wilson 2000, 67–86).

Across the project area, there were instances where it was difficult to distinguish archaeological features from those relating to geomorphology. The sand and gravel geology evident across the project area led to occurrences of dense linear gullies and pits of a geological origin being visible in the vicinity of cropmarks of archaeological origin. This sometimes led to highly fragmented sites, where features were obscured by geological cropmarks. The experience of the air photo interpreters working on the project – in terms of their familiarity with how archaeological remains are generally seen from the air, and their understanding of the geomorphology of the project area gained through examining hundreds of images – undoubtedly off-set some potential misinterpretation of the geological features. Where some uncertainty remained as to the archaeological nature of the mapped features, this was noted in the associated HER record. Nevertheless, there is still potential (albeit limited) for some features of natural origin to have been recorded as archaeology, and some archaeological features to have been misinterpreted as features of natural origin and excluded from the record.

Topography and Land Use

The topography of an area and its land use (which are closely 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, industry, burial or land division, for example. Alluvial deposits within valleys, and undisturbed heathland vegetation, pasture or parkland can favour the survival of archaeological remains, 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 difficult or impossible to detect using conventional aerial photography. Ploughing may reveal the soilmarks of near-surface remains, while arable cultivation favours the formation of germination marks and cropmarks.

Most of the project area is used for agriculture and the landscape is dominated by the cultivation of arable crops. The major settlement of Aylsham is located at the centre of the project area, with a number of smaller villages such as Cawston, Itteringham and Brampton also located within the confines of the project. Areas of parkland and woodland associated with Blickling Hall are situated in the north of the project area, and areas of heathland and forestry are present in the south. The River Bure and several of its tributaries, including Blackwater Beck, Scarrow Beck and The Mermaid, run through the project area

The majority of the features recorded by the project were visible as cropmarks. The long history of cultivation of the rich, fertile soils covering most of the project area almost certainly contributed or led to the levelling of many formerly earthwork sites. Constructed of relatively light soils, and perhaps never particularly substantial, the above-ground remains relating to many of these features may have been relatively easy to remove. Under (usually) dry conditions, the free-draining sandy soils and loams that cover much of the project area would have contributed to the ready formation of cropmarks over the now buried archaeological remains (as detailed in Wilson 2000, 67–86). The dominance of arable cultivation across the area favours the development of these marks, and their visibility and recognition as archaeological features. The NAPL obliques, Google Earth (especially the 2006 and 2020 layers) and the 1976 Meridian vertical aerial photographs from the HEA were key sources for recording these sites.

Earthwork sites within the areas of arable farming were often recorded as very low earthworks, presumably damaged by repeated ploughing over time. The simple local relief model lidar visualisations were a key resource for identifying low earthworks such as boundary banks, sections of Roman road and plough headlands. Earthworks with better survival were recorded within the areas of

woodland and parkland associated with Blickling Hall and on the areas of heathland in the south of the project area.

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

The project had excellent aerial photographic coverage. The HEA loan consisted of 1076 vertical aerial photographs and 635 oblique aerial photographs which covered the entirety of the project area. Specialist obliques held in the NAPL were also consulted along with digital vertical aerial photography including Google Earth, Aerial Photography of Great Britain (APGB) data and Bing Maps. The project also had complete lidar coverage at 1m resolution using the Environment Agency National Lidar Programme data.

The CUCAP library was closed for the duration of the project, meaning that only copies of CUCAP photographs held in other collections could be consulted. The project consulted 17 oblique CUCAP photos held in the NAPL collection and HEA loan. This constituted just over 4 per cent of the 419 prints listed in the coversearch (calculated on 4 May 2020 using CUCAP's online catalogue), excluding duplicate entries, but including a 1km buffer around the project area.

There is, of course, potential for additional sites and features which were not recorded by the project to be visible on the unconsulted CUCAP photographs. Assessment of the catalogue entries for the oblique photographs, however, suggests that 83 (of 150) are unlikely to be relevant for an AIM survey. These consist of panoramas, photographs of buildings, and photographs of (presumably natural) vegetation and soil patterns, for example. Of the 67 unconsulted oblique photographs where cropmarks, soilmarks or specific archaeological sites are mentioned in the subject field of the catalogue, only two (35kBT020 and AQK22) appear to relate to sites that were neither recorded by the survey nor already recorded in the HER. All of the others lay outside the project area, were of uncertain relevance, or correlated with mapped sites. Ten of the photographs were catalogued as the same run and location as copy prints consulted as part of the NAPL and HEA collections, and are likely to show the same features as are visible on the consulted prints.

The 252 vertical prints in the CUCAP collection were taken in 13 different flights, between 1960 and 2006. Potentially some of the summer runs – from 30 June 2006, for example – could show additional cropmarks, but the quantity of other photography that was consulted by the project, including the excellent Google Earth imagery, should mitigate against this.

There was good lidar coverage for the project area. The Environment Agency National Lidar Programme data was downloaded from the Survey Open Data

website. This dataset was selected as it provided full coverage of the project area at 1m resolution from 2017 and 2018. Both the DTM and DSM data were downloaded and visualised. The DTM was the most useful for the project with the multi-direction hillshade and simple local relief model visualisations being the most useful for recording archaeological features. The lidar was a key resource for recording the presence of very low earthworks in the areas of arable land cover and for recording surviving earthworks within the parkland of Blickling Hall and on the areas of heathland in the south of the project area.

The project benefited from the large number of specialist obliques held in the NAPL. These obliques, taken by Derek Edwards over multiple years of survey, were a key resource for the project. They recorded a large number of sites visible as cropmarks and/or earthworks across the project area, including ring ditches, features relating to Brampton Roman town, and medieval manorial sites. The NAPL obliques benefited from being analysed in conjunction with other sources such as Google Earth, as sites recorded from the NAPL obliques could be expanded with further features recorded from the additional sources.

The Google Earth photo mosaics were an extremely useful source for the project. They provided excellent coverage of the project area over a range of dates from 1999–2022. Although the mosaics are taken for non-archaeological purposes, the July 2006 photo mosaic happened to be captured during optimal conditions for showing archaeological cropmarks. This mosaic was a very useful source as the photos showed a significant number of new as well as previously recorded sites across the project area. As well as the July 2006 layer, the May 2003, May 2011 and August 2020 layers were also very useful, sometimes showing sites not visible on the 2006 layer or showing sites differently. Although the Google Earth imagery revealed a large number of sites and features, it was crucial to compare this source to the NAPL and HEA obliques, vertical aerial photographs and the visualised lidar data to make sure all the elements of each site were mapped and recorded. Different times of year, different crops and differing levels of preservation can influence the density and strength of the cropmarks on the aerial sources, necessitating the use of as wide a range of photographs as possible.

Vertical photographs held by the HEA, and including, amongst others, surveys by the RAF and Ordnance Survey, were consulted by the project. 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. Photographs taken in the 1940s were crucial for the identification of 20th-century military features and sites, and particularly useful for recording RAF Oulton and its associated features. The 1976 Meridian aerial photographs included in the HEA loan were unintentionally taken at a time of high cropmark response. These photos did not cover the full project area, being limited to the very north and south-east. They revealed a number of new archaeological

features as well as showing additional elements to those recorded from other sources such as Google Earth. They were particularly useful for recording possible medieval to post-medieval field boundaries and trackways visible as cropmarks, which possibly relate to the pre-parkland landscape within Blickling Park (NHER 66277). They were also important for recording features relating to Brampton Roman town and its environs in the south-east of the project area.

A range of archaeological investigations and recording had taken place across the project area prior to the survey. Excavations and geophysical surveys were carried out at various locations ahead of development for housing, mainly centred around Aylsham, and for mitigation work ahead of large infrastructure projects. Large amounts of metal detecting, and some field walking, had taken place in the fields across the project area. The finds recorded include metalwork, coins and pottery dating to a range of periods. More detailed surveys have been carried out at a number of sites. Rapid Earthwork Identification Surveys were undertaken to identify earthworks on Marsham and Buxton heaths in the south of the project area (Cushion 2009a; 2009b). Investigations were also undertaken within and close to Blickling Park and gardens. Excavations and earthwork surveys had been undertaken at the Bishop's Manor site to the north of Blickling Hall (Meckseper 2000; Cushion 2001; Penn 2002). An extensive and detailed desk-based survey (Penn 2008) had also been completed, detailing the landscape history of the Blickling estate. This was a useful source when mapping and recording the landscape around Blickling. In the centre of the project area, excavations are ongoing by the Aylsham Roman Project, at Woodgate Nursery to the south-west of Aylsham. Geophysical surveys and excavations at the site have uncovered large numbers of finds and features relating to Roman settlement. Both Brampton Roman town and Bolwick Hall Farm/Brampton Piece Iron Age and Roman settlement, in the south-east of the project area, have seen partial excavation, but the record and publication of these investigation is patchy, making correlation with the results of the AIM survey difficult.

SUMMARY OF ARCHAEOLOGICAL RESULTS

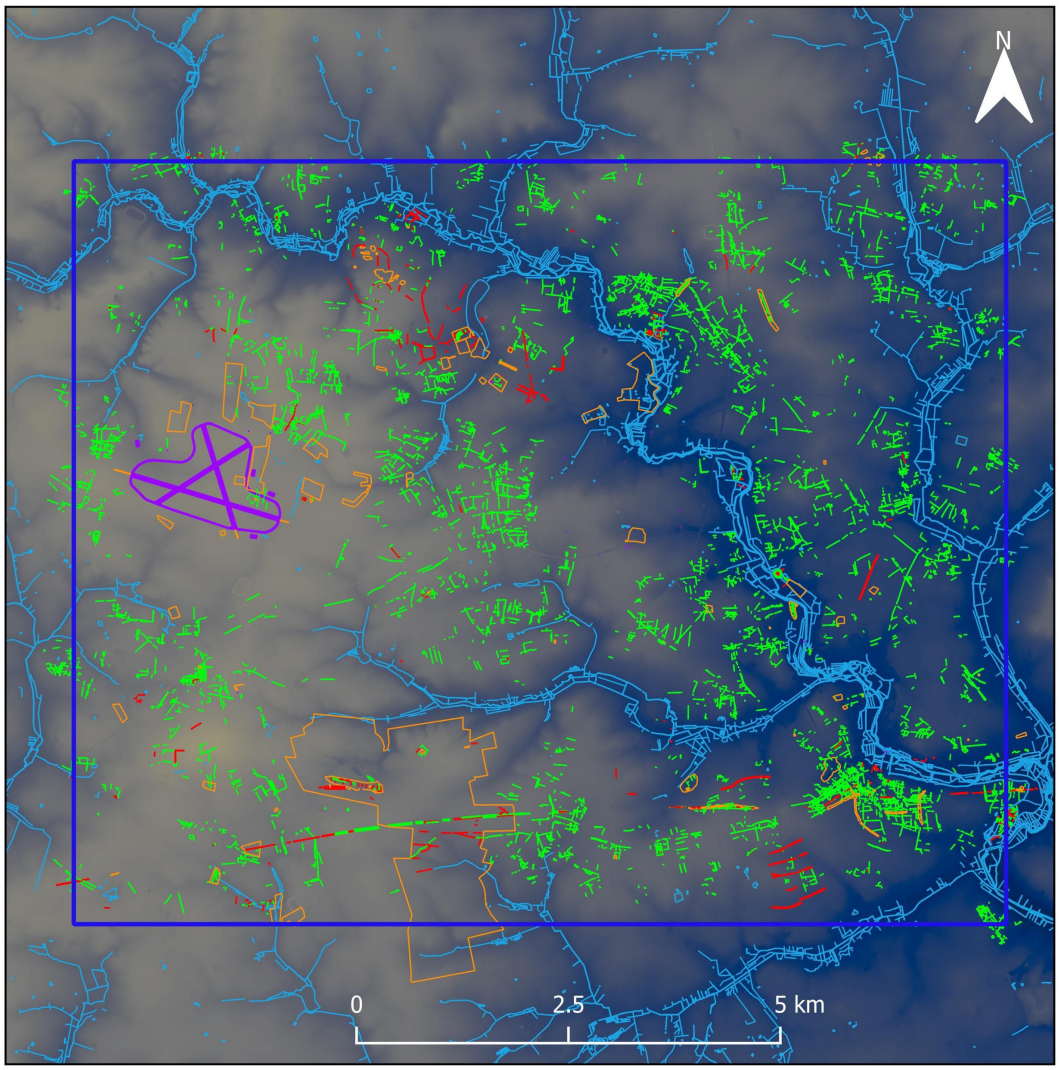

Figure 6 All archaeological features mapped by the project, shown in relation to topography and hydrology; banks/mounds/metalled surfaces, etc, depicted as red, ditches/pits as green, features mapped by extent outlined in orange, structures depicted as purple. Background topographic model derived from lidar, source: National LIDAR Programme Environment Agency 1m DTM 17-NOV-2017, 24-NOV-2017 and 26-MAR-2018 © Environment Agency copyright and/or database right 2023. All rights reserved. Watercourse data derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Overall Results

The project identified 458 new records for the Norfolk HER, and amendments for a further 129 entries; in total, the records relating to 587 individual 'sites' were created or enhanced. The 'new' records include a significant proportion

(99, or 22 per cent) of previously recorded sites that were split into separate elements and renumbered, or included in the recording for a more extensive new site. Nevertheless, the genuinely new discoveries (359 records) still represent a very significant number of archaeological sites and landscapes recorded for the first time. Prior to the project starting the HER had mapped 1291 sites within the project area (grouped by Monument UID). Setting aside the renumbered sites, the project results therefore represent a 28 per cent increase to this record.

Table 1 Quantification of project results

Project	*Area (sq km)*	*Existing HER records (mapped)*	*Total 'sites' recorded by project*	*Records created by project*	*Records amended by project*	*Increase to HER*	*Density of sites recorded by project*
Aylsham and Brampton AIM	99	1291	587	458	129	28%	5.9

For archaeological records held by Historic England, formerly as part of the National Record of the Historic Environment (NRHE), the increase is even greater. At the start of the project, the project area contained 276 monument records. Thirty-eight records created by the project correlate with one or more of these. Across the project area, therefore, a total of 420 new sites were recorded, equivalent to a 152 per cent increase for the area.

Neolithic and Early Bronze Age

The results of the project for the Neolithic and Early Bronze Age period are overwhelmingly dominated by sites interpreted as being funerary in nature, that is, known or suggested long, oval and round barrows. While other, non-funerary sites mapped by the project could date to these periods, in the absence of other evidence it has not been possible to distinguish these from the mass of data relating to later periods.

The sites are discussed below, divided by morphology into elongated and oval sites, which are for the most part thought to be of Neolithic date, and circular sites (ring ditches), which are thought to be of Early Bronze Age date. In practice, and in particular amongst the elongated and oval sites, there is considerable variation in morphology, and considerable overlap between elongated/oval and oval/circular.

Elongated and Oval Sites

The project recorded nine sites comprising elongated or oval ditched enclosures, which were interpreted as the probable remains of funerary sites of Neolithic date (for further discussion see Albone *et al* 2007a, 23–26, for example). Seven of these were new discoveries. The sites are distributed across the project area but are mainly concentrated in the centre and the east. This may reflect the more fertile soils and greater proportion of agricultural land in that area, but may also be due to the tendency for such sites to be located close to watercourses, as has been noted elsewhere (Fig 7; Albone *et al* 2007a, 20–21). The fact that two of Norfolk's three causewayed enclosures are located a short distance to the north and south-east of the project area, at Roughton and Buxton-with-Lammas, may also be a significant factor.

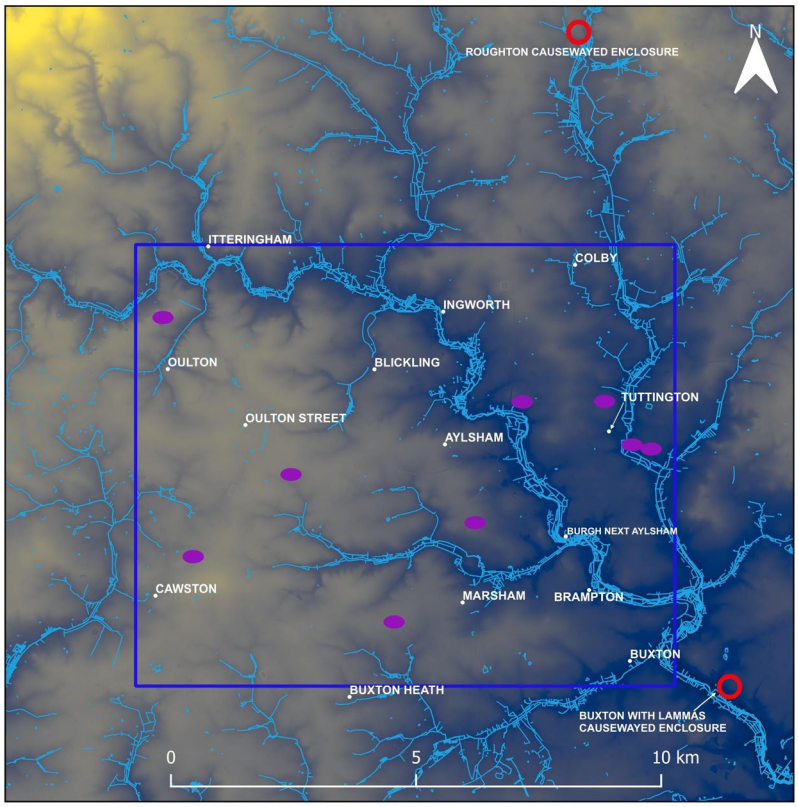

Figure 7 Distribution of elongated and oval, probably Neolithic, funerary sites mapped by the project, shown in relation to topography and hydrology; the locations of the causewayed enclosures to the north at Roughton (NHER 13358) and to the south-east at Buxton with Lammas (NHER 7690) are marked by red circles. Background topographic model derived from lidar, source: National LIDAR Programme Environment Agency 1m DTM 17-NOV-2017, 24-NOV-2017 and 26-MAR-2018 © Environment Agency copyright and/or database right 2023. All rights reserved. Watercourse data derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

All the sites have been recorded as cropmarks, and at none is there any evidence for a mound. The lack of evidence for a mound is not uncommon amongst examples of such enclosures from Norfolk. Of the county's potential long barrow sites visible solely or principally as cropmarks, two of the most convincing are located approximately 8.7km to the north of the project area at Roughton, situated adjacent to the probable causewayed enclosure. At neither is any evidence of an internal mound visible (Albone *et al* 2007a, 31–2, figs 4.2 and 4.3). It is clear that in some cases there was no inner mound, as was almost certainly the case with an excavated example at Weasenham Lyngs in west Norfolk, although this did possess an internal bank (Peterson and Healy 1986). At other sites, a substantial level of ploughing may have led to the levelling of any surviving earthworks.

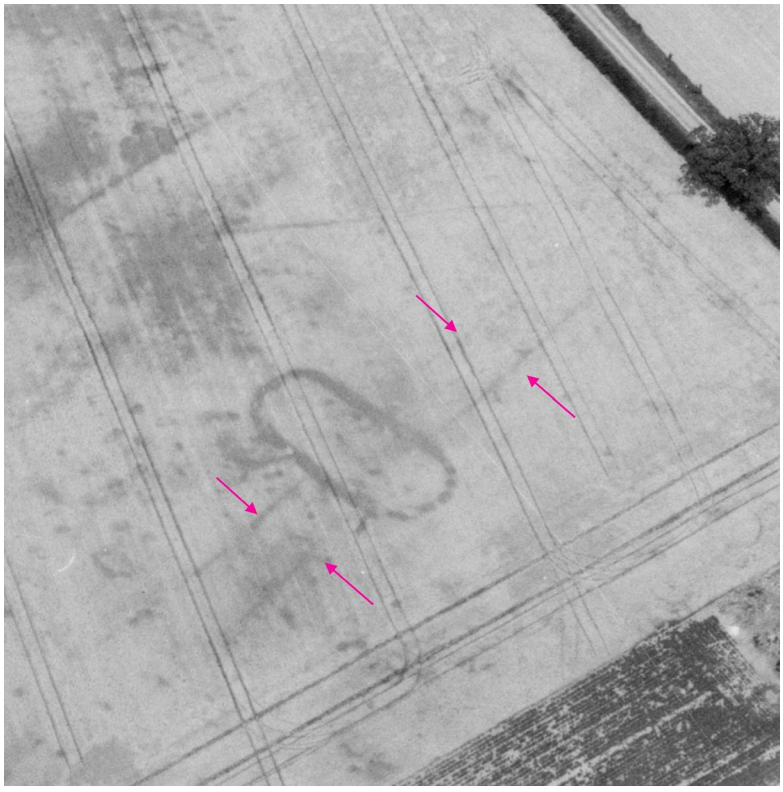

Figure 8 The elongated enclosure at Tuttington (NHER 31740); the breaks in the ditch circuit at its eastern end are clearly visible; a probable trackway of possible later prehistoric date (NHER 65792) can be seen on each side of the long barrow (magenta arrows), seemingly respecting its position. Photograph (detail) by Derek Edwards, Norfolk Air Photo Library: Oblique Collection TG2326/P 15-JUL-1996 (NLA 370/HJV 7) © Norfolk County Council.

The record for an elongated enclosure at Tuttington (NHER 31740), previously interpreted as a Neolithic long barrow, has been enhanced by the project (Fig 8). The site was previously recorded from cropmarks visible on NAPL oblique aerial photographs and it can also be seen well on the 2006 layer of Google Earth imagery. The feature consists of an elongated enclosure with rounded ends

which measures approximately 30m along its long axis and approximately 15m along its short axis. The cropmark of the enclosing ditch is approximately 1m to 1.5m wide. A series of breaks are visible at the eastern end of the enclosure. These have previously been suggested as relating to entranceways for access to the interior of the enclosure (Wade-Martins 1999, 26). It has also been suggested that the features relate to post-holes holding timbers forming an entranceway similar to the stone entrances associated with long barrows elsewhere in the country (ibid).

The cropmarks of a possible later prehistoric trackway (NHER 65792), which appears to respect the position of the enclosure, can be seen in close proximity to it (NHER 65792). The trackway has previously been suggested to relate to a cursus (Wade-Martins 1999, 26). While this interpretation is possible, the form of the feature suggests that it is more likely to relate to a trackway than a cursus.

Approximately 390m to the west of the Tuttington enclosure, an oval enclosure was identified by the project (NHER 65790; Fig 9). It has similar dimensions to the elongated enclosure, measuring approximately 22m long and 16m wide. The cropmark of the enclosing ditch measures approximately 2m wide. The feature is located within a dense area of geological cropmarks, and it is therefore possible that it may be natural rather than archaeological in origin.

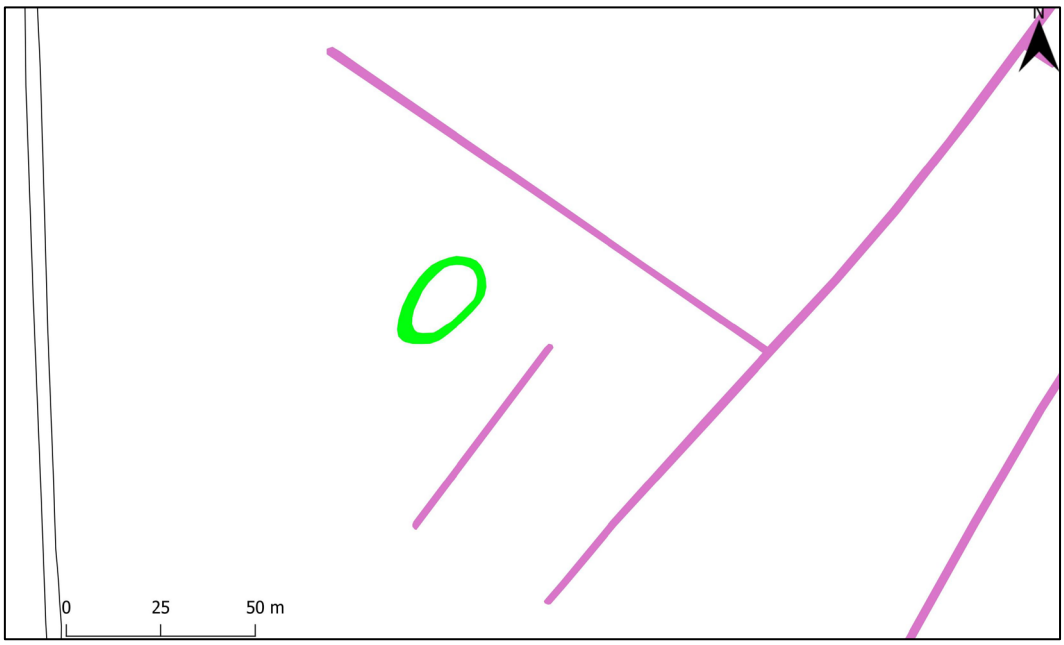

Figure 9 The newly recorded oval enclosure (NHER 65790) mapped to the west of the Tuttington enclosure (NHER 31740); ditches depicted as green, additional mapping not relating to NHER 65790 shown as purple. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Towards the south-west corner of the project area, the project mapped the cropmarks of a previously recorded elongated enclosure, located to the north-east of Cawston (NHER 64276; Fig 10). The ditched enclosure measures approximately 40m long and 22m wide, and the cropmark of its enclosing ditch is approximately 1m wide. This is cut by a post-medieval boundary recorded on the Ordnance Survey 1st edition 6 inch map (not shown in Figure 10). A circular, probably Bronze Age ring ditch can be seen in close proximity to the south-west (NHER 64277).

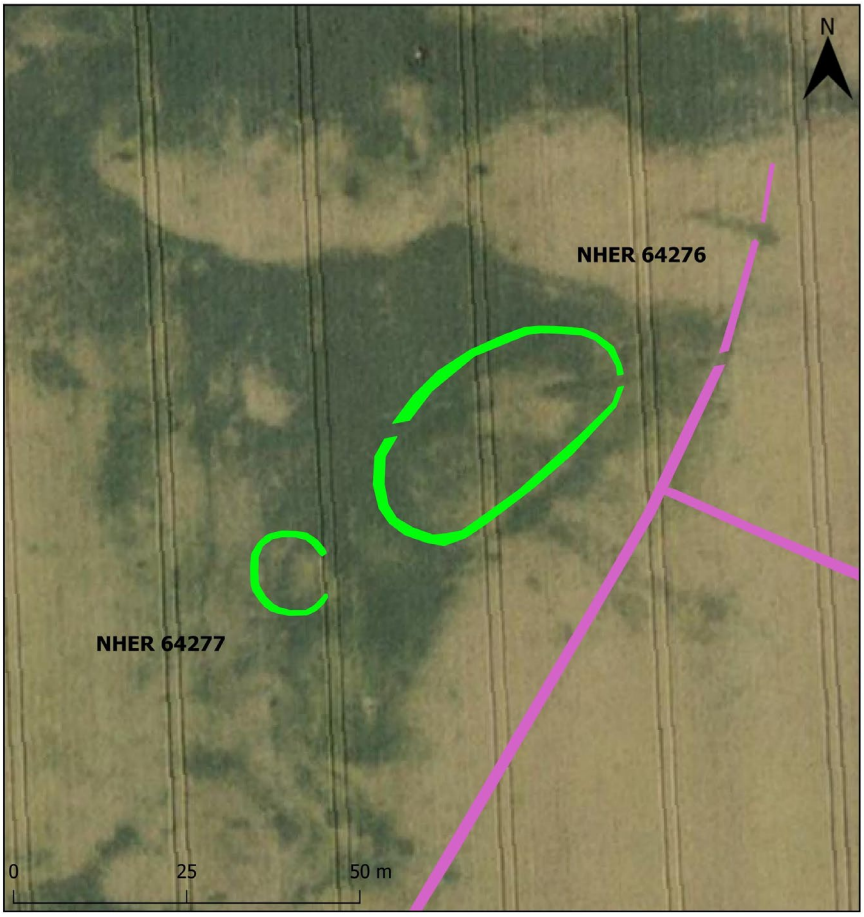

Figure 10 The elongated enclosure (NHER 64276) recorded to the north-east of Cawston; the breaks in the enclosing ditch are due to it being cut by a late post-medieval boundary (not mapped); a probable Bronze Age ring ditch lies to its south-west (NHER 64277); ditches depicted as green, additional unrelated mapping as purple. Photograph: earth.google.com 01-JUL-2006 © 2023 Infoterra Ltd & Bluesky.

More unusually, the newly recorded cropmarks of an elongated enclosure with a conjoined circular ring ditch were mapped near Oulton Street in the west of the project area (NHER 65390; Fig 11). The site is located 130m to the north of the cropmarks of a large palaeochannel, which may have been a significant topographic feature when the monument(s) were constructed and was perhaps

relevant for their being located here. The apparent overlying or joining of two funerary monuments, potentially dating to different periods, has been noted at a number of other sites in Norfolk, including earthwork sites at Howe's Hill, Sheringham (NHER 6292; Albone *et al* 2007a, 26) and The Warren, Lenwade (NHER 7718; Albone *et al* 2008, 29), and amongst cropmarks recorded at Hanworth (Albone *et al* 2007a, fig 4.3). A long linear boundary ditch of uncertain date (NHER 65391) cuts across the western side of the ring ditch.

Figure 11 An elongated, possibly Neolithic enclosure, and conjoined circular, probably Bronze Age, ring ditch (NHER 65390) near Oulton Street, with later boundary ditch (NHER 65391); the cropmarks of a large palaeochannel can also be seen towards the bottom of the image; ditches shown in green. Photograph: earth.google.com 01-JUL-2006 © 2023 Infoterra Ltd & Bluesky.

At Burgh and Tuttington, the project mapped the cropmarks of a previously recorded U-shaped ditch (NHER 65647) and an overlapping circular ring ditch (NHER 65646; Fig 12). The features again appear to represent the remains of a multi-phase funerary site, potentially consisting of a Neolithic oval or long barrow overlain by a Bronze Age round barrow, or possibly re-worked into a circular monument during the Neolithic period.

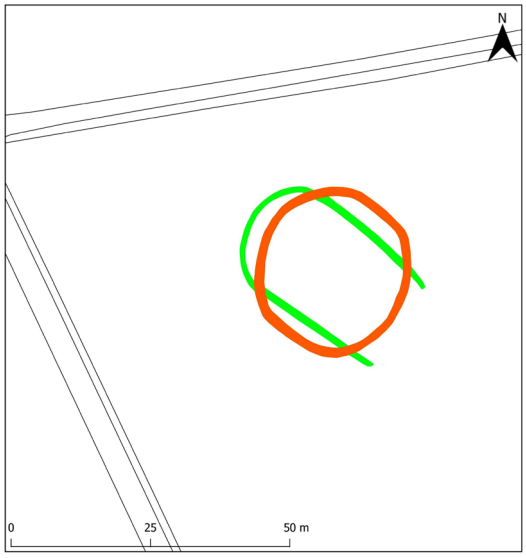

Figure 12 A possible multi-phase Neolithic to Bronze Age funerary site at Burgh and Tuttington (NHER 65647 and 65646); the elongated enclosure is shown as green, the circular ring ditch as orange. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

The elongated and oval enclosures mapped by the project have parallels with a number of recently excavated examples. At Rackheath, approximately 14km to the south-west of the project area, a Neolithic oval barrow was first identified in 1979 as a ring ditch visible as a cropmark on aerial photographs (NHER 18875). It was mapped as part of the Norfolk Aggregates Assessment NMP project (Albone et al 2008), and was recently partly excavated as part of evaluation trenching at the site. Two conjoined 30m long trenches were excavated across the feature which recorded the presence of a substantial ditch on the north-west and east sides of the feature, corresponding with the location of the oval barrow as recorded from the aerial photographs and geophysical surveys (Trimble 2022, 68). As at Tuttington, any internal mound associated with the Rackheath site is thought to have been levelled by ploughing (ibid, 68). It has also been suggested from the geophysics results that the enclosing ditch at the Rackheath site may have been interrupted, with four causeways, in the north, east, west, and south-west sides of the feature (ibid, 69). This may be similar to the breaks in the eastern ditch of the Tuttington site, but the possible causeways at Rackheath were not recorded as part of the trial trenching and it is also suggested that the gaps in the west and east of the enclosure may align with a field boundary recorded on historical maps (ibid). At Flixton in Suffolk, an excavated Neolithic long barrow, evident principally as an elongated ditch circuit – again with no evidence of a mound – was found to contain an internal arrangement of post-holes, probably representing the remains of internal structures (Boulter 2022, 11–151 *passim*, fig 3.2).

The significant number of known or suspected Neolithic 'monuments' in north-east Norfolk has been noted in previous studies (for example Albone *et al* 2007a, 20), and is clearly evident in county-wide distribution maps of such sites (Ashwin 2005 18). It is likely that the light, fertile, easily worked soils of the area were attractive to early farming communities. It is also probable that the distribution of such sites, often identified from aerial photographs, is skewed by the facility with which cropmarks develop on these soils, rendering visible sites which might not otherwise have been identified. In Breckland, however, on the Norfolk/Suffolk/Cambridgeshire border, numerous round barrows – most of probable Bronze Age date, but some potentially dating to the Neolithic – have been identified on both lidar and aerial photographs, but there is a relative scarcity of elongated or oval monuments, which are more characteristically of Neolithic date (Powell and Tremlett 2020, 25). More substantial, albeit rare, categories of site, such as causewayed enclosures, cursus monuments or henges, are also absent from the record. This is not unusual – it is the case for large swathes of Norfolk and Suffolk – but given the visibility of Bronze Age funerary monuments in that area, one might expect a similar proportion of characteristically Neolithic monuments to be evident. That this is not the case lends support to the idea that the clustering of monuments in north-east Norfolk is at least partly a genuine reflection of past human activity, and that it was an area that was particularly favoured for the construction of funerary and/or ceremonial monuments. The clustering of monuments to the south of Norwich, around Arminghall Henge, may represent a comparable, perhaps slightly later, phenomenon.

Circular Sites

The project recorded 90 sites interpreted as the remains of round barrows. Most of these are likely to be of Early Bronze Age date, but the group could potentially include round barrows (or other, unrecognised types of circular site) of Neolithic date. The majority of the sites were visible on the aerial sources as the cropmarks of single, double, and conjoined ring ditches. Some of the ring ditches which are clustered in groups and/or positioned in a linear alignment are likely to represent barrow cemeteries (Fig 13).

Only three examples of earthwork round barrows were recorded. Two were new identifications while one had been recorded previously. All three sites were identified on the visualised lidar data. The surviving earthworks are situated in areas of woodland. The lack of surviving earthworks elsewhere is almost certainly the result of the high levels of ploughed agricultural land and intensive agriculture across the project area. The limited evidence for earthwork barrows in the agriculturally productive area of north-east Norfolk has been noted by previous studies (Lawson *et al* 1981, 45). No evidence was identified for

internal mounds within any of the ring ditches visible as cropmarks, presumably due to any mounds being levelled as the result of ploughing over time.

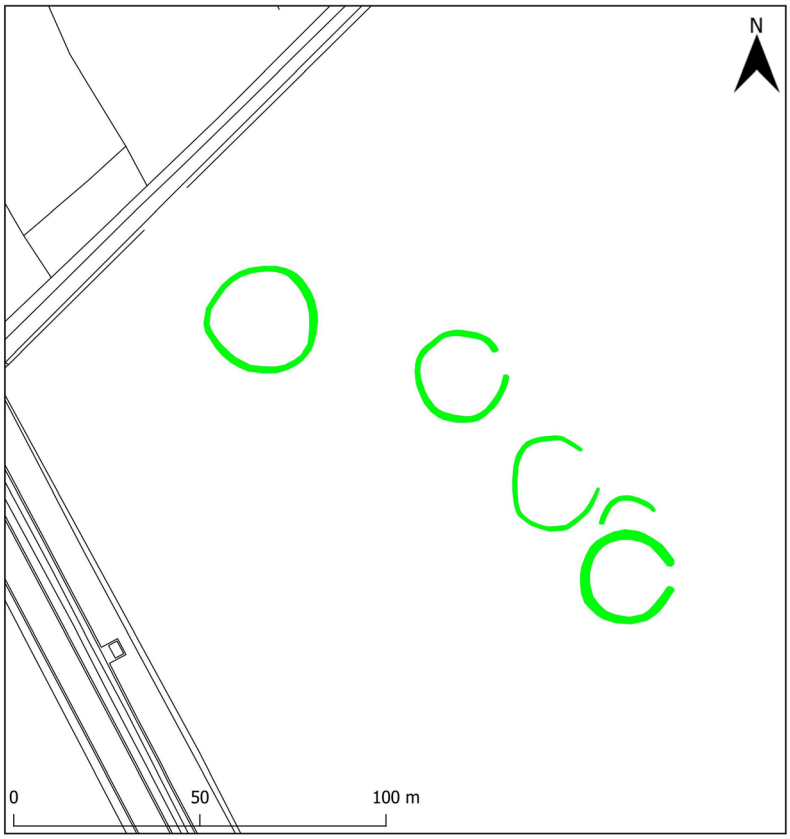

Figure 13 Five ring ditches (NHER 64297–64301) recorded to the north-west of Brampton; they probably relate to the site of a barrow cemetery (NHER 64302); ditches depicted as green. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

The circular funerary sites were recorded across the project area but are mainly clustered in the south and east (Fig 14). This may be due to the greater preponderance of agricultural land in these areas, leading to better formation and recognition of sites visible as cropmarks. It might also reflect a genuine preference for these areas. Proximity to watercourses, and to valley landscapes connected to significant earlier prehistoric monuments – Roughton and Buxton with Lammas causewayed enclosures, a possible henge or hengiform monument at Great Witchingham – are possible factors in the clustering of sites in the east and south. It is notable that no Bronze Age barrows were recorded on the areas of heathland in the south of the project area.

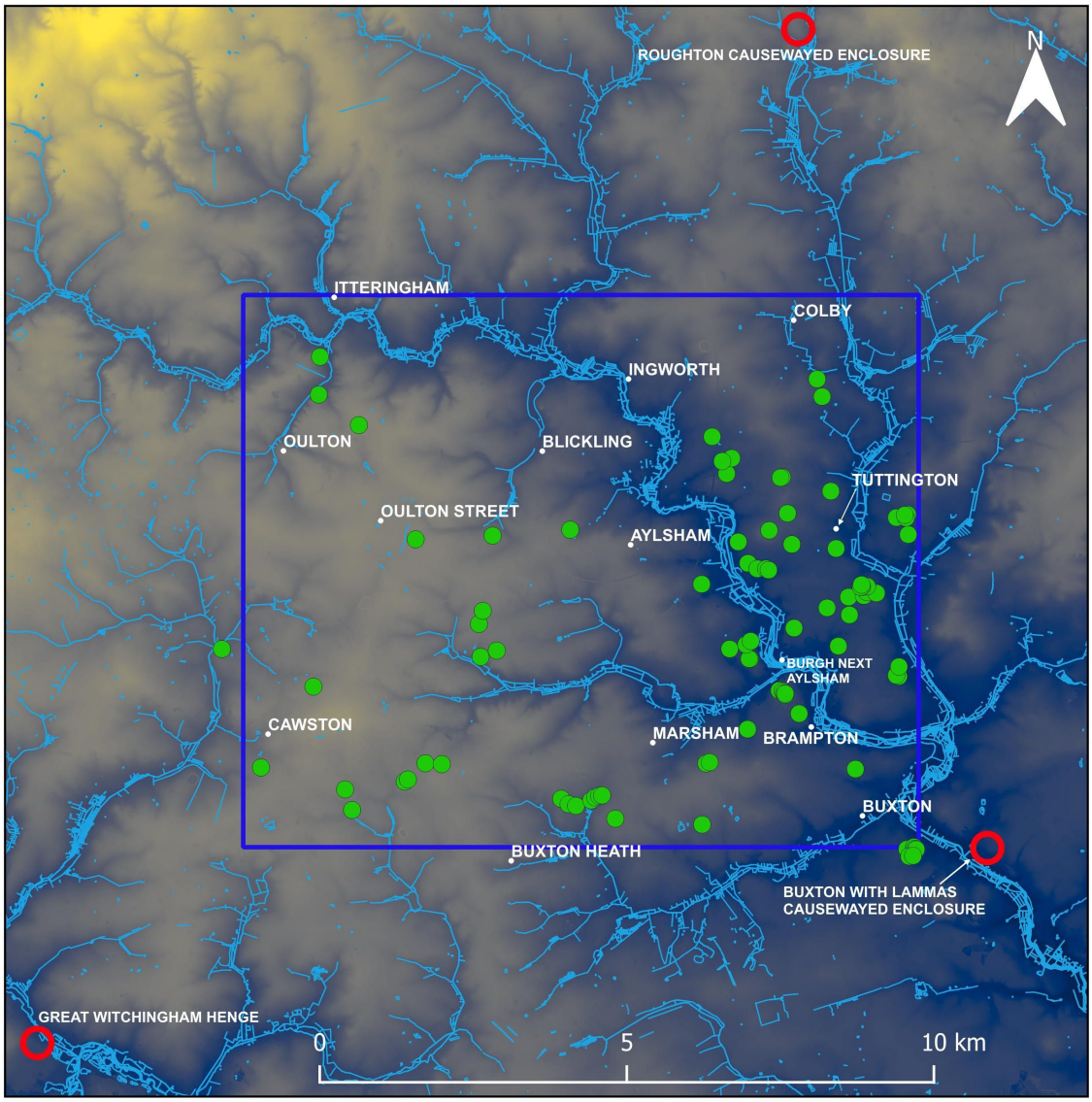

Figure 14 Distribution of circular funerary sites mapped by the project (green points), shown in relation to topography and hydrology; the locations of the causewayed enclosures to the north at Roughton (NHER 13358) and to the south-east at Buxton with Lammas (NHER 7690), and the possible henge to the south-west at Great Witchingham (NHER 1018) are marked by red circles. Background topographic model derived from lidar, source: National LIDAR Programme Environment Agency 1m DTM 17-NOV-2017, 24-NOV-2017, 26-MAR-2018 © Environment Agency copyright and/or database rights 2023. Watercourse data contains Ordnance Survey data © Crown copyright and database rights 2023 Ordnance Survey 100019340.

The sites recorded by the project include the cropmarks of a possible disc barrow located approximately 1.1km to the south of Tuttington (NHER 31379; Fig 15). The site consists of a large outer ring ditch and a smaller inner ring ditch. The feature is similar to examples of Bronze Age disc barrows recorded elsewhere in the county, such as the excavated example from Harford Farm,

south of Norwich (Ashwin and Bates 2000, 71–79, fig 56). Two pits can be seen within the centre of the of the inner ring ditch. It is possible that these relate to burials, but they could instead be geological cropmarks which are seen across the area. The site lies approximately 300m to the east of a cluster of seven ring ditches, presumably representing a dispersed round barrow cemetery (NHER 66789).

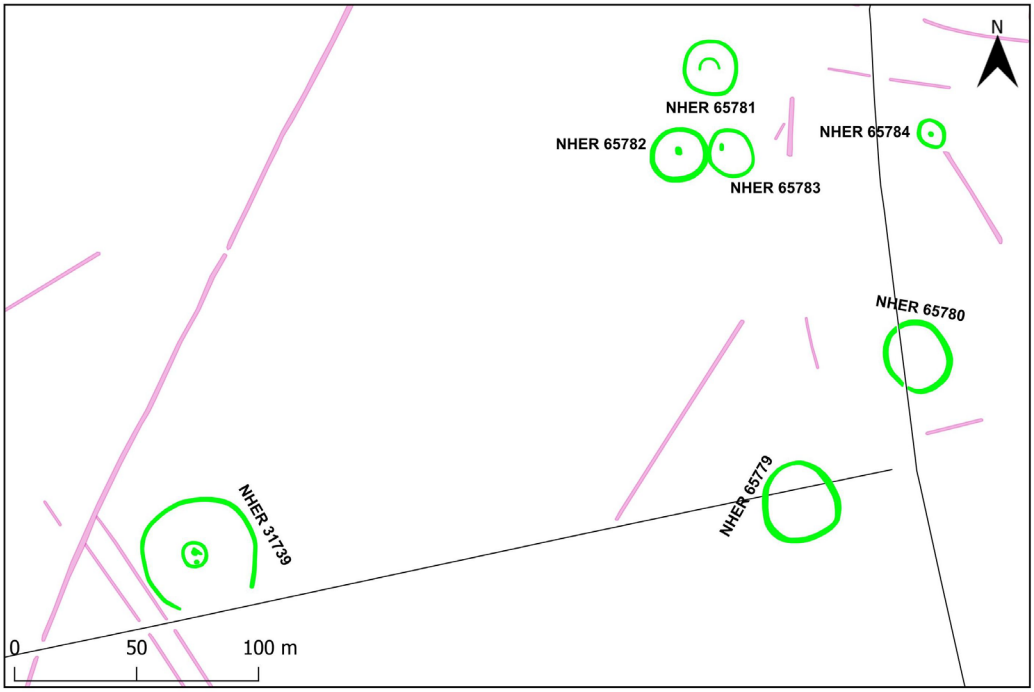

Figure 15 A possible Bronze Age disc barrow (NHER 31379; bottom left); further ring ditches (NHER 65779–65784) can be seen in the east of the image (centre right); ditches depicted as green, unrelated features as purple. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Later Bronze Age and Iron Age

A variety of non-funerary monument types were recorded by the project which were interpreted broadly as being of later prehistoric date. These included boundary ditches, trackways, enclosures of varying forms, and a possible pit alignment. The latter was newly recorded approximately 1.3km to the east of Tuttington (NHER 65771; Fig 16). It lies close to (approximately 35m to the west of) the cropmarks of two probable Bronze Age round barrows (NHER 65770 and 36452). A dense area of geological cropmarks can be seen across the area, and it is possible that some of the mapped pits may be natural in origin. However, the fairly consistent size, regularity, and alignment of the mapped features suggests an archaeological rather than geological origin. An extant post-medieval to modern field boundary appears to curve around the area of the

possible pit alignment. The reason for this is uncertain. It is possible that the curved extant boundary is the result of the removal of former post-medieval boundaries visible on the Tithe and Ordnance Survey 1st edition 6 inch maps.

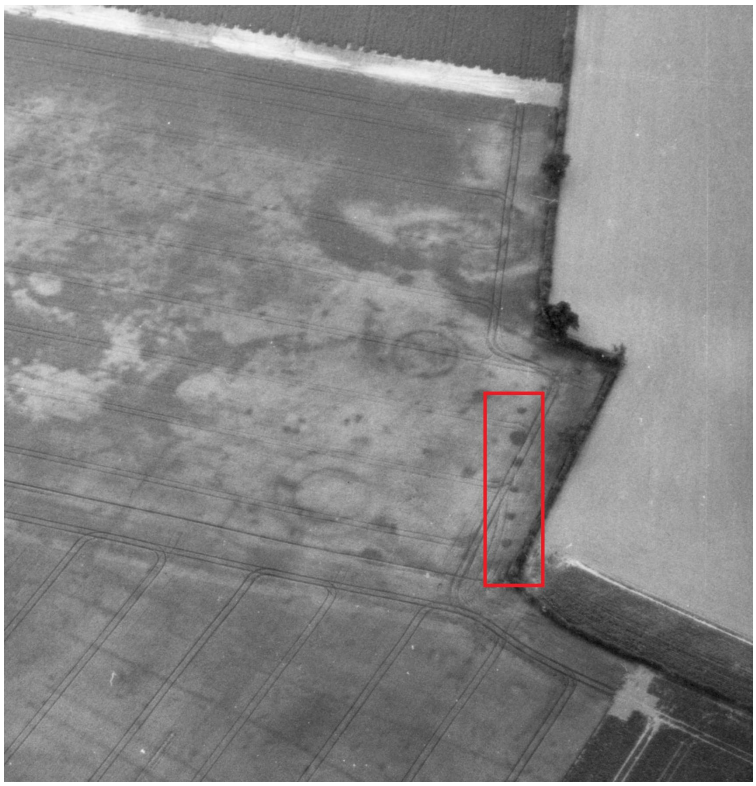

Figure 16 The cropmarks of a possibly later prehistoric pit alignment (NHER 65771; area outlined in red); the cropmarks of a single and a double ring ditch are also visible, probably marking the sites of Bronze Age round barrows (NHER 65770 and 36452). Photograph (detail) by Derek Edwards, Norfolk Air Photo Library: Oblique Collection TG2327/C 15-JUL-1996 (NLA 370/HJV 22) © Norfolk County Council.

The project mapped relatively few sites that could be dated to the Iron Age with any degree of confidence. Some sites of Iron Age and/or Roman date, including the scheduled Bolwick Hall Farm villa site, are discussed with the results for the Roman period below. Boundary ditches, trackways and rectilinear enclosures of uncertain date have been recorded across the project area. It is possible that some of these could date to the Iron Age period, or they could equally be of earlier or, more probably, later date. The difficulty of distinguishing sites – such as rectilinear enclosures – of Iron Age date from those of Roman date has been discussed in relation to the results of earlier AIM projects in Norfolk (Albone *et al* 2007a, 60, for example), and remains the case for the project discussed here. In many cases, sites may have spanned both periods; there is considerable evidence from the wider region for settlement continuity from the Late Iron Age to early Roman period (Smith *et al* 2016, 214–215, 240).

Figure 17 The probably Iron Age multi-ditched boundary at Marsham (NHER 64260); a section of the Roman road from Brampton (NHER 64232) can be seen approaching the boundary from the east (the road is not visible to the immediate west of the boundary, but is evident again 270m further to the west); Photograph: earth.google.com 01-JUL-2006 © 2023 Infoterra Ltd & Bluesky.

A possible multiple ditched boundary of Iron Age date (NHER 64260; Fig 17) was visible as a cropmark to the south-west of Marsham, in the south of the project area. The feature consists of three fragmentary, roughly parallel ditches. These appear to be cut by a Roman road (NHER 64232, part of NHER 2796), which leads towards Brampton Roman town 3.6km to the east. The form of the feature is similar to other multiple ditched boundaries recorded elsewhere in Norfolk (Tremlett *et al* 2011, 31–34), and further afield in Lincolnshire (Boutwood 1998) and Yorkshire (Stoertz 1997), where they are generally considered to be of Late Bronze Age to Iron Age date. The Norfolk examples include a site at Scottow (NHER 36729) which lies only 9km to the east, which is also crossed by the same Roman road. It is notable that the Marsham example

appears to cut across an interfluve between two tributaries of the River Bure, The Mermaid to the north and an unnamed watercourse to the south.

Evidence for Iron Age funerary practices is extremely scarce across Norfolk, and remains a priority for further research in the region (Tremlett *et al* 2011, 34; Brudenell 2021; Evans 2021). Although no confirmed Iron Age square barrows have been identified in the county, earlier AIM-standard surveys have been successful in identifying (or confirming) the sites of several possible examples. The Aylsham and Brampton AIM project has added to this number in a small way.

A previously recorded small square enclosure (NHER 64327) was mapped approximately 700m to the north-west of Burgh in the east of the project area. Two further examples were recorded to the south-west and south of Marsham (NHER 64237 and 64262). The enclosures vary in size, measuring internally between 8m and 15m across. They are all defined by ditches between approximately 1.5m and 2.5m wide. None of the enclosures is dated, but it is possible that they relate to Iron Age square barrows. The two Marsham examples exhibit polar alignment, a common feature of square barrows (Tremlett *et al* 2011, 35). All the sites are located close to the cropmarks of ring ditches, which probably mark the site of Bronze Age round barrows; this proximity to earlier funerary monuments is another common relationship for Iron Age square barrows. Two further examples (NHER 66761 and 66762) were recorded approximately 1.6km to the west of Brampton Roman town. These are discussed in more detail in the section covering Brampton and its environs as they have an interesting relationship with the Roman road approaching the town (Fig 58).

Roman

Archaeological sites and features dating from the Roman period were a primary focus for the survey. As discussed above, the project area was already known to contain several notable sites dating to the Roman period, including Brampton Roman town and the site of Bolwick Hall Farm/Brampton Piece Roman settlement. Both Brampton Roman town and the Bolwick Hall Farm settlement are designated scheduled monuments (NHLE 1003698 and 1003952). Amongst other methods, both have been investigated through small-scale excavations, in the 1930s and 1950s in the case of Bolwick Hall Farm, and between 1964 and 1986 at Brampton; at neither site have the results of the excavations been fully published. The project has enhanced the record for these sites and contributed to our understanding of them by mapping, interpreting and recording not only the sites themselves, but also the wider landscape that surrounds them. The results for Bolwick Hall Farm are discussed below; those for Brampton form their own Research Theme chapter.

More broadly, the project results for the Roman period include settlement sites, possible enclosures, sections of Roman road and a possible fort. The area covered has also included the environs of the site being investigated by the Aylsham Roman project. Large quantities of Roman finds – mainly pottery, coins and metalwork – have been recorded across the project area by field walking and metal detecting. Together with the other evidence, this suggests a well-populated and utilised landscape during this period.

Military Sites

At Cawston, in the west of the project area, the project mapped a triple-ditched, partially embanked enclosure (NHER 21849; Fig 18). This had previously been suggested as the site of a Roman fort. While this remains a possibility, there is little supporting evidence and it could instead be interpreted as being an Iron Age to Roman settlement, with little to suggest a military origin. To the north of the enclosure, a dense area of linear ditches can be seen. These most likely relate to settlement features including boundaries, trackways and possible smaller enclosures. These features are likely to be of Iron Age to Roman date and may represent multiple phases of settlement. Pit features can be seen across the area which may relate to a mix of archaeological and geological features. Finds from the area include two Roman coins (NHER 58762), but also material of both prehistoric and post-Roman date.

Figure 18 The triple-ditched enclosure at Cawston (NHER 21849); the enclosure can be seen towards the bottom of the image, with possible Iron Age and/or Roman settlement features to its north; banks shown in red, ditches in green. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Roads

The project area is crossed by the line of two documented Roman roads which cross at Brampton Roman town (Gurney 2005, 29). Within the project area, the north-south aligned road leading from north of Brampton towards Thorpe St Andrew to the south (NHER 7598) is entirely followed by modern roads and tracks. As a consequence, it was not recorded by the project. The east-west aligned road (NHER 2796) leads from Brampton westwards towards the Roman small town at Billingford. Albone (2016, fig 10, 361–362) has cast doubt on the idea that it continued into west Norfolk beyond that. Eastwards the road can be traced to Smallburgh. This east-west aligned road is evident as earthworks, soilmarks and/or cropmarks at several locations in the south of the project area.

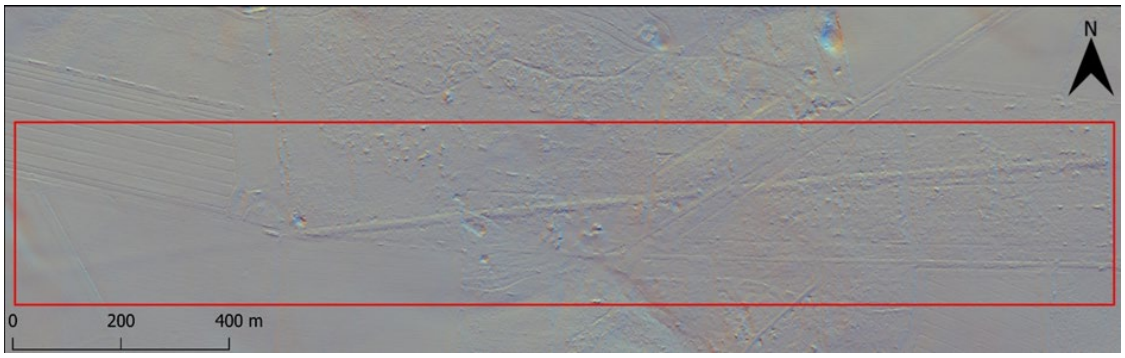

Figure 19 A multi-direction hillshade lidar visualisation showing the Roman road on Marsham Heath (NHER 64215 and 64216); the feature can be seen as a raised earthwork on the heath and as a low earthwork in the arable fields to the west. Lidar source: National LIDAR Programme TG12SE Environment Agency 1m DTM 17-NOV-2017 © Environment Agency copyright and/or database right 2023. All rights reserved. Multi-direction hillshade lidar visualisation © Norfolk County Council.

Although the alignment of the east-west road has long been known, the project has both identified several new sections and has enhanced the existing record for previously recorded sections of the road. On Marsham Heath, earthwork sections of the road had been recorded previously from field visits (NHER 64216; Cushion 2009a, 6; Robertson and Paterson 2010, 17–18) and were mapped by the project from the visualised lidar data. The sections of earthwork road on Marsham Heath are preserved well (Fig 19), as the heath has not been subjected to intensive ploughing for agriculture. Additional to the sections of Roman road visible as relatively substantial earthworks on the modern heath, the project has identified new sections visible as very low earthworks in the arable fields to the west (NHER 64215). Robertson and Paterson (2010, 18) noted the abrupt end of the earthworks in the east of Marsham Heath, where the landcover changed at the edge of the tree plantation where it met arable land. This can also be seen on the sources consulted by the project, as

unsurprisingly the earthworks are much lower or can only be seen as cropmarks in the ploughed arable areas outside the heath.

Additional sections of road were mapped in the vicinity of Brampton Roman town. These are discussed in greater detail below, in the section covering the town and its environs. They include some possible additional surviving earthwork segments newly identified by the project on visualised lidar. These are located east of the town, adjacent to what may have been a crossing of the River Bure.

Settlement

Bolwick Hall Farm Roman Settlement

The scheduled Bolwick Hall Farm Roman settlement site (also referred to as Brampton Piece; NHER 7586; NHLE 1003952) is situated in the south of the project area, approximately 1.8km to the north-west of Brampton (Fig 20). The project has recorded a number of linear ditch features which may relate to boundary ditches and trackways. A rectilinear enclosure with a possible entranceway on its eastern side can be seen in the centre of the site. The enclosure may overlay – or be overlain by – a possible east-west aligned trackway. As discussed in further detail below, the features most likely relate to multiple phases of settlement dating to the Iron Age to Roman period. Further possible Iron age to Roman trackways and boundaries have been recorded to the north-east of the site (NHER 52546). It is also possible that some of the mapped boundaries may relate to later, possibly medieval to post-medieval field boundaries.

Previous investigations at the site have focused on the south-east of the field. The first investigations were undertaken in 1938 by Mrs Wathen and Mr Buxton, consisting of trenches dug across the south-east corner of the field after mortar-covered flints and Roman tile were seen following deep ploughing (Larwood 1950, 1). This trenching recovered a number of finds including iron nails, 3rd- and 4th-century pottery and Roman glass (ibid). Further trenching was undertaken in 1939 by T. Wake; this recorded the remains of a Roman building (ibid). The building was suggested to have been a villa type building, constructed of wattle and daub with a flint foundation. The building was suggested to have been heated by a hypocaust, and painted wall plaster as well as Roman pottery finds dating to the 2nd and 3rd centuries were recorded (ibid).

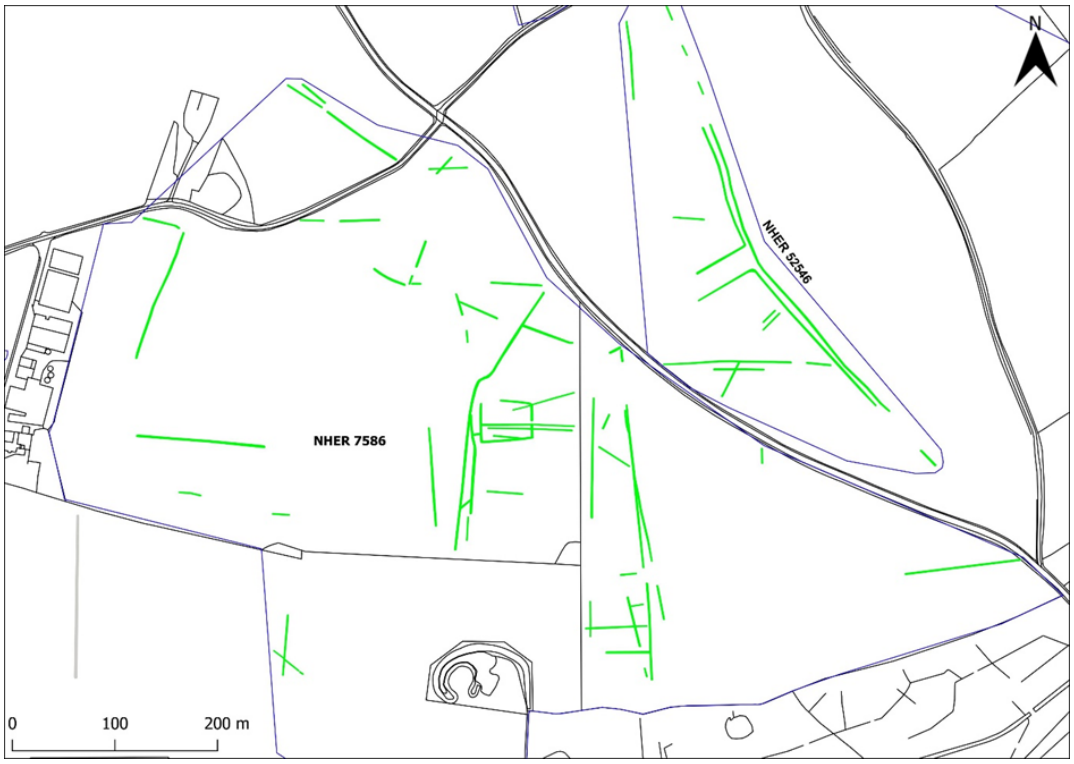

Figure 20 Cropmarks at the Bolwick Hall Farm site (NHER 7586 and 52546); ditches depicted as green, extent of HER records in blue, features unrelated to either NHER 7586 or 52546 coloured grey. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

After the excavations in 1939, aerial photographs of the site were taken by Nancy Holman (notes by R R Clarke held for NHER 7586). These seemed to show further features as cropmarks to the north of the area excavated in 1939 (Larwood 150, 1). Some of the suggested cropmarks were investigated in 1950 by Larwood (ibid, 2–4), recording Iron Age ditches and post-holes interpreted as relating to a possible Roman outbuilding. Further investigations in 1951 (Barnett 1951), 1952 (Larwood 1952) and 1953 (Baggs 1953) also focused on the south-east corner of the field. This work recorded further Iron Age ditches, Roman structural remains and a Roman lime kiln. The finds from the excavations indicate multiple phases of occupation at the site during the Iron Age and Roman periods.

Unfortunately, plan drawings and maps of any of the excavations were not available for consultation, which made locating the excavation sites – and correlating them with the AIM mapping – difficult. Copies of the 1939 Holman aerial photographs discussed by Larwood (1950, 2-4) are held in the NAPL oblique collection (TG2024/D–G) and were analysed by the project. The photos are very oblique and dense areas of geological cropmarks are visible. Some of the cropmarks discussed by Larwood could be identified, but which had been

excavated is uncertain. No structural remains could be identified. Further work could be undertaken to enhance the record of the site, including synthesising the excavation reports (Appendix 3).

Aylsham Roman Project

The Aylsham Roman project is an award-winning, community-led project located at Woodgate Nursery, in the centre of the project area, south-west of Aylsham. Geophysical surveys and excavations at the site have uncovered large numbers of finds and features relating to Roman settlement. Although the AIM survey did not record any features on the site of the excavations themselves, the project did record a series of probable multi-phase boundaries and enclosures in the environs of the site.

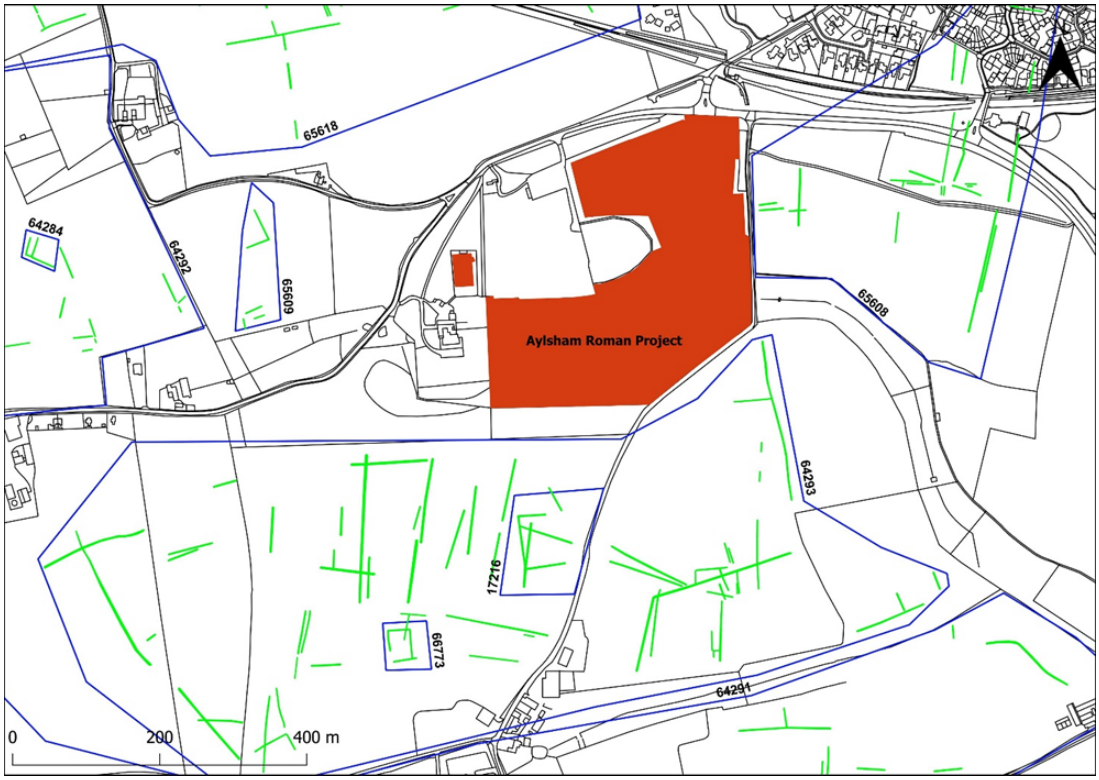

Figure 21 Features recorded in the vicinity of the Aylsham Roman Project site; ditches shown in green, extent of HER records in blue, Aylsham Roman project site in orange. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

The cropmarks surrounding the area being investigated by the Aylsham Roman project (Fig 21) are highly fragmented and also seen within areas of dense geological cropmarks, making interpretation and dating difficult. Many of the features recorded (NHER 64293, 65608, 65609, 65618) potentially represent multiple phases of activity, but most appear to relate to medieval to post-

medieval field boundaries. Given the proximity of the features to the Roman settlement being excavated by the Aylsham Roman project, however, it is possible that some elements date to the Iron Age to Roman period.

To the south of the area, two previously recorded rectilinear enclosures were mapped (NHER 17216 and 66773). Both are situated within an area of multi-phase boundary ditches (NHER 64293), and their date is uncertain. It is possible that the enclosures date to the Iron Age to Roman period, but a medieval to post-medieval date is also possible. It is also uncertain as to whether the two enclosures are of the same date or relate to different periods.

Other Settlement Sites

Within the project area a number of rectilinear enclosures of possible Roman date which potentially relate to settlement were mapped. Although the date of the features is uncertain, a Roman date could be suggested for the sites on the basis of their morphology, their alignment being at odds with later boundaries recorded on historical and modern maps, and in some cases (NHER 45327, 66370 and 65793) their proximity to previously recorded Roman finds.

Figure 22 The newly recorded possibly Iron Age to Roman rectilinear enclosure at Silvergate (NHER 65395). Photograph: earth.google.com 07-AUG-2020 © 2023 Google.

Sections of a newly recorded large rectilinear enclosure (NHER 65395) of possible Iron Age to Roman date were mapped near Silvergate, in the centre of the project area (Fig 22). The interior of the feature measures approximately 97m wide and 116m long, and is defined by an approximately 1m wide ditch. A

possible entrance can be seen on the eastern side of the feature. A series of linear ditches possibly relating to later medieval to post-medieval field boundaries and trackways (NHER 65396) can be seen crossing the enclosure. A possibly prehistoric curvilinear enclosure is located 80m to its west (NHER 12784) and a probably medieval to post-medieval rectilinear enclosure 375m to the south (NHER 65398).

The date and function of the enclosure are uncertain. It could be of Iron Age and/or Roman date, and could even be the remains of a Roman camp. Alternatively, it could instead date to the medieval to post-medieval period. A small amount of metalwork recovered from the area during metal-detecting includes a Roman coin amongst material of later date. Morphologically, the site is reminiscent of both Iron Age and Roman sites mapped elsewhere in Norfolk. At Langley, in east Norfolk, a rectilinear enclosure of broadly similar dimensions was mapped as part of Broads NMP project (NHER 19407). It contained the cropmark of a ring ditch, possibly a round house, and a possible rectangular structure, and was interpreted as an Iron Age to Roman farmstead. Somewhat larger were a number of rectilinear enclosures recorded by the same project which were interpreted as possible villa sites or large farmsteads of Roman date (Albone *et al* 2007b, 26, fig 4.2).

In the parish of Erpingham, a large rectilinear enclosure with possible internal subdivisions was recorded (NHER 12993; Fig 23). The site had been identified previously from NAPL obliques and initially had been suggested as relating to a medieval moated site and field system. The alignment of the enclosure, which is at odds with that of the field boundaries recorded on historical and modern maps, as well as the general morphology of the site, may reflect a Roman date instead. A series of multi-phase linear ditches (NHER 66777), probably relating to former boundaries, was recorded to the south-west of the enclosure. Some of the boundaries appear to be on a similar alignment and may be contemporary with the enclosure. Probable later medieval to post-medieval field boundaries can also be seen, seemingly overlaying it. To the north of the enclosure, sections of parallel ditches may relate to the corner of a second, double-ditched rectilinear enclosure (NHER 66776). This feature may also date to the Roman period, or may be earlier, possibly Iron Age, in date. The possible double-ditched enclosure is on a similar alignment to the larger rectilinear enclosure.

Figure 23 The possibly Roman rectilinear enclosure at Erpingham (NHER 12993); part of a possible Iron Age to Roman double-ditched enclosure (NHER 66776) can be seen to the north; multi-phase boundary ditches (NHER 66777) can be seen to the south-east, and possible medieval to post-medieval boundary ditches, which may cut the southern corners of NHER 12993, are also visible; ditches shown in green, extent of HER records in blue. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

A geophysical survey was carried out at the site as part of investigations undertaken ahead of the construction of the Bacton to King's Lynn gas pipeline. The south-east corner of the large rectilinear enclosure was recorded by the geophysical survey and the results suggested that the ditches were too narrow to be a moated site (Bunn and Rylatt 2003, 35). This arguably supports a Roman date for the enclosure. The geophysical survey also recorded a number of linear and curvilinear anomalies which may overlie or be cut by the rectilinear enclosure, suggesting multiple phases of activity (ibid). It was also noted that the magnetic susceptibility levels of the area were relatively modest, which may indicate a lack of intensive or prolonged occupation in this area. This could indicate that the enclosure was used for only a short period, and/or for purposes other than settlement or intensive agricultural activity.

Figure 24 A rectilinear enclosure of possible Roman date at Itteringham (NHER 66270); the cropmark of a medieval to post-medieval field boundary (NHER 66271) is also visible; ditches shown in green, extent of HER records in blue. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Sections of a newly recorded rectilinear enclosure and boundary ditches of possible Roman date were mapped to the west of Itteringham, in the north of the project area (NHER 66270; Fig 24). Finds of various dates (NHER 28697, 28901, 28905, 28906), including Iron Age, Roman, medieval, and post-medieval material, have been recorded in the fields surrounding the mapped features. They include a dense area of Roman pottery and building material (NHER 28905 and 28906) in the north-west of the site. The rectilinear enclosure has a similar form to the site at Erpingham (NHER 12993, discussed above) and the density of Roman finds recorded in the vicinity of the mapped features may also suggest a Roman date for them. Some of the features appear to be cut by a later medieval to post-medieval field boundary also visible as a cropmark (NHER 66271).

Figure 25 The rectilinear enclosure of possible Roman date at Burgh and Tuttington (NHER 65793); possible trackways of uncertain date (NHER 65798) and possible medieval to post-medieval boundaries (NHER 21834) are also visible; a ring ditch, probably the site of a Bronze Age round barrow (NHER 65778), can also be seen; ditches shown in green, extent of HER records in blue. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

A Roman date has been suggested for a rectilinear enclosure recorded in Burgh and Tuttington, in the east of the project area (NHER 65793; Fig 25). The previously recorded enclosure (NHER 65793) was mapped from NAPL obliques and Google Earth imagery. Although the date of the feature is uncertain, the form of the feature is again similar to other possible examples of Roman enclosures discussed above (NHER 12993 and 66370). Prior to the AIM survey, a Roman date had tentatively been suggested, based on the high density of Roman pottery recorded from fieldwalking across the area.

In the south of the project area, at Marsham, the survey mapped previously recorded cropmarks of possible Roman enclosures (NHER 45327; Fig 26). These may relate to Roman settlement. Roman finds – including coarse pottery, brick and tegulae – and a possible Roman kiln (NHER 24414) have been recorded at this location. The form of the cropmarks is again similar to the other, possibly Roman, enclosures discussed above (NHER 12993, 66370 and

65793). A number of multi-phase boundary ditches can be seen across the area which may overlie – or may have been overlain by – the enclosures (NHER 64261). The enclosures are cut by a modern road which can also be seen on the Marsham Tithe map. The enclosures lie in close proximity to a possible medieval or post-medieval mill site (NHER 11698) to the south. Therefore, a later, possibly medieval to post-medieval date for the enclosures is also feasible.

Figure 26 The cropmarks of a possible Roman enclosure at Marsham (NHER 45327); the cropmarks of a probable medieval to post-medieval post mill (NHER 11698) can be seen towards the bottom left of the image; multi-phase boundary ditches (NHER 64261) exhibiting varying alignments are also visible. Photograph (detail) by Derek Edwards, Norfolk Air Photo Library: Oblique Collection TG1922/Q 19-JUL-1994 (NLA 373/JBH 13) © Norfolk County Council.

Anglo-Saxon

No features mapped by the project could be dated confidently to the Anglo-Saxon period. It is possible, however, that some sites recorded as dating from other periods and discussed in other sections of the report could instead be of Anglo-Saxon date. These include the possible medieval open field boundary recorded at Burgh and Tuttington (NHER 65786).

Medieval and Post-Medieval

A considerable proportion of the sites and features mapped by the project have been interpreted as being of medieval and/or post-medieval date. In most cases, it is not possible to differentiate clearly between the two periods on the basis of the aerial evidence alone, and even where additional evidence is available (as at some of the manorial sites described below), this may indicate continuity of use across the two periods. As a consequence, the results for both periods are discussed together.

Medieval Settlement and Land Use

The soils of large areas of north-east Norfolk were formed in wind-blown loess, and are notable for being exceptionally fertile, retentive of nutrients and water, but at the same time well-drained and easily worked. These favourable soils were able to support an abnormally dense population in the early medieval period (Williamson 2006, 23). They dominate in the north-eastern half of the project area, where they are dissected by the wide, lush valleys of the River Bure and its tributaries. To the south and west, sandier, more acidic soils dominate, and the area once supported extensive areas of heathland, of which remnants still survive.

The complexity, density and mutability of medieval settlement and land use has been highlighted by a recently published study of the parish of Fransham, in mid Norfolk (Rogerson 2022). The study combined the results of extensive field walking with documentary research, and its results chart the establishment of new settlement sites through the 11th, 12th and in particular the 13th century. An astonishingly high number of dispersed settlement sites (105) were identified as being in existence within the parish in the 13th century, almost half of which were abandoned in the 14th century. As Rogerson points out, this pattern of population increase and decline is well known, but the Fransham example is unusual in that it derives from the study of dispersed settlements, not shrunken or deserted nucleated 'villages'. Despite its successes, the Fransham study is also useful in highlighting the difficulty in plotting late medieval land use with any certainty, given the 'bewilderingly intermingled arrangement of irregular common open fields and enclosures, and indeed the process of piecemeal enclosure which probably persisted throughout the medieval period and well beyond' (Rogerson 2022, 193). Rogerson concludes that the task of accurately mapping land use through time is almost impossible (ibid). Conversely, the Aylsham and Brampton AIM project has mapped the visible remains (or their associated cropmarks) of at least some of the physical boundaries, but the data lacks the information regarding chronology and use that would provide a better understanding of the medieval and post-medieval landscape.

The different soil and geological landscapes of the Aylsham and Brampton project area and Fransham means we should be wary of drawing parallels too closely between the two. Fransham is located in central Norfolk, on the boulder clay plateau, although its soils are not uniformly heavy. The Aylsham and Brampton project area lies in north-east Norfolk, with a more varied geology and extensive areas of free-draining soils. Nevertheless, it is tempting to see in the density and variety of probably medieval trackways, enclosures and fields mapped by the project a process similar in nature and extent to that charted at Fransham. As at Fransham, new settlement may have clustered around areas of common and the roads connecting to it, perhaps reflecting a necessity to live close to areas of pasture, as these diminished in the face of rising population levels and pressure for more arable land (Rogerson 2022, 193).

The project has recorded extensive areas of possible medieval to post-medieval field boundaries, trackways and enclosures, with particularly dense areas mapped to the west of Aylsham in the centre of the project area and between Oulton and Blickling in the north-west. The project has not only been able to add new sites relating to medieval and post-medieval land use to the record, but has also enhanced and expanded previously recorded sites. Where sites had been recorded previously, the records often related to discrete sites such as individual enclosures and field boundaries, rather than the extensive spreads of features that are now evident. The mapped sites have often been highly fragmented and most likely relate to multiple phases of activity. In the absence of direct dating evidence, the possibility cannot be ruled out that some elements of the mapped sites may relate to earlier periods.

Manorial and Moated Sites

The project has recorded six manorial and/or moated sites across the project area.

The Bishop's Manor, Moorgate, and Nowers Manor

The records of two previously known medieval manor houses and associated chapels located in the north of the project area (NHER 6714 and 12525) have been enhanced by the project. The manor houses and chapels were most likely associated with the Bishops of Norwich who came to hold both the manor at Blickling and the capital manor at Itteringham (Nowers Manor) as part of their Blickling estate (Batcock 1991, 160; Penn 2008, 61).

The cropmarks and earthworks of the Bishop's Manor site at Moorgate (NHER 6714) lie to the north of Blickling Park. The site was mapped from aerial photographs and visualised lidar data (Fig 27). It had previously been the

subject of excavations and earthwork surveys (Meckseper 2000; Cushion 2001; Penn 2002).

The cropmarks of the structural remains are clearly visible on the NAPL oblique aerial photographs and relate to the site of the manor house and a chapel. Sections of bank and ditch, partially surviving as earthworks, may relate to an enclosure surrounding the manor site. Raised earthwork mounds and ponds can also be seen on the visualised lidar in the north of the site which may relate to fishponds associated with the manor site. The suggested embanked enclosure may have been for the personal security and privacy of the bishop (Penn 2008, 44). The manor house is suggested to have fallen out of use as a country house for the bishop and to have been let out to tenants. Despite falling out of use, buildings may have been present on the site until the 16th century (ibid, 44–45).

Figure 27 The Bishop's Manor at Moorgate (NHER 6714), to the north of Blickling Hall; mapped features include earthwork mounds and pits probably relating to fishponds, a chapel and manor house visible as cropmarks in the south (bottom) of the image, and a series of linear ditches possibly relating to medieval to post-medieval field boundaries (NHER 66275) in the west and south-west; banks, mounds and buried structures shown in red, ditches in green and features mapped by extent in orange. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

The cropmarks of a second medieval manor house and chapel which may relate to the Bishop's manor site at Itteringham (Nowers Manor; NHER 12525) were recorded from the aerial photographs (Fig 28). The site of the possible chapel, the hall, and a section of a third possible building can be seen as cropmarks on the aerial photographs along with sections of a rectilinear enclosure surrounding the site of the structures.

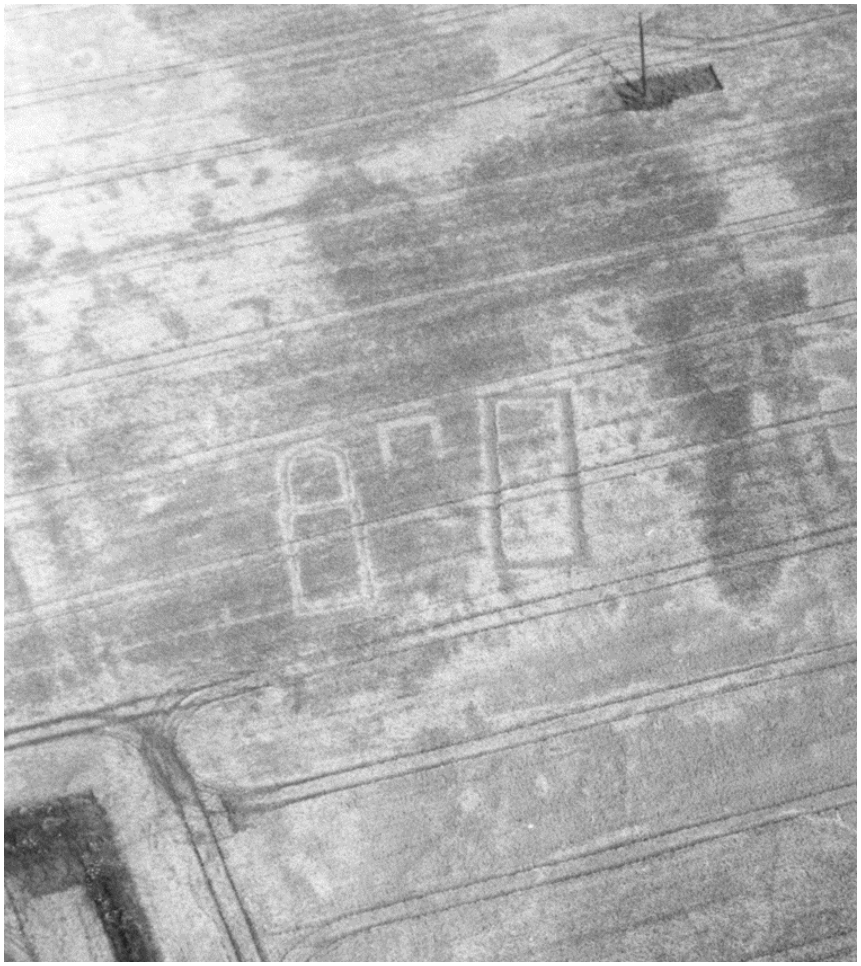

Figure 28 The cropmarks of a chapel (left), manor house (right), and part of a third structure (centre), relating to the site of Nowers Manor and St Nicholas's Chapel (NHER 12525). Photograph (detail) by Derek Edwards, Norfolk Air Photo Library: Oblique Collection TG1530/A 16-JUL-1986 (NLA 179/DBM 8).

The form of one of the cropmarks suggests that it relates to a former chapel, possibly the site of St Nicholas's Chapel (Batcock 1991, 160). It consists of what appears to be a rectangular nave and an apsidal chancel. It is suggested that St Nicholas's Chapel was formerly the second parish church of the village of Itteringham, located to the north-west of the site (Batcock 1991, 160). The church is suggested to date to approximately 1040–1150 AD. It lost its parochial status by the 14th century and was privatised and incorporated into the new Nowers Manor complex by the 15th century (Batcock 1991, 160).

The adjacent rectilinear cropmark may relate to the site of a manor house associated with Nowers Manor. A section of a third possible building situated between the two structures may relate to an outbuilding or the site of an earlier hall (Batcock 1991, 160; Penn 2008, 62). The date at which the manor and chapel were abandoned and declined is uncertain (Batcock 1991, 160).

Prior to the AIM survey, a geophysical survey was undertaken across the site ahead of the Bacton to King's Lynn gas pipeline construction (Wilson 2012, 180, fig 91). The geophysical survey recorded the manor house and chapel site. The results suggested that substantial stone foundations remain in situ (Bunn and Rylatt 2003, 32). This suggestion is supported by the features showing primarily as negative cropmarks on the aerial sources consulted by this project.

Figure 29 Cropmarks at the suggested site of Nowers Manor and St Nicholas's Chapel (NHER 12525); the manor site and chapel can be seen in the centre of the image with sections of a possible rectilinear enclosure surrounding the site; a series of possibly medieval to post-medieval field boundaries, trackways and rectilinear enclosures are also visible (NHER 66274); banks shown in red, ditches in green. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

The cropmarks of a series of possibly medieval to post-medieval field boundaries, trackways and rectilinear enclosures (NHER 66274) were recorded by the project nearby to the remains of the manor (Fig 29). It is likely these features relate to medieval settlement and farming, possibly contemporary with

the manor site. Some of the cropmarks recorded from the aerial sources in this area may equate to features identified as part of the earlier geophysical survey. A more recent survey using ground-penetrating radar has revealed traces of additional buildings to the south-west of the site (Michael de Bootman, pers comm).

Ingworth

The earthworks of a previously recorded manorial site at Ingworth (NHER 7403) were enhanced by the project (Fig 30). Previous earthwork surveys recorded a very complicated earthwork site with a series of probable medieval features, later drainage features, natural features and probable post-medieval quarries (Cushion and Davison 2003, 112).

Figure 30 The manorial site at Ingworth (NHER 7403); the two possible moated enclosures can be seen at the bottom of the image with a series of banks and ditches to their north which may relate to boundaries, drains, ponds and trackways; banks/mounds/platforms depicted as red, ditches as green, additional unrelated mapping as purple. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Earthworks mapped from the visualised lidar data by this project include a moated enclosure with a slightly raised interior in the south of the site. Pits and two small mounds can be seen within the interior of the enclosure. It is possible that the raised area is a building platform, although no clear evidence of building remains were recorded. A second moated enclosure is visible to the east of the first enclosure. Across the site a series of ditches, pits and banks which

may relate to boundaries, drains, ponds and trackways associated with the possible manor have been recorded. As previously mentioned, multiple later post-medieval and modern drains can be seen across the site, and it is possible that some of the mapped features may relate to modern or natural features. The site is clearly visible on the recent (2017) visualised lidar data as well as 1940s vertical aerial photographs and NAPL oblique aerial photographs.

Burgh Hall

The record covering the earthworks of the scheduled medieval site of Burgh Hall (NHER 7544; NHLE 1003927) and its associated features has been enhanced by the project (Fig 31).

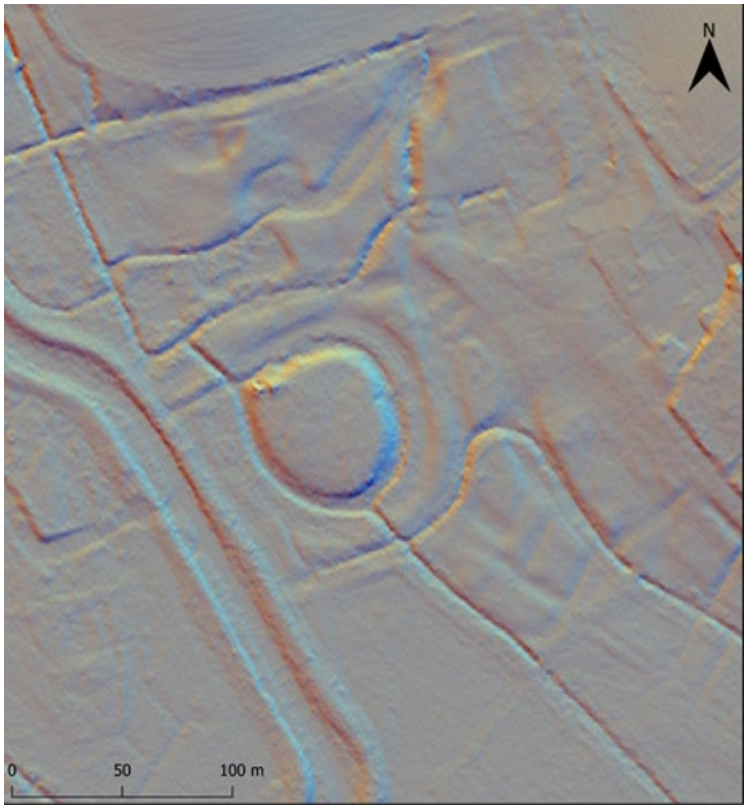

Figure 31 Multi-direction hillshade lidar visualisation showing the earthworks of the scheduled medieval site of Burgh Hall (NHER 7544); the former moat can be seen in the centre of the image as an earthwork ditch surrounding a circular mound where the hall would have presumably been situated. Lidar source: National LIDAR Programme TG22NW Environment Agency 1m DTM 24-NOV-2017 © Environment Agency copyright and/or database right 2023. All rights reserved. Multi-direction hillshade lidar visualisation © Norfolk County Council.

The earthworks of a large mound surrounded by a moat are visible on historical and modern aerial photographs and on recent (2017) visualised lidar data. Two

rectangular mounds can be seen to the east of the moat, and it is possible that these features relate to medieval building platforms. A rectangular pit was mapped to the south of the moat. The pit may be medieval to post-medieval in date although the function of the feature is uncertain. Possible medieval to post-medieval boundary banks and ditches are visible to the south of the moat. A large number of modern drainage and natural features are also visible across the site on the visualised lidar data. The site is recorded on the Ordnance Survey 1st edition 6 inch map and the Ordnance Survey 2nd edition 25 inch map, labelled as 'Burgh Hall (site of)' and 'Round Hill'.

Buxton with Lammas

Another substantial medieval manorial site (NHER 66765) was mapped at Buxton with Lammas, in the south-east corner of the project area. Relatively little is known about the history of the site. It was visible principally as cropmarks, with a substantial, trapezoidal moat enclosing what appears to be an inner enclosure and at least two buildings (Fig 32). Other platforms and rectilinear pits may represent further structures and possibly cellars. A square structure visible immediately to the south of the larger building could conceivably be the remains of a chimney or similar structure. A fragmentary circular feature measuring 11m in diameter and located immediately to the south of the moat may represent the remains of an external structure, perhaps a tower, stair or well. External ditches and banks may define ancillary enclosures, but may also include drainage features.

This is another site where the varying appearance of the features on different sources has made them harder to map and interpret. A field visit, probably in 1972, noted earthworks in the field. These may relate to a narrow ditch visible as an earthwork on 1940s aerial photographs which followed the line of the moat. This corresponds with a boundary depicted on the Ordnance Survey 1st edition 6 inch map, and is probably the revetted ditch recorded in 1978 as having once existed at the site according to the then owners (information from NHER 7625). This relatively recent element of the site was not mapped. The moat itself and the possible cellar in its north-east corner are both visible as earthworks on visualisations of 2017 lidar data, but are presumably relatively low as they are not obviously earthworks on aerial photographs. Numerous finds of all periods have been recovered from the site (NHER 7625), including a significant assemblage of medieval coins and other metalwork, and there seems little doubt that it represents a high-status medieval dwelling.

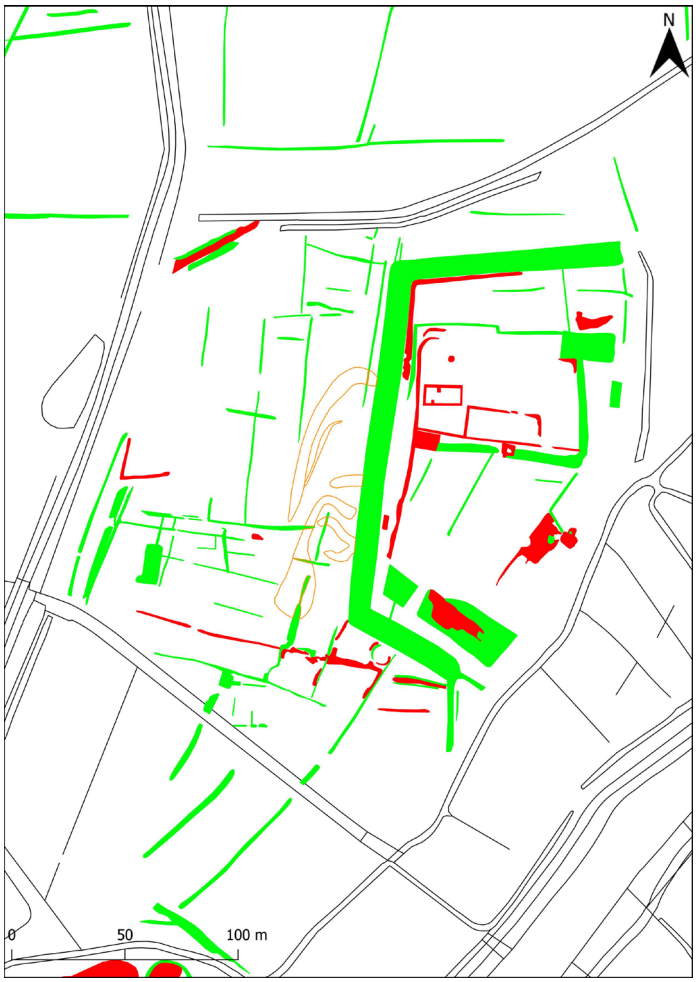

Figure 32 The moated manorial site at Buxton with Lammas (NHER 66765); banks depicted as red, ditches as green, poorly defined areas of possibly disturbed ground outlined in orange. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Possible Moated Site at Skeyton

A previously recorded sub-rectilinear enclosure at Skeyton (NHER 21832) is visible as a low earthwork on visualised lidar data and as a cropmark on aerial photographs (Fig 33). The enclosure has a relatively broad ditch, and it is possible that it is the remains of a medieval moat. A section of ditch to the south of the possible moat may relate to a surrounding external ditch. Equally, this may instead be a separate medieval to post-medieval boundary or possibly a post-medieval to modern drainage ditch. The interior of the enclosure appears to be slightly raised on the visualised lidar data. It is uncertain whether the raised interior is natural in origin or related to archaeological activity. As the feature is visible on the recent (2017) visualised lidar data, it is likely that it still survives as a very low earthwork.

Figure 33 A sub-rectilinear enclosure with a broad ditch at Skeyton (NHER 21832), which may be a medieval moat; a section of ditch to the south of the possible moat may relate to a surrounding external ditch; the ditches to the east may relate to medieval to post-medieval field boundaries (NHER 65787); ditches shown in green. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Religious Sites

The cropmarks of a previously recorded structure, most likely relating to the site of a medieval church (NHER 7350), and of a possibly associated rectilinear enclosure are visible on aerial photographs (Fig 34). The structure is thought to relate to the site of St Andrew's church, associated with the former medieval village of Irmingland. It has been recorded that the church was in use until 1557 and was long since decayed by 1602 (Allison 1957, 151). No above-ground structural elements were visible on the consulted aerial sources. Sections of a possible rectilinear enclosure can be seen surrounding the site of the church. It is possible that this was the boundary for the churchyard. The sections of the enclosure ditch could also relate to a post-medieval boundary for an area labelled as 'Glebe' on the Tithe map.

A number of linear ditches (NHER 66260) are visible in the vicinity of the enclosure and church. It is possible that some of these features relate to medieval settlement (the former settlement of Irmingland), although it is also conceivable that some of the mapped features relate to medieval to post-medieval field boundaries, potentially earlier boundary ditches or geological features.

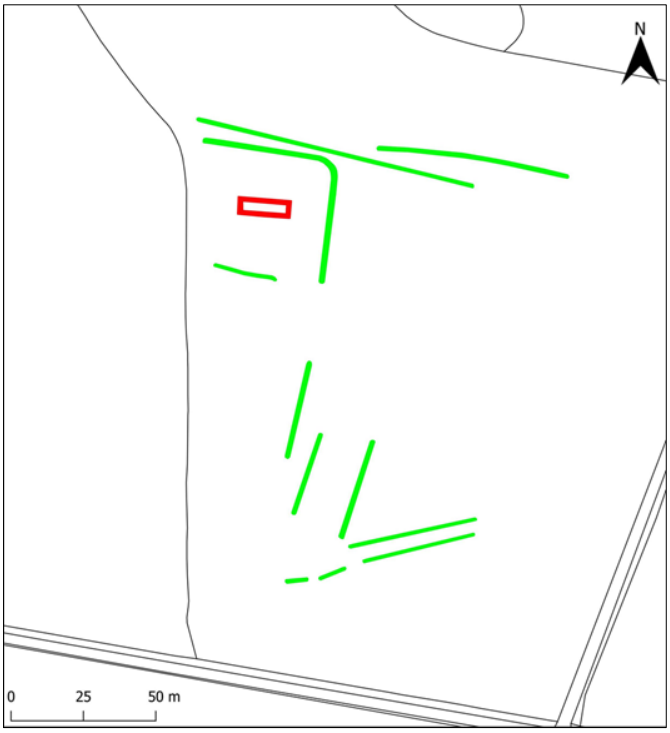

Figure 34 The possible site of the medieval St Andrew's Church, Irmingland (NHER 7350); a possible enclosure ditch can be seen surrounding the church; features to the north and south-east may relate to medieval settlement, medieval to post-medieval field boundaries, possibly earlier boundary ditches or geology (NHER 66260); banks/negative cropmarks depicted as red, ditches as green. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Other Settlement Evidence

Much of the medieval to post-medieval settlement evidence recorded within the project area was characterised by enclosures, boundaries, and trackways. Features mapped by the project were principally recorded from cropmarks. Very few features were recorded as earthworks other than those relating to manorial sites. Features relating to medieval settlement were recorded across the project area, often close to roads recorded on historical maps such as the Tithe maps and Ordnance Survey 1st edition 6 inch map. Evidence for medieval to post-medieval agriculture, such as field boundaries, has also been recorded in close proximity to the medieval to post-medieval settlement sites.

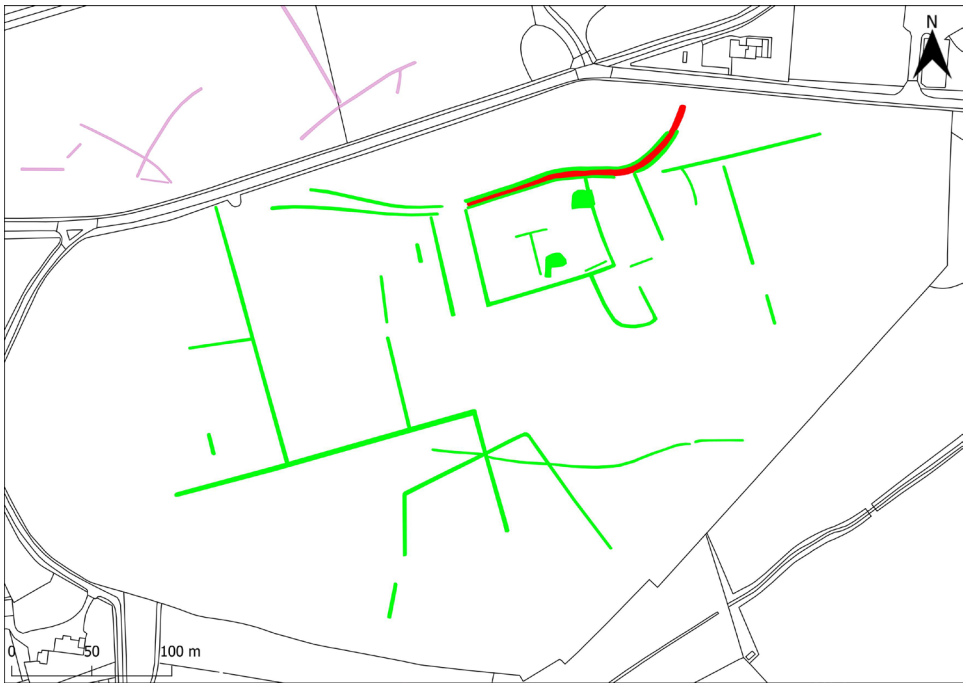

Figure 35 A medieval to post-medieval rectilinear enclosure and possible field boundaries at Blickling (NHER 24976); a trackway is visible in the north of the site; the enclosure may relate to a medieval to post-medieval settlement or a stock enclosure; banks depicted as red, ditches as green, additional unrelated features as purple. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

The cropmarks of a previously recorded rectilinear enclosure, sections of trackway, and field boundaries (NHER 24976) of medieval to post-medieval date were mapped approximately 600m to the south-west of Blickling Hall (Fig 35). The main element of the site consists of a rectilinear enclosure which appears to align with a section of trackway. Possible internal divisions are visible within the enclosure as well as two pit features. The pit features may be medieval to post-medieval in date, although their archaeological origin is not certain. Probable medieval to post-medieval field boundaries are also visible in close proximity to the enclosure. The enclosure may relate to medieval to post-medieval settlement or a stock enclosure. The mapped enclosure and boundaries are similar in form to examples of medieval roadside enclosures recorded elsewhere in the county (Moan 2018, 167–168, 188–189).

Agricultural Features

An extensive area of cropmarks, interpreted as former field systems, trackways and enclosures, was recorded to the west of Aylsham (NHER 12982,65613, 65614, 65616, 65617; Fig 36). Some of the rectilinear enclosures (such as NHER 12982; Fig 37) may be stock enclosures. Excavations in the east of this

area recorded medieval to post-medieval boundaries, trackways, and enclosures (NHER 40920; Morgan and Watkins 2004; Crawley 2009).

Figure 36 Field systems, boundaries, trackways and enclosures of probable medieval to post-medieval date recorded to the west of Aylsham (NHER 12982, 65613, 65614, 65616, 65617, 65618); banks depicted as red, ditches as green. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Figure 37 A possible medieval and/or post-medieval stock enclosure (NHER 12982) recorded to the west of Aylsham, within the extensive area of cropmarks shown in Figure 36; ditches depicted as green. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Elsewhere, while most of the features lack direct dating evidence, their general pattern and orientation in relation to the modern field pattern and that depicted on 19th-century maps (the Tithe map and Ordnance Survey 1st edition 6-inch map, for example), suggests that they are of broadly medieval to post-medieval date. It has been suggested that a post-medieval date is more likely, given the ubiquity and late survival of open fields in the area (Professor Tom Williamson, pers comm). At the same time, many of the features appear to overlap each other, suggesting the cropmarks represent multiple phases of activity, and it is possible that they also include elements of pre-medieval date.

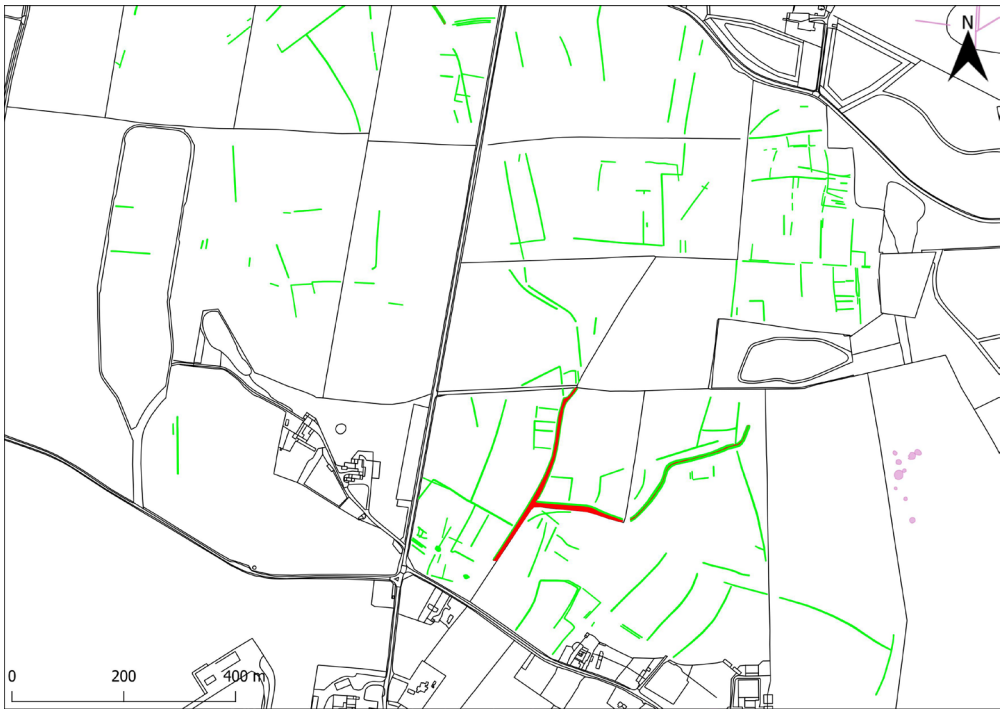

Figure 38 A series of medieval to post-medieval field boundaries, enclosures and trackways recorded between Oulton and Blickling (NHER 66276); banks depicted as red, ditches as green, unrelated features as purple. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Another area of probable medieval to post-medieval agricultural features was recorded between Oulton and Blickling (NHER 66276; Fig 38). They appear to represent a mixture of field boundaries, trackways, and enclosures. As with the area mapped to the west of Aylsham, the features follow the same pattern of enclosure as that shown on 19th-century maps and are also more likely to be post-medieval (ibid). The cropmarks of a road, which may have closed in the 19th century (Williamson and Dallas 2010, 151, fig 47), is towards the south of the site and appears to have been partly incorporated into the modern field boundaries. The features again probably represent multiple phases of activity, and earlier elements might be present.

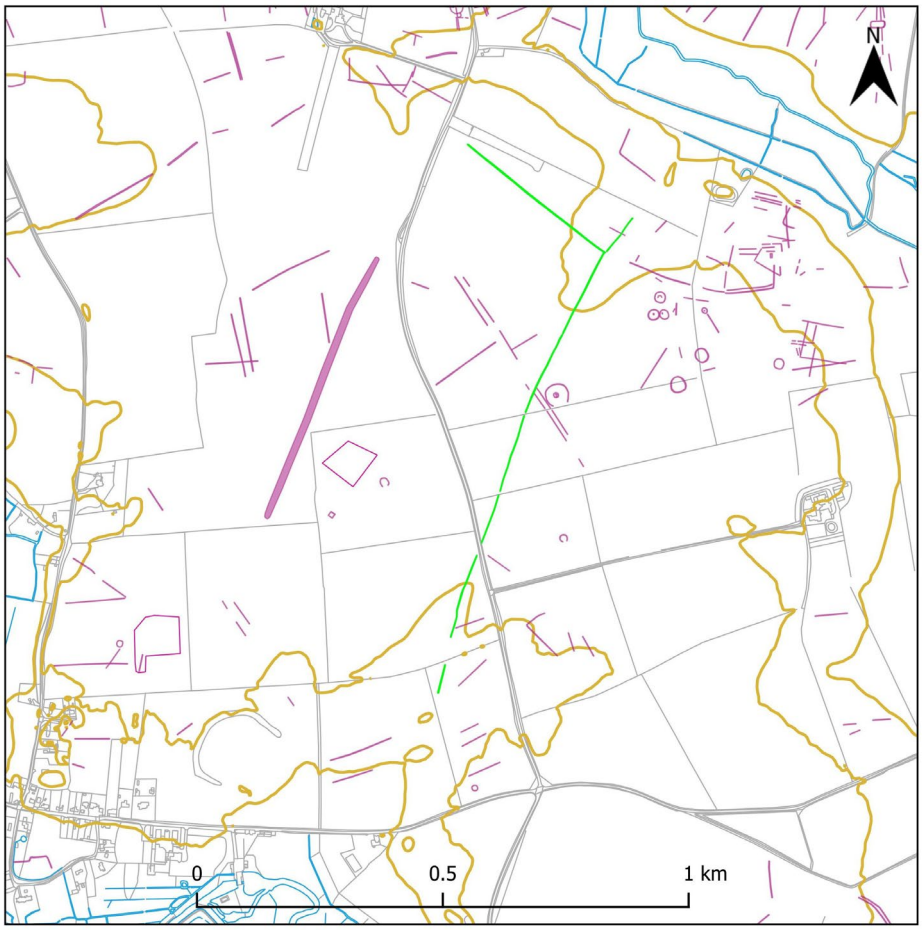

Figure 39 A possible medieval open field boundary at Burgh and Tuttington (NHER 65786) depicted as green, other mapped features as purple. Height data supplied to Norfolk County Council through the APGB agreement by Bluesky International Ltd and Getmapping Plc © Bluesky International Ltd 2018: Watercourse data derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

A newly recorded possible medieval open field boundary at Burgh and Tuttington (NHER 65786) consists of north-east to south-east aligned sections of ditch, one measuring about 1km in length. Its alignment does not respect the former Burgh and Tuttington parish boundary or that of the field boundaries recorded on the Tithe and Ordnance Survey 1st edition 6 inch maps. It appears to be cut by post-medieval and modern field boundaries at several points. It appears to cut across an interfluve between the River Bure to the south-west and one of the Bure's tributaries – Blackwater Beck – to the north-east (Fig 39). It is possibly medieval in date given its form and alignment but an earlier, later prehistoric or Saxon date, cannot be ruled out.

In some parts of the project area, visualisations of the lidar data show long, sinuous banks surviving as low earthworks. These may represent medieval to post-medieval plough headlands and/or furlong boundaries. There is a group

(NHER 66788) near Rippon Hall, in the parish of Hevingham, in the south-east corner of the project area (Fig 40). There is a clear relationship between these features and boundaries depicted on the Tithe map. Cropmarks indicate what may be earlier enclosures and boundaries amongst them. While the earthworks are most likely to be of medieval to post-medieval date, they are also reminiscent of the field system in north-west Norfolk with potential, pre 11th-century, feasibly Roman, origins (Hesse 1992).

Figure 40 Probable plough headlands/furlong boundaries at Hevingham (NHER 66788); former field boundaries depicted on 19th-century maps were not recorded; banks depicted as red, ditches as green. Lidar source (top): LIDAR TG22SW Environment Agency National Lidar Survey DTM 1m 17-NOV-2017 © Environment Agency copyright and/or database right 2023. All rights reserved. Simple local relief model visualisation created by Norfolk County Council. Historical map source (bottom): Hevingham (1838), Marsham (1840) and Buxton (1842) Tithe maps, available at http://www.historic-maps.norfolk.gov.uk/mapexplorer/.

Mills

Five medieval and/or post-medieval windmill (or related) sites were recorded by the project.

Figure 41 The site of a medieval or post-medieval post mill (NHER 32246), south-west of Oulton airfield; a rectangular pit and a circular pit, possibly relating to the mill site or to natural features, can be seen in close proximity to the mill. Photograph: EARTH.GOOGLE.COM 07-AUG-2006 © 2023 Google.

One site is located to the south-west of Oulton airfield, in the parish of Heydon in the west of the project area (NHER 32246). The feature had been identified prior to the AIM survey on NAPL obliques, and interpreted as a possible Bronze Age ring ditch. However recent (2020) Google Earth imagery (Fig 41) shows a cross-shaped ditch in the centre of the ring ditch, suggesting it is the site of a medieval to post-medieval post-mill. A small rectilinear pit and a circular pit are also visible in close proximity to the ring ditch. These features may relate to the mill site or instead to natural features.

A second site (NHER 66766) was recorded from cropmarks visible at Drabblegate, in the centre of the project area (Fig 42). Its form is different to the site at Oulton and comprises a ring ditch made up of broad segments measuring approximately 3–4m wide. It has three possible entrances in the approximate north-east, east and south-west of the feature, and an internal diameter of approximately 25m. The site had been identified previously from NAPL and HEA obliques as well as Google Earth images. Its date is uncertain. Although it is feasible that the feature could relate to a Neolithic hengiform monument, the form of the feature is more consistent with examples of medieval to post-

medieval mills recorded elsewhere in the county (for example NHER 50718 at Salhouse, in the Broads area, and 50759 at Crostwick, to the north of Norwich) and examples discussed by Brown and Germany (2002) as part of the Essex Cropmark Enclosures Project. The feature lies close to a series of multi-phase trackways and boundaries (NHER 67066) which may date to the Bronze Age to Roman periods and medieval to post-medieval periods.

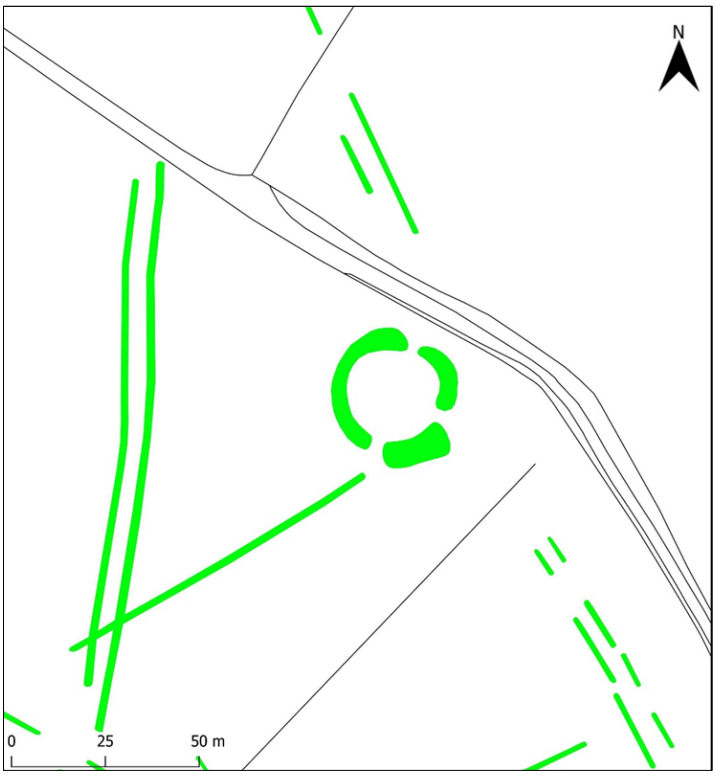

Figure 42 A probable medieval or post-medieval mill site (NHER 66766) near Drabblegate; sections of trackways and possible former field boundaries are also visible (part of NHER 12772); ditches depicted as green. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

A third medieval or post-medieval mill site (NHER 11698) was recorded in the south of the project area near Marsham (Fig 43). The site had been recorded previously from NAPL obliques and interpreted as an undated penannular enclosure. The feature consists of a penannular ring ditch with a possible pit or ditch section on its eastern side and two further pits to the south of the ring ditch. On NAPL oblique photographs (Fig 26), a small cross-shaped negative cropmark is visible as its centre; following the removal of the mill, this may have been infilled with compacted mound material or rubble, hence it showing as a negative cropmark. The site combines a similar form to the ring ditch at the Drabblegate site (NHER 66766) with the internal cross-shaped mark visible at the site near Oulton Airfield (NHER 32246). The two pit features to the south of

the ring ditch may relate to the mill, or could instead be the product of post-medieval extraction.

Figure 43 A probable medieval or post-medieval mill site (NHER 11698) located south of Marsham. Photograph: EARTH.GOOGLE.COM 07-AUG-2006 © 2023 The GeoInformation Group

It has been suggested by Brown and Germany (2002, 50) that early medieval mills in Essex were constructed in a way that the cross trees were not always sunk into the subsoil but late medieval to post-medieval mills were. The lack of a central cross on the aerial photographs consulted by the project within the interior of NHER 66766 may indicate that this site is of an earlier date than NHER 42246 and NHER 11698. However, it is still possible that NHER 66766 could relate to an earlier feature such as a round barrow, or that the conditions may not have been right when the site was photographed to reveal any internal features. Variable destruction by ploughing may also be a factor.

At Buxton with Lammas, a ring ditch had been identified previously from cropmarks (NHER 36469; Fig 44), situated adjacent to a drain flanking the River Bure. It had been interpreted as the site of a Bronze Age round barrow or, less probably, a wind pump. On lidar, it is clear that the ring ditch survives as an earthwork. Along with traces of an internal mound and central pit, it occupies an area of raised ground within the river floodplain. The lidar also shows the remains of what may have been a causeway leading to it from the west (NHER 66767). This suggests that its interpretation as a wind pump, presumably for drainage, or a windmill is perhaps more likely than it being a prehistoric feature. It is not shown on the consulted 19th-century maps, but further documentary research might throw further light on the function of the site.

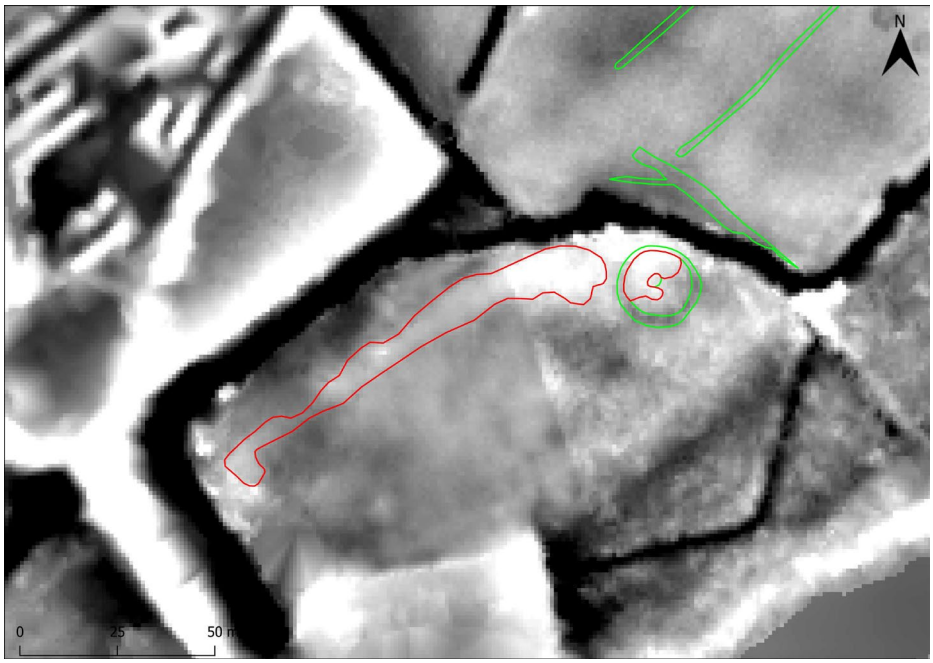

Figure 44 The ring ditch (NHER 36469), possibly marking the site of a wind pump or windmill, and adjacent causeway (NHER 66767) at Buxton with Lammas; bank/mound depicted as red, ditches as green. Lidar source: LIDAR TG22SW Environment Agency National Lidar Survey DTM 1m 17-NOV-2017 © Environment Agency copyright and/or database right 2023. All rights reserved. Simple local relief model visualisation created by Norfolk County Council.

An additional site at Marsham (NHER 34404) was recorded as the cropmark, and possibly also the slight earthwork, of a mound. This is shown to be the site of an extant windmill (for 'corn') on the Ordnance Survey 1st edition 6 inch map.

20th-Century Military Sites

The majority of the 20th-century military sites mapped and recorded as part of the project date to the Second World War, with one site dating to the Cold War. No features were recorded which could be confidently dated to the pre-First World War, First World War or inter-war periods.

Second World War

A range of Second World War sites and features were mapped and recorded across the project area. These included large airfield sites, areas of military training, camps, and smaller features such as road blocks and pillboxes. The availability of aerial photographs taken during and after the Second World War, meant that it was possible to identify and record sites during or shortly after

their period of use. This increased the number of sites that could be identified, and the amount of detail that could be recorded. The majority of the Second World War sites were removed in the years following the war, although some elements – the runways at Oulton airfield, several pillboxes, earthworks relating to military training – are still visible on recent aerial photographs and visualised lidar data.

Airfields

Oulton Second World War airfield is situated in the north-west of the project area and is one of the larger Second World War sites to be mapped as part of the project. The airfield was opened in 1940 and was used by the Royal Air Force. It hosted a variety of light bomber squadrons (McKenzie 2004). At this stage the airfield had a grass landing ground (Fig 45) and was a satellite site for RAF Horsham St Faith. By September 1942 the site was used a satellite for RAF Swanton Morley (McKenzie 2004). In September 1943 the airfield was closed and redeveloped for heavy bombers. This redevelopment saw the construction of concrete runways, T2 aircraft hangers and a new bomb store as well as other facilities. The airfield reopened in May 1944 and was used by the RAF and USAAF until the end of the war, when the site was used for the storage of aircraft before eventually closing in 1947 (ibid). Some of the operations flown by aircraft stationed at Oulton over the course of its use include propaganda leaflet drops, specialist radio-countermeasures and operations conducted to investigate possible radio control equipment behind the use of the V2 rocket (ibid).

The RAF and USAAF 1940s vertical aerial photographs were a key source for mapping and recording the airfield and its associated structures as they show the airfield whilst in operation. As the airfield underwent a large amount of redevelopment and expansion, it was mapped from the 1946 RAF aerial photographs as they showed the site at its most complete and were the clearest aerial source. The main runways and hangers were mapped in detail whilst areas of huts and buildings were mapped by extent.

The elements of the airfield visible on the aerial photographs during the later phase of the site (Fig 46) include the control tower, large 'OU' letters (most likely standing for Oulton) for the identification of the airfield from the air, T2 hangers, groups of huts relating to accommodation and support structures, bomb stores, the technical site, a possible blast wall, sewage works and defence features such as pillboxes. As well as the main elements of the site, further features are visible including areas of hardstanding, roads, dispersal pens and possible shelters associated with the areas of huts.

The dismantling of the airfield in a piecemeal fashion over time can be seen on aerial photographs. Elements of the airfield including sections of runway, areas of hardstanding, pillboxes and some of the huts and structures can be seen surviving as extant features on recent (2020) aerial photographs.

Figure 45 The early phase of RAF Oulton, photographed in 1942; at this stage the airfield had a grass landing ground, before the concrete runways were added after the site was redeveloped in 1943. Photograph: RAF/FNO/35 V 6063 02-JUL-1942 Historic England Archive (RAF Photography; detail).

Figure 46 RAF Oulton in 1946, during its later phase; visible features include the T2 hangers, control tower, the technical site and the concrete runways. Photograph: RAF/106G/UK/1428 RS 4313 16-APR-1946 Historic England Archive (RAF Photography; detail).

Approximately 1km to the south of the project area are the remains of Swannington Second World War airfield (NHER 7465). Initial construction work for Swannington airfield began in 1942 but a series of delays meant the site was not opened until 1944, making Swannington one of the last RAF airfields to become operational (McKenzie 2004). Aircraft stationed at Swannington included Mosquitos used for night intruder missions and Spitfires which conducted fighter escort missions (ibid).

Most of the airfield and its associated features are situated outside of the project area. However, a small group of Second World War huts associated with the airfield did extend into the south-west of the project area and were mapped by extent (NHER 64219). The features are clearly visible on aerial photographs taken in 1946 and consist of a group of huts linked by a series of paths and tracks with a road running south from the site. The majority of the huts were probably used as support and accommodation structures, with four possible

blast shelters visible dispersed between them. Finally, in the south of the site is a square area of hardstanding possibly surrounded by a fence. This may have been the site of an emplacement, structure or storage area. The features were mostly removed by the 1960s and the area is covered by woodland on recent (2020) aerial photographs. Some of the hut platforms are visible as earthworks on recent (2017) visualised Environment Agency lidar data.

Military Camps

The site of a previously known Second World War military camp (NHER 66290) was mapped in close proximity to Blickling Hall (Fig 47). Blickling Hall was requisitioned during the Second World War and was used as accommodation for the officers and non-commissioned officers serving at Oulton airfield, located approximately 3km to the west (McKenzie 2004).

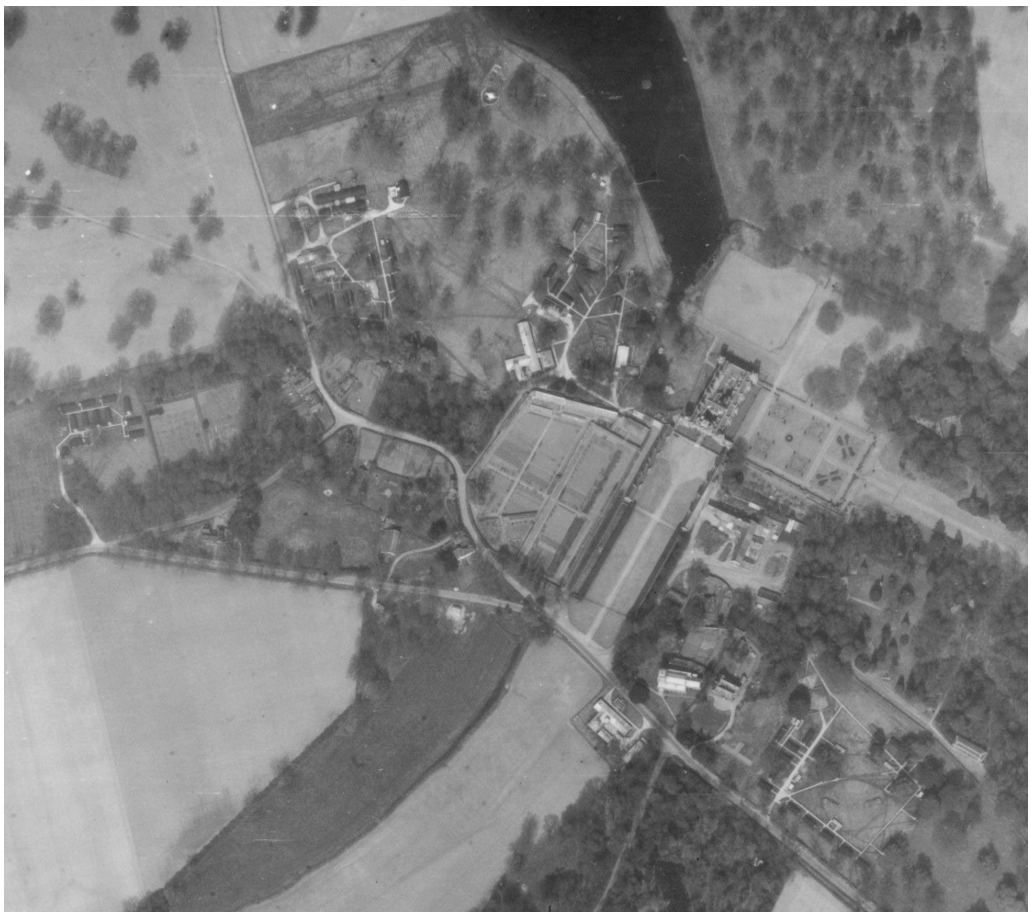

Figure 47 The military camp at Blickling Hall in 1946; the visible features include a range of accommodation huts, support structures and possible earth-covered air raid shelters. Photograph: RAF/106G/UK/1428 RS 4278 16-APR-1946 Historic England Archive (RAF Photography; detail).

The features visible on 1940s RAF aerial photographs include a range of huts and structures, at least some of which were probably used for accommodation, trackways, compounds, shelters and possible air raid shelters covered with earth. Some of the huts appear to have continued in use after the war and are clearly visible on the 1953 Aerofilms obliques of Blickling Hall. The majority of Second World War features had been removed or demolished by the 1960s.

Figure 48 The probable military camp (NHER 65624) located to the north of former Aylsham South railway station; two pillboxes (NHER 13478 and 13480) and concrete blocks (NHER 65619) probably relating to a road block can be seen to the south of the camp near the railway bridge; extent of camp outlined in orange, structures shown in purple. Photograph: RAF/106G/UK/1636 RS 4354 09-JUL-1946 Historic England Archive (RAF Photography; detail).

A newly recorded possible military camp (NHER 58504) was mapped to the north of the former Aylsham South railway station (now part of the Bure Valley Railway; Fig 48). The camp consisted of an area of huts, roads and tracks. A range of different sized huts are visible on the aerial photographs. These probably served a variety of different functions, including being used for accommodation. The possible camp lies close to the former Aylsham South railway station and sidings. A Second World War road block (NHER 65619) and two Second World War pillboxes (NHER 13478 and 13480) are also nearby. The origin and function of the site is uncertain, but it may have been associated

with military activity and the railway. Although the form of the site and the huts look military in origin on the consulted sources, it is possible that the features actually represent wartime civilian activity.

Military Training Sites

A dense area of Second World War military training (NHER 64231) was recorded across Cawston, Marsham and Buxton heaths in the south of the project area. The 1946 aerial photographs were a key resource in identifying and recording the military training on the heaths as they showed the sites during or shortly after their period of use. Previous Rapid Identification Earthwork surveys (Cushion 2009a; 2009b) had identified the presence of surviving Second World War earthworks on Marsham and Buxton heaths. Analysis of the visualised lidar data by the project has helped to enhance the records for the earthworks recorded by the previous surveys as well record new features relating to the military training on Cawston Heath.

A range of military training features were identified, including craters, practice trenches, a pillbox, vehicle tracks and trackways, along with possible slit trenches, weapons pits, practice emplacements, and a probable gun emplacement (Fig 49). There were a number of different styles of practice trench evident across the area, which may have been used for different activities. The majority of the trenches seem to be quite recent on the 1946 aerial photographs. It is likely that they are Second World War in date, although it is possible that some of the less recent-looking trenches on Marsham Heath could date to the First World War. A lozenge-shaped ditch feature and a ditched enclosed area (with a square of low vegetation in the centre) can be seen in the north of the site. The exact function of these features is unknown, and they may have related to possible targets or emplacement sites. A 19th-century banked enclosure mapped on the Tithe and Ordnance Survey 1st edition 6 inch map is located in the north of the military training area on Marsham Heath. On the 1946 aerial photographs a series of small pits can be seen in the western and southern banks of the enclosure. These features appear to relate to the military training although it is unclear whether the pits have been dug into the enclosure bank or have been created by explosives.

Figure 49 Features probably relating to Second World War military training on Marsham Heath, visible in 1946; they include possible practice trenches, explosive craters, weapons pits and a ditched enclosed area with a square of low vegetation in the centre; a 19th-century embanked enclosure is visible at the top of the photo; a series of small pits can be seen in the western (left) and southern (bottom) banks of the enclosure which may relate to the Second World War military training activity. Photograph: RAF/106G/UK/1428 RS 4196 16-APR-1946 Historic England Archive (RAF Photography; detail).

Situated on Cawston Heath, in the west of the military training area, is a 19th-century rifle range (NHER 53138; Fig 50). The rifle range is recorded on historical maps (for example the Ordnance Survey 1st edition 6 inch map and the Ordnance Survey 2nd edition 25 inch map) and also survives as an earthwork visible on recent (2017) visualised lidar data. The rifle range was re-used during the Second World War for military training and can be seen clearly in use on the 1946 aerial photographs. A large amount of ground disturbance is visible around the firing range on the aerial photographs, most likely indicating frequent and recent use. A number of small Second World War structures can be seen amongst the earthworks, which were most likely associated with the military training and possibly for observation. The majority of the structures were removed by the 1960s, with the remains of one of the structures possibly surviving as a low earthwork visible on the visualised lidar data. Explosive craters and possible slit trenches relating to the wider area of military training on Cawston Heath (NHER 64231) can be seen in the immediate vicinity of the rifle range.

Figure 50 The earthworks of a 19th-century rifle range on Cawston Heath in 1946; significant ground disturbance is visible around the firing range probably indicating frequent and recent use; Second World War possible practice trenches, a possible target and possible structures relating to the wider area of military activity on Cawston and Marsham heaths are also visible. Photograph: RAF/106G/UK/1428 RS 4244 16-APR-1946 Historic England Archive (RAF Photography; detail).

Possible military training features that may have been associated with Oulton Second World War airfield were recorded approximately 850m to its south. The earthworks of a possible practice trench (NHER 65374) can be seen clearly on the 1946 aerial photographs. The trench appears to form a reverse 'W' and may related to a practice or 'seagull' trench as no structural remains appear to be visible on the consulted sources. The feature is not visible on the later aerial photographs or visualised lidar data and is presumed to have been levelled.

Approximately 350m to the south-east of the possible 'seagull' trench are two possible explosive craters (NHER 65373), visible as earthworks on RAF 1946 aerial photographs. It is possible that these features relate to Oulton airfield or possible training activity. The earthworks were subsequently levelled and are visible as cropmarks on aerial photographs from 1995 and 2006.

Defence

Second World War defensive features were recorded across the project area, most notably around the town of Aylsham and at Oulton airfield. Aylsham was part of a series of successive defensive stop lines running from the coast inland along some of the county's main rivers (the Ant, Bure, Waveney and Yare; Kent

1988). These defensive lines were designed to stop the enemy advancing inland if they got through the defences of the 'coastal crust'. The county's second stop line ran along the River Bure from Acle to beyond Aylsham, and consisted of a series of pillboxes and road blocks positioned at river crossings (ibid).

Figure 51 A group of six concrete blocks forming a road block near a bridge over the River Bure to the west of Oxnead Hall; to the south of the road block a Type 22 pillbox is visible; structures depicted as purple. Photograph RAF/106G/UK/1636 RS 4296 09-JUL-1946 Historic England Archive (RAF Photography; detail).

An example of these defences can be seen in the south-east of the project area, close to a bridge over the River Bure to the west of Oxnead Hall (Fig 51). The features consist of a series of six concrete blocks (NHER 13662) which formed part of a road block. Approximately 40m to the south of the concrete blocks is a Type 22 pillbox (NHER 13661). The pillbox and concrete blocks are seen to be extant on recent (2017) aerial photographs although some of the features are partially obscured by vegetation. Similar to the features recorded to the west of Oxnead Hall, another set of defences can be seen further north along the River Bure at a crossing near the village of Burgh next Aylsham. These previously recorded features consist of a series of nine concrete blocks (NHER 12860) which again formed part of a road block. Two of the concrete blocks had been removed by 1971, with six blocks still visible on recent (2020) aerial

photographs. A third group blocked access to the north bank of the river in front of Buxton Mill (NHER 3554).

A number of new and previously recorded defensive features were mapped around the town of Aylsham. As with the river crossings, a lot of the towns in the county had some form of defensive features to slow down the enemy advancement, many of them being situated at road junctions.

Four road blocks consisting of groups of regular aligned concrete blocks were newly recorded from the 1946 aerial photographs. These were situated along the main roads around Aylsham, and comprise two on the southern roads into the town (NHER 65619 and 65620), one to the east (NHER 65621) and one on the road leading to Aylsham from the north-east (NHER 65607). In the barn to the north of Old Hall (NHER 7413), opposite NHER 65607, it has been suggested that four loopholes were cut into the wall of the barn (information from NHER 7413). It is possible that these loopholes may have been installed as an additional defence for the nearby road block.

As well as the road blocks, five pillboxes (four previously recorded and one newly identified) were mapped around Aylsham (NHER 13478, 13480, 32549, 32494, 65622). Some of the pillboxes are situated near the road blocks whilst others are situated at other key points, including near road junctions and the railway line. Most of the pillboxes are likely to be Type 22 whilst two of the pillboxes (NHER 13478 and 13480) are probably Type 24. Two of the pillboxes (NHER 32494 and 65622) were removed in the years after the war whilst the three others are still extant and can be seen on recent (2020) aerial photographs.

Five pillboxes (NHER 12733, 32497, 65799, 65384, 65385) were also recorded around the site Oulton Second World War airfield. These include a Type 28 pillbox in the north of the site, which has been recorded as having a large table and loophole for a heavy machine gun. The type of the remaining four pillboxes is uncertain but it is possible from their form to suggest that some may have been Type 22s. The majority of the pillboxes are visible as structures on the 1946 RAF aerial photographs. The exception is NHER 32497, which appears to have already been demolished by that date, with only the foundations visible on the aerial photographs. NHER 65799 was removed by 1963, with NHER 12733, 65384 and 65385 probably surviving as extant features although obscured by vegetation on recent (2020) aerial photographs.

Cold War

Only one site dating to the Cold War was mapped within the project area. The feature relates to a previously recorded Cold War Royal Observer Corps post

(NHER 33254) located to the south-west of Aylsham. The structure and the surrounding compound can be seen clearly on aerial photographs taken in 1971 and the observation post is still visible as a structure on recent (2020) aerial photographs. The site was part of an extensive network of observation posts spread across the United Kingdom which were designed to confirm and report hostile aircraft and nuclear attacks. This Royal Observer Corps post is reported to have opened in March 1961 and was closed in September 1991 (information from Historic England Research Record [HERR] 1412318).

RESEARCH THEME: BRAMPTON ROMAN TOWN

The settlement at Brampton (NHER 1124, 1006; NHLE 1003698) was the 'second' Roman town of Norfolk, more substantial than all except the *civitas* administrative and economic centre of *Venta Icenorum* (Caistor St Edmund) which lies approximately 20km to the south (Gurney 2005). Brampton lies at the eastern end of an interfluve, between The Mermaid to the north and an unnamed watercourse to the south. Both streams are tributaries of the River Bure which bounds the site to the east. Two Roman roads, oriented east-west (NHER 2796) and north-south (NHER 7958) may cross at the site (Fig 52). In the vicinity of the town, the north-south road is entirely followed by the modern road – Lion Road – that crosses through the centre of the site. This north-south route is largely conjectural, whereas the east-west route is well-attested through archaeological excavation and its visibility as a cropmark and earthwork.

The existence of a Roman settlement in the area has been known since the 17th century, but it was only in the 1960s and 1970s that aerial photographs, geophysical survey and excavations threw further light on the extent and character of the site (Green 1977, 34). The site was at least partially enclosed by a large, polygonal, defensive ditch, encompassing some 6 hectares; the River Bure to its north-east may have completed the defensive circuit (its earlier course may have passed closer to the defences than it does now; Edwards 1977, fig 100). The provision of defences for the town is an unusual feature; Brampton is the only 'small town' in Norfolk to possess defences, and they are rare regionally (Smith *et al* 2016, 212–3). Sections excavated through the ditch identified an initial phase of silting associated with late 2nd- or early 3rd-century pottery, and a second phase of infilling with dumped industrial debris and occupation soil dating to the late 3rd or early 4th century (Knowles 1977, 213).

To the south-west of the defended area was an extensive industrial suburb – the 'kiln field' – where 132 pottery kilns have been identified. These produced ceramics utilised across central and eastern Norfolk (Gurney 2005, 28), and which, at the peak of the industry in the 2nd century, also made their way to the military markets of northern England (Green 1977, 93). Excavations undertaken by Green in the 'kiln field' suggest that this industrial suburb was established along an existing road, itself in existence by the late 1st century AD. The site continued in use until the late 4th century, although pottery production appears to have ceased by this date – at least within the excavated area (Green 1977, 92, 94). The deposits of clay upon which the pottery industry depended have not been identified, but may have lain to the north, where earthwork pits still mark the site of a 19th-century brickworks (NHER 12764). Green describes the 'kiln field' as one of two pottery making centres operating west of Brampton (ibid, 95); the second is presumably the group of kilns identified at Kempton Park Farm (NHER 7498), approximately 3km to the west (ibid, fig 11).

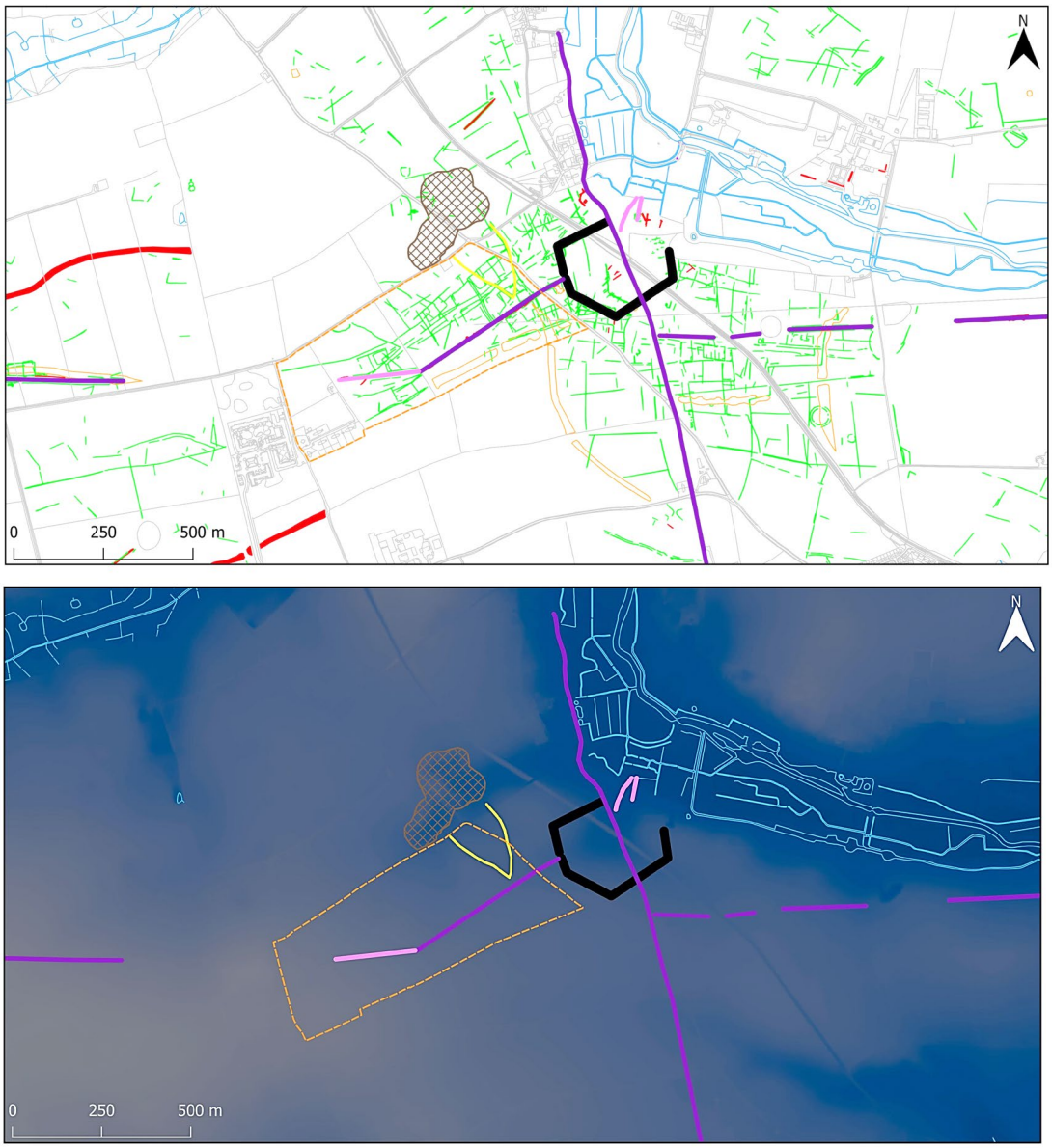

Figure 52 Schematic representation of Brampton Roman town (NHER 1006/1124/66780), showing the defensive enclosure (black; NHER 66781), the 'kiln field' (orange dashed outline, after Green 1977, fig 12; NHER 1006/66780), principal roads (purple; pink where uncertain), trackways (yellow), and clay pits (brown, hatched; NHER 12764). Top: shown in relation to the modern landscape and the project's archaeological mapping; banks in red, ditches in green, features mapped by extent in orange. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340. Bottom: shown in relation to topography and hydrology. Background topographic model derived from lidar, source: National LIDAR Programme TG22SE Environment Agency 1m DTM 17-NOV-2017 © Environment Agency copyright and/or database right 2023. All rights reserved. Watercourse data derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Numerous but relatively small-scale excavations, led principally by Dr Keith Knowles, have investigated the remains of kilns, the east-west road, timber buildings, ovens, furnaces, wells, riverside wharfs, and the badly robbed remains of a bathhouse within the defensive enclosure (Edwards 1977, fig 100; Green 1977, 35; Knowles 1977). Geophysical surveys and extensive field walking and metal detecting have also taken place. There is a considerable body of published and unpublished material relating to the site which deserves further collation, analysis and synthesis. Such work, however, falls beyond the scope of the current survey, and in the absence of even an up-to-date plan of the known archaeological remains, no substantial attempt was made to correlate the mapped cropmarks with excavated features, features identified by geophysics, or spreads of surface and metal-detected finds.

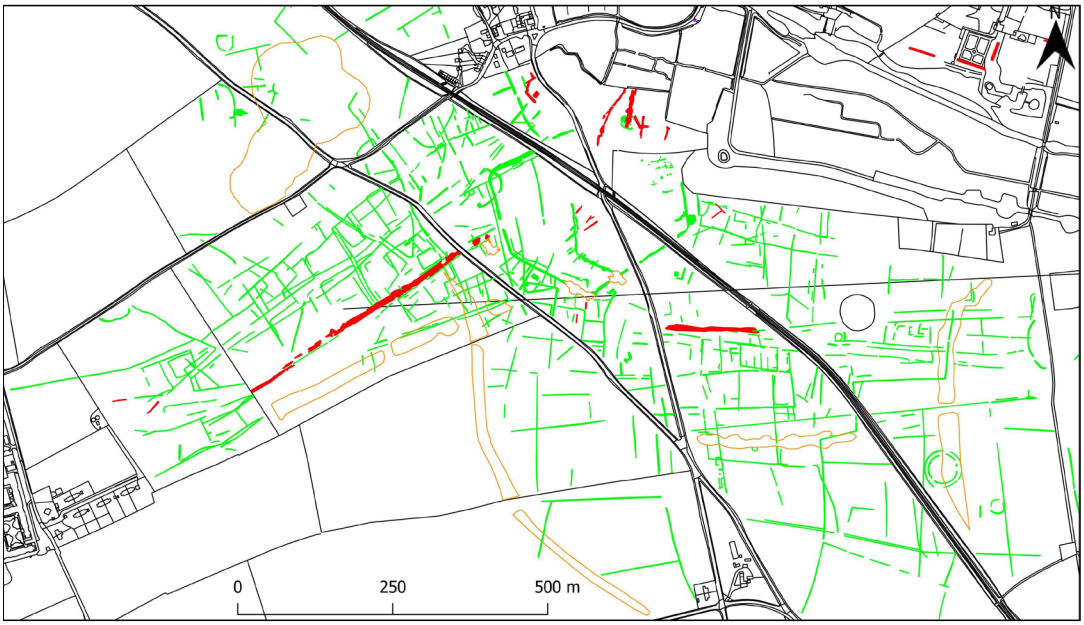

Figure 53 AIM mapping for Brampton Roman town (NHER 1006/1124/66780); the polygonal defensive ditch (NHER 66781) can be seen towards the top of centre; figure includes features of known or suspected non-Roman date; banks/surfaced roads shown in red, ditches in green, features mapped by extent in orange. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

The main areas of cropmarks relating to the site, as then known, were comprehensively mapped from aerial photographs by Derek Edwards in the 1970s (Edwards 1977, 230–232, fig 100). Despite the availability of large quantities of more recent photographs, the mapping by the project (Fig 53) has not significantly altered the plan of features provided by that earlier survey, particularly for the fields containing the town defences (Fig 54) and the 'kiln field' (Fig 55). There are certainly small details where differences are evident, but these are minor in the context of understanding the character of the site as a

whole. They are likely, for the most part, to be the product of differences of interpretation by two different interpreters, working at different times, in different formats (paper/digital) and potentially utilising different photos for the mapping process. (While the project had access to the aerial photos used by Edwards, it was not always possible to use the same ones, or work out which ones had been used).

There are also differences in how the mapping is presented. Edwards mapped many of the pit-like cropmarks evident at the site, including stippling areas of presumably mottled and/or uncertain cropmarks. This was not done for the AIM-standard survey, where a more discriminating approach was taken, and only pit-like marks that seemed almost certain to be of archaeological origin were mapped. This was because the background sand and gravel geology is extremely conducive to the production of pit-like marks, and it was not felt appropriate to map and record all the visible features within the context and constraints of the AIM survey, when so many are likely to be of geological origin. Both approaches have their benefits and disadvantages, but both resulting plots are readily accessible, and can be used and compared by future researchers.

Undoubtedly, while the AIM mapping is a good, accurate representation of the general extent, layout and character of the visible archaeological features, there is considerable potential for additional features to be present, including round houses, post alignments and timber structures. Where such a density and complexity of features is apparent, this is almost inevitable. A similar situation was evident during an earlier AIM-standard survey in west Norfolk, at the site of a Late Iron Age to Roman settlement at Watlington. Here, despite very detailed mapping of the cropmarks being undertaken, the survey only captured a proportion of the features later revealed during excavation (Albone *et al* 2008, 47–48, fig 4.14). At Brampton, the geological marks, and the varying ways in which the features appear as cropmarks on different years or even weeks of photography, also meant that it was often difficult to clearly see the relationship between different features, or whether a feature was continuous or not. This was the case even with substantial features such as the defensive ditch. Certainly, viewing photographs of the site taken over an extended period (1974 to 2020), the varying cropmark response may, at least in part, be a reflection of the effects of ongoing plough damage. Comparing vertical photographs taken in July 1976 (MAL/76053 prints) and Google Earth imagery from July 2006 suggests a weakening cropmark response over parts of the site (north of the town defences, for example). This effect could be due to a variety of factors, amongst which plough damage seems a likely contributing cause.

Defensive Enclosure

Looking at the area of the town defences in more detail (Fig 54), the relative scarcity of internal features, as noted by Edwards (1977, 232), is immediately apparent. Those features that are evident are somewhat enigmatic. To the mapped features, we should also add the conjectured north-south Roman road (NHER 7958) thought to now be followed by the modern Lion Road. This crosses the defences mid-way through their southern side – presumably through a formal entrance – and continues northwards past their visible north-eastern extent. The east-west road (NHER 66783) can be seen approaching the western entrance through the defences from the 'kiln field'. Neither road is visible within the defensive enclosure itself.

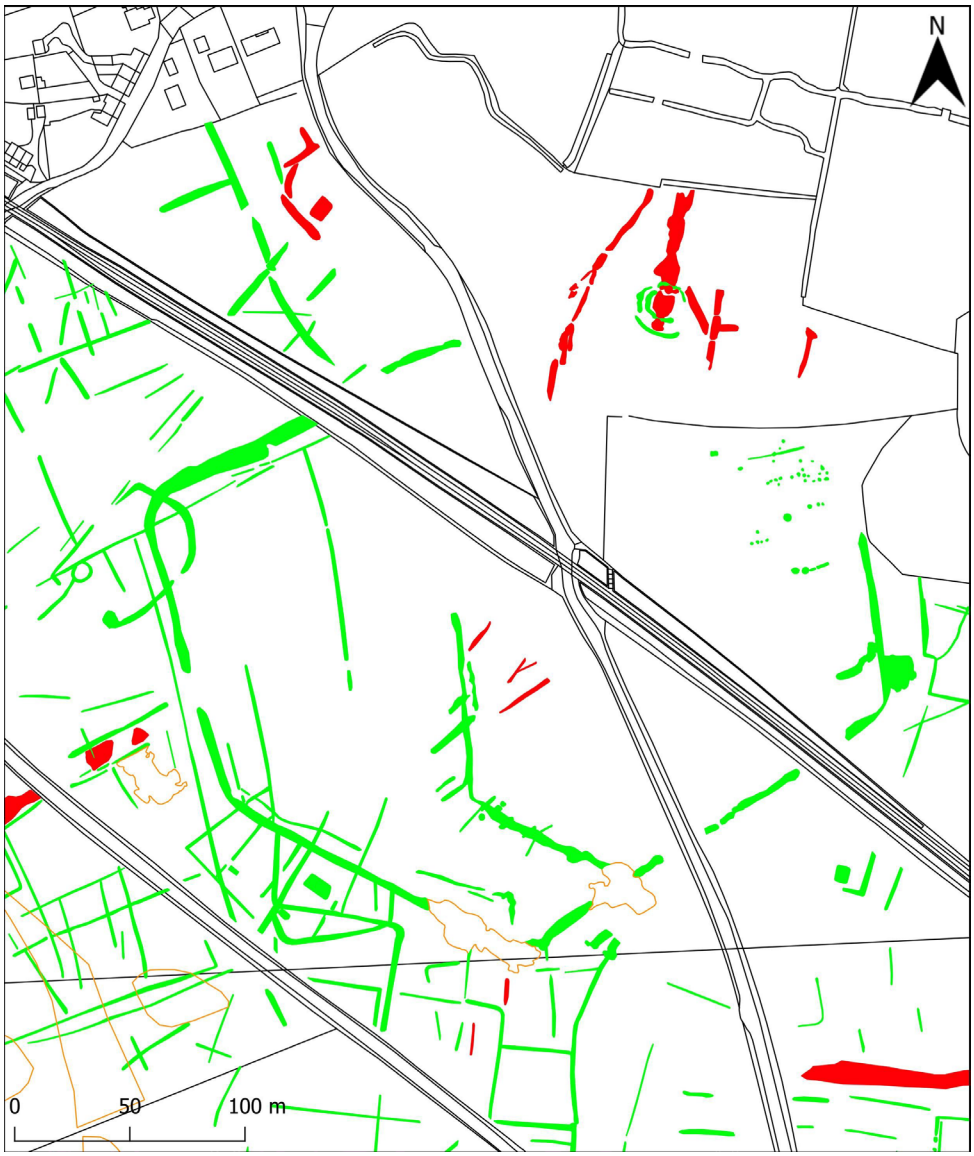

Figure 54 Detail of the defensive ditch at Brampton (NHER 66781); five sides of a broadly hexagonal circuit can be seen; the River Bure to the north-east may have completed the circuit; figure includes features of known or suspected non-Roman date; banks/surfaced roads shown in red, ditches in green, features mapped by extent in orange. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

To the south of the defences a range of enclosures and possibly fields are visible. In places these appear to respect the defences and at others they appear to cross over (or under) them. As with much of the site, the cropmarks appear to represent multiple phases of activity, visible as a palimpsest. To the north-east, on the apparently unfortified side of the defences close to the River Bure, several embanked features are visible. As suggested by Green (1977, fig 12) and Edwards (1977, fig 100), these may be roads leading to a northern river crossing and riverside wharfs, etc, (see below for discussion of another probable river crossing further to the east). Other, shorter lengths of bank may relate to more recent drainage. A rather enigmatic feature, comprising a fragmentary double ring ditch, was not recorded by Edwards' earlier survey (ibid) and is only visible on photographs taken in 1976. It may be a product of recent agricultural or drainage activity, but it is also worth noting that several wells were identified close by during excavations by Dr Knowles (ibid).

The 'Kiln Field'

The 'kiln field' lies to the west of the defensive enclosure (Fig 55). A surfaced road is visible leading south-west from the western entrance through the defences. The results of excavations in the 'kiln field' (Green 1977) suggest that the road was in existence by the late 1st century AD, and its construction pre-dated the establishment of kilns in the immediate vicinity (ibid, 92). The AIM survey did not identify any kilns, but the cropmarks show a series of enclosures and what were probably subsidiary trackways arrayed on either side of the road. The excavation uncovered the remains of at least two post-built structures to the south of the road. These were dated to the 2nd and 3rd centuries AD, a period when there appears to have been a decline in pottery production, at least in the immediate vicinity of the excavated buildings. Instead, substantial evidence for iron working during that period was recovered here (ibid, 93).

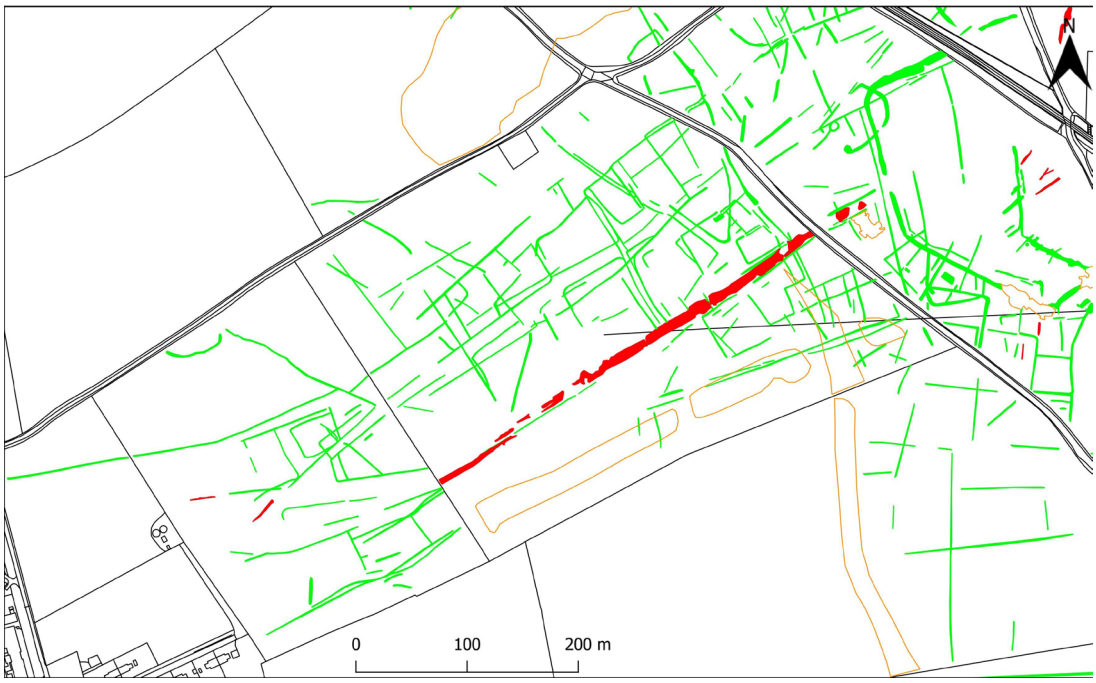

Figure 55 Detail of the 'kiln field' at Brampton (NHER 66780); the 1st-century AD road (NHER 66783) along which the industrial suburb developed can be seen crossing the centre of the image, heading towards the entrance through the town's defensive ditch; the earthworks of clay pits, of 19th-century date but possibly Roman origin, can be partly seen (mapped by extent) at top centre (NHER 12764); figure includes features of known or suspected non-Roman date; banks/surfaced roads shown in red, ditches in green, features mapped by extent in orange. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

The multi-phase nature of the site, demonstrated by the excavations, is also clearly evident in the cropmarks. Amidst the overlapping enclosures, boundaries and trackways, two features might be seen as particularly significant in terms of understanding the landscape of the town. To the north of the road, at the eastern end of the 'kiln field' a branching, ditch-defined trackway is visible, leading north and north-west, towards the area of post-medieval clay pits (Figs 52 and 55). It has been suggested that these clay pits may also have provided raw materials for the Roman pottery industry (Green 1977, 34, fig 12). The trackways clearly indicate a remodelling of the 'kiln field' area at some point during its use, as their cropmarks overlap with several enclosures, their use therefore either pre- or post-dating the construction of the enclosures. It is tempting to associate the (at least) two phases evident amongst the cropmarks with the phases identified by Green's excavations. It might be suggested that the branching trackways were perhaps the earlier phase, contemporary with the height of pottery production in the 'kiln field'. The enclosures, which either replaced or may have been replaced by the trackways, might be contemporary with the 2nd- and 3rd-century buildings. At this time the pottery industry

appears to have declined (in this part of the site at least) and the trackways – which potentially led to a clay source – were perhaps superseded by the dense cluster of enclosures.

The second feature of note is amongst the cropmarks in the fields that form the western part of the 'kiln field'. The cropmarks of the surfaced road (NHER 66783) leading from the defensive enclosure appear to end. Instead, amidst rather confused and in places fragmentary cropmarks, the line of the road is picked up by a trackway (defined by parallel ditches) which angles northwards before meeting another near-parallel trackway joining from its north. From this junction, one route at least appears to head west, towards another section of the main east-west Roman road (NHER 2796/66763) some 600m further to the west (discussed in more detail below; see also Fig 52). While it is possible that the routeways in this area may have been remodelled over time – indeed, the confused nature of the cropmarks would rather suggest this – it looks as though the east-west road met the 'kiln field' road at an angle, before continuing along it into the defensive enclosure. It was argued by Knowles that the east-west road probably passed to the south of the town defences, and that the 'kiln field' road was a secondary service road. The cropmark evidence would suggest that this was not the case, and that Green (1977, 92) is correct in suggesting that there was no road to the south of the defences (at least, to the west of the north-south road NHER 7598).

No additional evidence was found to support Green's suggestion of a major route continuing the line of the 'kiln field' road to the south-west, to meet up with a section Roman road recorded at Attleborough. Admittedly little of its speculative course fell within the project area, but even outside the project area, the HER does not record any substantial sections of Roman road that would support this idea. Rather, the road layout as shown in schematic form in Figure 52 suggests that the north-south road – assuming it is not merely conjecture – may have been the earliest route, with the settlement of Brampton located where it met the river. The east-west road appears to have been completed after a settlement – or some other form of significant site – had already been established at this location, and a segment of the otherwise straight course of the road deviated northwards to take account of it. The town defences may have been added at a later date.

Alternatively, the activity around the defences and associated re-modelling of the landscape may have been so extensive as to remove any obvious traces of an earlier road to the south of the defences. It can be noted however, that the cropmarks in this area show less evidence than elsewhere of extensive reconfiguring of boundaries, meaning that had a road once existed in this area, it is surprising that no traces of it are visible. This again supports the idea that the road never extended through this area.

Albone (2016, 355) characterises the section of road leading eastwards from the town as separate from that to the west, and argues that it is not necessarily a direct continuation of it. This would potentially fit with the lack of continuity evident in the aerial evidence, although it is worth noting that other than the angled section leading to/from the eastern entrance though the defensive enclosure, the two sections of road do appear to share an alignment (Fig 52). This is not to say that they could not have been laid out at different times, but reinforces the complex and multi-phase nature of the evidence.

Enclosures and Fields to South

To the south and south-east of the defensive ditch, the dense spread of enclosures, roads and what may have been fields can be seen to continue (Fig 56). The area is perhaps more formally arranged than that immediately west of the defences and the 'kiln field', and there is less obvious evidence of multiple phases of activity. It can be presumed that most of the cropmarks relate to the Roman period and the lifetime of the Roman town. The many finds recovered from these fields include much Roman material but also material from both earlier and later periods. The cropmarks of what are likely to be post-medieval field boundaries (NHER 52552) rather confuse the interpretation of the archaeology. Circular marks, including a large double ring ditch (NHER 17237), may be the site of Bronze Age round barrows, or, in at least one case, possibly a round house.

The continuation of the east-west road can be seen crossing the area – in some places as the negative cropmark of a presumably metalled surface, in others as parallel ditches which presumably flanked the routeway. At its western end it meets the conjectured north-south road (NHER 7598) now followed by Lion Road. As discussed above and shown in Figures 52 and 56, the east-west road appears to stop at this point, leaving a gap of approximately 650m before its line is picked up again further to the west. Further east it continues to what was presumably a crossing of the River Bure (see discussion below).

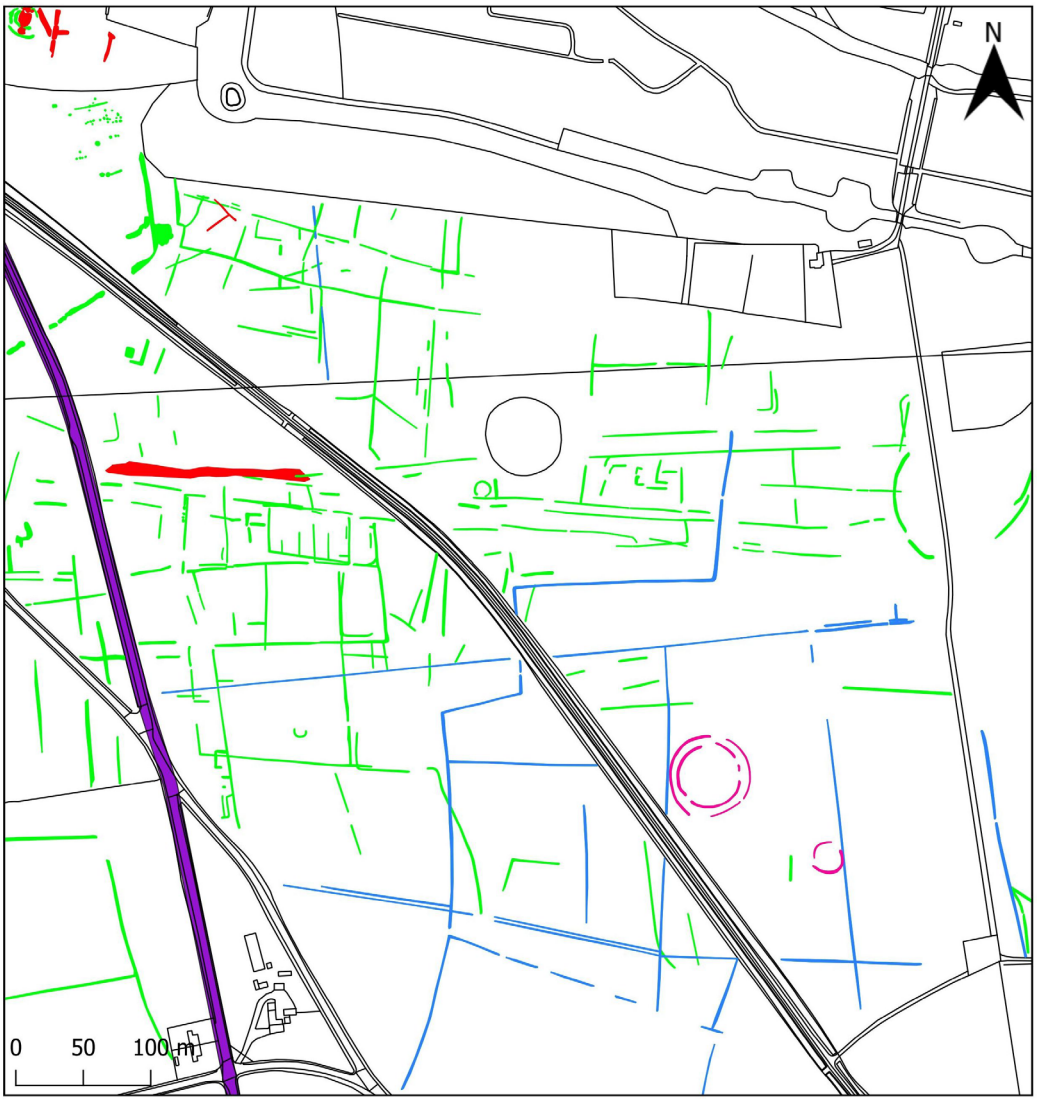

Figure 56 Detail of the area south-east of the town defences (NHER 66780); the east-west road (NHER 2796/66782) can be seen extending eastwards from its junction with the north-south road (NHER 7598; shown in purple following the modern road), first as a negative cropmark (presumably a metalled surface) and then parallel ditches; ring ditches, probably the site of Bronze Age round barrows, are shown in magenta; a post-medieval field system is shown in blue (earthwork elements removed for clarity); otherwise banks/surfaced roads shown in red, ditches in green. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Eastern Hinterland

The east-west road can be traced within the project area extending as far as the River Bure (NHER 66782; Fig 57). It is predominantly visible as an intermittent negative cropmark, presumably indicating a metalled surface, but in places also – or instead – as parallel flanking ditches. At its easternmost extent, and in particular within the woodland and pasture flanking the river, possible earthwork elements survive, visible on visualised lidar data from 2017.

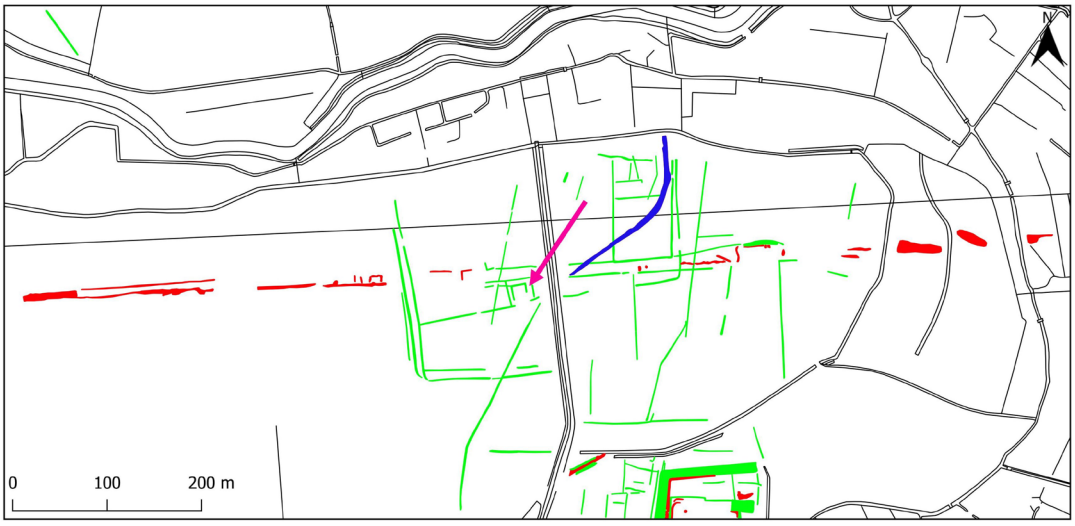

Figure 57 The east-west road (NHER 2796/66779) extending east of Brampton to the River Bure; ditched enclosures and boundaries (NHER 52551) to either side of the road appear to be at least partially contemporary with it; a small, double-ditched, square enclosure may be a roadside shrine (magenta arrow; see Fig 58 for detail); an apparent trackway (shown in blue), is in fact a modern service trench (NHER 66771); part of a substantial moated manorial site (NHER 66765) is visible at the bottom of the image; banks/surfaced roads shown in red, ditches in green, features mapped by extent in orange. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

A group of ditched enclosures and boundaries are visible as cropmarks on either side of the road (NHER 52551), on the high ground just before it descends into the river valley (Fig 57). These appear to represent a mixture of contemporary features and probably later boundaries, but it is difficult to differentiate features belonging to different phases. A small, double-ditched, square enclosure, seemingly attached to the southern flanking ditch of the road, could conceivably mark a roadside shrine or similar structure (Fig 58). A substantial moated manorial site lies further to the south and some of the later boundaries may relate to the medieval and post-medieval landscape. A trackway (NHER 66771), which cuts through one of the enclosures (shown in blue in Figure 57), had been recorded as an archaeological feature prior to the survey. Examination of a

broader range of photographs, however, suggests that this is instead a modern service trench, associated with a gas pipeline probably constructed in the 1970s.

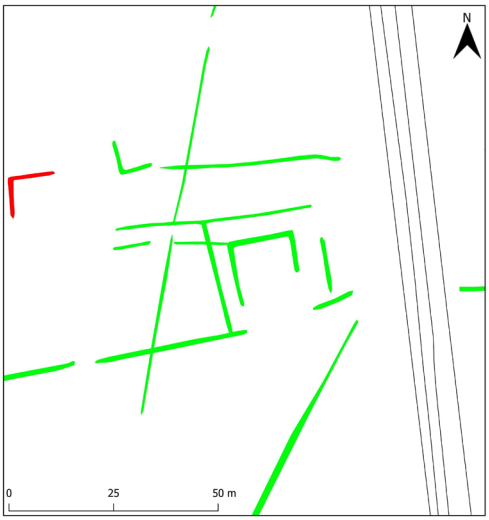

Figure 58 The possible roadside shrine (part of NHER 52551); banks shown in red, ditches in green. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Western Hinterland

Approximately 1.6km to the west of Brampton, there is an interesting juxtaposition of different features which demonstrates the complexity of the archaeological landscape surrounding the town and the questions that are inevitably raised concerning chronological and physical relationships (Fig 59). The site is located on the upper slope of a north-facing valley side, overlooking the River Bure to the north. It is primarily visible as cropmarks. The Roman road approaching Brampton from the west (NHER 2796, recorded here as NHER 66763) appears to incorporate within its span a ring ditch (NHER 66759), probably relating to a Bronze Age round barrow, or possibly a prehistoric round house or some other kind of circular structure. The ring ditch measures approximately 16.5m in diameter and appears to contain a lozenge-shaped pit, although this could be a natural feature. It has a break on its south-west side which may be a genuine entrance. The flanking ditch of the road appears to respect the edge of the ring ditch, bending to allow the entire feature to be encompassed within the span of the road. Whether the ring ditch surrounded a mound or a structure, it clearly appears to be stratigraphically earlier than the road, and the road cannot possibly have functioned while a mound or structure occupied much of its width. Although it is not completely certain, assuming the ring ditch is, as it appears, the earlier feature, the roadside ditch must have been excavated while the ring ditch (and/or whatever it

surrounded) was still a visible feature, but any above ground elements would surely have been levelled during the construction of the road itself.

A mere 13m to the east, two small square enclosures are also visible (NHER 66761 and 66762). They overlie the line of the road, but unlike the ring ditch do not appear to be respected by any element of it. They could feasibly be small square barrows. Although there are no confirmed examples of square barrows in Norfolk, the two enclosures are similar to possible examples of such monuments known from both excavation (as at Harford Farm, Caistor St Edmund and Valley Belt, Trowse, to the south of Norwich; Ashwin and Bates 2000, 138–139, 190) and aerial sources (Tremlett *et al* 2011, 34–37). They are relatively small, but this is not unusual amongst the Norfolk examples, and they demonstrate polar alignment and proximity to a possible round barrow (if that is what the ring ditch surrounded), both common features of square barrows (Tremlett *et al* 2011, 35). If they were square barrows, or some kind of related Iron Age funerary monument or shrine, the enclosures and any associated earthworks or structures were presumably obliterated by the road. Unlike the potentially earlier ring ditch, they were not even respected in its laying out.

Figure 59 The section of Roman road (NHER 2796/66763), ring ditch (NHER 66759), square ditched enclosures (NHER 66761 and 66762) and rectilinear enclosures (NHER 66764) located to the west of Brampton; banks depicted as red, ditches as green, low earthwork bank visible on lidar outlined in orange. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

Alternatively, the two small square enclosures could be of Roman date and could post-date the construction of the road. In this case, they could perhaps be interpreted as roadside shrines or funerary sites. Why, in this scenario, such features should be allowed to impose on what was presumably an important routeway is unclear. A low bank visible on the visualised lidar data, which follows – but only partially – the line of the road cropmarks, could indicate that the road was re-modelled and realigned at some stage. The rather sinuous bank, mapped by extent in Figure 59, appears to skirt the north of the two small enclosures, overlapping them to a far lesser extent than the straighter road cropmarks. Again, however, alternative interpretations are possible, and the bank may be a much later, medieval plough headland and/or furlong boundary, the line of which was influenced by but does not exactly replicate the line of the road. Further to the east, two overlapping rectilinear enclosures (NHER 66764) appear to respect the line of the road (as visible as cropmarks); these are presumed to be of Roman date.

This site encapsulates many of the opportunities and problems encountered in the survey of this area. The sinuous bank/road, which is visible only on the lidar visualisations, conflicts with the appearance of the site on aerial photographs, on which all the other features are visible as cropmarks. This creates issues both of how to best represent features in the mapping, but also how to describe and interpret the relationship between different features. The lack of any chronological information for this site, beyond what can be construed from morphology, landscape context, and apparent physical relationships, makes interpretation difficult: multiple narratives can be developed. Excavation at this location would have the potential to recover information that could allow the relationships between these different features to be better understood. In the absence of such work, we can speculate on why a Roman road was aligned on what was potentially a significant location in prehistory, and earlier monuments appear to have been both respected and – presumably – destroyed by its construction. It is worth noting that 2.3km to the west, but still within the project area, a section of the same road (recorded there as NHER 64232) appears to overlie an elongated ditched enclosure, possibly a Neolithic funerary site (NHER 64239).

RESEARCH THEME: BLICKLING HALL, PARK AND GARDENS

Blickling Hall, Park and gardens (NHER 5115 and 30433; Fig 60) are situated in the north of the project area. The hall and park have a long history, with the current hall built in the 17th century by Robert Lyminge, with 18th and 19th-century additions. It replaced an earlier moated medieval house. The hall has formal gardens which have origins in the 17th and 18th centuries, with further garden redesigns undertaken in the 1930s. The extensive parkland associated with Blickling Hall has medieval origins and was greatly extended in the 18th century with additions from Humphry and John Repton. The hall is listed (NHLE 1051428) and the park and gardens are registered (NHLE 1000154).

The hall, gardens and park, along with the wider estate, have been the subject of previous extensive surveys which have recorded the archaeology and history of the park and estate – as then known – in great detail (Penn 2008; Williamson and Dallas 2010). The discussion of the results of the AIM survey below relates to sites which have been recorded within the registered park and garden boundary of Blickling, which is itself based on the 18th-century parkland boundary. The sites mapped by the project in the wider Blickling estate are included in the period summaries covering the entire project area. As discussed in the project design (Tremlett 2020), the historical aerial photographs and in particular the visualised lidar have helped to reveal new earthworks and enhance the records for sites recorded by previous surveys.

Figure 60 Blickling Hall and park looking north-west. Photograph: NMR 27487_011 20-JUN-2012 © Historic England.

The Hall

The site of a Second World War military camp (NHER 66290) was mapped in close proximity to Blickling Hall. The hall was requisitioned during the Second World War and was used as accommodation for the officers and non-commissioned officers stationed at RAF Oulton to the west (McKenzie 2004). The mapped features associated with the Second World War camp are discussed in more detail in the 20th-century military period summary (see above).

The Gardens

The cropmarks of 20th-century plant beds (NHER 66292; Fig 61) were recorded between the gardens to the east of Blickling Hall and the Doric Temple lying further to the east. The planting beds can be seen on the 1932 Aerofilms aerial photographs (Historic England Archive AFL 60811/EPW039268 JUL-1932) lining the trackway. The planting beds appear to have been removed between the 1930s and 1940s as they are not visible on the 1946 RAF aerial photographs. The sites of the planting beds can be seen as cropmarks on NAPL obliques.

Figure 61 Cropmarks relating to 20th-century planting beds in the gardens of Blickling Hall can be seen either side of the extant pathway; they occur at regular intervals and ran the length of the pathway from the gardens to the east of the hall to the Doric Temple. Photograph (detail) by Derek Edwards, Norfolk Air Photo Library: Oblique Collection TG1828/A 30-JUL-1990 (NLA 269/GCG 12) © Norfolk County Council.

The Park

A series of newly recorded possible medieval to post-medieval field boundaries (NHER 66277) were mapped in the parkland to the west of the hall (Fig 62). The majority of the features are visible as cropmarks on aerial photographs and most likely relate to field boundaries, trackways and possible enclosures. Some of the possible field boundaries and sections of trackway can be seen as very low earthworks on the visualised lidar data, in particular on the simple local relief model visualisation. The features probably represent several phases of activity and may have been part of wider field systems associated with the pre-parkland landscape. Further medieval to post-medieval field boundaries, trackways and enclosures can be seen close to the modern park boundary to the west (NHER 66276), south (NHER 24976) and north (NHER 66275).

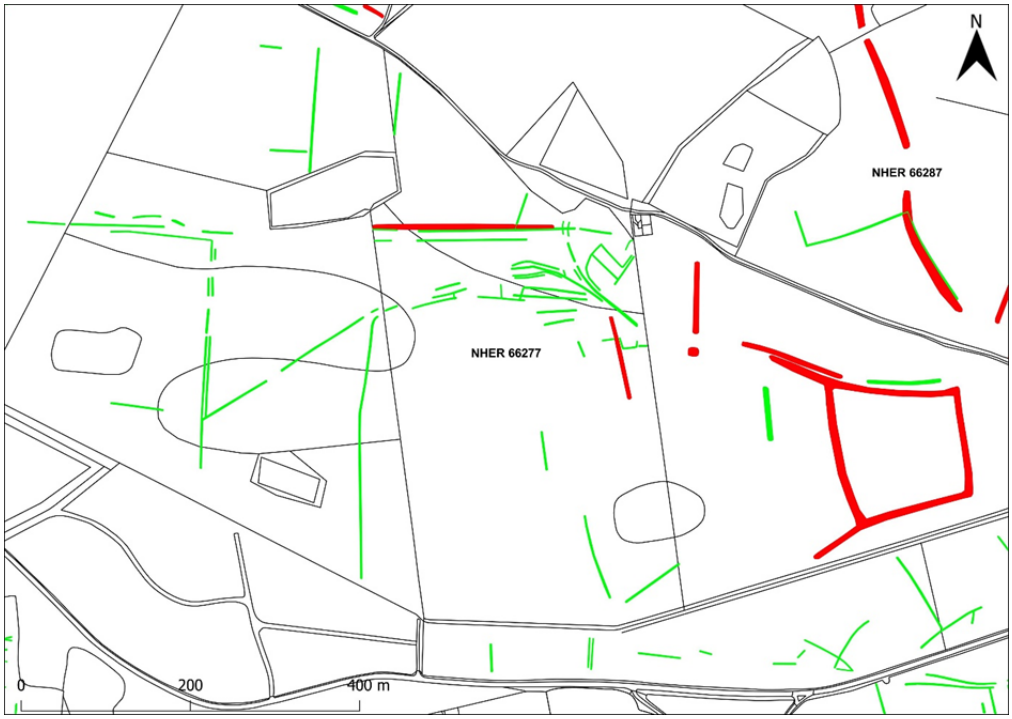

Figure 62 Possible medieval to post-medieval field boundaries, trackways and enclosures recorded in the park to the west of Blickling Hall (NHER 66277); banks depicted as red, ditches as green. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

The record for an area of previously recorded linear ditch features to the north-east of the hall (NHER 36416) was enhanced by the project (Fig 63). The features likely relate to field boundaries, trackways and enclosures of medieval to post-medieval date, although an earlier origin cannot be ruled out. They could relate to the pre-park landscape, or instead to early parkland features.

Running through the centre of this site (that is, NHER 36416), and extending further to the north-west and south-east, are sections of low earthwork bank which may represent part of a former park boundary (NHER 66768). Sections of ditch which may have flanked the bank can be seen as cropmarks in the north of the area. The feature has been recorded previously from cropmarks, but the presence of low earthworks has been newly recorded by the project. It has been suggested by Penn (2008) that the feature could relate to a former park boundary shown on Corbrige's map of 1729. It is also suggested by Penn (ibid) that the boundary may be medieval and could relate to an enclosure around Dagworth's park or the later park of the Clere/Hobart family.

Figure 63 Possible field boundaries, trackways and enclosures of medieval to post-medieval date (NHER 36416), located north-east of Blickling Hall, with a possible former park boundary (NHER 66768) running through the centre of the site; sections of a possible compound (NHER 66293) relating to the Second World War military camp (NHER 66290) can also be seen in the south-east of the image; banks depicted as red; ditches as green. Base mapping derived from Ordnance Survey MasterMap © Crown copyright and database rights 2023 Ordnance Survey 100019340.

To the south of the orangery (NHER 45935), the cropmarks of a previously recorded rectilinear enclosure were mapped along with a series of linear ditches (NHER 36072). The date of the features is uncertain. It is also uncertain as to whether the features are contemporary or relate to multiple phases. It has been suggested previously (information from NHER 36072) that the enclosure may date to the Roman period, as pottery of this date has been recovered from its

vicinity (NHER 31651). While this interpretation remains a possibility, it is perhaps more likely that the features relate to medieval to post-medieval field boundaries and enclosures associated with the pre-parkland landscape, as their morphology is similar to other such features recorded further to the north (NHER 36416). Equally, it is possible that the features represent elements of the post-medieval park. An alternative suggestion made by Penn (2008) is that they relate to roads and tracks associated with the Second World War military camp visible on the 1946 aerial photographs. When the 1940s photographs were geo-rectified, however, the military roads and tracks did not correspond with the mapped features, suggesting that this interpretation cannot be correct.

The visualised lidar data has been a key resource for recording both new earthworks and enhancing the record for previously recorded features within the park's boundary. The earthworks of medieval to post-medieval boundary banks and wood banks were mapped in the Great Wood. This includes previously recorded banks (NHER 17744), as well as newly recorded, probably post-medieval, boundary banks (NHER 66279,66282, 66283 66284). In the centre of the park, sections of an earthwork bank can be seen aligned approximately north-south before heading north-east (NHER 66287). This feature may be a post-medieval park boundary, a post-medieval trackway or road, or possibly a post-medieval parkland feature.

Sections of earthwork bank and ditch forming a fragmented circle measuring approximately 250m in diameter (NHER 66280) have been recorded from the visualised lidar in the Great Wood. The sections of earthwork bank and ditch appear to relate to a large circular enclosure depicted on the Tithe map surrounding the Mausoleum, a four-sided stone pyramid containing the burial chambers of members of the Hobart family (NHER 7407; Fig 64). The circular enclosure visible on the Tithe map had been noted previously by Penn (2008, 23, 57). The presence of earthworks relating to the enclosure, however, is a new identification by the project. The circular enclosure is presumably a parkland feature relating to the setting of the Mausoleum. Penn (ibid) states that the Mausoleum would have been encircled by rows of spruce and yews. As the earthworks are clearly visible on recent (2017) visualised lidar data, it is probable that they still survive.

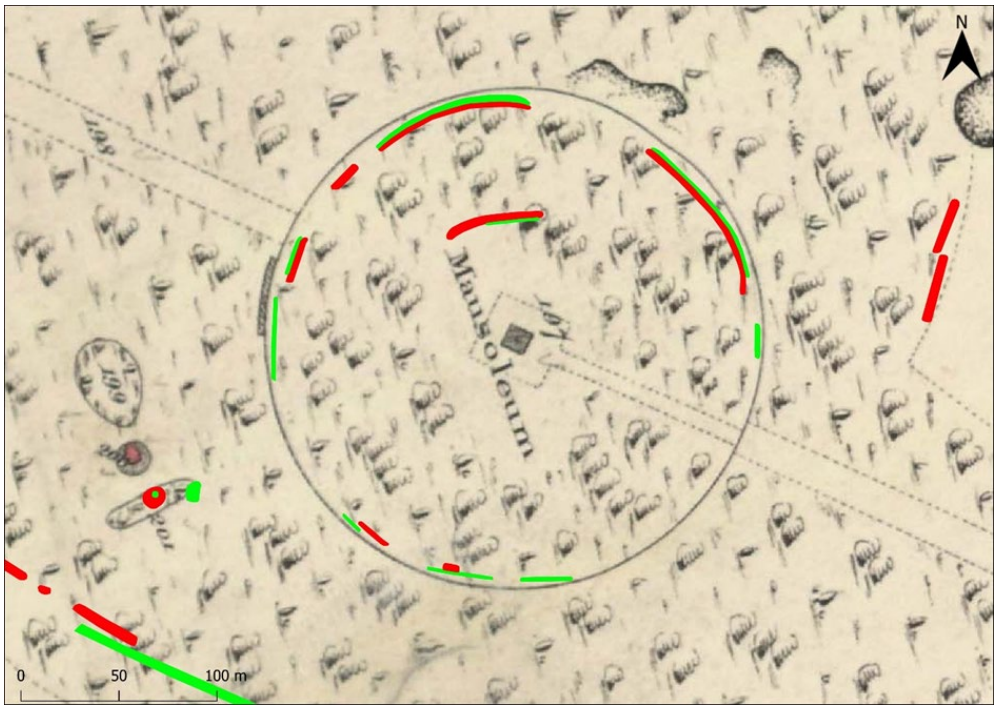

Figure 64 Extract of Blickling Tithe map (1840) overlain with the AIM mapping for NHER 66280; the Tithe map shows a large circular enclosure surrounding the Mausoleum and the mapping data shows the sections of earthworks recorded by the project. Historical map source: Blickling Tithe map (1840) available at http://www.historic-maps.norfolk.gov.uk/mapexplorer/.

A series of newly recorded low earthwork pits and mounds (NHER 66288) was mapped to the north of the hall (Fig 65). A bank feature can be seen as an earthwork, aligned approximately east-west through the centre of the area. This appears to continue west, visible as a cropmark on the 1976 Meridian aerial photographs. This feature may be a medieval to post-medieval trackway. The origin of the mounds and pits is uncertain. It is possible that they represent areas of post-medieval extraction, that they are post-medieval garden or parkland features, or even that they are the remains of a medieval settlement. It is also possible that some of the features could be natural in origin. The earthworks are located immediately adjacent to the lake, and an association with this landscape feature is also feasible. It is uncertain whether the bank/trackway is contemporary with the pits and mounds or is an earlier feature.

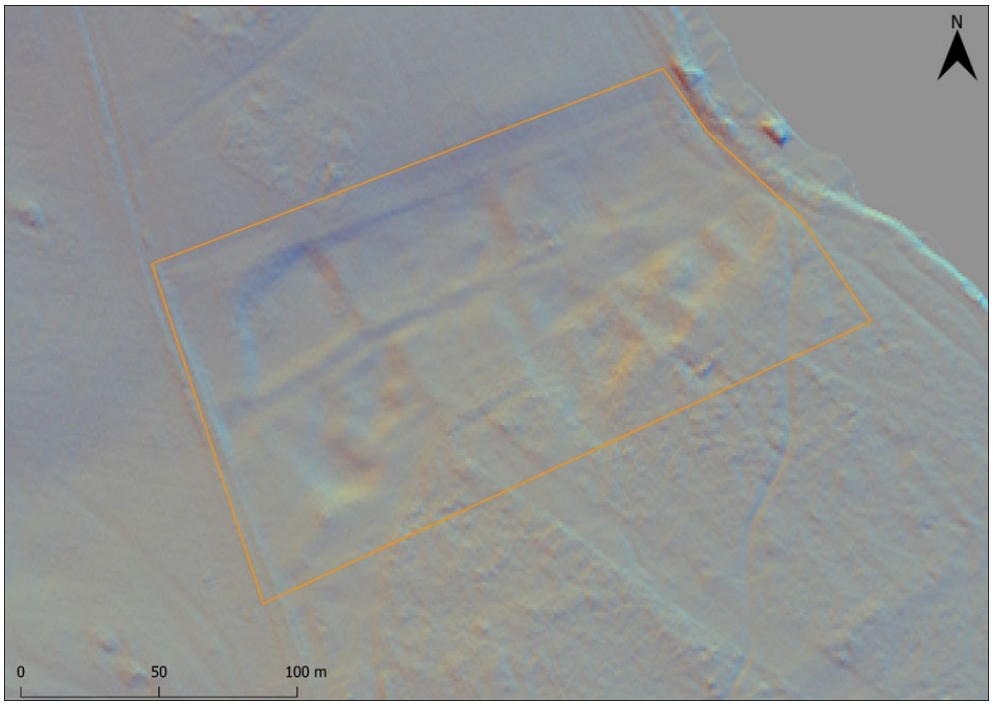

Figure 65 Multi-direction hillshade lidar visualisation showing a series of earthwork pits and mounds to the north of Blickling Hall (NHER 66288); a possible medieval to post-medieval trackway can be seen as a bank aligned approximately east-west through the series of undulating earthworks; extent of archaeological features outlined in orange. Lidar source: National LIDAR Programme TG12NE Environment Agency 1m DTM 17-NOV-2017 © Environment Agency copyright and/or database right 2023. All rights reserved. Multi-direction hillshade lidar visualisation © Norfolk County Council.

CONCLUSIONS

The Aylsham and Brampton AIM project added 458 new records to the Norfolk HER – 78 per cent of which relate to new discoveries – and amended a further 129 existing HER records. In addition, it has created an archaeological map covering 99 sq km. These results represent a very significant contribution to our knowledge and understanding of the historic environment of this area of north-east Norfolk. The increase – of 28 per cent – to the number of known sites within the project area represents a significant advance in our understanding of the archaeological landscape of this part of the county. Averaged across the project area, the survey has recorded a density of 5.9 sites for every sq km it covered. Crucially, these sites – whether new discoveries or not – are now accurately mapped, allowing them to be better understood and better managed.

Improved heritage protection, through the provision of better and more accessible information, is one of the principal outcomes of any AIM project. The incorporation of the project's results into the Norfolk HER, and their availability via Heritage Gateway and Historic England's Aerial Archaeology Mapping Explorer, will ensure better heritage protection across the project area. Those charged with the management and guardianship of the historic environment, for whom HER data is a central resource, will be better informed as to the existence, location, nature and extent of archaeological sites within the project area. For many sites, this will be first time that this information will not be 'hidden' on a variety of aerial sources, stored at several different locations. Instead, it will be readily accessible in a standardised and comprehensible format, namely HER records and AIM-standard mapping (the former also accessible via the Norfolk Heritage Explorer website). The mapping and records created by the project will be made available for integration into the National Trust's historic environment dataset, for future use in making research, development and management decisions. Similarly, data will be available for the use of the Aylsham Roman project, and by future researchers into Brampton Roman town or other sites recorded by the project.

In terms of the results themselves, they have been a mixture of the anticipated and the surprising. The large numbers of Neolithic and Bronze Age funerary sites had to some extent been expected, given the perceived high density of such sites in north-east Norfolk prior to the project starting. The number and variety of recorded sites has more than met expectations. A wider study, taking in a larger area and a broader range of site types and evidence, would be useful for placing the results into context and thereby better assessing their significance. The results for the Roman period were also expected to be significant, given the inclusion of Brampton Roman town and its phenomenal cropmarks within the project area. The extent and range of Roman period sites, however, has perhaps exceeded expectations, the interconnectedness of the landscape being particularly evident along the east-west Roman road that crosses through the

south of the project area. The survival of this road as an earthwork was again previously known, but the fact that it survives so well on Marsham Heath had perhaps not been widely appreciated. The identification of new sections surviving as earthworks, albeit low and/or fragmentary, at a number of locations was also unexpected, but of great value in a landscape with so few earthwork sites.

The dense and complex spread of (presumed) medieval and post-medieval field boundaries, trackways, enclosures and settlements was more unexpected. This perhaps should not have been the case, given the high population levels in this area of Norfolk in the medieval period. Further work to phase and characterise these often confusing spreads of archaeological features, and where possible to undertake further research to identify their date and function, would be of enormous benefit. Conversely, there were few identifications of prehistoric non-funerary sites. The results from near-adjacent AIM projects in the Coastal Zone (Albone *et al* 2007a) and Broads Zone (Albone *et al* 2007b) had led to an expectation of recording extensive, cohesive areas of prehistoric and/or Roman field systems, evident most spectacularly on the Broads interfluves (Albone *et al* 2007b, fig 5.1, for example). This was not the case. however. Whether this was because such systems were never established in this part of Norfolk, or as seems more likely, medieval and later settlement and agriculture was so intense as to entirely obliterate their remains – or reduce them to unrecognisable fragments – continues to be a question for future research. Additional aerial archaeological investigation addressing the gap in coverage between the current project and the earlier work to its north, east and south-east (Fig 2), would be of considerable benefit to better understand this apparent pattern.

Recommendations for Heritage Protection and Further Work

A list of sites where further work and/or heritage protection measures are recommended is given in Appendix 3. This list is not exhaustive, nor is it intended to be proscriptive. Rather, it includes the sites that appeared to the project team to be the those with the most to gain from additional work, and where the next steps to take in terms of research were most apparent.

It is notable that in contrast with other recent AIM projects, in Breckland or the Suffolk Coast and Heaths AONB, for example, only one site – the earthworks on Marsham Heath relating to the east-west Roman road (NHER 64216) – has been suggested as a potential candidate for designation. This reflects the very small proportion of sites within the project area that survive as earthworks, whereas both Breckland and the Suffolk Coast and Heaths AONB were notable for relatively high numbers of earthwork sites (Horlock *et al* 2016; Horlock and Tremlett 2018; Powell and Tremlett 2020). While there is potential to designate buried archaeological remains visible as cropmarks, in practice these are often

so numerous and/or extensive, that selecting suitable candidates from amongst a mass of data can be difficult. There is also the issue that their current state of preservation is more uncertain and more difficult to check. This is particularly the case for those sites recorded as cropmarks from historical aerial photographs, where several decades of ploughing or other activity since they were last photographed may have entirely removed any below-ground features.

Although the vast majority of sites recorded by the project are not designated, the integration of the project data into the NHER will ensure that they are taken into consideration when NCC archaeological advisers are consulted regarding future development or land management decisions, for example. This is a key outcome of the project, with accurate maps and database records enabling better-informed decision making. It is also the case that many sites – and particularly those highlighted in this report – would benefit from further research, whether site survey, surface collection or metal detecting of finds, excavation and/or documentary research. More detailed analysis of groups of sites – for example the morphology, landscape setting, and associations of the possible Neolithic and Bronze Age funerary monuments – also has the potential make significant contributions to ongoing research. This report has aimed to signpost those sites that are arguably of greatest interest, research potential and significance.

Suggested updates to the NHLE, mainly comprising updates/corrections to the mapping of designated areas, are listed in Appendix 4.

Research Framework Themes

The project proposal included a list of themes and questions that could potentially be addressed or contributed to by the results of the project (Tremlett 2020, appendix 3). This list was compiled from the draft period summaries and lists of priorities then available for the East of England Regional Research Framework. At the time (January 2020), the framework was undergoing review, but the revised version has since been published online (at https://researchframeworks.org/eoe/).

Of the list put forward as part of the proposal, the project can be said to have contributed to the following themes and questions. For the most part, its contribution has been to identify new sites, and provide new and improved information for both new discoveries and previously recorded sites. The entries in bold are those where the project has arguably contributed the most.

- Neolithic

    - **New sites and new information about landscapes, places and monuments that are not going to be touched by development.**
        - *All of the nine the potentially Neolithic funerary sites mapped by the project, seven of which are new discoveries, are in rural locations where development is unlikely.*
    - **The apparent distinctiveness of Norfolk's Neolithic.**
        - *The project has improved the record of potential Neolithic sites within the project area, thereby contributing further data to be used in future research looking at this question.*
    - **Neolithic ring ditches and other forms of burial monument.**
        - *Of the 90 sites mapped by the project which were interpreted as probable prehistoric funerary sites, there is potential for a proportion to be of Neolithic rather than Early Bronze Age date. The larger examples (such as NHER 66753 or NHER 17237 at Buxton with Lammas), or those that are apparently conjoined with or overlaid on a possible Neolithic long or oval barrow (NHER 65646 at Burgh and Tuttington, or NHER 65390 at Cawston), might be seen as likely candidates, but in truth there is little to confidently distinguish those sites that have greater potential to be of Neolithic date.*
- Early to Middle Bronze Age
    - Bronze age post alignments and their relationship to field systems and other landscape features.
    - Diversity of Bronze Age funerary monuments and considerations of the chronology of monument building.
- Late Iron Age to Roman
    - The lack of regional/county site-by-period distribution mapping.
- Medieval rural
    - **Regional or landscape variations in settlement location, density or type.**
        - *The area contains an unusually high number of high-status medieval settlement sites, at least within the experience of the project team. Some of these, such as Bishop's Manor at Moorgate (NHER 6714), and Nowers Manor at Itteringham (NHER 12525) have seen a relatively high level of investigation and study (although there is still much that is not known about the sites). Other sites, such as that at Buxton with Lammas (NHER 66765) and Skeyton (NHER 21832) have seen relatively little work, and this is reflected in our relatively poor understanding of them. The variation apparent between the different high-status sites, which presumably reflects*

differences in chronology, status and wealth, means that further study of them as a group might be of particular benefit.

- Importance of relating site-specific information to the wider landscape.
- Dating of extant historic landscape features such as field boundaries.
- **Settlement change, evolution and abandonment.**
    - *The project recorded considerable evidence for former field systems, trackways, enclosures and possible settlement of medieval and/or post-medieval date. The features recorded to the west of Aylsham (NHER 12982, 65613, 65614, 65616, 65617, 65618; Fig 36), for example, might be seen as having relatively high potential for a better understanding of landscape change and development, due to the extensiveness of the remains, and their relative cohesion.*
- Surveys of heaths and valley bottom pastures.
- **Church and hall complexes.**
    - *The detailed mapping, from a range of aerial sources, of the Bishop's Manor at Moorgate (NHER 6714), and Nowers Manor and St Nicholas's chapel at Itteringham (NHER 12525) makes a clear contribution to the record for these sites, and will feed into future research.*
- **The dispersed settlement pattern.**
    - *The project recorded considerable evidence for former field systems, trackways, enclosures and possible settlement of medieval and/or post-medieval date. The features recorded to the west of Aylsham (NHER 12982, 65613, 65614, 65616, 65617, 65618; Fig 36), for example, might be seen as having relatively high potential for a better understanding of landscape change and development, due to the extensiveness of the remains, and their relative cohesion.*
- **Moated sites.**
    - *Several of the high-status medieval settlement sites recorded by the project included moated elements, including Burgh Hall (NHER 7544) and the manorial sites at Ingworth (NHER 7403) and Buxton with Lammas (NHER 66765). Detailed, accurate and comprehensive mapping of these sites from a wide range of aerial sources has considerably improved the record of these sites, better enabling their characterisation and comparison with other sites.*

- Post-medieval
    - A major programme of HER enhancement to improve site identification.
    - **AIM data should be used to research topics such as field systems, enclosures, road, trackways, parks and gardens.**
        - *The project recorded considerable evidence for former field systems, trackways, enclosures and possible settlement of medieval and/or post-medieval date. The features recorded to the west of Aylsham (NHER 12982, 65613, 65614, 65616, 65617, 65618; Fig 36), for example, might be seen as having relatively high potential for a better understanding of landscape change and development, due to the extensiveness of the remains, and their relative cohesion.*
        - *The project has significantly improved the record of archaeological features recorded within Blickling Park and gardens, by providing accurate mapping and updated database records.*
    - **AIM data should be used to enhance settlement studies.**
        - *The considerable evidence recorded by the project relating to the medieval to post-medieval rural landscape has the potential to contribute directly and indirectly to the study of post-medieval settlement. The features recorded to the west of Aylsham (NHER 12982, 65613, 65614, 65616, 65617, 65618; Fig 36), for example, might be seen as having relatively high potential for a better understanding of landscape change and development in the environs of the town, due to the relatively extensive and cohesive nature of the remains.*
    - The identification of key wartime structures.

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APPENDIX 1. METHODOLOGY

The methodology employed by the project generally conformed to that detailed in the project proposal (Tremlett 2020, 9-11). It was based on *Aerial Investigation and Mapping Technical Specification* (Evans 2019a), the 2019 revision of *Historic England Standards and Guidance for Aerial Investigation and Mapping Projects* (Winton 2019), and Morphe PPN 7. It was also informed by the Norfolk Air Photo Interpretation Team's previous experience of delivering AIM standard projects in the region.

Archaeological Scope of the Survey

All archaeological monuments, both plough-levelled and upstanding, dating from the Neolithic period to the 20th century, including industrial sites pre-dating 1945 and military remains up to the Cold War, were recorded. Those features adequately depicted by readily accessible historical maps, existing surveys or excavation plans were usually ignored.

AIM projects are intended to provide only assessment-level data, at a nominal scale of 1:2,500. Any detail not clearly visible and comprehensible at a 1:2,500 output scale was usually omitted, eg 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 the aerial photographs and/or lidar were mapped, unless the information visible was already recorded adequately, and at a comparable scale, by existing and readily accessible earthwork surveys. Earthworks were recorded whether or not they were still extant on the latest aerial photographs/lidar source. The accompanying attribute data and HER database records specify which elements of earthwork groups are surviving or plough-levelled, and monument types were indexed with the evidence visible on the latest available sources (usually the Environment Agency lidar data or Google Earth). Significant archaeological features depicted on Ordnance Survey maps, such as moats, were usually included in the mapping.

Buildings and Structures

For the most part, the mapping does not include buildings other than where these are recorded as earthworks, masonry foundations or as cropmarks or soilmarks. Standing buildings that have been destroyed were recorded where there was no other adequate record, although it is probable that a map record existed in most cases; where this was not the case, they 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 'extent of area' where appropriate.

Industrial Archaeology and Areas of Extraction

The survey recorded baseline evidence of industrial activity, such as salt-making, lime burning and brickmaking, where they could be recognised as pre-dating 1945 and only where the sites were not adequately recorded already by map evidence. Areas of former extraction were only mapped where they were judged to be of archaeological significance or had a bearing on surrounding sites; where such features had been recorded by previous surveys, an updated outline was recorded where required and when time allowed. Urban industrial areas were excluded from the recording, unless archaeologically significant or if they contained evidence for the provision of air raid shelters for workers, for example.

Twentieth-Century Military Archaeology

All former military sites and installations, up to and including the Cold War, which were visible on the aerial photographs and lidar were recorded. First and Second World War military remains, such as airfields and camps, were recorded to an appropriate level of detail, ranging from an outline defining their extent, to the recording of all 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 1:2,500 scale, were only mapped if time allowed or their location was of particular significance.

Sites relating to post-Second World War military activity were only mapped if they related to significant activities and were characteristic of the Cold War era and strategies, ie not merely relating to general military training activities. At sites where multiple phases of 20th-century military activity were evident, a single phase was usually mapped; the air photo interpreter used their judgement as to which was the most significant and most in need of a record by

transcription. Other phases were described briefly in the descriptive record. Where Cold War features overlay a First or Second World War site, preference was usually given to the earlier site, unless the Cold War features were particularly significant and otherwise unmapped.

Coastal and Inter-Tidal Archaeology

The project area did not include any coastal or inter-tidal areas.

Post-Medieval Field Boundaries

Where post-medieval field boundaries were visible as cropmarks, earthworks or still extant on aerial photographs or lidar they were not usually plotted or recorded, in particular if they could be seen 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. As for other sites, the distinction between earthwork and levelled ridge and furrow was made in the attribute data and HER database record.

Areas of water meadows were mapped to a basic level of detail, usually by extent rather than in detail.

Drainage Features

For the most part, drainage features were not recorded as part of the project, unless they formed part of a more significant archaeological site. It is not within the usual scope of the AIM methodology to map drainage features. Where archaeologically significant, information can generally be derived from a detailed historical map-based search.

Parks and Gardens

Earthworks and levelled landscape features associated with historic parks and gardens were recorded, including those listed in the Historic Parks and Gardens Register maintained by Historic England and Norfolk County Council's Inventory of Parks and Gardens of Special Historic Interest. Where appropriate

other parkland features, such as tree avenues, may were mapped or, more often, a note made in the record; 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.

Features relating to modern or 20th-century parks and gardens may have been recorded where information on the aerial photographs added significant new information to the record. This was judged on a case-by-case basis, but might include evidence for public parks being used for allotments during the Second World War, or a record of a park or garden which had since been entirely redeveloped.

Transport

Major transport features, such as disused canals or main railways, were not mapped unless the evidence visible on the aerial photographs or lidar was considered to be of particular archaeological significance; in general, it is probable that such features were already adequately recorded by other sources such as historical maps. Smaller features, such as tramways or industrial railways, were recorded where they are not depicted on historical maps, and/or where they were archaeologically significant, for example in relation to a nearby industrial or military site.

Geological and Geomorphological Features

Geological features were not plotted unless their presence helped to define the limits of an archaeological site or feature. 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.

Sources

Aerial Sources

The principal aerial photographic and lidar sources that were consulted by the project are summarised below.

Table 2 Principal sources consulted by the project

Collection	*Type*	*Media*
Historic England Archive (HEA)	Vertical, oblique, military oblique	Prints and digital
APGB data	colour verticals, infra-red, contour data	Digital
Norfolk County Council	Vertical, oblique	Prints
Online sources	Google Earth: vertical photographs Bing Maps: vertical photographs Environment Agency: lidar	Digital

It was not possible to consult vertical and oblique prints held by Cambridge University Collection of Aerial Photography (CUCAP) as the library is currently closed. Copies of CUCAP photographs held by other collections were consulted when available.

Background Sources

The primary archival sources for the project were HER digital maps and records. HER secondary files and paper records, including grey literature reports, were not consulted as a matter of course, due to time constraints and limited accessibility (material being made inaccessible by the HER move, for example). Where such material was judged to be fundamental to the interpretation and recording of a site, it was consulted on a site-by-site basis. HERR (formerly NRHE) data, geology and soils maps, maps and notes from previous NMP/AIM surveys, and digitised historical Ordnance Survey maps (dating from the 1880s onwards) were consulted throughout. Digitised Tithe and Enclosure maps were consulted where available. Where the Vanguard/Boreas on-shore cabling route crossed the project area, the results of the aerial imagery assessment undertaken for the desk-based assessment were consulted (Royal HaskonigDHV 2019).

A selection of bibliographic sources was used where relevant and where time allowed. However, due to the limited resources available, such additional research took place for only a limited number of sites.

Digital Transcription

Transcription was undertaken in QGIS, at a nominal scale of 1:2,500. Each interpreter worked in their own copy of the project workspace, creating their own subset of the project dataset, which was later amalgamated.

Wherever possible, archaeological features were mapped from georectified sources, such as visualisations of Environment Agency lidar data, or from scanned images rectified in AERIAL 5.36. Control information for rectifications was usually derived from OS MasterMap (usually scale 1:1,250), as this was generally found to be adequate, but occasionally it was necessary to take some or all control from APGB orthophotographs, historical maps or previously rectified photographs. 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 at least +/- 2m should have been achieved at this scale of mapping. Where this accuracy may not have been achieved, due to problems of inadequate or inaccurate control points, for example, a note was made in the relevant HER record(s).

Rectified images were imported into QGIS. Archaeological features were transcribed following the standards for spatial data set out in Appendix 2. The original photographic scans and rectified images will be discarded following the publication of this report.

The project used several georeferenced digital photo layers, including those held by NCC, APGB imagery, and online via Google Earth and Bing Maps. It also used Environment Agency lidar data. When required, these digital layers were inserted into QGIS and mapping undertaken directly from the image; Google Earth images were saved, inserted onto QGIS and georeferenced onto the map base. Lidar data was visualised using Relief Visualization Toolbox (Zakšek *et al* 2011; Kokalj and Somrak 2019), and the resulting images inserted into QGIS. Given the limited time available to complete the mapping, rectifications of aerial photographs were kept to a minimum, particularly where good digital coverage (or other sources) showed the main components of sites. Where necessary, small amounts of additional detail were added directly to the plot by eye.

Once the mapping was complete, checks were undertaken before the creation of a final draft dataset. The resulting tables were exported to MapInfo, for integration into the HER workspace. Once all database records had been added, Monument Polygons defining the extent of each site were copied to the Mon layer of the HER and linked to the related database record.

Database Records

Drawings

In concordance with national standards (Evans 2019a), attribute tables were created for the mapping layers, as outlined in Appendix 2.

Norfolk HER (ExeGesIS HBSMR)

HER numbers were allocated in liaison with the HER officer for Norfolk. A record of each number used was maintained, continuing the method used for previous NMP/AIM projects undertaken by the team.

Records were inputted directly into the database, although individual interpreters may have used a temporary Word document for greater ease of editing, etc, before copying and pasting text into the database. 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 complete and imported into the HERs, 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 by the Air Photo Interpretation Team and noted in the report. Once integrated into the HERs, the data will feed directly into uploads to the Heritage Gateway, and the Norfolk Heritage Explorer website, with sensitive sites handled in the same way as for the core HER data.

Following any changes made as a result of comments on the draft of this report, final copies of the mapping data will be provided to Historic England for incorporation into the Aerial Archaeology Mapping Explorer.

Event Records

An Event Record for the project has been created in the HER. This provides 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 Event Record is linked to all associated Monument Records.

Progress Sheets

Formal progress sheets for each quarter sheet/mapping area were not kept, but team members were able to use a checklist of sources to ensure that all had been referred to. A register of HER numbers for new and amended sites was

maintained and correlated against both the completed mapping and the number of records linked to the Event Record. Time spent on each individual project task, including mapping and recording, was recorded in a timesheet. Information on areas completed, time taken and numbers of new and amended records was included in quarterly progress reports to Historic England. Information required for the archive has been or will be transferred to the relevant Event record, and/or included in the Archaeological Report or Closure Report, or will form part of the Project Management file.

Reports and Publications

Archaeological Report

This report provides a quantification, assessment and overview of 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, ground survey, and publication.

A list of sites which might benefit from further heritage protection measures, including potential candidates for designation, is included as Appendix 3. A list of potential updates to the NHLE is also included, as Appendix 4. These will both be submitted to Historic England and Norfolk County Council.

Data Access and Copyright

This report is copyright Historic England. All AIM transcriptions and associated records are copyright Norfolk County Council. A perpetual non-exclusive royalty-free licence to use and/or sub-licence the project archive and all other project materials for any purpose is granted to Historic England. The provision of the mapping and records to other users by Norfolk County Council will be subject to a series of existing data agreements for using HER data.

Storage, Data Exchange and Archiving

HEA photographs were held according to their terms and conditions. All photographic material on loan from the HEA was initially stored in a locked fire-proof cupboard within the Norfolk Air Photo Library at Gressenhall, which was itself locked and alarmed. It was then transferred to the secure store at

Norfolk Record Office's Archive Centre, following the move of the team, the HER and the Air Photo Library to that location.

Provisionally, all digital mapping and recording data was stored on the Norfolk County Council Environment Team shared drive for the duration of the project. The exported data is stored within the Norfolk HER, as part of their ExeGesIS HBSMR databases and GIS data. A copy will also be provided to Historic England for inclusion in the Aerial Archaeology Mapping Explorer. Responsibility for storage and access lies with Historic England and the HER; the Air Photo Interpretation Team has retained copies of the data for reference purposes.

A copy of the finalised report will be supplied to Historic England, to be made available as part of their Research Report Series.

All other project data (report files, management and administration documents, etc) have been (or will be) rationalised before archiving on the Norfolk County Council network (where appropriate, copies will be provided to Historic England on request).

APPENDIX 2. SPATIAL DATA

The formatting of the project's spatial data follows Historic England's *Aerial Investigation and Mapping Technical Specification* (Evans 2019a). The exception is the colour and fill of some AIM mapping layers, which reflects the conventions already in use in the Norfolk HER.

Table 3 Attribute data attached to mapped archaeological features

Field name	Type (no. character)	Description	Sample data
LAYER	Text (50)	The form of the archaeological feature (AIM Layer Name, see Table 5).	BANK
PERIOD	Text (254)	Date of feature (derived from HER periods list); single or dual-indexed terms.	MEDIEVAL; or MEDIEVAL/POST-MEDIEVAL
NARROWTYPE	Text (254)	Monument Type (derived from HER monument type list); specific monument type for individual features. Avoid dual indexing.	TOFT
BROAD_TYPE	Text (254)	Monument Type (derived from HER monument type list); broader monument type to enable grouping of individual features. This field may not be useful in all cases; if not, simply repeat the NARROWTYPE field. Avoid dual indexing.	SETTLEMENT
EVIDENCE_1	Text (254)	Form of remains (derived from HER evidence type list), as seen on SOURCE_1.	EARTHWORK
SOURCE_1	Text (254)	Source feature was mapped from (aerial photograph or lidar).	HISTORIC ENGLAND ARCHIVE OS/67307 V 0065 20-AUG-1967
EVIDENCE_2	Text (254)	Latest form of remains (derived from HER evidence type list), as seen on SOURCE_2. If EVIDENCE_1 is CROPMARK, then repeat CROPMARK (unless now quarried away, for example, in which case use DESTROYED MONUMENT)	LEVELLED EARTHWORK
SOURCE_2	Text (254)	Latest available source aerial photograph or lidar, to give indication of current state of preservation. Not applicable for cropmark sites. Some professional discretion required if an earthwork shows well on lidar, but is not visible on slightly later orthophotography.	LIDAR English Heritage Trust DSM 03 & 14-MAR-2016

Field name	Type (no. character)	Description	Sample data
HE_UID	Long integer	HERR (formerly NRHE) Unique Identifier (UID) for those monuments recorded in the HERR dataset or concorded with an existing HERR record.	23092
HER_NO	Text (254)	HER number for those monuments recorded in the HER or concorded with existing HER records.	10928

Table 4 Attribute data attached to Monument Polygons

Field name	*Type (no. character)*	*Description*	*Sample data*
HE_UID	Long integer	HERR (formerly NRHE) Unique Identifier (UID) for those monuments recorded in the HERR dataset or concorded with an existing HERR record.	23092
HER_NO	Text (254)	HER number for those monuments recorded in the HER or concorded with existing HER records.	10928

Table 5 AIM 'layer' name (form of feature) and mapping conventions

'Layer' name	*'Layer' content*	*'Layer' colour*	*Feature type*	*Example*
BANK	Positive/embanked features such as banks, platforms, mounds and spoil heaps.	Red	Polygon	
DITCH	Negative/cut features such as ditches, ponds, pits and hollow ways.	Green	Polygon	
EXTENT_OF_FEATURE	Outline depicting extent of large area features such as airfields, military camps or major extraction / deposition.	Orange	Polygon	
RIDGE_AND_FURROW _ALIGNMENT	Polyline depicting the direction of the rigs in a plot of ridge and furrow.	Cyan	Polyline	
RIDGE_AND_FURROW _AREA	Outline depicting the extent of a block of ridge and furrow.	Cyan	Polygon	
STRUCTURE	Structures including stone, concrete, metal and timber constructions, such as buildings, Nissen huts, tents, radio masts, camouflaged airfields, wrecks and fish traps.	Purple	Polygon	

APPENDIX 3. RECOMMENDATIONS FOR HERITAGE PROTECTION AND FURTHER WORK

Potential candidates for designation assessment are listed in bold type. Detailed information – accurate mapping of form and extent, written interpretation and indexing, references for aerial photographs and other sources, information on survival, and so on – is recorded for each site in the NHER database. The database records include a link to existing designation records where applicable.

Table 6 Recommendations for heritage protection and further work

HER no.	*Parish*	*Description*	*Condition / evidence*	*Comments / recommendations*
7586	Aylsham	Cropmarks of Iron Age to Roman settlement features at Brampton Piece, Bolwick.	A series of boundary ditches, trackways and an enclosure most likely dating to the Iron Age to Roman period visible as cropmarks on aerial photographs. Excavations at the site in the 1930s and 1950s revealed the remains of Roman buildings and Iron Age ditches.	Further work could be undertaken to enhance the record of the site, including synthesising the excavation reports and plans. Accurately locating the sites of the previous excavations would further enhance the record for the site. Further investigation of the site through geophysics may help to reveal the remains of additional structures and features.
1006, 1124	Brampton	Brampton Roman town.	Extensive cropmarks	There is a considerable body of published and unpublished material relating to the site which deserves further collation, analysis and synthesis. Such work fell beyond the scope of the current survey, but could include the creation of an up-to-date plan of the known archaeological remains, and/or attempts to correlate the mapped cropmarks with excavated features, features identified by geophysics, or spreads of surface and metal-detected finds.

HER no.	*Parish*	*Description*	*Condition / evidence*	*Comments / recommendations*
1124	Brampton	Brampton Roman town.	Extensive cropmarks	Although there is a lot of aerial photographs covering the town, there is a lack of specialist oblique colour photographs of the field containing the defensive ditch; colour imagery would be useful for developing presentation material for the site.
7544	Burgh and Tuttington	The earthworks of a large mound surrounded by a medieval moat which relate to the medieval site of Burgh Hall.	The earthworks of a large mound surrounded by a medieval moat are visible on aerial photographs and visualised lidar data. Further earthworks of rectangular mounds, pits, possible boundary banks and ditches of possible medieval date are also visible.	Further work, such as field visits and earthwork surveys, could be undertaken to ground truth the earthwork mounds, banks and ditches identified by the AIM survey to confirm whether the features are likely to be archaeological in origin and to check their survival.
31740	Burgh and Tuttington	Cropmarks of a possible Neolithic long barrow.	The feature is visible as an oval cropmark on aerial photographs. The feature may relate to a Neolithic oval enclosure or long barrow.	Further investigation of the feature, for example using geophysics, may help to confirm whether the pit features seen on the eastern side of the enclosure relate to post-holes or entranceways rather than changes in the fill of the ditch. Further investigations may also be able to identify if there is any evidence of an internal mound within the interior of the enclosure.
66779	Buxton with Lammas	Possible earthwork elements of Roman road in woodland/valley bottom.	Low fragmentary earthworks on lidar	Ground survey to check existence/condition; excavation or coring to assess make-up and retrieve dating/environmental evidence
21849	Cawston	Cropmarks of a possible Roman fort and Iron-Age to Roman settlement features.	The cropmarks of a triple-ditched enclosure, which may relate to a Roman fort, and possible Iron Age to Roman settlement features can be seen as cropmarks on aerial photographs.	Further investigation of the site, for example using geophysics, may help to reveal the presence of any internal features within the triple-ditched enclosure, and identify any additional features of potential Iron Age to Roman date in the surrounding field.

HER no.	*Parish*	*Description*	*Condition / evidence*	*Comments / recommendations*
64215	Marsham	Possible low earthwork sections of Roman road in arable fields.	Very low fragmentary earthworks visible on lidar	Further investigations such as field visits and earthwork surveys could be undertaken to ground truth the earthworks recorded from the visualised lidar data, to assess their survival and condition.
64216	**Marsham**	**Earthwork sections of Roman road on Marsham Heath.**	**Sections of relatively substantial earthworks visible on lidar**	**Further investigations such as field visits and earthwork surveys could be undertaken to assess the current survival and condition of the earthworks recorded on Marsham Heath. The site could potentially be considered as a candidate for designation, given the seemingly excellent condition of the earthworks and the general scarcity of surviving earthwork sections of Roman Road in Norfolk. The earthworks could also benefit from additional protection against potentially damaging activities such as forestry works, which may be undertaken in the vicinity of the earthworks.**
2796, 66763, 66759, 66761, 66762, 66764	Marsham	Roman road (NHER 2796/66763), ring ditch (NHER 66759), square ditched enclosures (NHER 66761 & 66762) and rectilinear enclosures (NHER 66764).	Mainly cropmarks but low sinuous earthwork bank may be part of remodelled Roman road or later plough headland/furlong boundary/track/field boundary.	Excavation at this location would have the potential to recover information that could allow the relationships between these different features to be better understood.

HER no.	*Parish*	*Description*	*Condition / evidence*	*Comments / recommendations*
7350, 66260	Oulton	Site of St Andrew's Church, Irmingland and cropmarks of probable medieval to post-medieval boundary ditches and trackway.	The cropmarks of a structure, most likely relating to the site of a medieval church, and of a possibly associated rectilinear enclosure can be seen on aerial photographs. The cropmarks of probable medieval to post-medieval boundary ditches and a trackway are also visible in close proximity to the site.	Further investigation of the site of the church and the surrounding area using geophysics may help to reveal the presence of features possibly relating to medieval settlement.
21832	Skeyton	Earthworks of a possible medieval moat.	A rectilinear enclosure with broad ditches which may relate to a medieval moat is visible as a low earthwork on visualised lidar data and as a cropmark on aerial photographs.	Further investigation of the feature through field visits may help to confirm the presence of low earthworks identified on the visualised lidar data. Further investigation of the rectilinear enclosure could reveal internal features.
various	various	Potential prehistoric barrow sites recorded by the project.	Cropmarks	Analysis of variations in morphology, size, landscape setting, associations etc, would be of benefit.

APPENDIX 4. COMMENTS ON THE NATIONAL HERITAGE LIST FOR ENGLAND

Table 7 NHLE sites within or partly within the project area

HER no.	*NHLE dataset*	*NHLE no. (source: NHLE dataset)*	*Legacy UID. (source: NHLE dataset)*	*Current NGR (source: NHLE dataset)*	*Description (source: NHLE dataset)*	*Designated area on NHLE accurate?*	*Condition*	*Comments / recommendations*
1124, 1006	Scheduled monument	1003698	NF 383	TG 22480 23812	Roman settlement at Brampton	Yes	Cropmarks	The scheduled area appears to be accurate, in that it covers the principal elements of the site and the main areas of cropmarks.
7544	Scheduled monument	1003927	NF 351	TG 21308 26135	Site of Burgh Hall W of Hall Farm	No, discrepancies between scheduled area and features as mapped by AIM survey.	Earthwork	The scheduled area appears to only encompass the central mound seen on the visualised lidar data. The scheduled area could be amended to better correlate with the AIM mapping and to include the full extent of the earthwork moat.
7586	Scheduled monument	1003952	NF 232	TG 20647 24637	Bolwick Hall Farm, Roman site	Yes	N/A	The scheduled area is accurate, covering the enclosure and the villa site recorded from the excavations.

HER no.	*NHLE dataset*	*NHLE no. (source: NHLE dataset)*	*Legacy UID. (source: NHLE dataset)*	*Current NGR (source: NHLE dataset)*	*Description (source: NHLE dataset)*	*Designated area on NHLE accurate?*	*Condition*	*Comments / recommendations*
30433, 5115	Registered park and garden	1000154	1051	TG 17032 29123	Blickling Hall	Yes	Extant parkland	The registered park and garden area is accurate and encompasses the park, the gardens, and the hall.
30440	Registered park and garden	1000187	1092	TG 11985 27191	Heydon Hall	Not known	Not known	Only a very small area covered by project, comprising the easternmost end of a tree-lined avenue, Carman's Belt, leading south-east from the park to Ollands Lodge. Consequently, too little of designated area investigated to make any recommendations.
29604	Registered park and garden	1001022	2024	TG 16230 31813	Wolterton Hall	Not known	Not known	Only a very small area covered by project, comprising the southernmost portion of Decoy Plantation, at the southern limit of the park. Consequently, too little of designated area investigated to make any recommendations.

HER no.	*NHLE dataset*	*NHLE no. (source: NHLE dataset)*	*Legacy UID. (source: NHLE dataset)*	*Current NGR (source: NHLE dataset)*	*Description (source: NHLE dataset)*	*Designated area on NHLE accurate?*	*Condition*	*Comments / recommendations*
55712	Listed building	1372938	227968	TG 23054 23972	Remains of archway to south of Oxnead hall	**No**	Extant structure	Aerial photographs indicate that point currently defining site is inaccurate and should be updated with polygon created by AIM survey, derived from modern Ordnance Survey mapping.

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