

Cavenham Heath National Nature Reserve

Cavenham, Suffolk

Desk-Based Assessment

SCCAS Report No. 2013/033

Client: Natural England

Author: J. A. Craven

March 2013

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Archaeological Desk-Based Assessment Report

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Report Date: March 2013

HER Information

Site Name: Cavenham Heath NNR

Report Number 2013/033

Grid Reference: TL 754727

Project Officer: John Craven

Client/Funding Body: Natural England

Disclaimer

Any opinions expressed in this report about the need for further archaeological work are those of the Field Projects Team alone. Ultimately the need for further work will be determined by the Local Planning Authority and its Archaeological Advisors when a planning application is registered. Suffolk County Council's archaeological contracting services cannot accept responsibility for inconvenience caused to the clients should the Planning Authority take a different view to that expressed in the report.

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List of Abbreviations used in the text

DBA	Desk Based Assessment
HER	Historic Environment Record
NHLE	National Heritage List for England
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
PAS	Portable Antiquities Scheme
PPG 16	Planning Policy Guidance 16
PPS 5	Planning Policy Statement 5
SM	Scheduled Monument
SCCAS/FT	Suffolk County Council Archaeological Service/Field Team
SCCAS/CT	Suffolk County Council Archaeological Service/Conservation Team

Summary

Through an examination of the Suffolk HER and National Heritage List for England, a documentary and cartographic search and a site inspection, this DBA has set the NNR within its immediate archaeological landscape.

In general the topographic location of the NNR and the known archaeology of the area suggest that there is a moderate to high potential for encountering archaeological remains within the NNR, ranging from the Palaeolithic to modern periods, and that such deposits are likely to largely be in a moderate to high state of preservation, but also shallow and highly vulnerable to any change in the landscape. Numerous earthworks of likely mixed but uncertain date are also evident across the NNR.

It is suggested that further non-intrusive archaeological investigation may be able to further identify and assess the extent, character, density of any archaeological deposits, within the NNR, and further define the nature of its earthworks, with a view to supporting the development of a suitable management plan for the NNR which considers its heritage assets.

Preservation *in situ* should always be preferred but if necessary intrusive fieldwork may be required to fully evaluate any part of the NNR, prior to proposed works or changes to the landscape, with a view to establishing a suitable mitigation strategy too minimise any negative impacts on archaeological deposits or features.

Ongoing consultation with SCCAS/CT regarding the long term management of the NNR in relation to heritage assets is strongly recommended.

1. Introduction

1.1 Project Background

This archaeological DBA has been prepared by SCCAS/FT at the request of Natural England.

This DBA is intended to establish the potential of the Cavenham Heath National Nature Reserved for heritage assets by characterising the nature, date and potential for survival of archaeological deposits upon the site, and the extent to which such deposits could be impacted upon by future management of the Nation Nature Reserve. Advice as to further investigation of the archaeological potential of the NNR, and future management of the reserve in respect of heritage assets is also provided.

1.2 Site description

The subject of this DBA, Cavenham Heath NNR covers an area of approximately 204ha centred at TL 754727, in the parishes of Cavenham and Tuddenham (Fig. 1).

Natural England describes the NNR on its website (Natural England 2013) as mainly being *'typical Breck heathland with dry, acidic sandy soil supporting heather and bracken with patches of sand sedge. However, the river is responsible for a number of damper habitats on the site making the NNR one of the more diverse examples of Breck heath there are about 40ha of dry birch woodland on the reserve, with occasional oak and Scots pine and underlying bramble. On the lower-lying land near the River Lark there is a variety of wetland habitats: open damp meadows, alder/ash/willow scrub woodland, and damp birch woodland.*

'The site is managed to maintain the heathland by sheep and rabbit grazing and a former arable field, known as Roper's Heath, has been successfully regenerated to Breck grass heath.'

The NNR is crossed from north-east to south-west by the Icknield Way, now a track

leading from Icklingham to Tuddenham via Temple Bridge.

The site has been characterised in the Suffolk Landscape Character Assessment (SLCA 2013) as comprising of two distinct types.

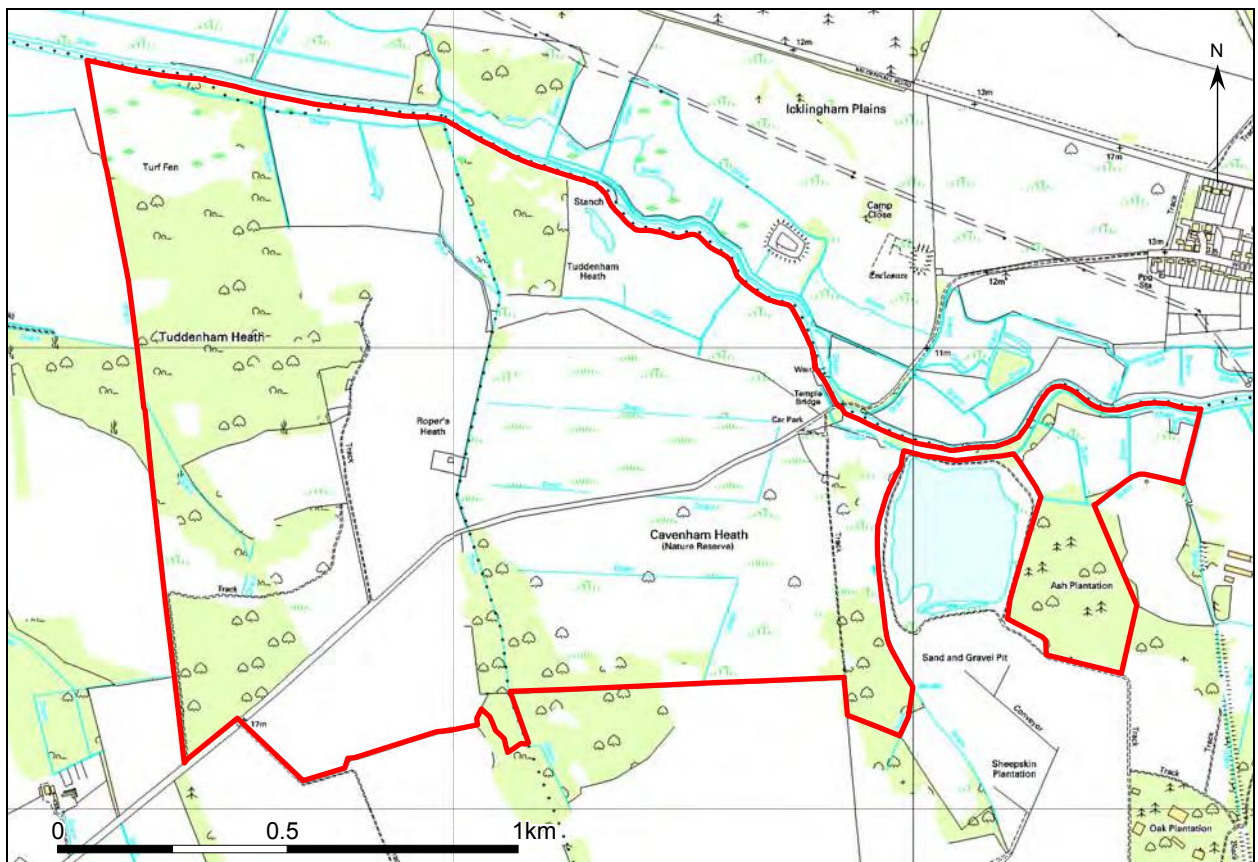
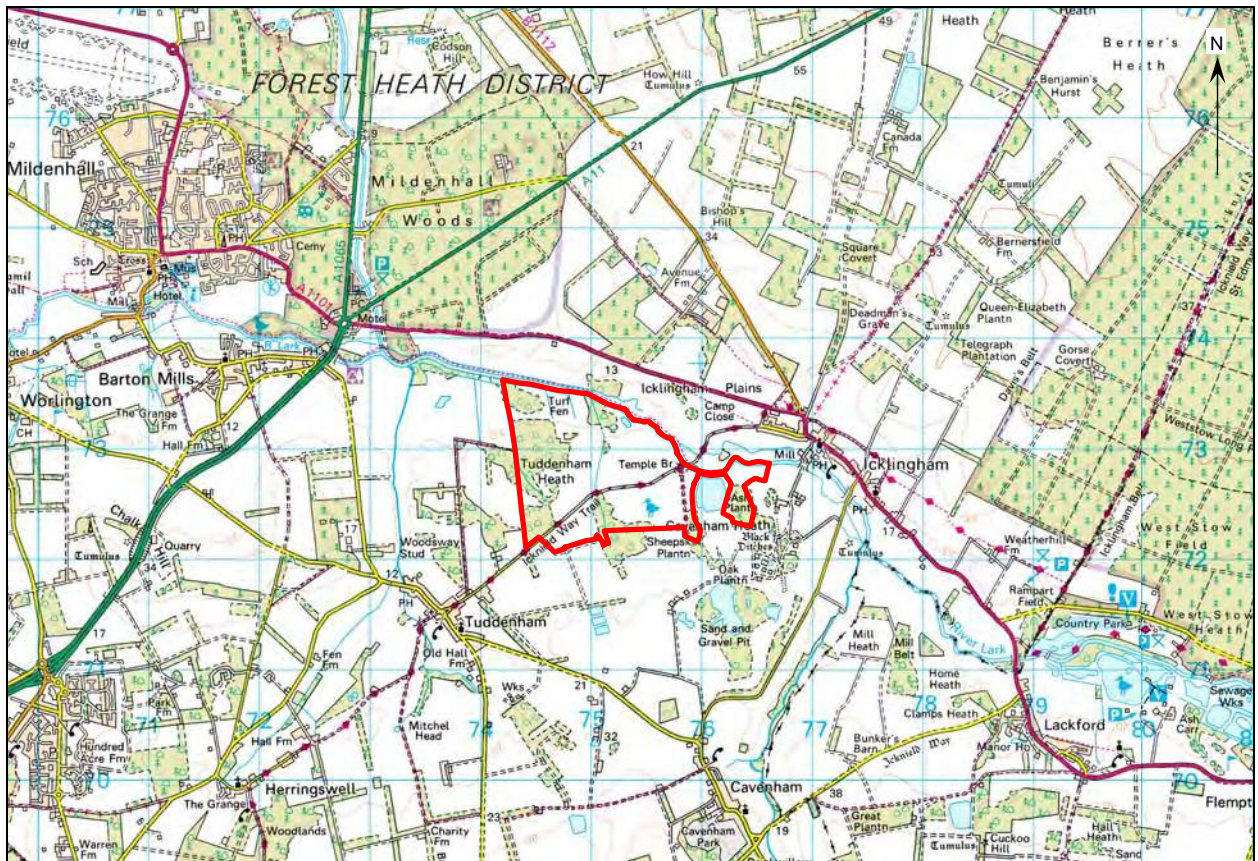
The southern two-thirds of the NNR is categorised as Rolling Estate Sandlands, the key characteristics of which are:

- Rolling river terraces and coastal slopes
- Sandy and free draining soils with areas of heathland
- Late enclosure with a pattern of tree belts and straight hedges
- Landscape parklands
- A focus of settlement in the Estate Sandlands landscape
- Lark valley buildings are frequently of brick or flint with tiled or slate roofs
- Tree belts and plantations throughout
- Occasional and significant semi-natural woodlands and ribbons of wet woodland
- Complex and intimate landscape on valley sides

These areas are further described as having dry soils which has limited their land-use, historically including extensive heaths at Tuddenham Heath, Cavenham Heath, Mill Heath, Home Heath and Clamp Heath, of which Cavenham is the largest survivor. Field patterns are predominantly one of late enclosure with straight hedges and tree belts. Woodland, in the form of belts, coverts and plantations, is a consistent feature, reflecting the late enclosure character, but there are also occasional semi-natural oak woodlands on some of the slopes. In contrast to the surrounding 'uplands' of the Estate Sandlands category, these landscapes are also usually more complex and intimate, the managed, open, estate feel being replaced by a pattern of small streams and smaller fields. Finally it is noted that despite considerable development pressure of such valley side landscapes there are excellent areas of semi-natural landscapes and intact landscapes within this category.

The northern part of the NNR is categorised as Valley Meadows and Fens the key characteristics of which are:

- Flat, narrow, river valley bottoms
- Deep peat or mixtures of peat and sandy deposits
- Ancient meres within the valley bottoms & important fen sites
- Small grassland fields, bounded by dykes running at right angles to the main river



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Figure 1. Location map

- Sparse scattering of small alder carr & plantation woodlands
- Part of a wider estate type landscape
- Largely unsettled, except for the occasional farmstead
- Drier fields turned over to the production of arable crops
- Cattle grazing now often peripheral to commercial agriculture
- Loss to scrub encroachment, tree planting and horse paddocks

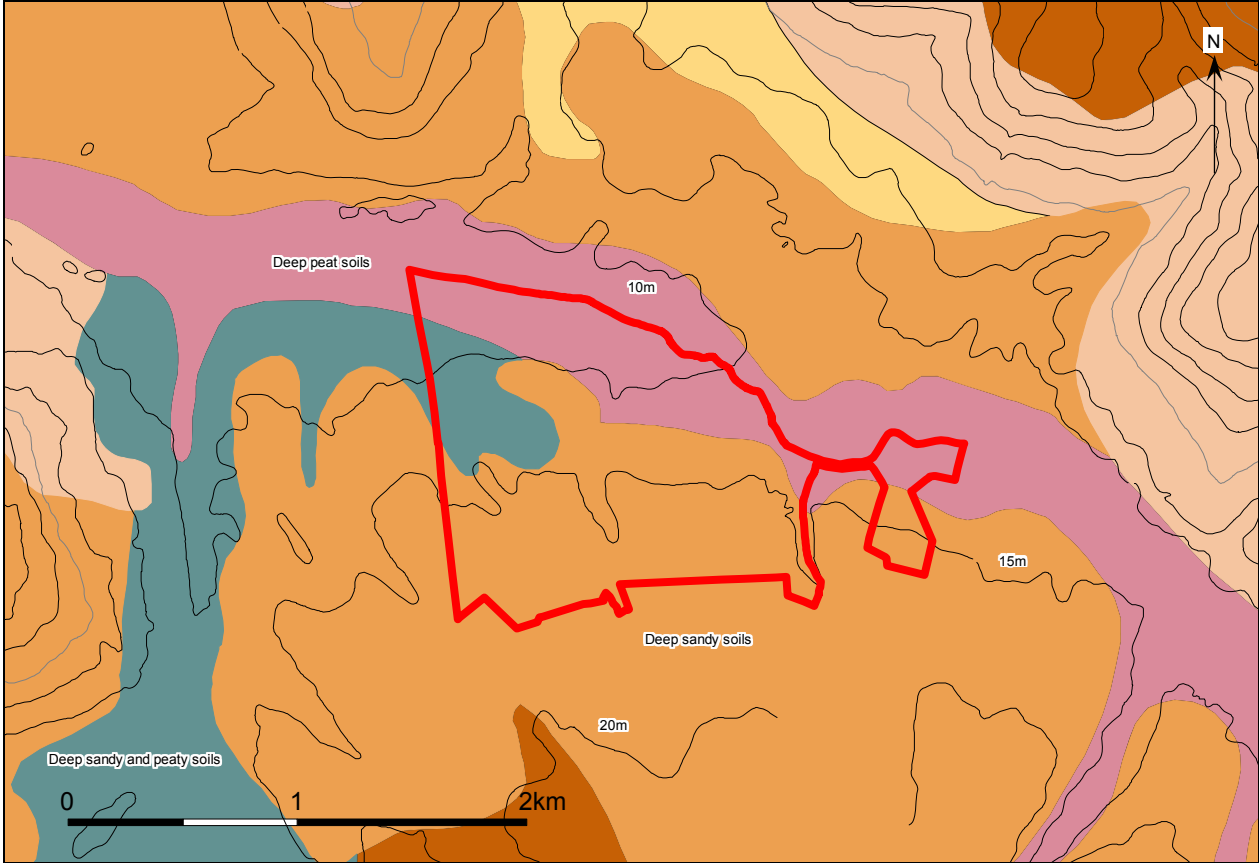
These areas are further described as comprising of flat, narrow, river valley bottoms with deep peat in parts of the Lark and mixtures of peat and sandy deposits elsewhere. The common pattern of land division is into small grassland fields, bounded by dykes running at right angles to the main rivers, usually forming a marginal part of a larger agricultural holding. Some tree cover is present in the form of alder carrs and plantation woodlands, but trees and woodland do not dominate the landscape. The valley floors are largely unsettled, except for the occasional farmstead. Finally it is noted that while some parts of this landscape category are still in fine condition this is mostly due to the retention of the traditional management of cattle grazing and there is also a lot of neglect and poor management. Difficult access to small fields often results in them often being peripheral to any form of active agriculture and so they are tending to be lost to scrub encroachment, tree planting and horse paddocks.

1.3 Topography and geology

The NNR is located on the south bank of the River Lark, across the base and southern slope of its valley at a height of c.9m-17m above OD (Fig. 2). The natural valley here is relatively wide, with a milder slope in comparison to that on the northern side of the river, effectively forming a broad low-level plain between two tributaries of the River Lark, the Holt and Tuddenham Mill Stream, which run north to join the river to the east and west respectively.

The bedrock geology of the NNR consists of sedimentary chalk of the Zig Zag Chalk Formation and the Holywell Nodular Chalk Formation and New Pit Chalk Formation. Overlying superficial deposits across the majority of the NNR consists of river terrace alluvial sands and gravels. Along the north edge of the NNR against the river the superficial deposits vary, with alluvial clay, silt, sand and gravels to the north-east and peat to the north and north-west (British Geological Survey, 2013).

Soil types follow a similar distribution pattern (Fig. 2), with deep well drained sandy soils of the Newport series across the southern half of the NNR, deep peat soils along the northern edge and an area of deeper permeable sandy and peaty soils near the north-west corner (Ordnance Survey 1983).



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Figure 2. Topography and soils

1.4 Scope of this report

In order to set the NNR in its archaeological context a Study Area extending 1km from the NNR’s boundary was selected for examination (Figs. 3-9).

In accordance with the typical requirements of SCCAS/CT, the Archaeological Advisor to the local planning authority, and the NPPF, the Government’s guidance on archaeology and planning, this DBA examines the available archaeological and heritage sources to establish the potential of the NNR for heritage assets and the potential

impact of future management or development on such assets. These sources include the Suffolk HER, reports of any archaeological investigations, all readily available cartographic and documentary sources, and a site walkover. An aerial photographic survey has not been included at this time.

1.5 Aims

The aim of the DBA is to determine as far as reasonably practicable from the existing records, the previous land use and history of the NNR, the nature of the known archaeological resource or other heritage assets within the Study Area, and the potential archaeological resource of the NNR. In particular the DBA will:

- Collate and assess the existing information regarding archaeological and historical remains within and adjacent to the site.
- Identify any known archaeological sites which are of sufficient potential importance to require an outright constraint on development (i.e. those that will need preservation *in situ*).
- Assess the potential for unrecorded archaeological sites within the application area.
- Assess the likely impact of past land uses (specifically, areas of quarrying) and the potential quality of preservation of below ground deposits, and where possible to model those deposits.
- Assess the potential for the use of particular investigative techniques in order to aid the formulation of any mitigation strategy for the NNR's future management.

1.6 Methods

The following methods of data collection have been used to meet the aims of the DBA:

- A search of the Suffolk HER and NHLE for any records within 1km of the boundary of the NNR, and an examination of the literature with reference to archaeological excavations within the study area. The results are described and mapped in section 2 below.
- A search for other heritage assets, such as Listed Buildings and Conservation Areas that lie within the study area and may have a line of sight to the NNR was carried out on the NHLE and Suffolk HER. A summary is presented in section 2.3 below.
- An examination of the metal detecting and fieldwalking survey data recorded on the Portable Antiquities Scheme (PAS) database.
- A historical documentary search, including an assessment of all cartographic sources was commissioned. The results have been summarised in section 2.4 below, with the full report presented in Appendix 1.
- A site inspection to determine the presence of any factors likely to impact upon the overall assessment of the NNR's archaeological potential was conducted on the 19/03/2013. The results have been summarised in section 2.5 below, with digital photographs taken during the inspection being presented in Appendix 2.

1.7 Legislative frameworks

Although the ongoing management of the NNR is perhaps unlikely to involve any significant development requiring planning consent, it may consist of other activities that could impact upon heritage assets. Management of the NNR should therefore consider relevant legislation, and local and national policies and guidance regarding heritage and development.

1.7.1. National legislation or policy

NPPF

National Planning Policy Framework (which replaced PPS5 in March 2012, which in turn had replaced various guidance such as PPG 15 and PPG 16) provides guidance for planning authorities, developers and others on planning and the historic environment (paragraphs 128 & 129 below).

***128.** In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.*

***129.** Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.*

Scheduled Monuments

The Ancient Monuments and Archaeological Areas Act of 1979 statutorily protects Scheduled Monuments (SMs) and their settings as nationally important sites.

Listed Buildings and Conservation Areas

Listed buildings are protected under the Listed Buildings and Conservation Areas Act of 1990. This ensures that listed buildings are given statutory protection against unauthorised demolition, alteration and extension. Buildings are listed because they are of special architectural importance, due to their architectural design, decoration and craftsmanship; also because they are of historical interest. This includes buildings that illustrate important aspects of the nation's social, economic, cultural or military history or have a close association with nationally important persons or events.

Conservation Areas are designated for their special architectural and historic interest, usually by the local planning authority. Any alterations to properties, structures, trees etc in a conservation area may need permission from the local planning authority.

Registered Parks and Gardens

A Registered Park or Garden is a site included on the 'Register of Historic Parks and Gardens of special historic interest in England' which is maintained by English Heritage. It currently identifies over 1,600 sites assessed to be of national importance.

Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of a registered park or garden.

1.7.2. Local policy and guidance

The Forest Heath Core Strategy Development Plan Document 2001-2026: Core Strategy Policies (adopted May 2010) details current local planning policy concerning Landscape Character and the Historic Environment in section 3.2.

Policy CS 3 states that 'the quality, character, diversity and local distinctiveness of the District's landscape and historic environment shall be protected, conserved and, where possible, enhanced. Proposals for development will take into account the local distinctiveness and sensitivity to change of distinctive landscape character types, and historic assets and their settings.. All schemes should protect and seek to enhance overall landscape character, taking account of the key characteristics and distinctiveness of the landscape and the landscape setting of settlements.'

Forest Heath Local Plan 1995

Paragraph 8.26 of the 1995 Local Plan concerns archaeological sites and acknowledges that *'archaeological remains are a non-renewable resource, forming an essential part of the County's identity, valuable both for their own sake and for their role in education, leisure and tourism. The District Council will pursue a policy of positive conservation of archaeological sites. It will encourage owners of monuments to take measures both to conserve and enhance them, and to improve visitor access to them at a level appropriate to their long term preservation.'*

Policy 8.20 states that the district council *'will seek provision to be made for the evaluation of archaeological sites of unknown importance and areas of high potential prior to the determination of development proposals. Where nationally or locally important sites, whether scheduled or not, and their settings, are affected by proposed development, there will be a presumption in favour of their preservation. On sites where there is no overriding case for preservation, development will not normally be permitted unless agreement has been reached to provide either for their preservation or for their recording and, where desirable, their excavation prior to development.'*

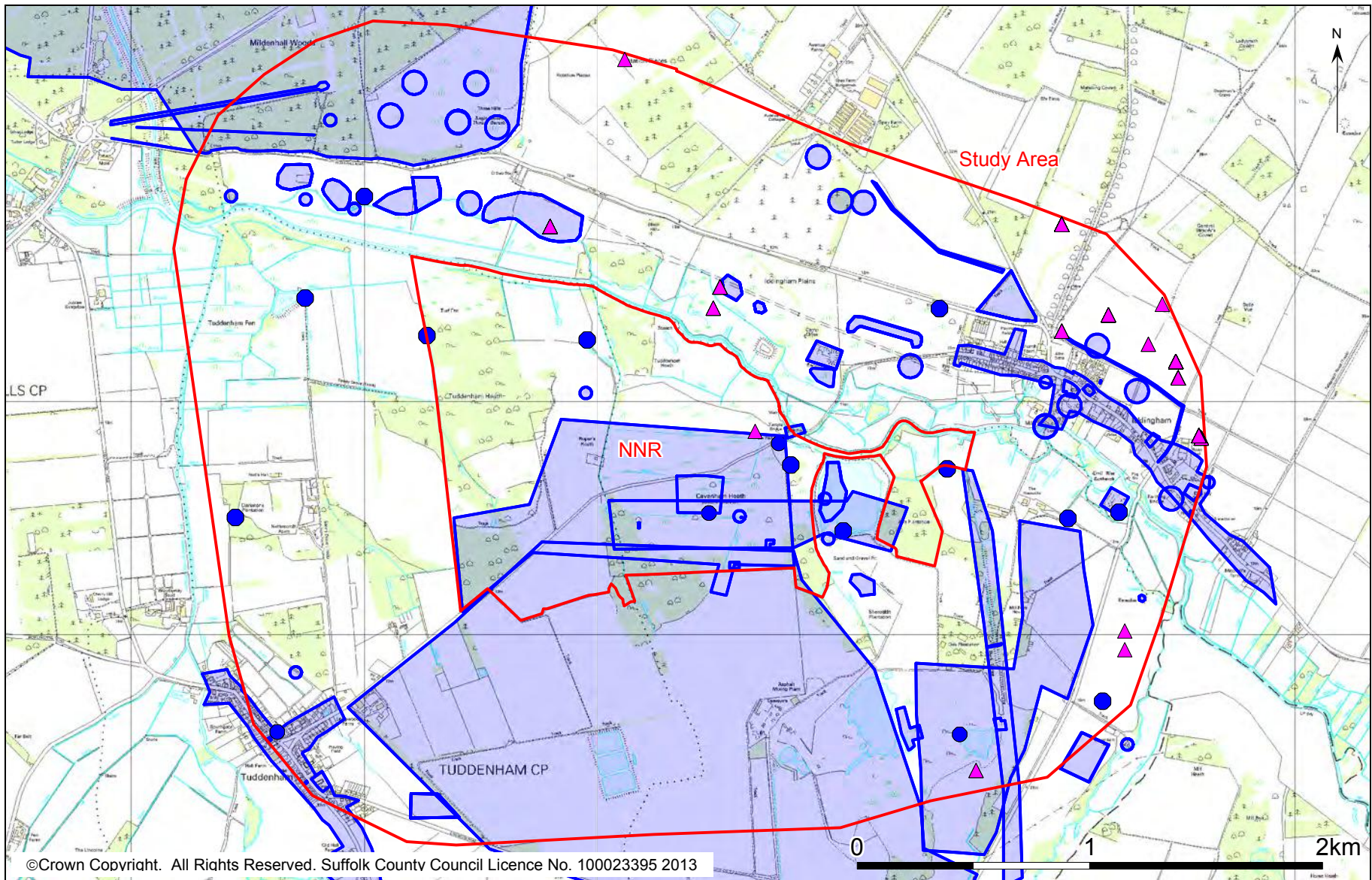


Figure 3. HER sites (blue) and PAS records (pink) within 1km of the NNR boundary

2. Results

2.1 Scheduled Monuments

A search of Scheduled Monuments was carried out on the Suffolk HER and on the National Heritage List for England website (NHLE 2012). There are two Scheduled Monuments within the Study Area, both to the east of the NNR.

1006065. Black Ditches.

Two stretches of linear earthwork, aligned with each other and running approx north to south with infilled ditch(es) to west (Suffolk HER ref. **CAM 001**). Extends from the edge of the River Lark flood plain to the Cavenham Brook. The monument survives for about 1000m and the main part measures 19.5m across with a ditch 0.70m deep and a bank 0.90m high. Most of the earthwork is in managed birch plantation, with birch trees growing in the ditch and bracken, grass and occasional birch trees growing on the bank. The southernmost 150m of the upstanding bank runs between arable fields and here the ditch is ploughed over.

There is no direct evidence for the date of the earthwork but by comparison with other linear earthworks in the region it is usually assumed to be post Roman. A separate length further to the south gives a total length of the Black Ditches, assuming the two surviving stretches were originally one, as about 5500m. The earthwork is comparable to the Cambridgeshire Dykes (Devils Dyke, Fleam Dyke, etc) spanning the route of the Icknield Way between the Lark Valley and the high ground.

A small excavation at **CAM 039** across the monument, prior to the placement of an electric cable, followed the path of an existing trackway and mainly saw modern deposits and infill. No dating evidence was recovered but the weathered character of the gently sloping natural sand surface on the eastern side of the ditch suggested that a berm had originally been present between the bank and ditch. Archaeological cleaning and recording of part of the monument dug away during gravel extraction in late 1991/early 1992, has been carried out at **CAM 032**. The two vertical sections either side of the damaged area were cleaned and recorded and showed two parallel ditches, a

major one on the west side with a smaller one on the east side of the presumed line of the bank. Late Iron Age style pottery was recorded from the smaller of the two ditches.

1005961. Civil War sconce near Farthing Bridge.

A well-defined civil war sconce, partially levelled after WW2 but still retaining a low profile, recorded on the Suffolk HER as *IKL 071*. It measures about 65m square with a central mound measuring 20m by 12m and 0.8m high. A shallow outer ditch, 7m wide by 0.4m deep surrounds the four bastions, with a further ditch 3m wide by 0.3m deep lying about 10m beyond. The bastions now average 10m square by 0.5m high with a causeway leading to the central position. Northern bastion slightly mutilated with WWII pill-box.

No history of its use is known although the two adjoining manors of Icklingham were owned by a rival Parliamentarian and a Royalist and the sconce appears to protect the bridge crossing the River Lark to Icklingham.

2.2 Suffolk HER search

The HER only represents the archaeological material that has been reported, this is the 'known' resource. It is not therefore, a complete reflection of the whole archaeological resource of this area because other sites may remain undiscovered, this is considered as the 'potential' resource. Figure 3 shows all sites recorded in the HER within the Study Area, including findspots originally recorded with the Portable Antiquities Scheme.

2.2.1 All known archaeological sites within the NNR

Several HER records are located partly, or wholly within the NNR (Fig. 3). These are detailed by period below but include prehistoric and Neolithic finds and features during monitoring of turf stripping and evaluation at **CAM 047** and **CAM 048**, a prehistoric flint scatter at **CAM 036**, a Bronze Age scraper at **CAM Misc – MSF203**, a Roman coin at **TDD 002**, the medieval Temple Bridge, **IKL 117**, and possible site of a Knights Templar preceptory, **IKL Misc MSF211**, 18th century ditched encampments at **CAM 042**, the WW2 Tuddenham Airfield, **TDD 019**, plus its associated anti glider ditches, **CAM 019**, and pillboxes **CAM 036**, **CAM 054**, **CAM 056**, **TDD 029** and **TDD 030**. Finally there is an undated possible sheepcote, **CAM 041**, and an undated enclosure **CAM 020**.

A single PAS record within the NNR is for a cast copper-alloy bead of uncertain Bronze Age or later date.

2.2.2 All known archaeological sites within the Study Area

There are over 120 HER entries recorded within 1km of the NNR, from all periods. Summarised HER entries are given below by period:

General Prehistoric

(Fig. 4)

Findspots of prehistoric worked flint and pottery are recorded at **IKL 119**, nine flakes and one blade at **CAM 036** and three flakes and one blade at **CAM Misc - MSF23035**.

Palaeolithic (BC 500,000 – BC 10,001)

(Fig. 4)

The Study Area contains one notable Palaeolithic site at Warren Hill, Mildenhall, **MNL 001**, 600m to the north of the NNR, which the HER notes as being the richest site in East Anglia producing more hand-axes (over 2000) than any other in Britain. Two industries have been identified, a crude industry of stone-struck hand-axes in rolled condition (240,000-297,000 BP) and a highly refined industry of ovate and cordate hand-axes in much fresher condition, together with ox, horse, elephant, bison and *elephas antiquus*, *primigenus* and *meridionalis* bones. This material was recovered from gravels thought to be part of a now extinct river (called the Bytham), which flowed from the Midlands across East Anglia and out into the North Sea near Lowestoft.

Early 20th gravel digging for road making at London Bottom, **IKL 054**, is noted as finding an *immense series of implements from the gravel*, including white patinated long blades of Palaeolithic date.

Various other findspots throughout the Study Area include ovate hand axes at **MNL 319** and **TDD 016**, a flint cleaver found in an area cleared for replanting, **MNL 215**, eight flakes from a pit behind the church of St James, **IKL 045**, and 14 hand-axes said to be from Cavenham, **CAM Misc - MSF22962**.

Mesolithic (BC 10,000 – BC 4,001)

(Fig. 4)

Evidence of activity in this period consists of various findspots throughout the Study Area. This includes material from the gravel diggings at **IKL 054**, cores, flakes and scrapers from two locations along the line of the North Sea gas pipeline, **IKL 006** and **IKL 095**, blades at **CAM 018** and a flint spread at **CAM 023**.

Mesolithic flints have also been noted during archaeological fieldwork in Cavenham quarry, **CAM 040**.

Neolithic (BC 4,000 – BC 2,351)

(Fig. 5)

Evaluation and excavation at Cavenham quarry, **CAM 040**, has revealed evidence of a surviving prehistoric occupation surface and a phase of Late Neolithic/Early Bronze Age activity consisting of finds rich spreads of charcoal in association with postholes which possibly represented six small temporary structures indicating seasonal occupation, and four hearths. Other features excavated included a narrow ditch which was possibly an enclosure or corral for animals, and a series of pits and hollows which may have performed functions as varied as grain storage and flintworking. The fieldwork results suggest that pockets of archaeology survive within the lows of the undulating heath-land landscape, and that occupation of the site may have moved periodically, perhaps following fluctuations in water levels or the river's position.

Archaeological monitoring during turf stripping and shallow rotavation on the southern edge of the NNR, **CAM 048**, has previously recovered a small number of unstratified heated flints and a scraper of probable Neolithic date but no archaeological features.

Various other findspots throughout the Study Area consist of Late Neolithic grooved ware, two scrapers and a petit tranchet derivative arrowhead at **CAM 003**, a flint spread at **CAM 023**, flint scrapers, cores and flakes found in a ploughed field at **IKL 013**, a leaf-shaped arrowhead at **IKL 036**, two flint arrowheads at **IKL 051**, struck flint including a flint transverse arrowhead at **IKL 052**, material from the gravel diggings at **IKL 054**, a surface scatter of flint at **IKL 139**, a triangular type transverse arrowhead and possible chisel type transverse arrowhead found on surface of rabbit workings at **IKL 141**, a flint scatter consisting of a smallish blade core plus nineteen blades and flakes found during a rapid walkover of an area stripped of turf at **IKL 143** and a large flint knife at **MNL 216**.

Bronze Age (BC 2,350 - BC 801)

(Fig. 5)

A group of three round barrows once stood on high ground at Three Hills, Warren Hill, Mildenhall, **MNL 001**, c.600m north of the north-west corner of the NNR, before being destroyed in 1866. The barrows, which are first reported to have been investigated in 1728, and then again in 1820, are described as having been about 70 feet in diameter and 9 or 10 feet high, each being fossed. In 1859 the tithe Map depicts two barrows in

an area recorded as arable. Quarrying in 1866 revealed a grave containing the crouched inhumation of a woman with a food vessel under eighteen red deer antlers, prongs upwards, lying in a heap three feet in diameter and two feet high. A second food vessel is recorded from another of the barrows. By 1976 century nothing visible remained, the area being extensively disturbed by quarrying and forested, although it has since been cleared for heathland.

Various other findspots throughout the Study Area consist of a scraper found in a WW2 trench, **CAM Misc - MSF203**, a pottery sherd and scatter of flint flakes at **IKL 031**, a jet spacer bead, pottery, worked flint and fire cracked flints in a 'large black patch' exposed in rabbit workings at **IKL 081**, a plain square sectioned socketed axe at **IKL 106**, a surface scatter of Late Neolithic/Early Bronze Age flints from the line of a footpath at **IKL 138** and a pottery sherd plus a barbed and tanged arrowhead, flint borer, twenty-one scrapers and three flint knives found in an area cleared for replanting at **MNL 214**.

Iron Age (BC 800 – 42 AD)

(Fig. 6)

Archaeological evaluation and monitoring at **CAM 043**, 600m south of the NNR, has previously identified a low level of activity in the Iron Age period, consisting of a few scattered features including two pits with Iron Age pottery, dispersed over a broad area of c.1ha.

Various other findspots throughout the Study Area consist of a thin scatter of material including Iron Age pottery at **IKL 006**, a pot sherd at **IKL 032**, early Iron Age pottery at **IKL 035**, pottery and flint at **IKL 052**, two sherds of pottery on the surface of an unploughed sandhill at **IKL 055**, and pottery, burnt daub and fire cracked flints in a 'large black patch' exposed in rabbit workings at **IKL 081**.

Roman (43 AD – 409 AD)

(Fig. 6)

A bronze toilet set and bronze 'volute' handle is recorded as having been found during quarrying in and around the 'centre barrow' at **MNL 001** in 1866, probably originating from Anglo-Saxon secondary graves.

A substantial range of material, including pottery, metalwork, chalk rubble and plaster. has been recorded just to the north of the NNR at **IKL 035**, as spot finds on the surface, from rabbit disturbance, and from fieldwalking of a ploughed field.

Various other findspots throughout the Study Area consist of a pottery scatter disturbed by the North Sea Gas pipeline route, with further material being collected later from molehills at **IKL 006**, a thin bronze bowl and ceramic plates recovered during the salvage of a crashed bomber at **IKL 023**, a thin scatter of pottery from upcast soil from rabbit disturbance and later fieldwalking at **IKL 032**, coins and pottery sherds, including material from molehills, at **IKL 051**, the 'base of a yellow Romano British mortaria' at **IKL 053**, a building material and pottery scatter on an unploughed sand dune at **IKL 055**, finds scatter at **IKL 066**, a scatter of pottery disturbed by the North Sea Gas pipeline route at **IKL 095**, a large scatter of pottery on the ground surface at **IKL 139**, pottery found in a rapid walk over of a an area stripped of turf at **IKL 143**, a coin at **TDD 002**, and a 4th century *foliis* at **TDD 015**.

Several metal-detected findspots of Roman material have been recorded by the PAS, to the north of the NNR in the river floodplain and to the west on the valley slopes both north and south of the river.

Anglo-Saxon (410 AD – 1065 AD)

(Fig. 7)

An Anglo-Saxon inhumation cemetery is recorded on and around the Bronze Age barrow cemetery at Three Hills, Warren Hill, **MNL 001**. Approximately eighteen inhumation graves with grave goods are recorded, most with skeletal remains in very poor state of survival from the 1820 excavations, 1866 quarrying and intermittent excavations from 1875. Grave goods included pottery and other objects including two iron shield bosses and four iron spearheads.

Various other findspots throughout the Study Area consist of early Anglo-Saxon pottery sherds at **IKL 006**, a finds scatter at **IKL 035**, a pot sherd found on the surface of an unploughed sandhill at **IKL 055**, a few early Anglo-Saxon pottery sherds at **IKL 095**, an assemblage of seventy-four early Anglo-Saxon pot sherds including three with stamps and one with gold mica at **IKL 139**, pottery at **MNL 214** and metal detected finds

including a sceatta of Aethilread c.710-730 and looped gold pendant of late 7th/early 8th century date at **TDD 015**.

Medieval (AD 1066 – AD 1539)

(Fig. 7)

The Study Area contains the two historic settlement cores of Icklingham, **IKL 180** and Tuddenham, **TDD 025**. Icklingham has two churches, All Saints (**IKL 088**) and St James (**IKL 089**) and Tuddenham the Church of St Mary, **TDD 005**. A possible medieval building is recorded within the All Saints Churchyard, **IKL 088**.

Other notable sites include Temple Bridge, **IKL 117**, a crossing of the River Lark which is presumed to have a medieval origin pre-dating the present structural remains which have elements dating to the 16th/17th century. The name of the bridge evidently derives from the preceptory of the Knights Templars, which is thought to have been located there before probably being dissolved c.1308-1312, **CAM Misc - MSF211**.

To the north of the NNR, and partially within the Study Area, lies the medieval Mildenhall Warren, **MNL 553**, which was established by 1247-48. A series of earthwork banks, **MNL 485**, surround most of the Warren which is now predominantly the coniferous plantation of Mildenhall Woods. These banks run for approximately four and a half kms, vary from 5m wide and 1m high to 1m wide and 0.8m high, and are in a variable state of preservation. The probable site of one of two Warrener's Lodges associated with the Warren lies within the Study Area at **MNL 510**, apparently set within its own enclosure by internal banks.

Immediately north of the NNR, at Camp Close, **IKL 031**, lies a sub-rectangular banked enclosure, measuring 58m by 40m, which stands on the edge of a terrace dipping south to the low-lying land bordering the River Lark. The bank has a maximum height of 0.6m and traces of other enclosures or field boundaries lie to the west. 14th-16th century pottery has been recovered from the enclosure, which has been variously interpreted as the '*site of a camp denuded of its defences*', as a probable house site, or as a rabbit warren enclosure.

Archaeological deposits of medieval date have been recorded in several places within

the Study Area, largely within the historic settlements. In Icklingham a 13th/14th century rubbish pit with pottery and a high proportion of pig bones has been excavated at **IKL 030** while monitoring of footings at The Plough, **IKL 152**, located a chalk lump built cellar and two pits. Evaluation and monitoring at **IKL 166** has identified medieval pits concentrated alongside the road frontage with pottery suggesting occupation in the 12th-14th centuries. Building materials, including 13th 15th century bricks and degraded clay lump, were also found but the site of a building was not identified. Particularly significant was a pit containing a sherd of 10th-11th century pottery indicating that the feature was contemporary with the first medieval settlement of Icklingham.

In Tuddenham monitoring for a new house plot at the Methodist Chapel, **TDD 022**, identified a relatively large number of features with associated artefactual and environmental material. Further monitoring at **TDD 027** identified a single medieval pit and a clay surface/floor and pottery sherds at **TDD Misc - MSF17799**.

Various other findspots throughout the Study Area consist of a concentration of pottery found in rabbit workings at **IKL 140** and a scatter of medieval pottery located on pasture field surface at **TDD 017**.

Several metal-detected findspots of medieval material have been recorded by the PAS, largely to the west in and around the historic core of Icklingham.

Post-medieval (AD 1539 – AD 1900)

(Fig. 8)

Several former buildings are recorded to the north of the NNR in Icklingham. Icklingham Hall formerly stood at **IKL 099** and Sextens Hall, of the manor of Sextens stood at **IKL 100** until the early 19th century. A mill is shown at **IKL 098** on 18th century mapping although the position varies and, after burning down, was replaced and moved slightly in the 19th century. The scheduled Civil War Sconce near Farthing bridge is recorded in the HER as **IKL 071**. Evaluation and monitoring at **IKL 166** has identified post medieval pits of 16th to 18th century date along the road frontage, and a boundary ditch running north-east to south-west.

To the north-west the banks of Mildenhall Warren, **MNL 485**, are noted in documentary

sources as having been strengthened in the 1730's to separate the rabbits from crops to the north and east. In the south part of the Warren a rifle range, **MNL 629**, is shown on late 19th century/early 20th century maps. Presumably associated with a local 19th century militia earthwork banks associated with the range are still extant.

Within the NNR five rectangular (ditched?) encampments, **CAM 042**, are shown on a map of 1779 (Fig. 12) and are thought to have been home to the 20th Light Dragoons (Hussars); the 21st Light Dragoons (Lancers); the 15th, or the King's Royal Light Dragoons; and the 3rd (Prince of Wales) Dragoon Guards.

A single findspot in the Study Area consists of a concentration of pottery found in rabbit workings at **IKL 140**. Several metal-detected findspots of post-medieval material have been recorded by the PAS, largely to the west in and around the historic core of Icklingham.

Modern

(Fig. 8)

From the mid 20th century Cavenham Heath NNR lay partially within Tuddenham Airfield, **TDD 019**, a WW2 and cold war airfield/rocket site. Built in late 1942, it was allocated to 3 Group, Bomber Command and the first unit, No 90 Squadron arrived in October 1943. The airfield consisted of three intersecting runways, a total of 38 hardstandings of the loop type along the perimeter track and standard two T2 hangars. Later a B1 repair hangar was added. The airfield had FIDO fog clearance burners installed, which were first used in August 1944. The airfield was closed for flying in November 1946 but in July 1959 became a nuclear missile site with 3 Thor medium range missiles as part of the UK-USA nuclear deterrent agreement. They were withdrawn in 1963 and the site closed, since when it has mainly been in agricultural use and as gravel extraction site with almost nothing of the airfield surviving.

Two areas of WW2 anti-glider ditches associated with the airfield are recorded separately on the HER. On the north side of the airfield at **CAM 019** three ditches, with small mounds running parallel on either side about 10m apart, ran east-west, circa 170m apart. A second group of ditches lie to the east of the airfield at **CAM 034**.

A range of WW2 pill boxes are also scattered throughout the Study Area (**CAM 036**, **CAM 053**, **CAM 054**, **CAM 055**, **CAM 056**, **CAM 057**, **IKL 124**, **TDD 028**, **TDD 029** and **TDD 030**) and are of particular significance as they formed a part of the Eastern Command 'Stop Line' of 1940, which ran from Mildenhall, via Bury St Edmunds to Sudbury (Kent, P, 1999).

Undated

(Fig. 9)

Undated features have been found in several instances of archaeological fieldwork. Evaluation during heathland restoration trials within the NNR, **CAM 047**, has previously revealed a small undated pit and an unstratified flint scraper during topsoil stripping, which indicated that the archaeological levels occurred at a depth of c.0.35-0.45m. Evaluation in Cavenham Quarry, **CAM 040**, has identified undated banks which may be associated with the cavalry occupation in 1779 (CAM 042), or the series of anti-glider ditches to the west and south-east (CAM 019 and CAM 034). Monitoring of a 1.3km narrow pipe trench, **IKL 179**, identified a few features that may have been drainage or boundary ditches. Finally evaluation at **IKL 195** has revealed four postholes and three possible pits, sealed by an undated soil layer but thought to pre-date the nearby Icklingham Hall.

Other undated earthworks or cropmarks in the Study Area include a rectangular long and narrow earthwork, possibly a sheepcote at **CAM 041**, a cropmark of a ring ditch, visible as a mound on the ground measuring 30m by 34m and 0.7m high at **CAM 010**, a possible rectangular enclosure, **CAM 020**, noted on aerial photography as measuring c.100m x 70m externally and lying within the area of the Second World War anti-glider ditches (CAM 019), a possible ring ditch crop/soil mark at **IKL 175**, and linear bank earthworks and ditches, which are probably post medieval field boundaries but may also relate to earlier Warren boundaries, at **MNL 631**.

Undated finds spots in the Study Area include fourteen worked flints found on the surface of an unploughed sandhill at **IKL 055**, a skeleton, with its feet resting on a stag's skull, found in a small mound in a meadow called Harland's, near Temple Bridge, **IKL 068**, a decorated bronze bracelet at **IKL 087** and a human skull dredged out of river Lark near the entrance to Marston's Mill, **IKL 098**.

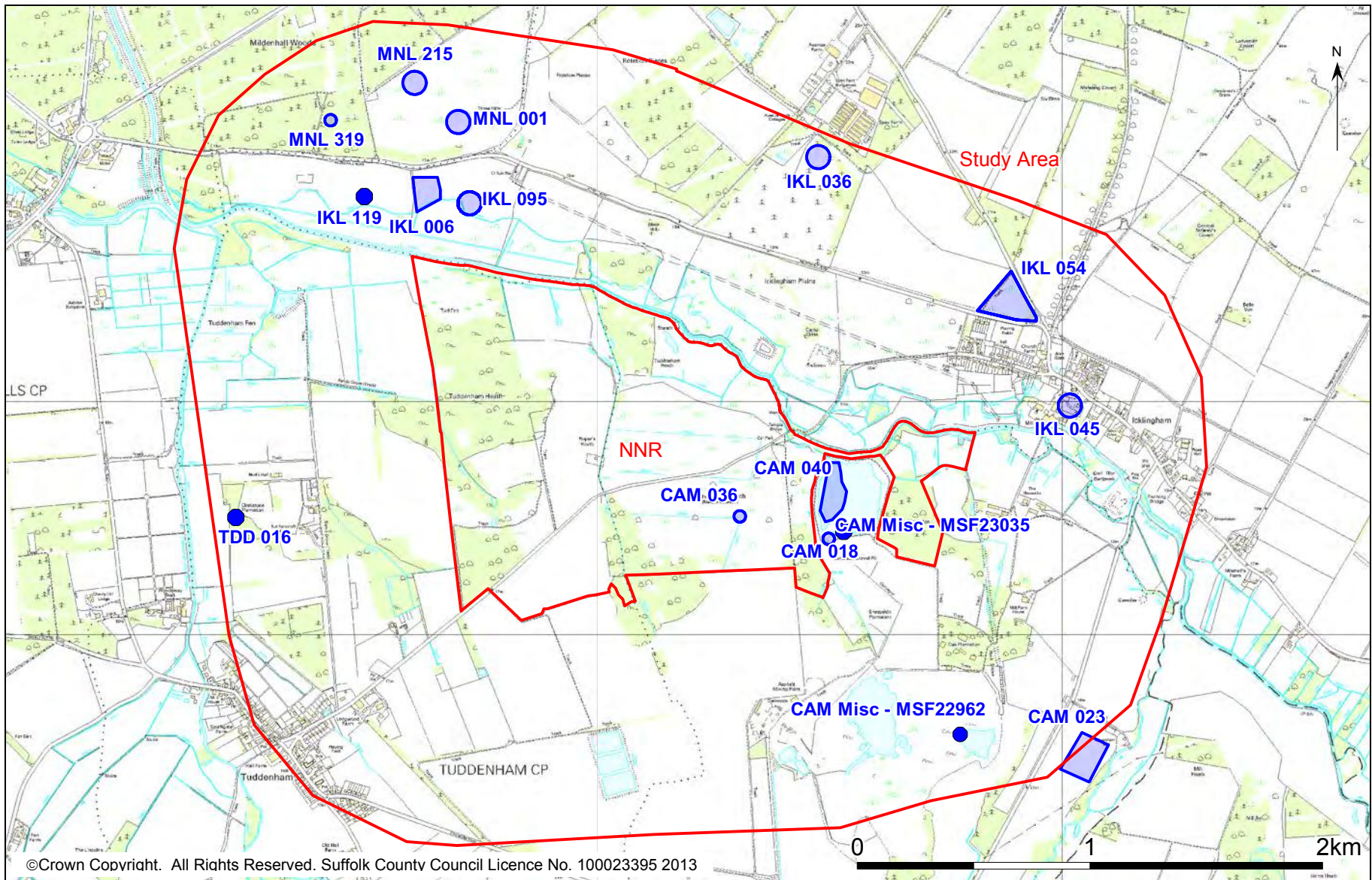


Figure 4. General prehistoric, Palaeolithic and Mesolithic HER sites within 1km of the NNR boundary

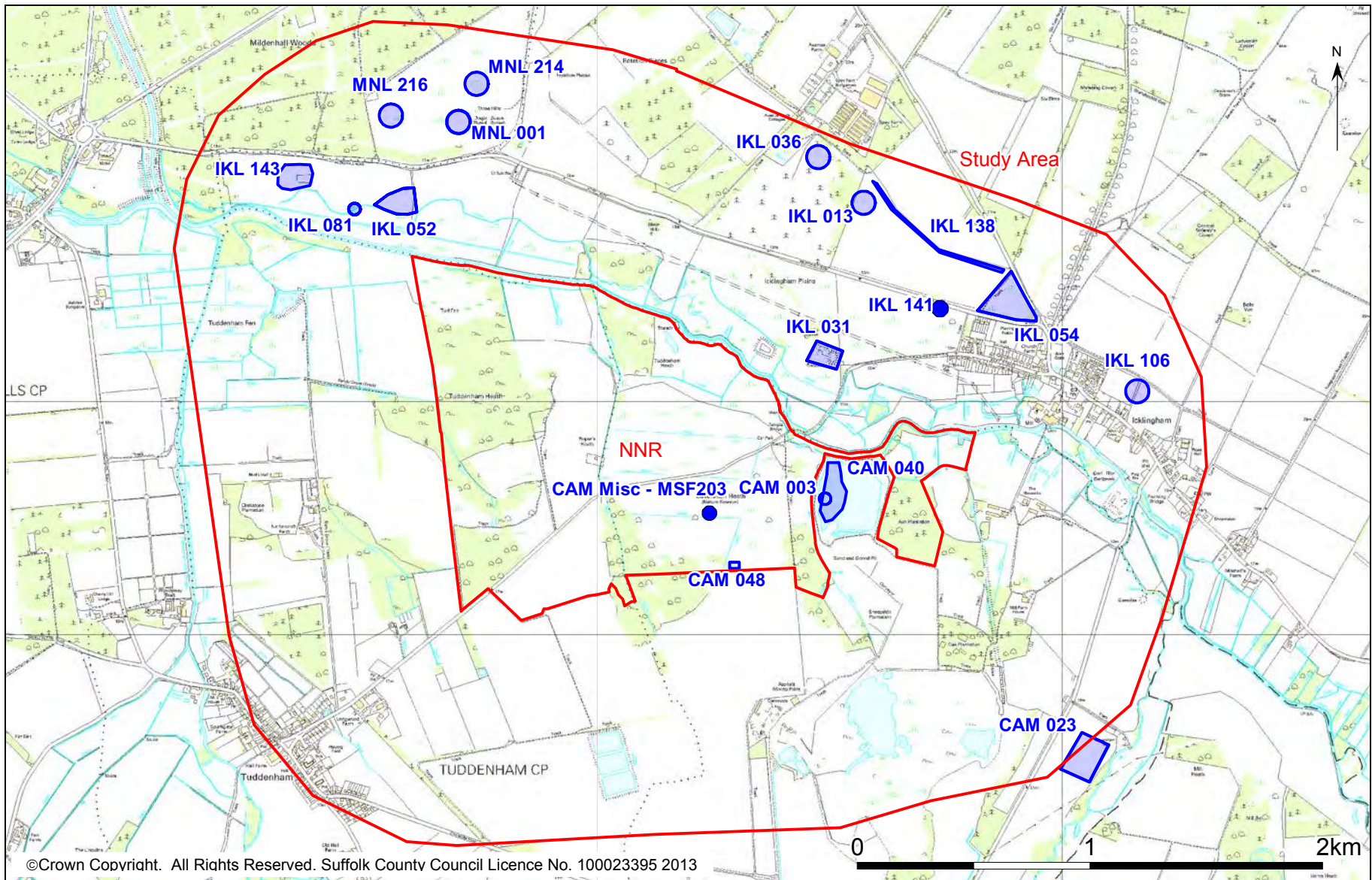


Figure 5. Neolithic and Bronze Age HER sites within 1km of the NNR boundary

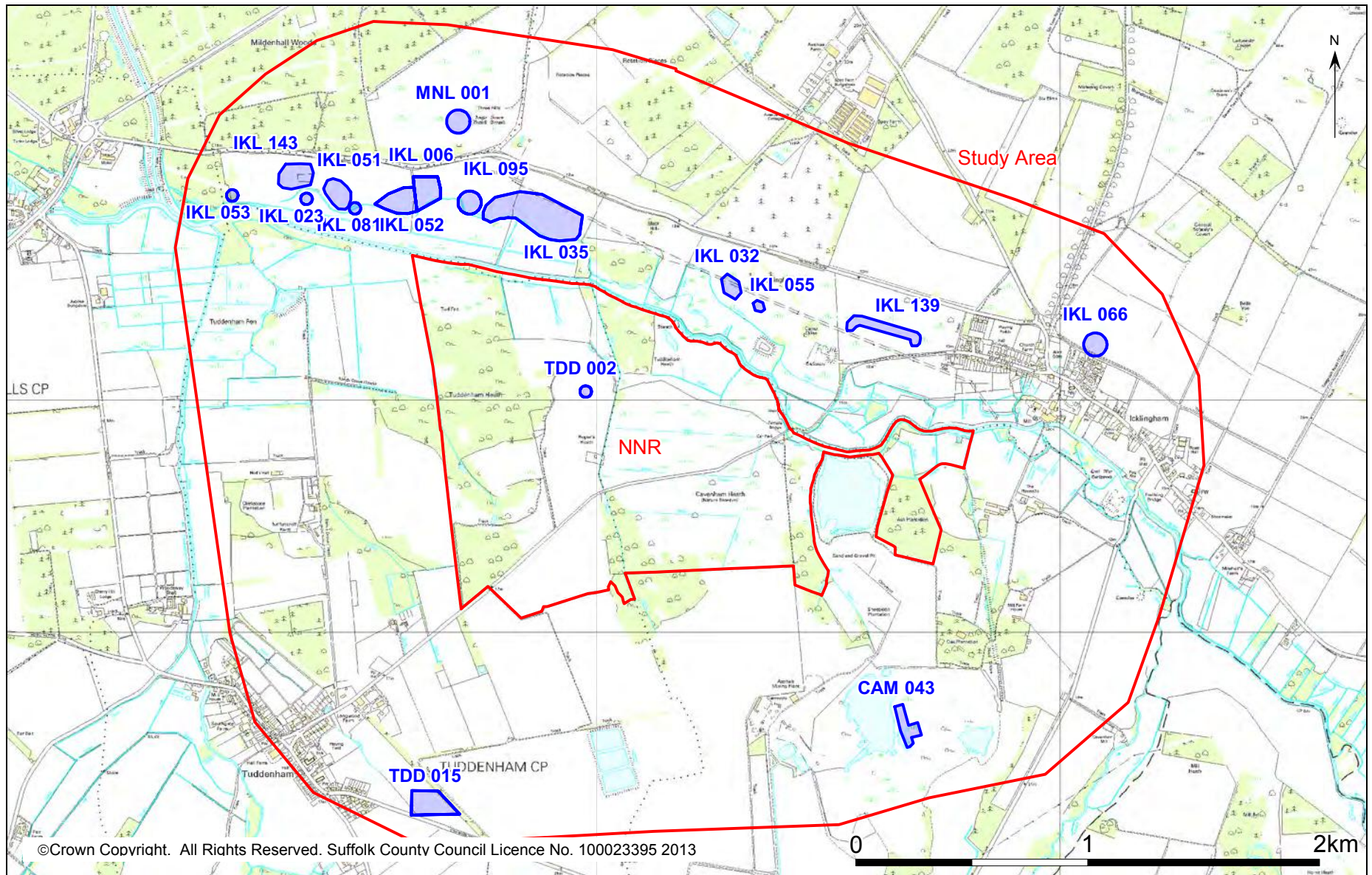


Figure 6. Iron Age and Roman HER sites within 1km of the NNR boundary

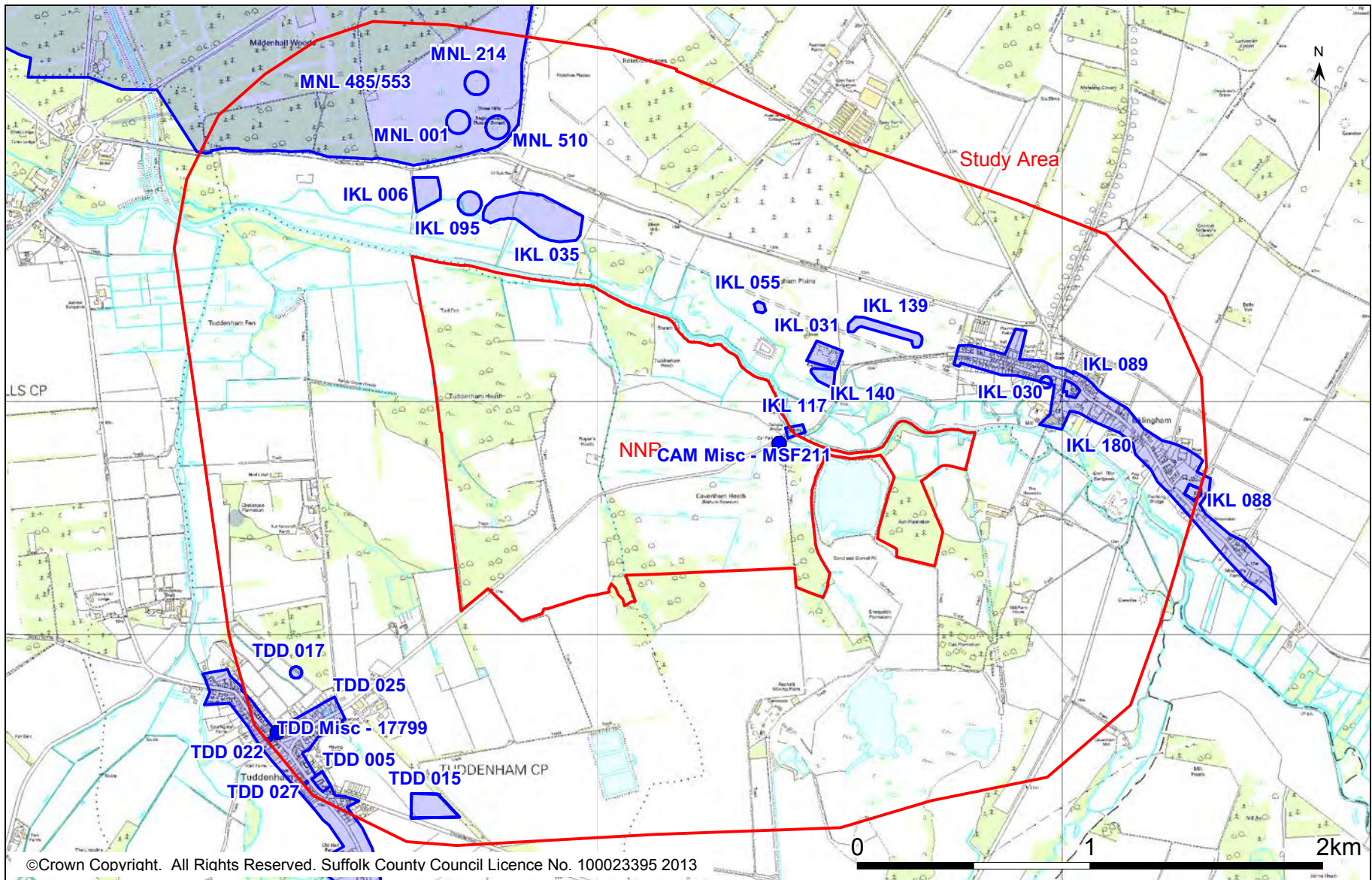


Figure 7. Anglo-Saxon and medieval HER sites within 1km of the NNR boundary

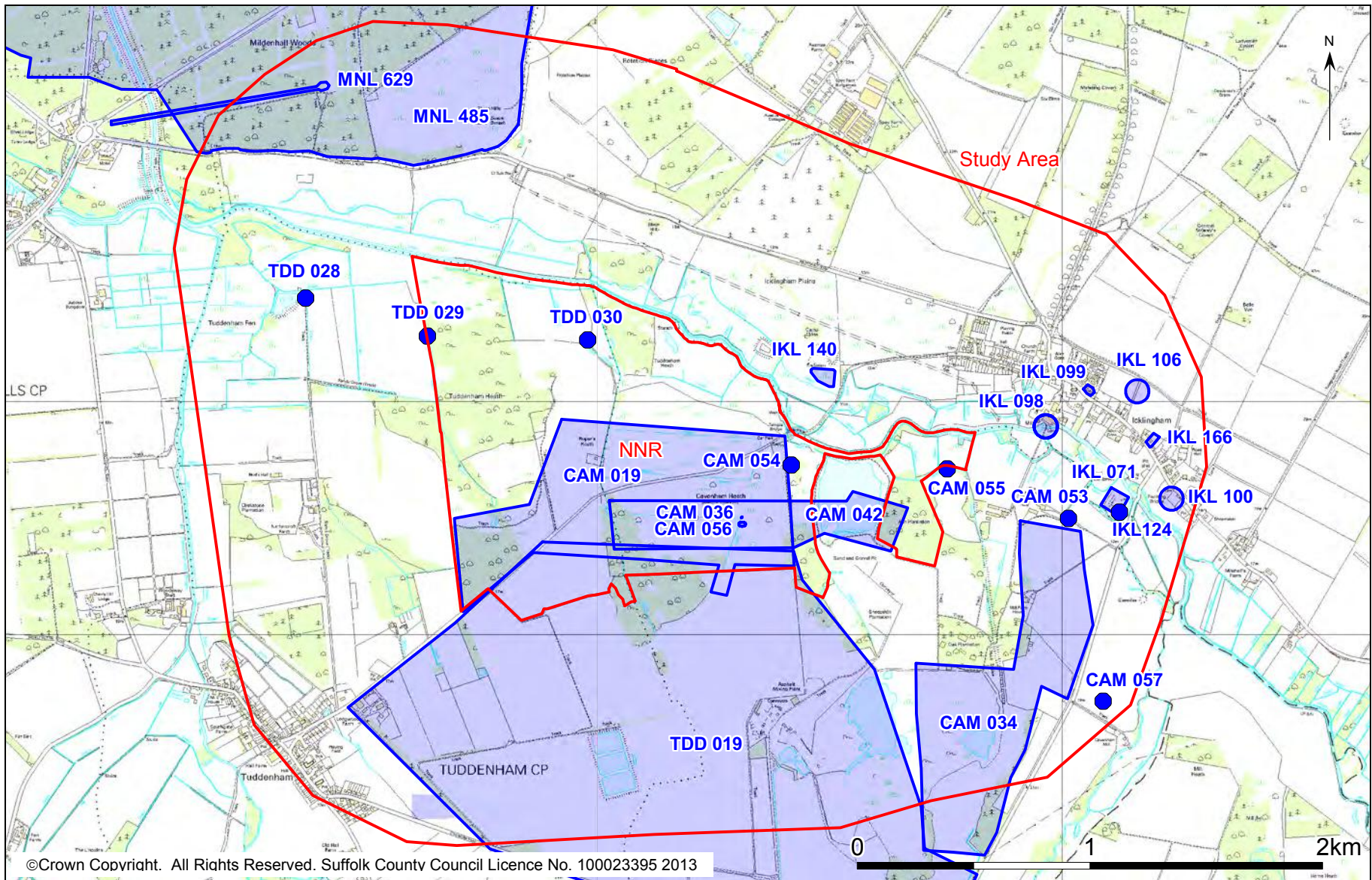
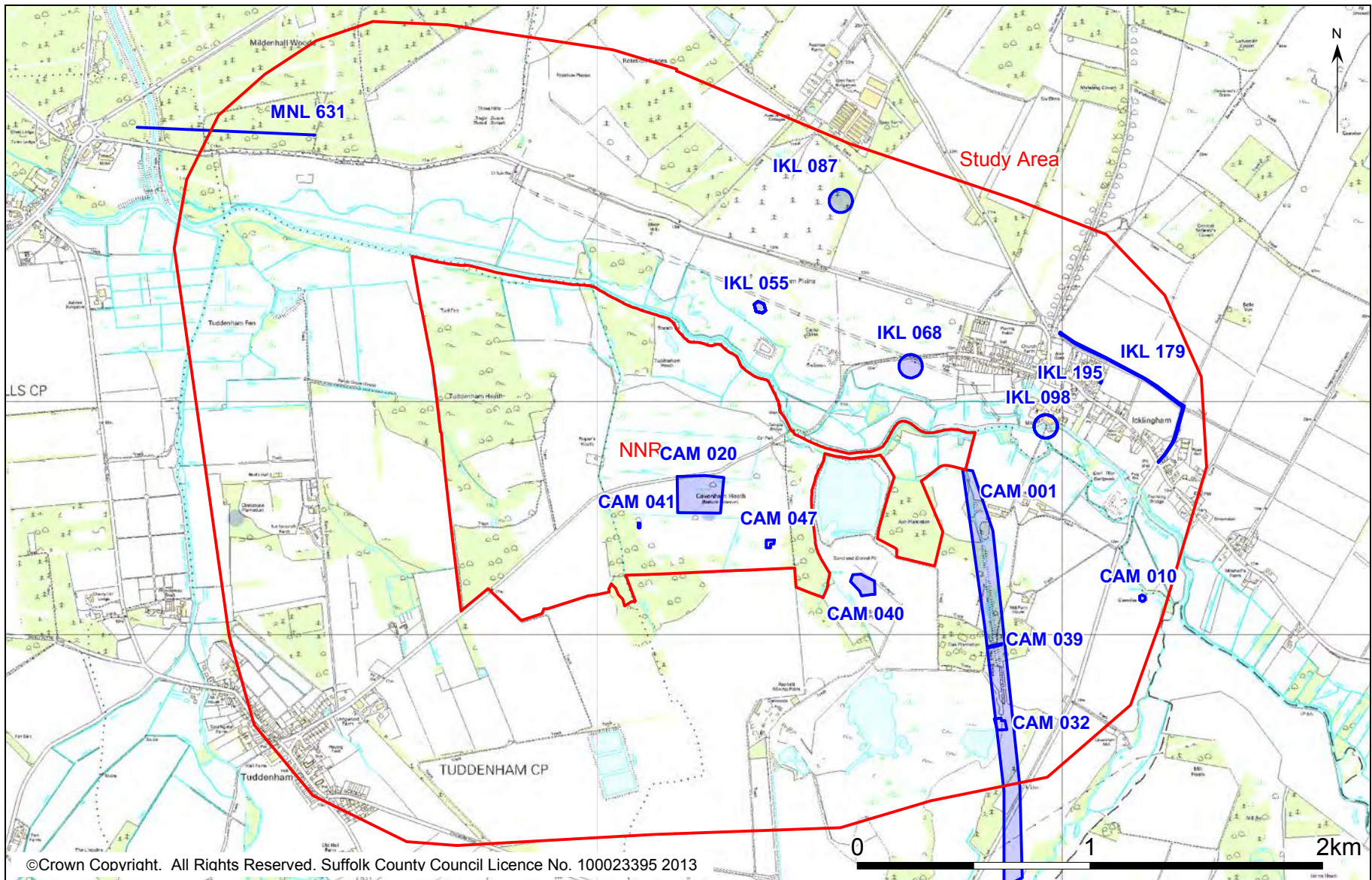


Figure 8. Post-medieval and modern HER sites within 1km of the NNR boundary



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Figure 9. Unphased HER sites within 1km of the NNR boundary

2.3 Other Heritage assets within the Study Area

2.3.1 Conservation Areas and Listed Buildings

A search carried out on the Suffolk HER and on the National Heritage List for England website (NHLE 2013) has identified thirteen Listed Buildings, but no Conservation Area within the Study Area (Fig. 10).

The listed buildings are all set at least 400m from the NNR boundary, in the settlement cores of Tuddenham to the south-west and Icklingham to the north-east. This relative lack of buildings is partly a simple reflection of the rural position of the NNR, being located between several settlements, but also reflects the natural landscape and past historic landuse, with a lack of the post-medieval farm complexes etc which are typically often listed in more agriculturally intensive areas elsewhere in the county.

None of the listed buildings have a clear line of sight to the NNR, the nearest group in Icklingham largely lying on the far side of the modern Marstons Mill complex.

2.3.2 Registered Parks and Gardens

There are no Registered Parks or Gardens within the Study Area.

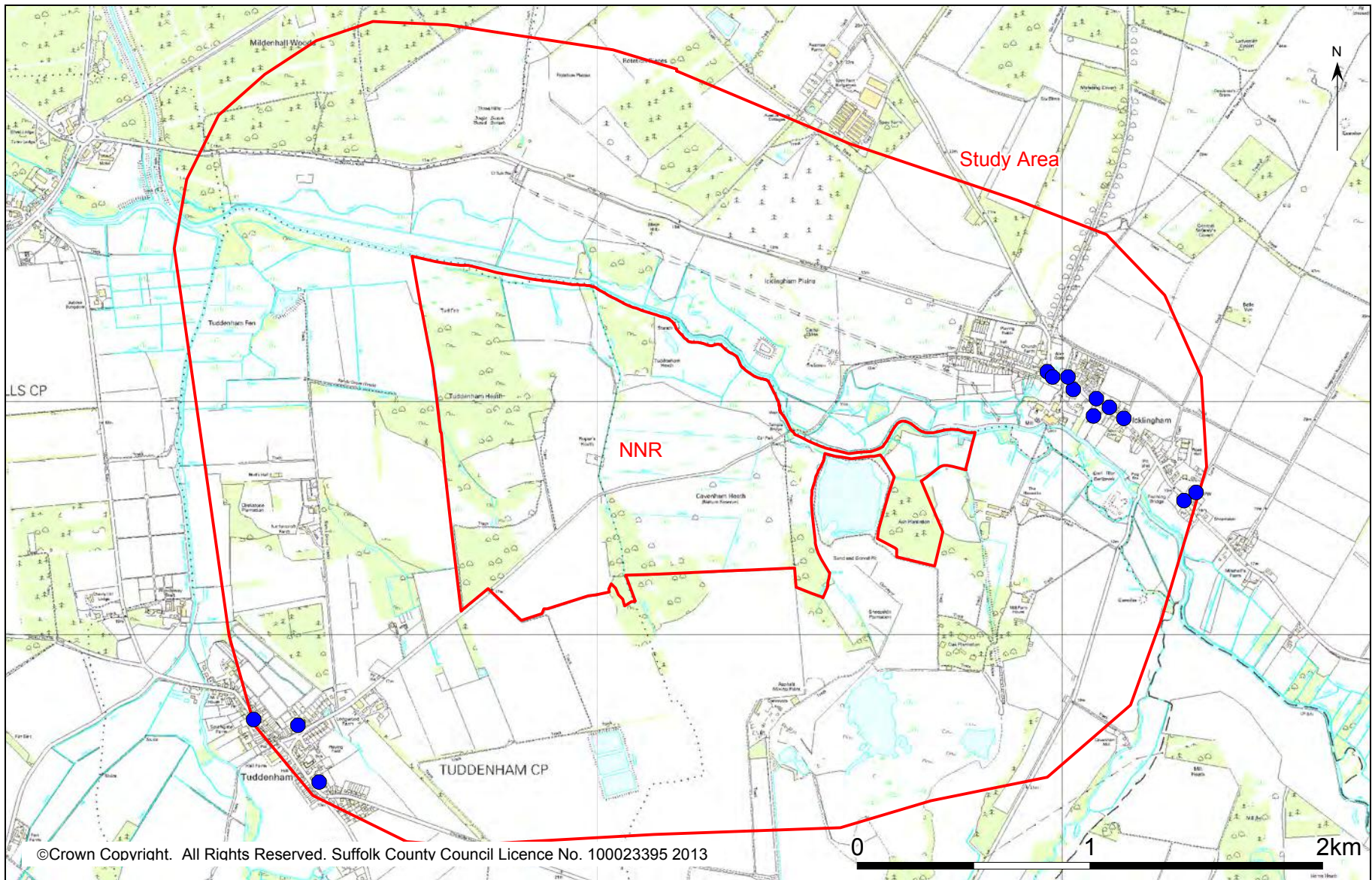


Figure 10. Listed buildings within 1km of the NNR boundary

2.4 Documentary and cartographic study summary

The study of available documentary and cartographic sources by A. M. Breen (Appendix 1) summarises that although the NNR has been heathland and meadows since the medieval period it has been used for a variety of different purposes. The NNR may have contained an area of warren in the medieval period, and was used for grazing of animals (for instance the possible sheepcote earthwork at CAM 041) and for the collection of firing.

Hodkinson's map of 1783, prior to enclosure, clearly shows the entire NNR as lying within Tuddenham Fen and Heath (Fig. 11). The existing track across the NNR is shown as a road connecting Tuddenham to Icklingham via Temple Bridge.

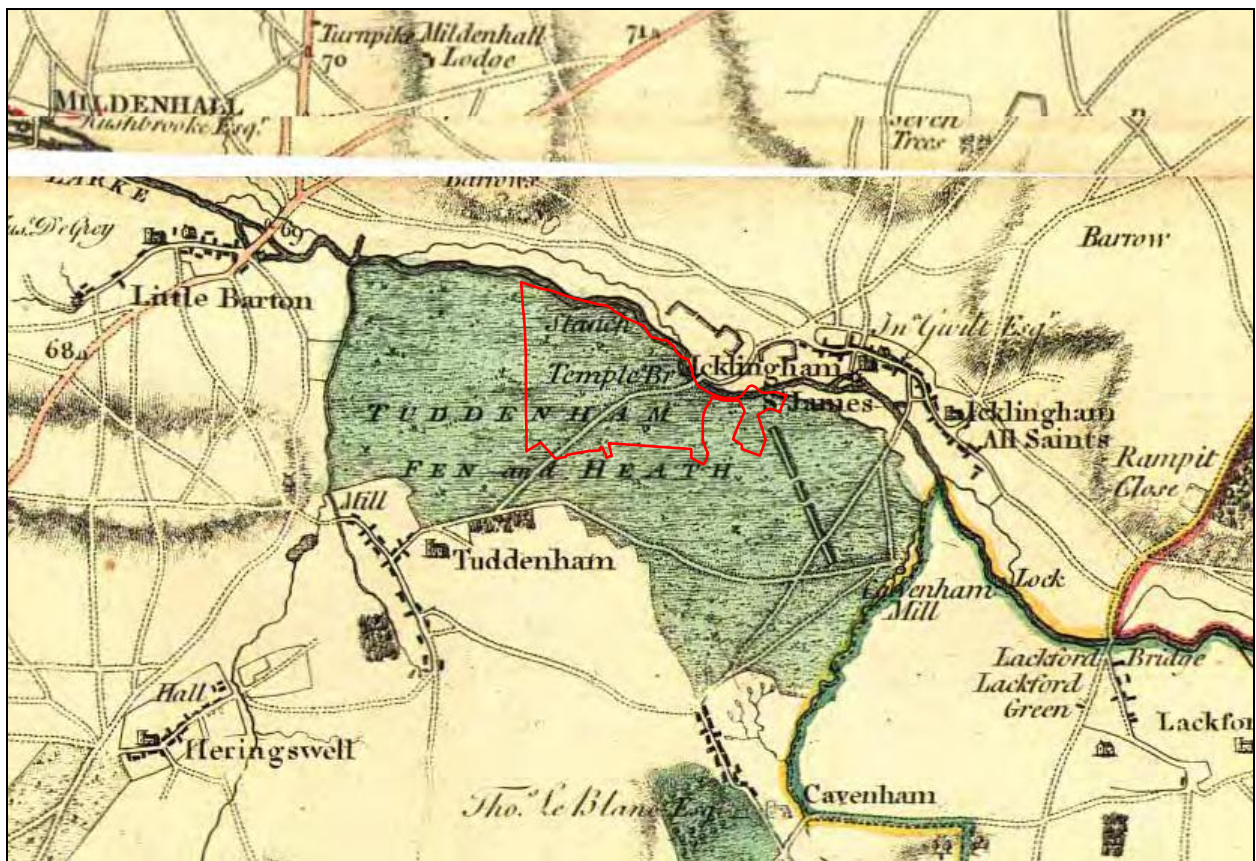


Figure 11. Location of the NNR on Hodkinson's map of 1783 (not to scale).

There is no indication on Hodkinson's map of the 18th century rectangular encampments, CAM 042, which are shown on a copy of a 1779 map held by the Suffolk HER. This map, entitled '*Plan of the encampment of Cavenham Heath, from 7 July to 27 August 1779*' (Fig. 12) shows the encampments as lying to the south of Temple

Bridge across the southern part of the NNR and in the area of Ash Plantation, together with a series of three with trackways crossing Cavenham Heath. Another notable aspect of this map is the clear definition between heath and ploughed arable farmland.



Figure 12. Plan of the encampment on Cavenham Heath, 1779.

The medieval usage pattern continued up to and beyond the enclosure of both parishes in the late 18th/early 19th century (Figs. 13 and 14), with the poor of Tuddenham continuing to enjoy the right to cut turves etc. The Tuddenham map simply shows the NNR as three plots, the boundaries broadly corresponding to the modern layout. The Cavenham map clearly depicts the modern footpath track leading south from Temple Bridge, and sub-division of the heathland.

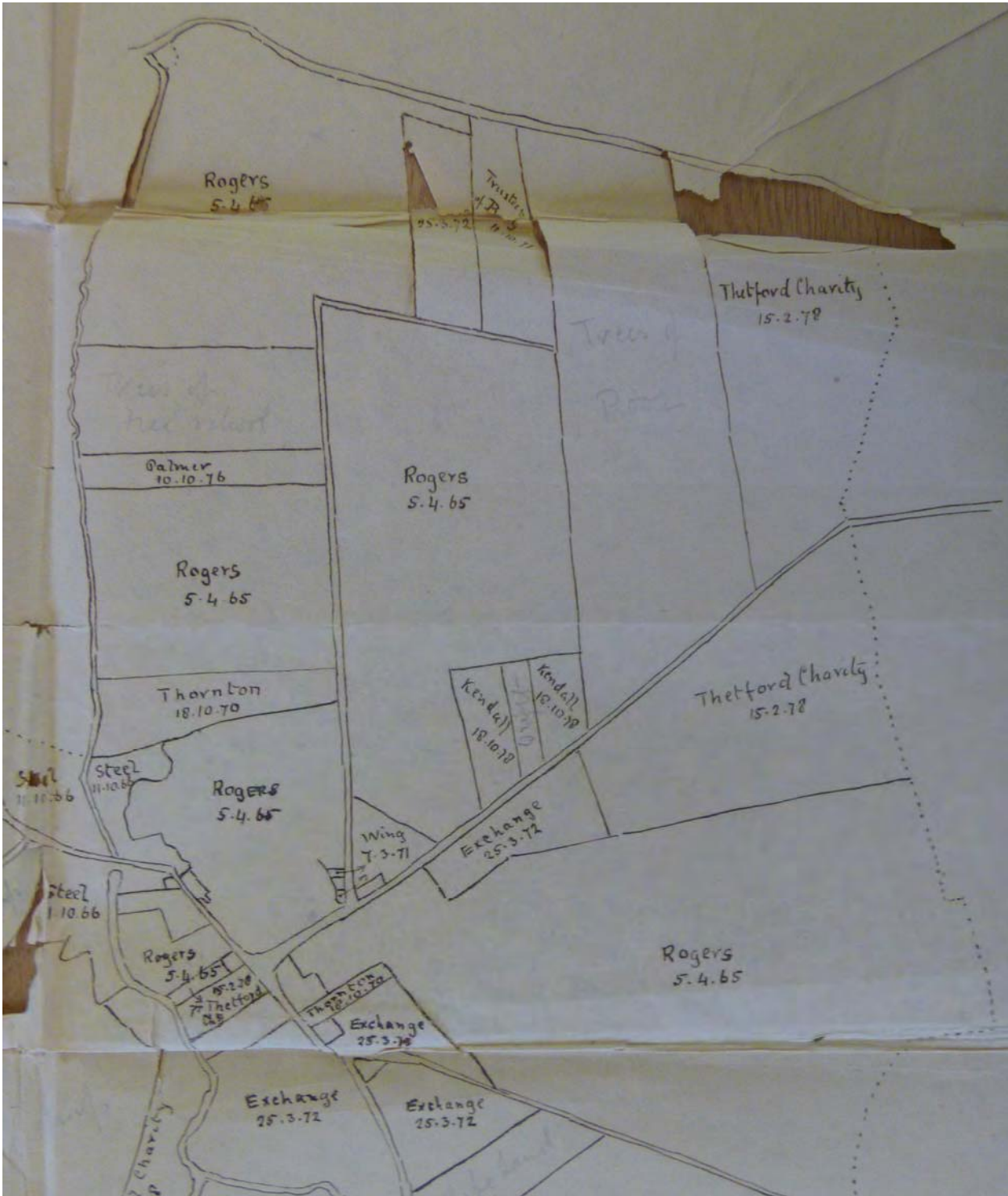


Figure 13. Extract of 1900 copy of 1796 Tuddenham Enclosure map



Figure 14. Extract of 1802 Cavenham Enclosure map

By the start of the nineteenth century part of the heath was used as a shooting estate and the planting of trees belts as cover for game birds in the wider area may have begun at this time (Gill 2010, 1). The First Edition of the Ordnance Survey of 1883 (Fig. 15) shows the NNR as predominantly heathland, with open fields or meadow along the northern edge and Turf Fen in the north-west corner. Although some woodland is present on the western edge and near Temple Bridge, the bulk of the modern woods

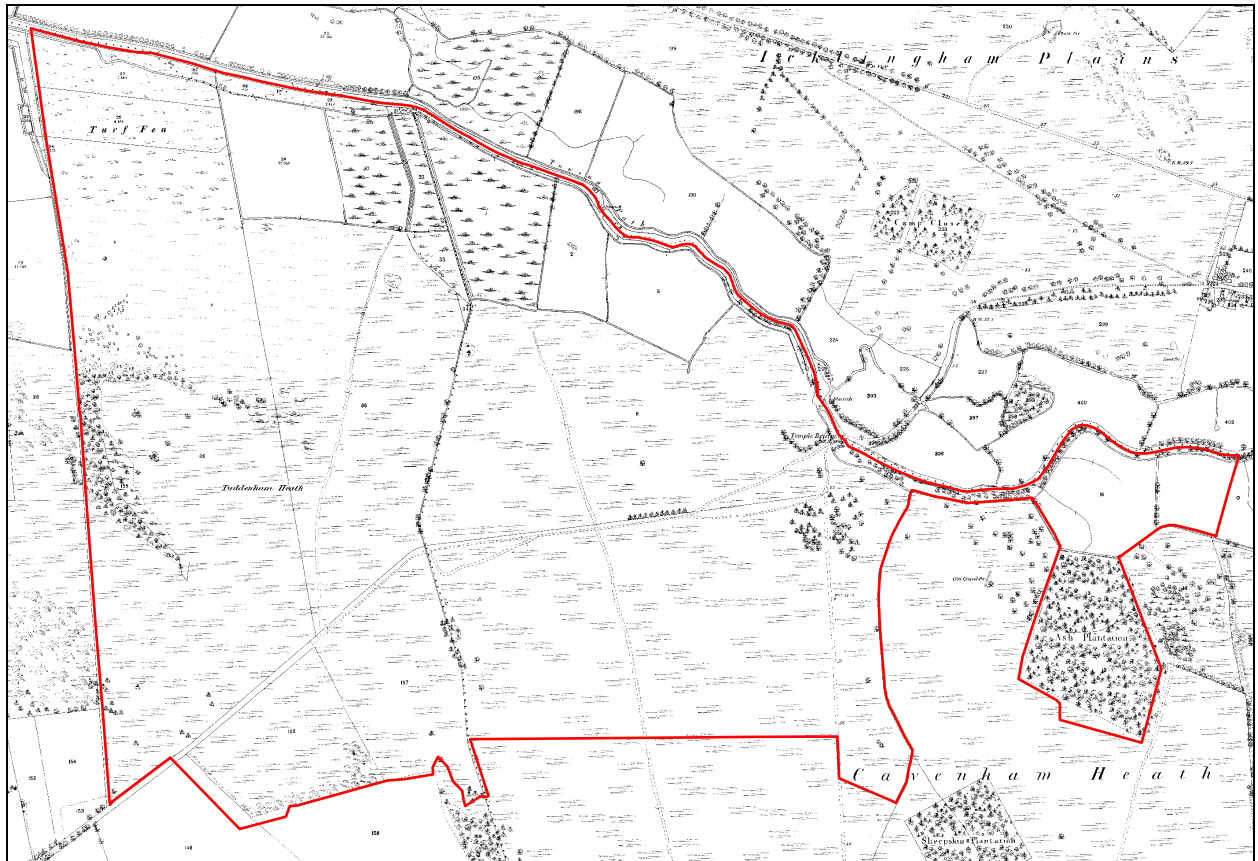


Figure 15. First Edition Ordnance Survey, 1883

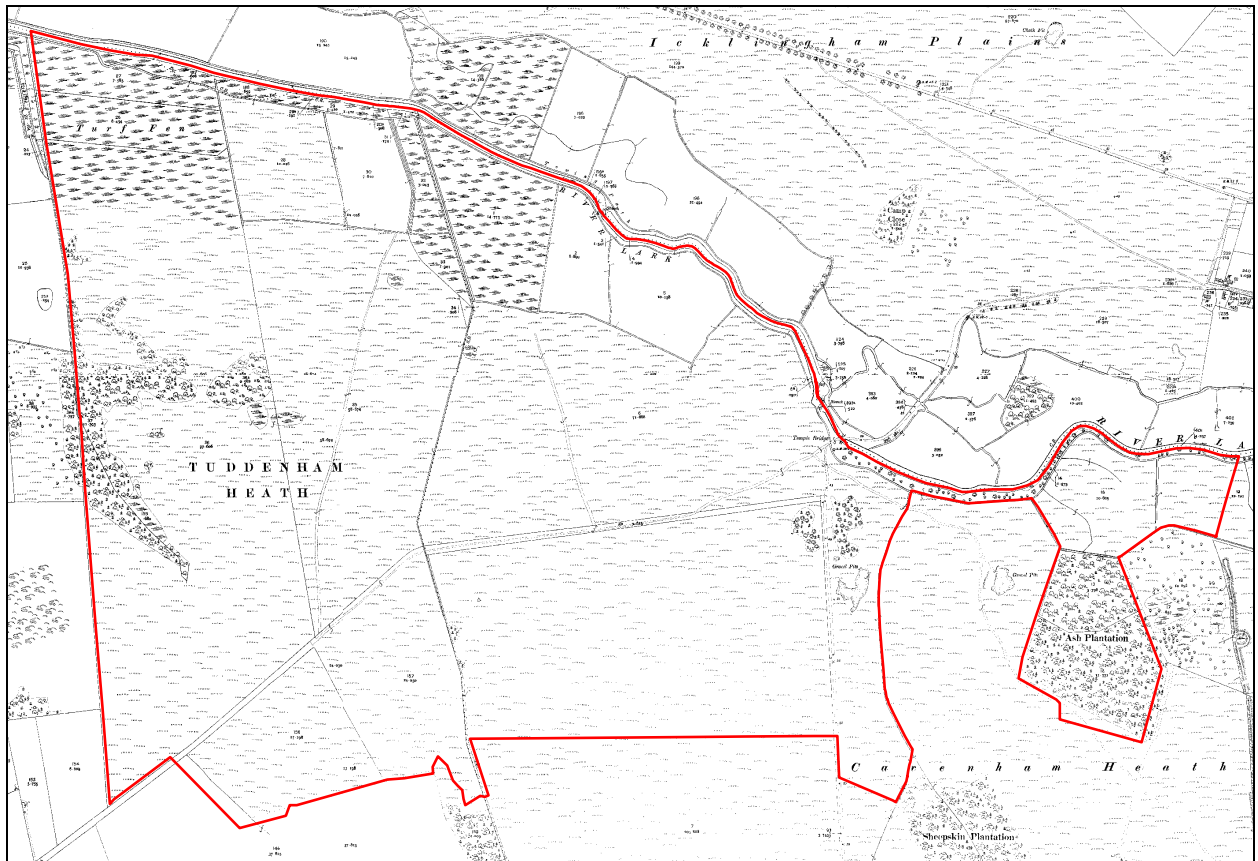


Figure 16. Second Edition Ordnance Survey, 1904

are shown as heath, with the exception of Ash Plantation on the eastern side which is shown for the first time. Most of the modern tracks and boundaries are depicted and, just north-west of centre, there are several small dotted areas apparently depicting waterlogged or marshy pits. The Second Ordnance Survey of 1904 (Fig. 16) shows little variation, apart from gravel quarrying to the south of Temple Bridge.

With the advent of the First World War the landuse saw considerable change, with the area being used as a training ground by a territorial battery of the Royal Garrison Artillery, even if its essential character as heathland was unaltered.

During the Second World War became a part of Tuddenham Airfield and aerial photography of the area from 1945, held by SCCAS, clearly shows the anti-glider ditches across the southern half of the NNR, and the airfield itself beyond its southern boundary (Fig. 16). Most of the woodland on the western side of the NNR is also shown as being present. Immediately after the conclusion of WW2 the preservation of the area as a nature reserve was considered desirable.

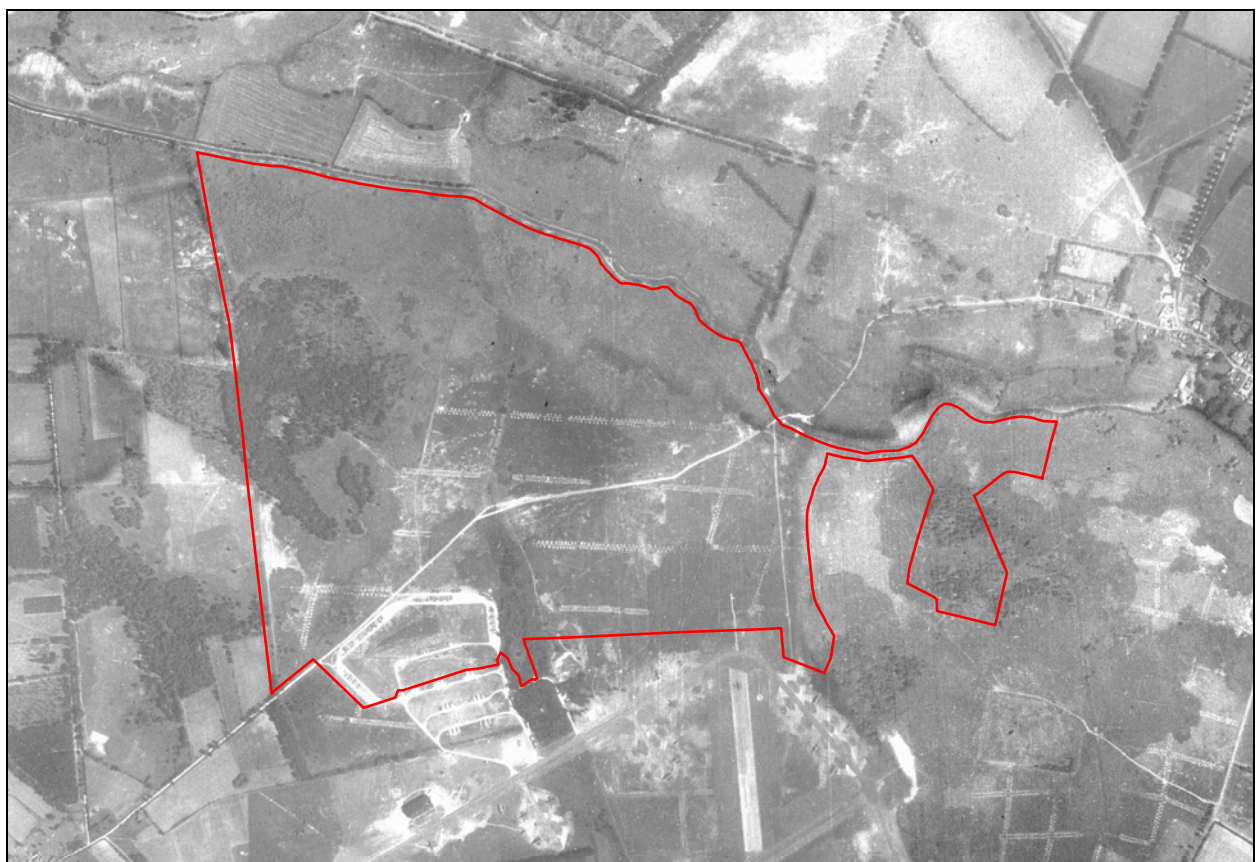


Figure 17. Aerial photograph, 1945

2.5 Site inspection

A visit to the NNR was made on 19/03/2013, to determine the presence of any factors likely to impact on the overall assessment of its archaeological potential. Photographs of the NNR taken during the site inspection are included in Appendix 2. Due to the size of the NNR and the fact that a large part, primarily the central heathland north of the east-west track, is closed to public access from March to October, this was a cursory inspection only, to establish a broad and basic general assessment.

As described above the site consists of Breck heathland with flood plain meadow or fen to the north alongside the river, and scattered areas of birch woodland. Although many parts of the NNR are, from an environmental/ecological viewpoint, an artificial managed landscape, it is evident that, in archaeological terms, it is likely to be a well-preserved historic landscape, with general ground-levels probably being largely unaltered by human activity. The topography of the heathland in particular may be relatively natural although there are frequent areas of localised landscaping, with various apparent quarrying pits, ditches (often probably matching the WW2 anti-glider features), occasional banks and various miscellaneous 'lumps and bumps'. LIDAR data held by SCC HER covers the entire NNR (Fig. 17) and clearly shows many of these earthworks, in particular the WW2 anti-glider ditches.

The area of Ropers Heath is open grass heath, as opposed to the heather covered heath to the east, and is noted by Natural England as being a restored arable field. Although probably short-lived this usage may mean that this area has seen greater disturbance to topography and soil horizons than elsewhere on the NNR. Throughout the heathland extensive areas of rabbit disturbance was noted, with sand subsoil deposits frequently being exposed or brought up and scattered at ground-level.

The riverside meadows were inaccessible but are flat, covered in grass pasture, and managed by a series of drains. Again to a large extent this is probably a relative natural topography but may have seen considerably more past agricultural activity than the heathland. The birch woodlands to west and south all appear to date to the mid 20th century and, although probably being the first generation of trees to be planted, will have caused damage both above and below ground to the former heathland. The historic mapping does show that some areas consist of older woodland. Again the occasional bank or miscellaneous 'bump' was observed.

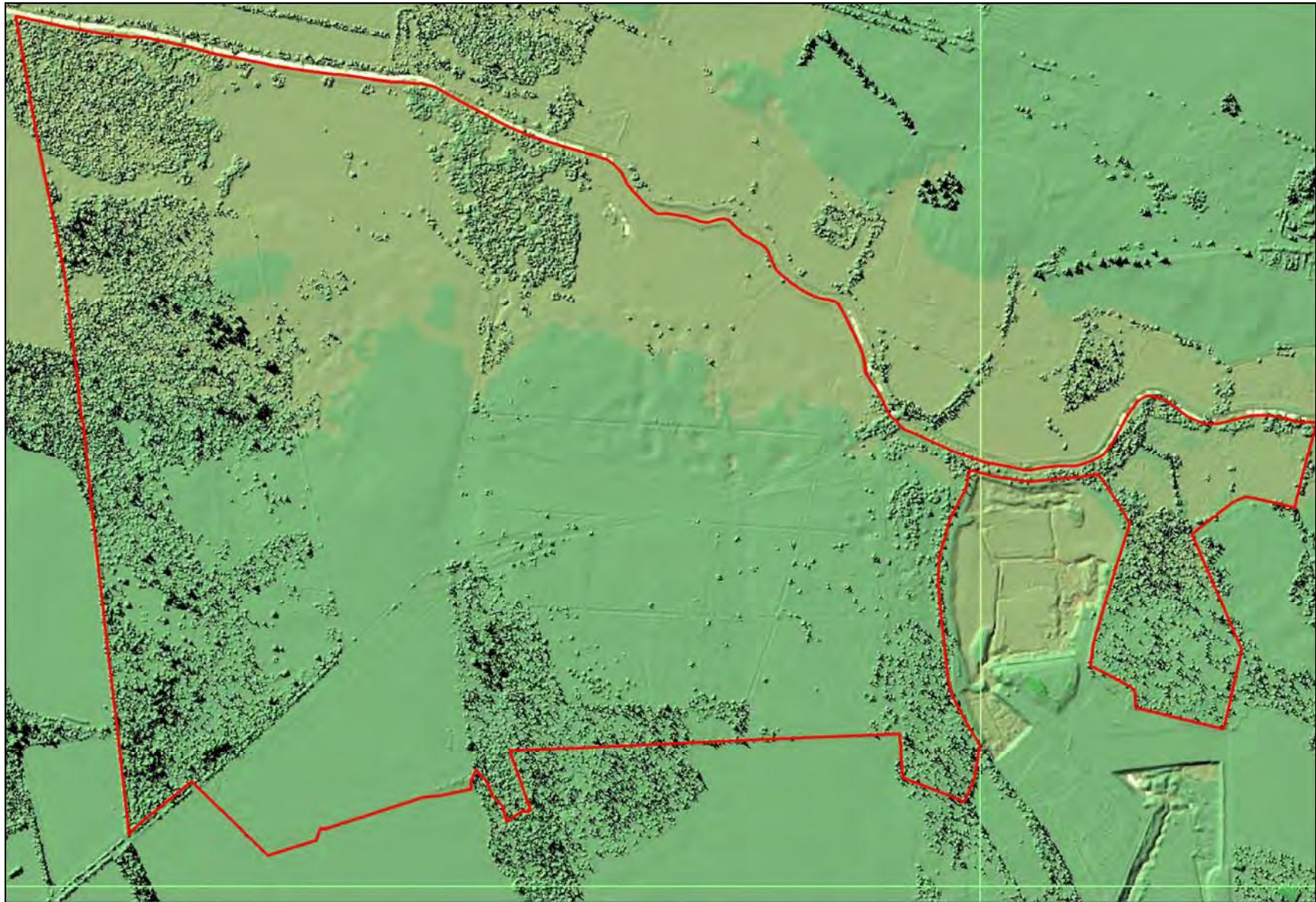


Figure 17. LIDAR data

3. Assessment of impacts and effects

3.1 The archaeological potential of the NNR

Cavenham NNR's position on the south bank of the River Lark means that this DBA has examined a substantial section of the Lark Valley. Such a topographic landscape is known to typically be favourable for evidence of past human occupation, an assumption borne out by the rich spread of multi-period HER records within the Study Area.

There is a slight general bias for deposits, particularly from the Palaeolithic through to the Roman periods, for HER records to be situated on the north side of the River Lark. To a partial extent however this is thought to be due to patterns of modern land-use and ownership, rather than a reflection of the actual spread of prehistoric occupation, although the natural landscape of the NNR presumably plays a part. By being a private shooting estate, then an NNR for latter part of the 20th century, the area has largely avoided the general agricultural activities which often expose archaeological deposits or allow fieldwalking and metal-detecting surveys. It is notable that when archaeological fieldwork does occur on the south side of the River Lark within the Study Area that archaeological material is frequently found.

3.1.1 Palaeolithic/Mesolithic

There are a variety of records in the Suffolk HER indicating early prehistoric activity along the Lark valley in the vicinity of the NNR, with finds material from gravel workings at MNL 001 and IKL 054 on the northern side of the River and a series of find spots. The general bias for HER records on the north bank of the river is evident but Mesolithic material has been recorded during archaeological interventions at CAM 018 and CAM 040 at Cavenham quarry, in the area which separates the eastern portion of the NNR from the rest, and general prehistoric flints have been recovered both there and from within the NNR itself at CAM 036.

The presence of these findspots, plus the general topographic position of the NNR suggests that there is moderate/high potential for further archaeological deposits of early prehistoric date to exist, and that any such would likely be of local or regional significance.

3.1.2 Neolithic/Bronze Age

Evidence for activity in these periods follows a similar pattern, with a range of findspots along the Lark valley, primarily on its northern side. Again where fieldwork has occurred on the southern side, at Cavenham quarry, archaeological deposits have been found, with the phase of Late Neolithic/Early Bronze Age activity indicating seasonal occupation at CAM 040, and worked flints from within the NNR at CAM 048.

As before the presence of these findspots and occupation evidence, plus the general topographic position of the NNR suggests that there is moderate/high potential for further archaeological deposits of early prehistoric date to exist, and that any such would likely be of local or regional significance. There is also potential that some of the various earthworks present across the NNR could be of Neolithic or Bronze Age date.

3.1.3 Iron Age/Roman

During these periods there is again strong evidence for activity along the Lark valley, with a very definite bias for findspots along the north side of the river. This again could largely be due to differences in land use and ownership, for instance if little or no metal-detecting has occurred or been allowed within the NNR. Fieldwork at CAM 043 to the south indicates that scattered Iron Age features may exist across the heathland. There is also potential that some of the various earthworks present across the NNR could be of Iron Age or Roman date.

The evidence therefore suggests that there is moderate/high potential for further archaeological deposits of Iron Age or Roman date to exist, and that any such would likely be of local or regional significance.

3.1.4 Anglo-Saxon and Medieval

Anglo-Saxon activity primarily consists of the cemetery at MNL 001 and other findspots, again along the north side of the river or in or near the settlement cores of Tuddenham and Icklingham. By the medieval period the NNR's long term landuse of open heathland appears to be established and so direct evidence of settlement is not to be expected.

However the NNR was crossed by the road from Temple Bridge to Tuddenham and the bridge itself, together with the supposed preceptory of the Knights Templar, may have been a focus for medieval activity outside of the Icklingham settlement core.

The lack of known sites within the NNR boundary may again reflect a bias caused by landuse and lack of survey or investigation, but may also be a relatively accurate picture of the open landuse in the period and the NNRs location between villages. It is possible however that many of the miscellaneous earthworks across the NNR could be of medieval date, perhaps relating to a possible warren, management of other livestock or the cutting of turves.

The evidence therefore suggests that while there is moderate potential for further archaeological deposits of Anglo-Saxon or medieval date to exist, this may largely consist of extant earthworks or former systems of land management than direct evidence of occupation. Any archaeological evidence will likely be of local or regional significance.

3.1.5 Post-medieval

As with the medieval period the NNR lies between the historic settlement cores of Tuddenham and Icklingham, and findspots are generally located in those areas. The post-medieval usage of the NNR follows a similar pattern, up to and beyond enclosure in the late 18th century. Of particular note prior to enclosure is the apparent location of five 18th century encampments within the NNR and a series of trackways heading north across the heath from Cavenham. The encampments were presumably ditched or banked but there is no apparent sign of them on the LIDAR dataset so these may have been wholly removed by later activity. One of the pre-enclosure tracks may survive as the pathway heading due south from Temple Bridge. By the late 19th century the NNR is partly in use as a shooting estate, which is unlikely to have left much evidence in the archaeological record.

Again the evidence therefore suggests that there is moderate potential for further archaeological deposits of post-medieval date to exist but that this may largely consist of extant earthworks or former systems of land management than direct evidence of

occupation. Any archaeological evidence will likely be of local or regional significance.

3.1.6 Modern

During the 20th century the NNR was partly in use by the military during WW1 and WW2. Activity associated with the WW2 Tuddenham airfield has clearly left its mark on the landscape with several surviving pillboxes scattered across the heath and remnants of the anti-glider ditch system.

3.1.7 Palaeoenvironmental

The meadows and fenland along the northern fringe of the NNR, on the southern bank of the River Lark, have obvious moderate/high potential for waterlogged palaeoenvironmental deposits to exist. Waterlogged materials generally have a high archaeological value, as organic materials do not survive under normal conditions and peat deposits can provide evidence for palaeo-environment conditions, such as vegetation, climate and sea-level change as well as past human activity.

3.2 Potential level of archaeological preservation within the NNR

The nature of the NNR landscape and its historic use generally indicates that archaeological deposits or features may exist in moderate to good states of preservation.

The northern part of the NNR on the valley floor has probably seen minimal disturbance, likely being open pasture in recent history and so archaeological or palaeoenvironmental deposits could be well-preserved at relatively shallow depths.

On the heathland the landscape has not been affected by the systematic truncation of modern agriculture or development and so, in general, preservation of archaeological deposits or extant earthworks is likely to be good. However there are clearly localised areas where recent phases of activity, particularly in the post-medieval and modern periods, may have disturbed earlier archaeological deposits or features.

The shallow nature of topsoils across the heathland, probably no greater than 0.3m, means that archaeological deposits are likely to be at a shallow depth, if not at surface level. It is notable that a substantial proportion of the multi-period finds scatters within the Study Area are referred to as surface finds, or as having been found in molehills or rabbit workings. Animal disturbance in particular is evident across the heath and may have caused significant damage to any archaeological deposits.

The woodland areas largely appear to be on former heathland and, although in most parts it is probably the first generation of trees, any archaeological deposits in these areas will have seen greater disturbance from planting and tree root damage.

3.3 Potential impact of future management of the NNR on the archaeological resource

While the NNR is unlikely to be developed, in any significant shape or form, various activities associated with its general management have the potential to cause detrimental impacts upon any archaeological remains that may exist, unless appropriate mitigation strategies are adopted. Examples of possible activities and their possible

impacts are listed below.

Ploughing

SCCAS/CT originally recommended the production of this DBA after Natural England approached for advice concerning the proposed ploughing of c.4ha on Ropers Heath. Ploughing can be highly destructive to the upper levels of archaeological deposits, although deeper cut features may survive below plough-depth relatively intact, and to any surviving earthworks.

Shallow rotovation, as observed around the perimeter of Ropers Heath (see photos 13 and 15 in Appendix 2), is far less destructive. However with the apparent very shallow nature of archaeological deposits this can still expose archaeological deposits or spread finds material about, as previously seen at CAM 048.

Tree planting and/or destumping

Both the creation and removal of woodland in a landscape can cause significant ground disturbance and affect both archaeological deposits and standing earthworks. Tree planting and subsequent growth of root systems have the potential to disturb or mix any soil deposits below modern topsoils. Tree felling and pulling out of stumps can widen the damage caused by a root system, and the potential use of heavy machinery or vehicles can be highly destructive to earthworks.

Animal damage/erosion

As discussed above it is notable throughout the Study Area that a substantial proportion of the known archaeological finds scatters have been recovered from the ground surface, presumably at times exposed by natural or man-made erosion, or from areas of animal disturbance. The nature of the landscape within the NNR means that such factors are clearly a potential threat to any archaeological deposits and, although not necessarily caused by the general management of the NNR they can perhaps be controlled by it.

Drainage/water extraction

Any activities associated with drainage, water extraction, or general change to the natural landscape along the northern part of the NNR has the potential to have a severe detrimental impact upon palaeoenvironmental or archaeological deposits, especially waterlogged remains, in various ways. Changes to the hydrology of an area, for example the lowering of the natural watertable, could lead to a degradation of preserved deposits while any groundworks such as drilling, piling etc, could also affect sensitive deposits by introducing contaminants or affecting chemical balances that have enabled preservation or by causing vibration damage.

General groundworks

A range of possible activities may involve minor groundworks, such as installation of fencing, improvement of vehicle access/parking or provision of foot and cycle paths, small building works (ie toilets, bird hides, visitor centre/facilities). Any of these could affect standing earthworks and potential archaeological deposits if penetrating below existing topsoils.

3.4 Potential impact of future management of the NNR on other heritage assets

With the nearest other heritage assets, a series of listed buildings in Tuddenham and Icklingham, all being at least 400m from the NNR it is highly unlikely that its future management will have any direct or indirect impact upon them. The general retention of the NNR should instead serve to preserve the setting of these buildings by maintaining the rural and historic character of the wider landscape.

4. Mitigation measures

The NNR has moderate/high potential for palaeoenvironmental deposits and archaeological remains or surviving earthworks dating from the Palaeolithic period through to the 20th century. Such deposits could be of local, regional or even national importance, if for example contemporary activity associated with the adjacent Scheduled Monument 'The Black Ditches' is identified. The preservation of such deposits is likely to be variable depending on location within the NNR and patterns of current and historic land-use, but could well for the most part be regarded as moderate to high.

At present there are currently no grounds to suppose the presence of any assets within the NNR deserving of statutory protection, or of any highly important but non-designated heritage assets requiring preservation *in situ*, and hence immediate consideration in current and future management plans. However as the NNR has largely not been subject to systematic archaeological investigation, the actual presence, nature and state of preservation of any such archaeological deposits is generally unknown.

Although Natural England is unlikely to be carrying out any activities that will have a rapid and significant negative impact on preserved heritage assets the long term management of the NNR may cause gradual and eventually significant damage over time. It is thought that, in general, preservation of the *status quo* in terms of landuse across the NNR will be of most benefit to the potential archaeological resource but that there is a threat to shallow archaeological deposits and earthwork features from the ongoing processes of natural erosion and animal damage.

A proactive approach towards the monitoring and preservation of heritage assets is therefore recommended within future management plans.

4.1. Suggested further investigation of the NNR

As stated above the NNR has not been previously subject to archaeological investigation and there is still a high degree of uncertainty as to what heritage assets may be present and in what state. As a first step to clarify this and aid future management decisions a range of possible further non-intrusive investigation techniques are available and should be considered.

4.1.2 Aerial photograph survey

Although several records of cropmarks or earthworks in the Suffolk HER have been created from perusal of readily available aerial photos no systematic search has been made of aerial photography for the area.

A full study by an experienced aerial photographic specialist of local and national photography archives, followed by the production of a detailed geo-referenced plan of visible features, is recommended. In particular such a survey may be of benefit in defining the position of former levelled earthworks or cut features no longer visible at groundlevel or in LIDAR data.

4.1.2 Rapid Earthwork Survey

This survey technique has been established in recent years by SCCAS as a means of surveying large areas of Forestry Commission land in both Suffolk and Norfolk, in advance of highly destructive programs of tree felling and destumping. The methodology of surveying an area by walking 50m transects and noting all observed earthworks, or on occasion finds scatters etc, has led to the identification of multiple HER sites (e.g. Pendleton & Sommers 1998) and has subsequently enabled the Forestry Commission to leave important areas undisturbed.

It is suggested that a similar program could be carried out on the NNR, perhaps in greater detail in certain areas of denser earthworks. The results could then be correlated with the available LIDAR data, the results of any aerial photographic survey,

and the historic mapping, with the aim of producing a definitive plan of the man-made features within the landscape, together with possible explanations as to date and function.

Such a program is strongly recommended for specific areas in advance of any major landscaping works such as future deep ploughing or the creation or felling of woodlands.

4.1.3 Fieldwalking and metal-detecting survey

Although most suited to arable farmland where archaeological deposits are regularly being brought to the surface, fieldwalking and metal detecting surveys may be possible on specific areas of the NNR. Metal detecting is certainly feasible on the grassed areas such as Ropers Heath or the river meadows while rapid fieldwalking of the heaths (perhaps in conjunction with an earthwork survey) may identify archaeological material in the frequent areas of soil erosion or animal disturbance.

Any large scale disturbance of the ground surface, such as the rotovation observed during the site inspection at Ropers Heath, may offer an important opportunity for subsequent programmes of fieldwalking and metal-detecting and should be considered on a case by case basis.

4.1.3 Geophysical Survey

Geophysical survey techniques can be a useful tool in assessing large areas for buried archaeological features such as ditches, pits or buildings. Large parts of the NNR such as Ropers Heath may be suitable for such survey to assess if archaeological features are present. Consultation with SCCAS/CT and a specialist geophysical survey company is recommended to see if any such techniques are feasible and likely to produce positive results.

4.1.4 Archaeological evaluation

Trial trench evaluation, particularly of any specific areas highlighted by the non-intrusive works listed above, is the final way to assess if archaeological deposits are present, and is usually the most definitive in terms of determining the extent, depth, date and state of preservation of deposits.

However archaeological investigation is intrusive and destructive, both of actual archaeological remains and the natural environment of the NNR and so is likely only to be appropriate in advance of an activity likely to cause a significant negative impact on potential heritage assets, such as deep ploughing.

Standard 5% trial trench excavation is also likely to be the most expensive investigative technique and will probably be a disproportionate cost in terms of any proposed change to the NNR. Consultation with SCCAS/CT is recommended in such circumstances to establish whether a combination of non-intrusive techniques and limited or targeted trenching will be adequate to assess any particular part of the NNR.

An alternative technique to trenched evaluation could be the hand-excavation of a series of test pits over any given area. While this work would not definitively be able to establish if archaeological deposits were present it could at least identify the depth and state of preservation of potential archaeological levels and perhaps clarify whether any proposed activities such as ploughing would have a detrimental impact. Such an approach would also limit disturbance to the NNR and potentially reduce costs.

4.2. Mitigation of impact of NNR activity on heritage assets

In general it is recommended that Natural England maintains ongoing consultation with SCCAS/CT, in its role as the archaeological advisor to the Suffolk local authorities and protector of Suffolk's heritage assets.

At present there are no immediately obvious archaeological sites requiring protection from the day to day maintenance of the NNR and it is thought that, in general, preservation of the *status quo* in terms of land use across the NNR will be of most benefit to the potential archaeological resource although elements of natural damage

are ongoing and should be monitored.

The non-intrusive investigation techniques outlined above are recommended to establish a clearer picture of the NNR's heritage assets and enable SCCAS/CT to make informed recommendations regarding them in advance of any proposed works. In particular such techniques may highlight if any specific areas need to be considered for active protection from proposed works, or if mitigation in the form of direct archaeological investigation is required.

Where potential archaeological deposits are thought to be threatened trial trench evaluation may be necessary to establish the likely level of impact and subsequent requirement for preservation *in situ*, or excavation and preservation by record.

In addition to any man-made impacts the effects of natural weathering, erosion or animal disturbance across the NNR should be monitored on an ongoing basis. If any areas of known archaeological deposits or features should be identified in future studies then due consideration should be given to their protection from such threats, for example enclosing with rabbit proof fencing or establishment of grass cover to limit erosion. It is acknowledged however that rabbits have an active role in maintenance of the heathland and so archaeological monitoring of sensitive areas, or anywhere where heavy damage is noted, may be an alternative mitigation strategy.

Further investigation of the NNR's heritage assets should be disseminated as widely as possible and could have strong positive benefits. In addition to the standard inclusion of positive results in the Suffolk HER and local journals such as the Proceedings of the Suffolk Institute, or in local outreach programs, there are obvious opportunities to display results to the visiting public via information boards or the Natural England website etc.

5. Conclusions/Recommendations

Through an examination of the Suffolk HER and National Heritage List for England, a documentary and cartographic search and a site inspection, this DBA has set the NNR within its immediate archaeological landscape.

In general the topographic location of the NNR and the known archaeology of the area suggest that there is a moderate to high potential for encountering archaeological remains within the NNR and that such deposits are likely to largely be in a moderate to high state of preservation, but also shallow and highly vulnerable to any change in the landscape. Numerous earthworks of likely mixed but uncertain date are also evident across the NNR.

It is suggested that further non-intrusive archaeological investigation may be able to further identify and assess the extent, character, density of any archaeological deposits, within the NNR, and further define the nature of its earthworks, with a view to supporting the development of a suitable management plan for the NNR which considers its heritage assets.

Preservation *in situ* should always be preferred but if necessary intrusive fieldwork may be required to fully evaluate any part of the NNR, prior to proposed works or changes to the landscape, with a view to establishing a suitable mitigation strategy too minimise any negative impacts.

Ongoing consultation with SCCAS/CT regarding the long term management of the NNR in relation to heritage assets is strongly recommended.

6. List of contributors and acknowledgements

This project was funded and commissioned by Natural England. The desk based assessment was carried out by John Craven, of SCCAS/FT and the documentary study by Anthony M. Breen, a freelance local history researcher.

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Suffolk Landscape Character Assessment

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Appendix 1. Documentary and Cartographic Study

Anthony M Breen March 2013

Introduction

The research for this report has been carried out at the Suffolk Record Office in Bury St Edmunds. In advance of this research, the Suffolk Archaeological Service have provided copies of the modern Ordnance Survey maps with the boundaries of the study area superimposed together with copies of the 1st and 2nd edition of the 1:2500 Ordnance Survey Maps of the area.

Settlement within the arid Breckland area has been largely confined to the river valleys and a few locations where natural springs provide surface water. A general study of the area has been published (Sussams 1996) and many aspects of the historic land use common to other parts of the Breckland area can be found in relation to Cavenham Heath. These include the site of a medieval rabbit or coney warren dating from at least the beginning of the 14th century.

The study area is divided between the parishes of Tuddenham to the west and Cavenham to the east. Documentary studies normally include copies of the tithe maps for each parish, however the apportionment of the tithes within the parish of Cavenham had been dealt with under an earlier enclosure act of 1801. The completion of the enclosure is shown on the 1802 enclosure map of the parish (Q/RI 10). Though there is a tithe map for the parish of Tuddenham St Mary this map has been marked in the tithe map catalogue as fragile (ref. T 52/2) and is not available for research. There is a second copy of the map held at the National Archives in London (ref. IR 30/33/423). This parish had also been enclosed in 1797 however the enclosure map is no longer extant in its original form and only a rough copy dated c. 1900 has survived (ref. 941/84/12a).

The entire area is shown on Joseph Hodkinson's 1783 map of the County of Suffolk as 'Tuddenham Fen and Heath'. This map shows a few additional features such as the line of the road now part of the Icknield Way Trail, the position of the staunch on the river Lark, originally built as part of the Lark Navigation c. 1720, and Temple Bridge (Dymond

1972).

Amongst the sources used for this report there is Walton Robert Burrell's photographic collection (K997). This is an extremely important collection consisting of an album containing some 2,161 photographs mainly taken in the area around Bury St Edmunds and encompassing a large number of parishes within the Breckland area of Suffolk. All the photographs were taken before 1929 and a large portion of the collection are photographs taken during the First World War. These show 'soldiers of various regiments and nationalities on and off duty'. Unlike many photographic collections of this period the significance of this collection is greatly enhanced by the fact that most of the photographs are clearly labelled and give locations for the images and the names of many of the individuals depicted.

There are historic records relating to the ecology of this area in the collection of the correspondence Alexander Stuart Watt FRS held at Cambridge University Library. As early as September 1945 there was a proposal by the National Parks Committee and Wildlife Conservation Special Committee to establish a national park in the Breckland and nature reserves at Cavenham heath and Lakenheath Warren. The correspondence includes a preliminary investigation into lichen communities at Ash Plantation dated 1959 and a vegetation map of Cavenham Heath made in 1972.

Cavenham Park Estate

Until 1918 almost the entire area was part of the Cavenham Park Estate that had been the property of Adolph B. H. Goldschmidt. It is important to mention that though Goldschmidt held the freehold title, he was not the lord of this manor. This point is noted in the 1908 edition of 'Kelly's Directory of Suffolk', *'William Robert Gamul Farmer esq of Nonsuch Park, Cheam, Surrey is lord of the manor and A. B. H. Goldschmidt is lord of the manor'*. William Farmer is mentioned in Copinger's 'Manors of Suffolk' published in 1909, as the lord of the manor of *'Shardelowe's'* in Cavenham and not the manor of Cavenham. The title manor of Cavenham rested with Spencer Beauchamp Waddington who lived at Cavenham Hall described by Copinger as a *'modern mansion of brick situate in a small park'*. Copinger also describes the descent of the *'manor of Tuddenham cum Badgecrofts alias Hengrave's alias Shardlowe's'*. The title of this manor passed to John Hervey, earl of Bristol before 1714 and remained with this family.

In 1909 the 4th marquis of Bristol was the lord of the manor who was also the principal landowner but he had leased the shooting rights to his property in Tuddenham to Mr Goldschmidt.

The estate was offered for sale at a public auction held in London on 26 September 1918. The estate of 2,625 acres was described as '*Sporting and Agricultural*' and the sale also included Tuddenham Hall Farm '*with and an area of about 846 acres and in addition the shooting rights over a further area of about 1,823 acres*'. The sale plan is based on the contemporary Ordnance Survey Maps with the auctioneers' caveat 'this plan is published for guidance only and although believed to be correct its accuracy is on no way guaranteed'. The schedule that accompanies the map uses the Ordnance Survey parcel numbers, descriptions and acreages. In the particulars there is a list of leases and agreements between A. B. H. Schmidt and the Marquis of Bristol over the shooting rights on the estate and an annotation on the map shows that the area in Tuddenham to the south of the 'Icknield Way Trail' was set aside for '*only shooting*'. The sale was unsuccessful and the auctioneers were afterwards prepared to offer to dispose of the property '*privately*' on condition that the vendor was '*disposed to negotiate for the purchase we shall be happy to quote a very moderate price for the property*' (ref. HD 1325/63).

Burrell Collection

In the Burrell Photograph Collection there are photographs taken in November 1915 of the 1/1st East Anglian (Essex) Royal Garrison Artillery Heavy Battery's gun team practising manoeuvres at Cavenham. Though one of the photographs shows the artillery piece in the firing position, it is unlikely that the area was used for live firing (ref. K997/96/7-10). Another photograph shows a wooden barrack building close to the village of Cavenham and a further photograph shows four of the guns and a wagon drawn up in the village centre (ref. K997/174/17). The battery was a Territorial Unit whose headquarters were at Stratford, near London. At the commencement of hostilities in August 1914, the battery was at its annual summer camp and based at Thetford and Ingham. The unit remained embodied and continued its training with other regiments used heathlands within the Breckland area for field training and for temporary camps. The battalion paraded for the last time before its departure to France at Cavenham on 29 February 1916 (ref. K997/82/1 & K997/75/14)). Other photographs of the battalion at

Cavenham are scattered through this album and include a photograph of the canteen at Cavenham (ref. K997/78/16). The National Archives hold the battery's war diary covering the period July 1916 to January 1918.

Thetford Charity Land

The area in Tuddenham excluded from the Cavenham Park Sale plan is shown on a deed plan dated 15 February 1878. To fit the sheet of parchment this plan is not orientated north-south. Each of the fields is numbered on the plan in sequence 28-34. There is an earlier schedule of these lands in another deed, a lease dated 2 June 1825 and descriptions and acreages as given in both documents are listed in the table below:

Field No.	Name	Description	Acreage*	1825 name and acreage
28	Grove Piece	arable	7a 1r 0p	7a 0r 8p
29	Three Corner Piece	arable	14a 2r 16p	14a 3r 8p
30	Eighteen Acres	arable	15a 2r 0p	15a 2r 0p
31	New Broke Up	arable	14a 1r 0p	
31a	Short Heath	heath and plantation	29a 3r 25p	44a 0r 25p
32	Great Heath	heath and warren	58a 0r 10p	58a 0r 10p
33	Low Fen	marsh	13a 1r 0p	Low Fen: 25a 2r 0p
33a	Low Fen	marsh	12a 1r 0p	
34	The Quave	marsh	3a 2r 0p	The Quave: 3a 2r 0p

**There were forty perches to a rood and 4 roods to an acre.*

These lands are listed in the Tithe apportionment for Tuddenham and are given the same acreages but different parcel numbers (ref. T52/1).

In 1877 these lands were part of the farm of freehold estate '*containing altogether 336a 2r 20p lately part of a Farm or estate known as the Tuddenham St Mary Estate*'. This estate had been sold by the Trustees of Sir Joseph Williamsons Charity at Thetford to the marquis of Bristol. The deeds of conveyance are within a bundle of documents relating to the purchase of this estate and amongst these there is an abstract of title dated 1877. The abstract includes a recitation of the will of Sir Joseph Williamson dated 16 August 1701 '*thereby gave & devised the sum of £2000 to be laid out by his executors ... in the purchase of lands or tenements which should be & remain for such*

public uses of the town of Thetford should think fit'. The abstract covers 47 pages. A small part of the property had been copyhold of the manor of '*Badgercrofts in Tuddenham*' and the '*Manor of Banstead*' but these lands had been enfranchised, that is the tenure had been converted to freehold on 10 June 1861. The bundle does not include an earlier plan of this estate. It may be the case that the lands described as copyhold or the apportionment numbers may relate to lands outside the study area. The bundle includes 34 separate items dating from 1718-1878 (ref. HA 507/2/311) amongst these documents there are subletting short term leases for the use of the land that stipulate that the meadow lands could not be broken up for arable use.

Enclosure Maps and Awards

The award for Tuddenham is dated 1796 is pursuance of the act of Parliament passed in 1794 '*for dividing and inclosing the common fields, half year lands, Lammas meadows, heaths, fen, land, commons and waste lands with the parish*'. The commissioners set out the allotments according to the property interest of each owner beginning with that of the then earl of Bristol '*Lord of the manor of Tuddenham*' and Elizabeth Sparke '*lady of the several manors of Netherhall otherwise Badgercrofts in Tuddenham and Bansteads in Tuddenham*'. The main areas of this study were allocated to the '*Thetford Charity*' and to the trustees of the Poor for the parish of Tuddenham. The commissioners gave detailed instructions relating to the land allocated to the poor and directed that it '*shall and may be lawful to and for such poor persons ... to cut take and carry away such trueland firing to be spent and consumed in the said parish of Tuddenham*'. They also directed that the '*herbage and grass growing and renewing upon the said allotment ... shall and may be let and demised by the major part of the trustees*', though '*nothing hereby directed shall be deemed or construed to extend to authorize any person or persons ... to feed the said herbage or grass ... with sheep*' (ref. Q/RI 39). The poor were also allowed to take '*quantities of turves and flags to be had cut and taken by the poor persons ... so that the quantities do not exceed in any one year more than three thousand turves of the size or dimensions of four inches square and six loads of flag computing six hundred to the load to any one poor person his or her family*'. Further records relating to the allotments are in the Tuddenham Parish Collection (ref. FL 644/11/28-31) though these records do not include any leases of the land. Unlike later enclosure awards there are no marginal glosses set against the text of this document and it is difficult to identify the relevant sections within the 64

pages of text.

The enclosure map for Tuddenham has not survived in its original form. There is a rough copy of the map made circa 1900. This copy together with notes on the award are in a collection of documents that have come from the Marquis of Bristol's Ickworth estates (ref. 941/84/1 (12a & b)).

The enclosure award for the parish of Cavenham is dated 1802 in pursuance of the act of 1801, *'for dividing allotting and inclosing the Fen Grounds Heaths Commons and waste lands within the parish'*. The commissioners were also directed to make a preamble of the parish's boundaries. This perambulation states that the boundary in places followed the line of the 'old river' but it also mentions the 'haling bars' set along the bank and 'a sluice gate called Temple Sluice'. At this date there were already plantations planted along the boundary between Cavenham and Tuddenham. Some 1041 acres of 'fen grounds heaths commons and waste lands' were enclosed'. The marquis of Cornwallis was the then lord of the manor of Cavenham and entitled to the major part of the allotted lands. The positions of the various allotments can be seen on the enclosure map (ref. Q/RI 10). The marquis received a piece measured at 139 acres 2 roods and 15 perches that had been formerly heath, but the land adjoining the river measuring 22 acres 3 roods and 13 perches is described as 'Great Drays Little Drays and other lands'. He also received a further allotment in lieu of 'rights of common shackage and all other commonable rights'. The award also intended to allot lands to 'the Right Honourable George earl of Leicester as the lord of the manor of Desning with its members'. According to Copinger the manor of Desning Hall was in the parish of Gazeley in Risbridge Hundred and had been part of the Honor of Clare. Copinger does not mention the earl of Leicester in his account and the addition to the title 'with its members' suggests that the lands connected with this manor were in more than one parish. Copinger does briefly mention Desning manor under his account of Sharedelowe's in Cavenham. Elsewhere in the award it states that the earl had made a contract with the Marquis of Cornwallis to sell to him his manorial rights over the lands in Cavenham.

Revd Carwardine as the vicar of the parish was allotted various pieces of land for the benefit of the poor of the parish. These included 'one piece of land ground parcel of the heath and common called Great Drays containing by measure seventy sic acres one

rood and fifteen perches'. This plot was to be 'enclosed and ditched and fenced by the proprietors of the parish' and was partly used for the collection of tithes for the poor. The parish lay rector was the marquis of Cornwallis and in lieu of his right to the tithes he was allotted the parcel of heath and common containing 63 acres and 6 perches. Copyholders of the manors whose property had existed for 64 years before the date of the act were allotted lands under this award.

There are further details in the award covering pages 116-145. Like the Tuddenham Enclosure award there are no marginal glosses set against the text of this award and no paragraphs and it is therefore difficult to identify the relevant parts of the text (ref. Q/RI 47).

Lammas Lands or Half-year lands were common land arable or meadow occupied in severalty for part of the year, but after the crop was taken. The lands were usually open to pasture on Lammas Day (1 August) or Old Lammas (12 August) (Bristow 1994).

Manorial Records

Records for this manor held at the record office in Bury St Edmunds include a court roll dated 1510-1545 but then there is a gap in the record sequence until 1620. Possibly the most interesting document is a survey of the manor dated 1766 (ref. HA 507/1/48). The surveyor was Thomas Warren of Bury St Edmunds and it was clearly prepared to be used with a map that no longer survives. The total acreage given is just over 2733 acres and included the 'Old Warren or Upper Heath ... 125a 1r 32p', 'Heath or Upper Fenn 590a' 'Lower Fenn 248a 2r' and 'Quay 12a 1r 0p'. This last entry is highly likely to be the same piece mentioned as the 'Quaves' in the deeds of 1825 and 1878.

There are no references to surviving manorial records for the manor of Cavenham. In the record office in Ipswich there is a half year rental for the manor of Dasaning and Cavenham dated 1632 (ref. HD 1538/177/1). There is also a copy of a deed that had been enrolled at the court in London in the form of a Final Concord relating to the title of the 'manor of Desining and Shardeloves in Cavenham' and other manors dated 1673 (ref. HD 1538/177/2).

At the National Archives in London there is a further rental for the manor dated 1515

(ref. SC 12/27/32). This manor was leased in 1545 (ref. E328/127). There are also 'particulars of an account for the manor of Hugh d'Audley namely Desning with Cavenham' dated 1321. Hugh d'Audley is mentioned by Copinger as a lord of the manor of Cavenham who 'eventually created earl of Gloucester' in 1337. In the published Patent rolls there are two references to the warrens or 'cony-warrens at Desenyng and Cavenham' in 1310 and 1311. The references to lands in Tuddenham having been warren in the deed of 1878 and the earlier survey of 1766 might be a possible reference to this medieval warren.

In a collection of deeds and manorial records relating to Santon Downham held at the record office in Bury there is a grant dated 19 April 1400 of various manors including Cavenham and Tuddenham to Sir Robert Schardelowe and another deed dated 16 November 1432 relating to the same manors (ref. 651/6 & 7). These deeds are unlikely to contain full descriptions of the lands.

Conclusion

Though this area was heathland it has been used for a variety of different purposes. In the medieval period the area may have contained an area of warren and the heathland and meadows were used for both grazing of animals and for the collection of firing. The medieval usage continued up to and beyond the enclosure of both parishes, the poor of Tuddenham enjoying the right to cut turves from their allotted lands.

By the start of the nineteenth century part of the heath was used as a sporting, that is shooting estate. This activity was interrupted by the First World War when the area was used as a training ground by a territorial battery of the Royal Garrison Artillery. As early as September 1945 the preservation of the area as a nature reserve was considered desirable.

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The references given below are to the records examined for this report.

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K997. Walton Robert Burrell (1863-1944) Photographic Collection c. 1914

HA 507/2/311. Deeds of the 'Tuddenham St Mary Estate' (564a 0r 27p) in Tuddenham St Mary purchased 15 February 1878 by the Marquis of Bristol from the trustees of Sir Joseph Williamson's Charity, Thetford 1718-1878

T 52/1. Tithe Apportionment Tuddenham

Enclosure Records

941/84/1/12. Rough Copy of Tuddenham Enclosure Map 1796 made c. 1900

Q/RI 39. Enclosure Award Cavenham 1802

Q/RI 10. Enclosure Map Cavenham 1802

Q/RI 47. Enclosure Award Tuddenham 1797

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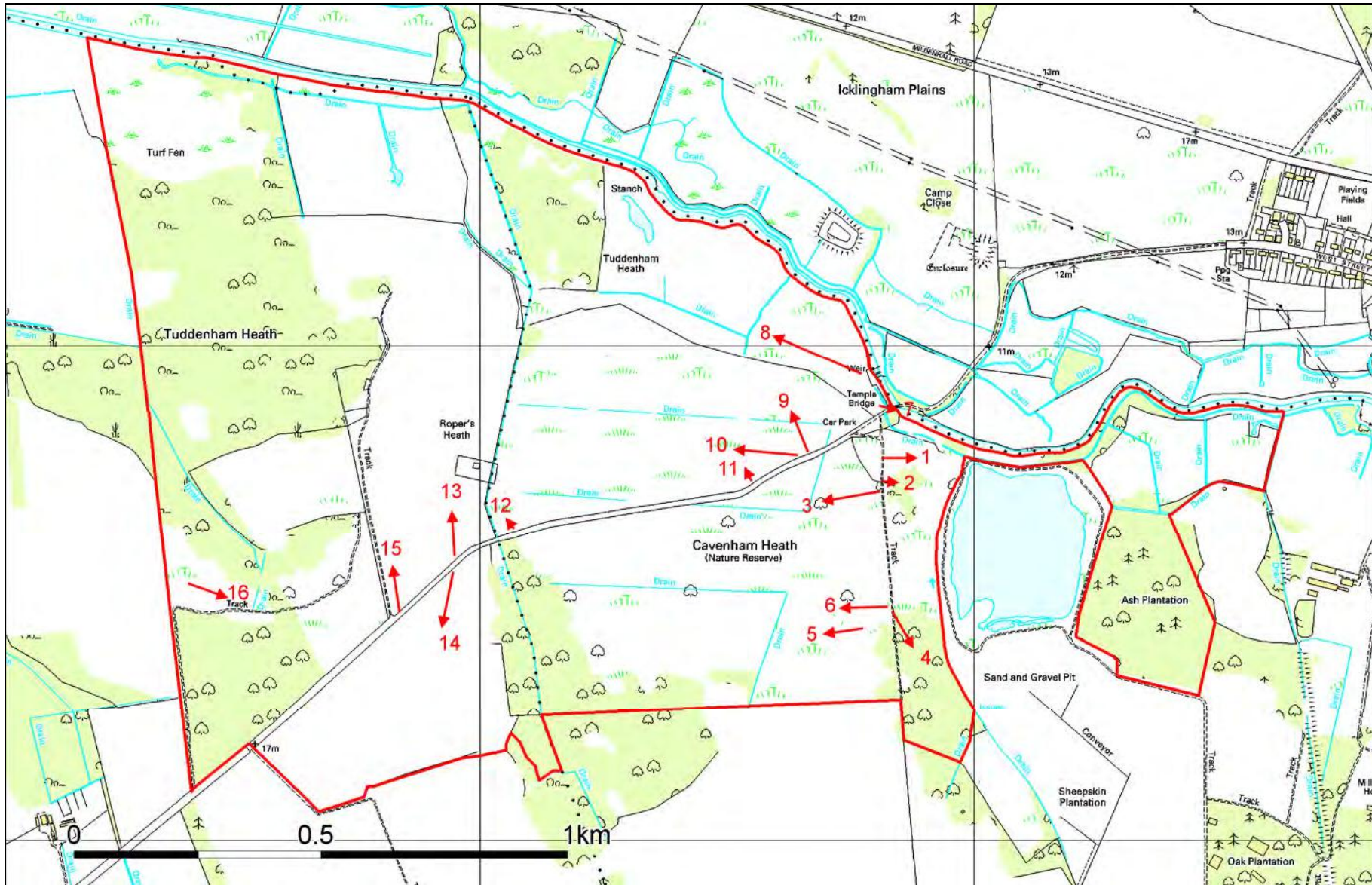
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Appendix 2. Site inspection photographs



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Figure 1. Photograph locations and direction of view



Photo 1



Photo2. WW2 pillbox (CAM 054)



Photo 3



Photo 4. Birch woodland plantation



Photo 5. Looking west, CAM 047 stripped area in foreground



Photo 6



Photo 7. Temple Bridge (IKL 117)



Photo 8. Looking NW across water meadows



Photo 9



Photo 10



Photo 11. Example of large-scale pits/quarrying?



Photo 12. Examples of rabbit disturbance



Photo 13. Looking north across Ropers Heath



Photo 14



Photo 15. Western embanked boundary of Ropers Heath



Photo 16

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