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Transport And Works Act 1992

Transport And Works (Applications And Objections Procedure) (England And Wales) Rules 2006

Appendix 12.1 – Archaeological Aerial Investigation and Mapping

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Executive summary

An archaeological aerial investigation and mapping project has been undertaken for a targeted area of Phase 2 of the A1307 Cambridge South East Transport Scheme, on behalf of the Greater Cambridge Partnership. The aim was to accurately map and record the form and extent of archaeological features visible as cropmarks, soilmarks, earthworks or structures, to inform the baseline assessment of the historic environment within this part of the wider study area.

The project comprised the systematic analysis, interpretation and transcription of archaeological features from modern and historic aerial photographs, as well as lidar. This was undertaken across a study area of approximately 4.6km². In total, 152 individual archive aerial photographs were examined, in conjunction with a range of other digital aerial imagery. This report details the methodology utilised, itemises the sources consulted and summarises the results.

Twenty-nine grouped features were transcribed from the aerial sources. Six of these grouped features had been previously documented or noted in some form either in the Cambridgeshire Historic Environment Record or the National Record of the Historic Environment; meaning 23 grouped features observed on aerial imagery during this survey had not been previously recorded.

1 Introduction

An archaeological aerial investigation and mapping (AIM) project has been undertaken for a targeted area at the south-eastern end of Phase 2 of the A1307 Cambridge South East Transport (CSET Phase 2) Scheme, on behalf of the Greater Cambridge Partnership. This is also sometimes referred to as a remote sensing survey, aerial survey, or aerial analysis and transcription. It comprises the systematic analysis, interpretation, mapping and recording of archaeological features from modern and historic aerial photographs, as well as lidar imagery.

The aim was to accurately map and record the form and extent of archaeological features visible as cropmarks, soilmarks, earthworks or structures, to inform the baseline assessment of the historic environment within the land east of Babraham High Street; the easternmost part of the wider CSET Phase 2 scheme area. This is hereafter referred to as the study area (see Figure 1 in Section 1.2, below).

This report summarises the AIM methodology, the overall results, and highlights features of interest. It contains a gazetteer of the results (Appendix B), which has been derived from the GIS attribute data of each line and polygon transcribed. This is accompanied by a map showing the overall transcriptions across the study area (see drawing 403394-MMD-ENV-00-DR-EN-0230 in Appendix C).

This AIM project was not intended to be a standalone deliverable containing, for example, the archaeological and historical background of the study area; or a detailed assessment of the local, regional and national significance of the transcription results. The resultant dataset is to be integrated into the wider historic environment baseline assessment, which will assess significance in the context of further historic environment survey and research (for example geophysical survey and archive research).

1.1 Previous archaeological aerial analysis and transcription

Approximately the southern half of this study area has been previously surveyed in this way as a part of Historic England’s (then English Heritage) National Mapping Programme (NMP) project for Essex¹. Although the study area is entirely within Cambridgeshire, it lies close to the northern boundary of Essex, and therefore fell within one of the complete Ordnance Survey (OS) quartersheets that comprised part of the Essex NMP project. The results of the Essex NMP project are shown in 403394-MMD-ENV-00-DR-EN-0230 in Appendix C

Additionally, specific locations within the study area have been the subject of targeted aerial investigation and mapping projects undertaken on behalf of commercial clients, which have contributed additional information to the HER. Two of these focus on the Bourn Bridge area, also within the southern half of the study area (Cambridgeshire HER event records: ECB1478, ECB1543)^{2,3}. The results of these transcriptions are not displayed in the figures accompanying this report.

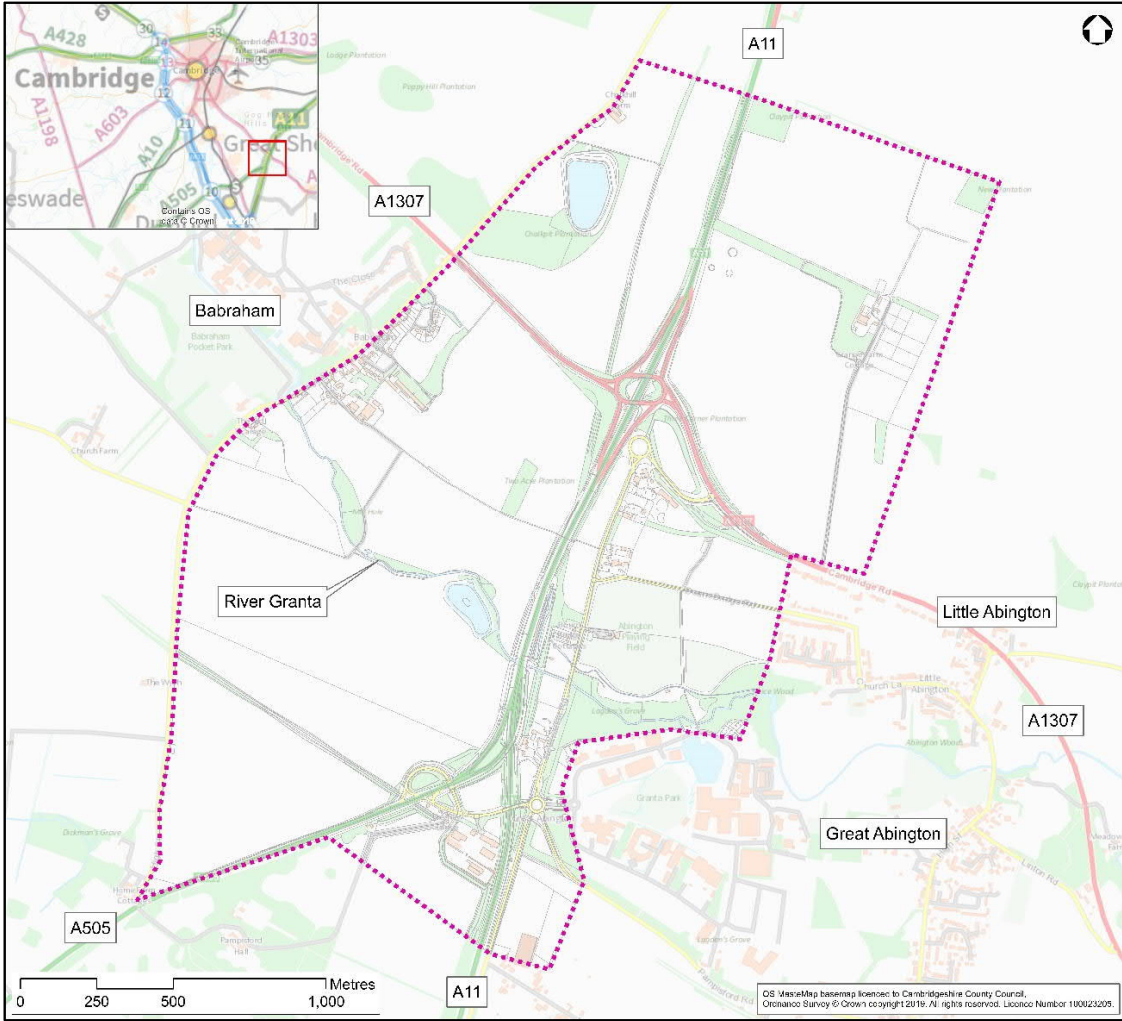
¹ Essex County Council (2003) *National Mapping Programme, Essex; Management Report*. [November 2003 for English Heritage]
² Air Photo Services (1993) *Bourn Bridge (TL5149), Babraham, Cambridgeshire: aerial photographic assessment*. [November 1993 for Cambridge Archaeological Unit]
³ Air Photo Services (1994) *A11/A604, Four Wentways, Abington, Cambridgeshire (Centred TL523498): aerial photographic assessment*. [October 1994 for Oxford Archaeological Unit]

1.2 Study area

The study area lies just within the southern boundary of Cambridgeshire, between Babraham to the north-west and Little Abington to the south-east. It covers an area of approximately 4.6km². This encompasses the proposed Travel Hub Site options at the eastern end of the Scheme. This study area was defined in consultation with the Cambridgeshire County Council Historic Environment Team, with the aim of providing additional information where possible on heritage assets previously recorded in this locality.

The study area consists of very gently rolling chalk topography, across a rural area dominated by arable agriculture. The River Granta bisects the study area along a south-eastern to north-west alignment.

Map 1.1: Aerial investigation and mapping study area



1.3 Imagery sources

1.3.1 Historic England Archive

All readily available historic vertical and oblique aerial photographs of the study area held within the Historic England archive were consulted for this project. This was a total of 152 images. The

full list of these search results can be viewed in Appendix A. A further 71 vertical aerial images are held by the Historic England Archive as negatives only, and therefore were not viewed.

Vertical aerial photographs were taken for non-archaeological purposes from approximately 1940 onwards, by organisations such as the Royal Air Force (RAF) and the Ordnance Survey (OS). These photographs often captured sites of historic interest incidentally, especially those shots taken in the first half of the 20th century, before archaeological remains may have been damaged or destroyed by the intensification of arable farming.

Historic oblique aerial photographs dating from approximately 1920 onwards usually targeted known sites of architectural or archaeological interest. They were typically taken at a much larger scale than the 'blanket' vertical aerial photography and were often timed to capture images of archaeological sites when they were at their most visible, i.e. when dry ground conditions favoured the development of clear cropmarks, or when low winter sun would reveal subtle earthworks.

All aerial photographs in the Historic England archive which fell within the study area were viewed in person and examined stereoscopically and under magnification where applicable. Copies of all the images viewed were obtained with the use of a digital SLR camera, so that they could then be reviewed in conjunction with lidar models, historic maps and other imagery, as well as Historic Environment Record (HER) and National Record of the Historic Environment (NRHE) data during the transcription process.

1.3.2 Cambridge University Collection of Aerial Photographs (CUCAP)

Projects of this type would usually include reference to vertical and oblique historic aerial photographs held within the CUCAP archive, in the same way as for the Historic England Archive. However, the CUCAP collection was unavailable for consultation during the period of this project as it is currently closed for public access due to funding issues.

1.3.3 Online aerial photographic sources

Modern vertical orthophotographs were also available for the entirety of the study area, in the form of ESRI World Imagery. Reference was also made to both Google Earth and Bing aerial photographs; as good practice in aerial analysis and transcription projects requires the comparison of all available imagery, in order to ensure a robust and meaningful interpretation.

1.3.4 Lidar

Environment Agency lidar data is available for approximately 80% of the study area at spatial resolutions of 1m and 2m. Only the 1m resolution is suitable for archaeological survey. The northern 20% (approximately) of the study area is not yet covered by this dataset.

The lidar DSM (Digital Surface Model) and DTM (Digital Terrain Model) data were used to create the following advanced visualisation models within software called RVT (Relief Visualisation Toolkit) in order to aid the interpretation and transcription of the features observed:

- | | |
|------------------------------|--------------------------------|
| 1. Hillshade | 5. Sky View Factor |
| 2. Multi-Direction Hillshade | 6. Anisotropic Sky View Factor |
| 3. Slope | 7. Openness (positive) |
| 4. Simple Local Relief | 8. Openness (negative) |

All eight advanced visualisation models were reviewed during the course of the analysis and interpretation, in combination with all other image sources. For accuracy, transcriptions were made only from the Openness models, as the others are proxy models of the landscape.

The DTM is lidar data that has been processed to provide a representation of the ground surface without objects such as vegetation or buildings. This means that archaeological earthworks can be revealed on the lidar imagery, even if they lie beneath areas of woodland. However, this can sometimes depend on the time of year the survey was undertaken, as a dense woodland canopy can slightly hinder data collection, even for lidar.

1.4 Reference information

1.4.1 Cambridgeshire Historic Environment Record (CHER) data

Monument and event records from the Cambridgeshire HER database were obtained for the purposes of this project. These records were used as a reference to aid interpretation of features visible on remote sensed imagery. This was through either the pre-existing identification of a visible feature, or by providing information that could help characterise the likely heritage potential of an area.

The HER data was supplied as vector data (points, lines and polygons), with identifying attribute data attached.

Where an HER record already existed for a transcribed feature, this reference was cited in the attribute data table for that feature (refer to Table 2.4, below).

1.4.2 National Record of the Historic Environment (NRHE) data

Monument and event records from the NRHE database were obtained from Historic England. As with the CHER data (above), this will be used as a reference to aid interpretation of features visible on remote sensed imagery. This data was supplied as both vector data with identifying attributes attached, and as accompanying PDF monument and event records.

Where a NRHE record already existed for a transcribed feature, this reference was cited in the attribute data table for that feature (refer to Table 2.4, below, for the format of this).

1.4.3 Cartographic sources

Historic OS mapping is an important reference source when assessing features visible on remote sensed imagery. Epochs 1-4 of the 1: 2,500 scale County Series maps are usually the most useful source when comparing with possible historic features visible on aerial imagery.

Where features such as field boundaries, trackways, extractive pits or ponds are marked on a historic OS map, they were not mapped and recorded as part of this aerial analysis and transcription project. This is because the objective of this project was to add to the known record, not duplicate it. However, where the full extent or form of a feature was not recorded in its entirety on the historic OS maps, it was included in the transcription for this project.

1.4.4 Additional reference information

Information on the underlying geology and soils should also be taken into account when reviewing aerial photographs for evidence of sub-surface archaeological remains, as this can affect the visibility of these features as soilmarks and cropmarks.

Information on the underlying bedrock and superficial geology was obtained from the British Geological Survey (BGS) online Geology of Britain Viewer⁴. Soil types were reviewed via the Cranfield University Soilscales viewer⁵.

⁴ British Geological Survey (2018) *Geology of Britain Viewer*. Available at: <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> Accessed November 2019

⁵ Cranfield University (2018) *Soilscales*. Available at: <http://www.landis.org.uk/soilscales/> Accessed November 2019

2 Methodology

In order to provide consistency with other similar datasets, particularly Historic England NMP projects⁶, this aerial analysis and transcription was undertaken in line with NMP standards⁷. Historic England guidance on the planning and management of projects that involve interpretation and mapping from aerial imagery has also been consulted⁸. The interpretation of identified features is consistent with the preferred terms within the Forum on Information Standards in Heritage⁹ (FISH) Monument Type Thesaurus¹⁰.

All aerial images from the sources noted were systematically examined for any archaeological or historic features visible as cropmarks, soilmarks, earthworks or structures (e.g. WWII pillboxes). In accordance with best practice for aerial investigation and mapping surveys, all available sources for each field or land parcel were viewed in conjunction in order to enable the most accurate interpretation possible. During this process reference was made to the CHER and NRHE records, as well as the OS historic maps and other sources of reference information noted above.

2.1 Orthorectification

Where archaeological features were visible on the aerial imagery, these images were orthorectified (where necessary) using the software Aerial 5.33 prior to their import into ArcMap (GIS) for transcription.

Height data for the majority of the study area comprised 5m DTM point data derived from the Environment Agency lidar. Digital OS MasterMap 1:1250 scale base maps were used during orthorectification to establish control points, and the DTM noted above was used to apply an elevation to each of them. Six or more control points were used for each photograph, with the RMS (root mean squared) errors kept below 1m for each control point. This provides an accuracy of within 1m to the OS MasterMap for the orthorectified images.

The OS advise that their 1:2,500 scale MasterMap data has an accuracy of 0.5m RMSE (root mean squared error). Therefore, archaeological features transcribed from images orthorectified using this data will on average be accurate to within 1m-2m of their British national grid (BNG) coordinates.

2.2 Transcription and recording

Orthorectified images were imported into ArcMap 10.6, which was used to create the detailed digital transcription necessary to fully interpret the archaeological or historic features visible on the aerial imagery. All features were transcribed as polygons; avoiding the use of lines (with the exception of ridge and furrow direction arrows).

⁶ Historic England (2019) *Aerial Investigation and Mapping*. Available at: <https://historicengland.org.uk/research/methods/airborne-remote-sensing/aerial-investigation/> Accessed November 2019

⁷ Winton, H. (2018) *Standards for National Mapping Programme projects*, Version 0.1 Draft, Historic England, Aerial Investigation and Mapping. Unpublished document

⁸ English Heritage (2012) *Management of Research Projects in the Historic Environment (MoRPHE) Project Planning Note (PPN) 7: Interpretation and mapping from aerial photographs and other aerial remote sensed data*. Version 1.0

⁹ Forum on Information Standards in Heritage (2019) *FISH Vocabularies*. Available at: <http://www.heritage-standards.org.uk/fish-vocabularies/> Accessed November 2019

¹⁰ Forum on Information Standards in Heritage (2019a) *FISH Terminologies: Monument Type Thesaurus*. Available at: http://www.heritage-standards.org.uk/wp-content/uploads/2019/03/Mon_alpha.pdf Accessed November 2019

As noted above, to ensure consistency with other similar remote sensing datasets, this aerial analysis and transcription has been undertaken in accordance with current NMP standards and guidance. As such the identified features have been transcribed onto the standard NMP drawing layers using standard NMP conventions. The layers and colours indicated can vary between NMP projects, as appropriate (e.g. some may include specific layers for Second World War anti-tank cubes or barbed wire, where necessary). Those to be used in this project are set out in Table 2.1.

Table 2.1: Layers used in GIS for digital transcription of features identified

Layer name	Colour	Description
Bank	Red	Defines the outline of positive features such as boundary banks or windmill mounds. Thin banks, or those too diffuse to define accurately, are included on this layer as a single line.
Ditch	Light green	Defines the outline of negative features such as boundary ditches or hollow ways. Thin ditches, or those too diffuse to define accurately, are included on this layer as a single line.
Large cut feature	Blue	Defines the outline of sizeable negative features such as quarries or extractive pits.
Levelled ridge and furrow outline or direction	Magenta	Defines the outline of a single block of ridge and furrow seen either as a cropmark or an earthwork later known to have been levelled. An arrow within each single block indicates the direction of ploughing.
Extant ridge and furrow outline or direction	Cyan	Defines the outline of a single block of ridge and furrow seen as earthworks on the latest available imagery. An arrow within each single block indicates the direction of ploughing.
Extent of area	Mid green	Defines the extent of large features such as the perimeters of WWII airfields and military camps. Although the NMP usually uses grey for this layer, a mid green colour has been selected here to avoid confusion with the basemap.

Table based on Winton, 2018: Section 7.5, p.31

Tables 2.2 and 2.3 show period ranges and evidence types that have been used in the GIS attribute tables (Table 2.4). The evidence types identify the form in which a feature is visible on the aerial imagery used for the transcription.

Table 2.2: Period ranges used in the GIS attribute data

Period	Date range
Neolithic	4,000 – 2,200 BC
Bronze Age	2,200 – 700 BC
Iron Age	800 BC – AD 43
Roman	AD 43 – 410
Early medieval	AD 410 – 1066
Medieval	AD 1066 – 1540
Post-medieval	AD 1540 – 1901
20th century	AD 1901 – 2000
First World War	1914 – 1918
Second World War	1939 – 1945
Uncertain	

Information relating to each of the transcribed features has been recorded in the ArcMap attribute data table. This includes details such as the interpretation of each feature, with a brief description, as well as the existing CHER and NRHE record numbers (if applicable). The

references of aerial images used in each transcription from the Historic England Archive or modern online source are recorded in the Source column, to facilitate retrieval and review of this data source at a future date if necessary. Each feature has also been assigned a unique identifier, which was used to group multiple polygons representing a field system, for example. An example of an attribute data table is shown in Table 4.

Table 2.4: Example attribute data table

Unique identifier	NRHE	CHER	Period	Type	Evidence	Description	Source
AIM01		09356a	Neolithic	HENGES / RING DITCH	Cropmark	2016 geophysical survey and evaluation at the Cambridge International School identified a large prehistoric ring ditch or henge. It is visible on vertical aerial photographs of 2018 as a narrow, light curvilinear cropmark. The light colour of the cropmark is an example of the unusual phenomenon of cropmark reversal on chalk bedrock, often seen a considerable way into a prolonged period of drought, as in this case. The curvilinear cropmark is not continuous; this is likely due to the 2016 archaeological trial trenches, and/or variations in soil conditions affecting the formation of the cropmark, rather than genuine interruptions to the underlying feature.	2018 World Imagery - Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Table based on Winton, 2018: Section 7.5, p.31

3 Results

The primary output of this AIM project is the detailed digital transcription of each identified potential archaeological feature.

This section summarises the overall results, and highlights features of interest. It should be read with reference to the gazetteer of the results (Appendix B), and the figures showing the overall transcriptions across the study area (Appendix C).

3.1 Summary and highlights

The study area is characterised by the bold dark cropmarks of the underlying chalk geology. This creates a range of extensive mottled and streaked patterns, as well as the well-defined cropmarks of features such as palaeochannels and ice wedge cracks. These can cause confusion in the archaeological interpretation of aerial photographs; for example, the latter may easily be mistaken for ditched enclosures, or where they form a mottled pattern, for ring ditches. Even when recognised as being of geological origin; when such cropmarks are so strongly visible, they may mask the identification of genuine archaeological features present.

Twenty-nine grouped features were transcribed from the aerial sources. Six of these grouped features had been previously documented or noted in some form either in the CHER or the NRHE; meaning 23 grouped features observed on aerial imagery during this survey had not been previously recorded.

The feature of earliest origin recorded as a part of this project is the Neolithic henge (AIM01) visible as a ditched circular enclosure cropmark on the playing fields of the Cambridge International School, to the south of Granta Park. This is visible in this way on a number of the historic and modern aerial images of the study area, but it is likely to have been omitted from the previous transcription projects which captured the group of three round barrows to its north due to its location and unusual appearance. Unusually, it is visible as a light cropmark in grass, instead of the dark cropmark usually expected for a cut feature. This is attributable to the phenomenon of cropmark reversal which can occur over chalk bedrock during periods of extended drought. This factor, combined with its location on a school sports pitch, as well as its apparently carefully cited layout within one corner of the field, makes it easily mistakeable as the boundary of a cricket pitch. In fact, numerous aerial images show the cricket pitches of the school to be located to the south, and to be of larger diameter (although otherwise identical in appearance on aerial imagery). This feature would have been easily overlooked during the course of this project, had it not previously been located by geophysical survey and its early origin confirmed by archaeological evaluation trenching (CHER: ECB4757).

Ten possible Bronze Age round barrows are visible across the study area on aerial photographs as ring ditches, nine of which have been previously recorded in the CHER. Due to the nature of the underlying chalk geology, the encircling outer ditches are very clearly visible as well-defined cropmarks. Five of those previously recorded were transcribed as part of the Essex NMP project. A group of four round barrows has been transcribed as a part of this project (AIM27), to the north-west of the A1307/A11 junction. These are the four not transcribed as part of the Essex NMP project. These are similar in scale to those already mapped nearby.

A further circular ring ditch cropmark was transcribed, at the southern boundary of the study area (AIM26), to the north of Pampisford Hall. This is much smaller in diameter and ditch width

than the other examples noted above, and is penannular in appearance, with a possible entrance on its northern side.

A group of rectilinear cropmarks are visible on the south-facing gently-sloping valley side north of the River Granta, west of the A11 (AIM29). Two substantial ditched rectilinear enclosures, one nested inside the other, are visible on oblique aerial photographs of 2015. Their southern edges are indistinct. Archaeological excavation c.200m to the south-east in 1994 (CHER: ECB296) identified finds and features dating from the Palaeolithic to the early medieval periods (CHER: 11317, 11317A-D, 13044, CB14745, MCB17799). These included a Bronze Age ring ditch, a Late Iron Age / Romano-British field system, and Roman and early medieval settlements. Given the proximity of these multi-period archaeological remains, it is possible that these enclosures are related, perhaps to the Iron Age or Romano-British features.

The feature types most frequently identified across the study area are former field boundaries and headland banks not recorded on historic OS maps (AIM02, AIM06, AIM14, AIM19). These were transcribed from a variety of the lidar DTM and DSM advanced visualisation models; many of them so subtly extant that this is the only form in which they are detectable. These are likely to be of medieval or post-medieval origin, representing the pre-enclosure landscape.

Medieval or post-medieval ridge and furrow is also visible across the study area (AIM03, AIM07, AIM08, AIM15, AIM23). As with the field boundaries, most of these were recorded from the lidar data, although one field of ridge and furrow was visible on vertical aerial photographs of 1968 as extant earthworks (AIM25). By the time the lidar data was captured in 2018, these earthworks had been levelled.

Widespread small-scale chalk and clay quarrying is also visible across this landscape (AIM04-5, AIM28, AIM12-13, AIM16-17, AIM22). All those transcribed as part of this project had not been recorded on historic OS maps. This is likely to be due to the ad-hoc and temporary nature of such activity during the medieval and post-medieval periods, although in some cases it may alternatively indicate a much earlier origin.

4 References

Air Photo Services (1993) *Bourn Bridge (TL5149), Babraham, Cambridgeshire: aerial photographic assessment*. [November 1993 for Cambridge Archaeological Unit]

Air Photo Services (1994) *A11/A604, Four Wentways, Abington, Cambridgeshire (Centred TL523498): aerial photographic assessment*. [October 1994 for Oxford Archaeological Unit]

British Geological Survey (2018) *Geology of Britain Viewer*. Available at: <http://mapapps.bgs.ac.uk/geologyofbritain/home.html> Accessed November 2019

Cranfield University (2018) *Soilscapes*. Available at: <http://www.landis.org.uk/soilscapes/> Accessed November 2019

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Forum on Information Standards in Heritage (2019a) *FISH Terminologies: Monument Type Thesaurus*. Available at: http://www.heritage-standards.org.uk/wp-content/uploads/2019/03/Mon_alpha.pdf Accessed November 2019

Historic England (2019) *Aerial Investigation and Mapping*. Available at: <https://historicengland.org.uk/research/methods/airborne-remote-sensing/aerial-investigation/> Accessed November 2019

Winton, H. (2018) *Standards for National Mapping Programme projects*, Version 0.1 Draft, Historic England, Aerial Investigation and Mapping. Unpublished document

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A. Archive aerial photographs consulted

Refer to Section 1.3.1: Historic England Archive



Full single listing - Verticals, Standard order
Customer enquiry reference: 121890

Sortie number	Library number	Camera position	Frame number	Held	Centre point	Run	Date	Sortie quality	Scale 1:	Focal length (in inches)	Film details (in inches)	Film held
RAF/106G/UK/1365	336	FV	7113	P	TL 527 492	5	03 APR 1946	A	9800	20	Black and White 8.25 x 7.5	RAF
RAF/106G/UK/1365	336	FV	7114	P	TL 519 493	5	03 APR 1946	A	9800	20	Black and White 8.25 x 7.5	RAF
RAF/106G/UK/1365	336	FV	7346	P	TL 514 504	8	03 APR 1946	A	9800	20	Black and White 8.25 x 7.5	RAF
RAF/106G/UK/1365	336	FV	7347	P	TL 521 505	8	03 APR 1946	A	9800	20	Black and White 8.25 x 7.5	RAF
RAF/106G/UK/1365	336	FV	7348	P	TL 528 506	8	03 APR 1946	A	9800	20	Black and White 8.25 x 7.5	RAF
RAF/106G/UK/1635	423	RS	4394	P	TL 519 482	18	09 JUL 1946	AC	10000	36	Black and White 8.25 x 7.5	NMR
RAF/106G/UK/1635	423	RS	4395	P	TL 513 482	18	09 JUL 1946	AC	10000	36	Black and White 8.25 x 7.5	NMR
RAF/CPE/UK/2534	806	V	5001	P	TL 508 493	1	25 MAR 1948	A	5000	14	Black and White 8.25 x 7.5	NMR
RAF/58/651	1160	RS	4120	P	TL 510 502	25	24 APR 1951	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/651	1160	RS	4121	P	TL 516 502	25	24 APR 1951	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/651	1160	RS	4122	P	TL 522 502	25	24 APR 1951	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/651	1160	RS	4123	P	TL 528 502	25	24 APR 1951	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/649	1171	RP	3102	P	TL 519 514	6	23 APR 1951	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/649	1171	RP	3103	P	TL 525 513	6	23 APR 1951	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/649	1171	RP	3104	P	TL 531 512	6	23 APR 1951	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/649	1171	RS	4093	P	TL 515 495	19	23 APR 1951	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/649	1171	RS	4094	P	TL 520 494	19	23 APR 1951	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/649	1171	RS	4095	P	TL 528 493	19	23 APR 1951	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/540/706	1249	V	5064	P	TL 512 502	18	09 APR 1952	AC	5100	14	Black and White 8.25 x 7.5	NMR
RAF/540/706	1249	V	5065	P	TL 514 499	18	09 APR 1952	AC	5100	14	Black and White 8.25 x 7.5	NMR
RAF/540/706	1249	V	5066	P	TL 516 497	18	09 APR 1952	AC	5100	14	Black and White 8.25 x 7.5	NMR
RAF/540/706	1249	V	5067	P	TL 518 494	18	09 APR 1952	AC	5100	14	Black and White 8.25 x 7.5	NMR
RAF/540/706	1249	V	5068	P	TL 521 492	18	09 APR 1952	AC	5100	14	Black and White 8.25 x 7.5	NMR
RAF/540/706	1249	V	5069	P	TL 523 489	18	09 APR 1952	AC	5100	14	Black and White 8.25 x 7.5	NMR
RAF/540/1143	1462	F21	93	P	TL 511 490	4	09 JUN 1953	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/540/1143	1462	F21	94	P	TL 511 495	4	09 JUN 1953	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/540/1143	1462	F21	95	P	TL 511 501	4	09 JUN 1953	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/540/1143	1462	F21	96	P	TL 511 506	4	09 JUN 1953	A	10000	20	Black and White 8.25 x 7.5	NMR

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RAF/540/1143	1462	F22	93	P	TL 528 490	12	09 JUN 1953	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/540/1143	1462	F22	94	P	TL 528 495	12	09 JUN 1953	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/540/1143	1462	F22	95	P	TL 528 501	12	09 JUN 1953	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/540/1143	1462	F22	96	P	TL 528 506	12	09 JUN 1953	A	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/1971	1726	F21	452	P	TL 527 486	6	27 MAR 1956	AB	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/1971	1726	F21	453	P	TL 526 491	6	27 MAR 1956	AB	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/1971	1726	F21	454	P	TL 527 497	6	27 MAR 1956	AB	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/1971	1726	F21	455	P	TL 527 503	6	27 MAR 1956	AB	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/1971	1726	F21	456	P	TL 527 509	6	27 MAR 1956	AB	10000	20	Black and White 8.25 x 7.5	NMR
RAF/82/1428	1743	F21	60	N	TL 536 494	4	23 MAY 1956	AC	10000	20	Black and White 8.25 x 7.5	NMR
RAF/82/1428	1743	F21	100	N	TL 538 501	5	23 MAY 1956	AC	10000	20	Black and White 8.25 x 7.5	NMR
RAF/82/1428	1743	F21	101	N	TL 537 507	5	23 MAY 1956	AC	10000	20	Black and White 8.25 x 7.5	NMR
RAF/82/1428	1743	F22	58	N	TL 513 491	12	23 MAY 1956	AC	10000	20	Black and White 8.25 x 7.5	NMR
RAF/82/1428	1743	F22	59	N	TL 513 498	12	23 MAY 1956	AC	10000	20	Black and White 8.25 x 7.5	NMR
RAF/82/1428	1743	F22	60	N	TL 517 493	13	23 MAY 1956	AC	10000	20	Black and White 8.25 x 7.5	NMR
RAF/82/1428	1743	F22	61	N	TL 517 487	13	23 MAY 1956	AC	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/2041	1750	F21	112	P	TL 509 490	3	03 OCT 1956	AB	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/2041	1750	F21	113	P	TL 509 497	3	03 OCT 1956	AB	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/2041	1750	F22	112	P	TL 529 492	9	03 OCT 1956	AB	10000	20	Black and White 8.25 x 7.5	NMR
RAF/58/2041	1750	F22	113	P	TL 529 499	9	03 OCT 1956	AB	10000	20	Black and White 8.25 x 7.5	NMR
HSL/UK/701081	2383N	V	4308	N	TL 529 492	1	09 OCT 1970	A	12000	6	Black and White 9 x 9	HES
HSL/UK/701081	2383N	V	4444	N	TL 509 490	2	09 OCT 1970	A	12000	6	Black and White 9 x 9	HES
HSL/UK/701081	2383N	V	4445	N	TL 509 500	2	09 OCT 1970	A	12000	6	Black and White 9 x 9	HES
RAF/58/239	3013	V	5046	P	TL 535 508	1	06 JUN 1949	A	7680	10	Black and White 9 x 9	NMR
RAF/58/239	3013	V	5047	P	TL 530 513	1	06 JUN 1949	A	7680	10	Black and White 9 x 9	NMR
RAF/58/315	3093	V	5086	P	TL 511 485	3	22 AUG 1949	A	8000	10	Black and White 9 x 9	NMR
RAF/58/315	3093	V	5087	P	TL 517 479	3	22 AUG 1949	A	8000	10	Black and White 9 x 9	NMR
RAF/58/429	3135	V	5002	P	TL 529 506	1	10 MAY 1950	A	8000	10	Black and White 9 x 9	NMR
RAF/58/429	3135	V	5003	P	TL 533 501	1	10 MAY 1950	A	8000	10	Black and White 9 x 9	NMR
RAF/58/443	3160	V	5001	P	TL 534 499	1	12 MAY 1950	A	8000	10	Black and White 9 x 9	NMR
RAF/58/443	3160	V	5088	P	TL 538 506	7	12 MAY 1950	A	8000	10	Black and White 9 x 9	NMR
RAF/58/443	3160	V	5089	P	TL 533 511	7	12 MAY 1950	A	8000	10	Black and White 9 x 9	NMR
RAF/58/800	3531	V	5045	P	TL 519 484	2	11 OCT 1951	A	8000	12	Black and White 8.25 x 7.5	NMR
RAF/58/800	3531	V	5046	P	TL 526 489	3	11 OCT 1951	A	8000	12	Black and White 8.25 x 7.5	NMR
RAF/58/800	3531	V	5090	P	TL 526 499	4	11 OCT 1951	A	8000	12	Black and White 8.25 x 7.5	NMR
RAF/58/800	3531	V	5134	P	TL 534 511	6	11 OCT 1951	A	8000	12	Black and White 8.25 x 7.5	NMR

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MAL/68038	5152	V	85	P	TL 518 488	4	02 JUN 1968	A	11000	6	Black and White 9 x 9	NMR
MAL/68038	5152	V	86	P	TL 509 489	4	02 JUN 1968	A	11000	6	Black and White 9 x 9	NMR
MAL/68038	5152	V	118	P	TL 517 503	5	02 JUN 1968	A	11000	6	Black and White 9 x 9	NMR
MAL/68038	5152	V	119	P	TL 527 503	5	02 JUN 1968	A	11000	6	Black and White 9 x 9	NMR
MAL/69054	5416A	V	104	P	TL 521 491	8	09 JUN 1969	A	10500	6	Black and White 9 x 9	CAM
MAL/69054	5416A	V	105	P	TL 531 491	8	09 JUN 1969	A	10500	6	Black and White 9 x 9	CAM
MAL/69054	5416A	V	134	P	TL 532 507	2	09 JUN 1969	A	10500	6	Black and White 9 x 9	CAM
MAL/69054	5416A	V	135	P	TL 523 507	2	09 JUN 1969	A	10500	6	Black and White 9 x 9	CAM
MAL/69069	5423	V	166	N	TL 527 490	4	22 JUL 1969	A	10500	6	Black and White 9 x 9	CAM
MAL/69069	5423	V	167	P	TL 517 490	4	22 JUL 1969	A	10500	6	Black and White 9 x 9	CAM
MAL/69069	5423	V	168	P	TL 508 490	4	22 JUL 1969	A	10500	6	Black and White 9 x 9	CAM
MAL/69069	5423	V	202	P	TL 517 505	5	22 JUL 1969	A	10500	6	Black and White 9 x 9	CAM
MAL/69069	5423	V	203	P	TL 526 505	5	22 JUL 1969	A	10500	6	Black and White 9 x 9	CAM
MAL/69045	5511	V	10	P	TL 510 500	1	13 MAY 1969	A	12000	6	Black and White 9 x 9	NMR
MAL/69045	5511	V	11	P	TL 520 505	1	13 MAY 1969	A	12000	6	Black and White 9 x 9	NMR
MAL/69045	5511	V	12	P	TL 530 511	1	13 MAY 1969	A	12000	6	Black and White 9 x 9	NMR
MAL/76042	8170	V	6	P	TL 509 487	1	10 JUN 1976	A	10000	6	Black and White 9 x 9	NMR
MAL/76042	8170	V	7	P	TL 513 495	1	10 JUN 1976	A	10000	6	Black and White 9 x 9	NMR
MAL/76042	8170	V	8	P	TL 516 502	1	10 JUN 1976	A	10000	6	Black and White 9 x 9	NMR
MAL/76042	8170	V	9	P	TL 520 509	1	10 JUN 1976	A	10000	6	Black and White 9 x 9	NMR
OS/52R32	11007	V	23	P	TL 509 484	2	23 MAY 1952	A	8000	12	Black and White 9 x 9	NMR
OS/52R32	11007	V	24	P	TL 504 488	2	23 MAY 1952	A	8000	12	Black and White 9 x 9	NMR
OS/52R32	11007	V	60	P	TL 509 493	3	23 MAY 1952	A	8000	12	Black and White 9 x 9	NMR
OS/52R32	11007	V	61	P	TL 515 490	3	23 MAY 1952	A	8000	12	Black and White 9 x 9	NMR
OS/52R32	11007	V	114	P	TL 517 504	5	23 MAY 1952	A	8000	12	Black and White 9 x 9	NMR
OS/52R32	11007	V	115	P	TL 521 501	5	23 MAY 1952	A	8000	12	Black and White 9 x 9	NMR
OS/52R32	11007	V	116	P	TL 526 495	5	23 MAY 1952	A	8000	12	Black and White 9 x 9	NMR
OS/52R32	11007	V	133	P	TL 530 503	6	23 MAY 1952	A	8000	12	Black and White 9 x 9	NMR
OS/52R32	11007	V	134	P	TL 526 507	6	23 MAY 1952	A	8000	12	Black and White 9 x 9	NMR
OS/52R35	11010	V	24	P	TL 520 485	1	05 JUN 1952	A	8040	10	Black and White 9 x 9	NMR
OS/52R35	11010	V	25	P	TL 528 488	2	05 JUN 1952	A	8040	10	Black and White 9 x 9	NMR
OS/67145	11702	V	242	P	TL 503 493	10	05 JUN 1967	A	7500	12	Black and White 9 x 9	NMR
OS/67145	11702	V	243	P	TL 504 500	10	05 JUN 1967	A	7500	12	Black and White 9 x 9	NMR
OS/74187	12063	V	207	P	TL 521 486	1	22 JUL 1974	A	7500	12	Black and White 9 x 9	NMR
OS/74187	12063	V	208	P	TL 515 486	1	22 JUL 1974	A	7500	12	Black and White 9 x 9	NMR
OS/74187	12063	V	209	P	TL 510 486	1	22 JUL 1974	A	7500	12	Black and White 9 x 9	NMR

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OS/74187	12063	V	252	P	TL 513 499	2	22 JUL 1974	A	7500	12	Black and White 9 x 9	NMR
OS/74187	12063	V	253	P	TL 520 499	2	22 JUL 1974	A	7500	12	Black and White 9 x 9	NMR
OS/74187	12063	V	254	P	TL 527 499	2	22 JUL 1974	A	7500	12	Black and White 9 x 9	NMR
OS/76059	12204	V	33	P	TL 525 503	1	24 MAY 1976	A	7600	12	Black and White 9 x 9	NMR
OS/76059	12204	V	34	P	TL 518 503	1	24 MAY 1976	A	7600	12	Black and White 9 x 9	NMR
OS/76059	12204	V	35	P	TL 512 503	1	24 MAY 1976	A	7600	12	Black and White 9 x 9	NMR
OS/91163	13853	V	110	P	TL 512 504	4	15 AUG 1991	A	8100	12	Black and White 9 x 9	NMR
OS/91163	13853	V	111	P	TL 518 504	4	15 AUG 1991	A	8100	12	Black and White 9 x 9	NMR
OS/91163	13853	V	112	P	TL 525 504	4	15 AUG 1991	A	8100	12	Black and White 9 x 9	NMR
OS/94002	14533	V	39	P	TL 523 506	1	04 MAR 1994	A	8000	6	Black and White 9 x 9	NMR
OS/94002	14533	V	40	P	TL 519 501	1	04 MAR 1994	A	8000	6	Black and White 9 x 9	NMR
OS/94002	14533	V	41	P	TL 515 497	1	04 MAR 1994	A	8000	6	Black and White 9 x 9	NMR
OS/94002	14533	V	42	P	TL 511 492	1	04 MAR 1994	A	8000	6	Black and White 9 x 9	NMR
OS/94002	14533	V	43	N	TL 507 488	1	04 MAR 1994	A	8000	6	Black and White 9 x 9	
OS/96012	15014	V	8	P	TL 524 505	1	02 APR 1996	A	7800	12	Black and White 9 x 9	NMR
OS/96012	15014	V	9	P	TL 522 498	1	02 APR 1996	A	7800	12	Black and White 9 x 9	NMR
OS/96012	15014	V	10	P	TL 520 492	1	02 APR 1996	A	7800	12	Black and White 9 x 9	NMR
OS/96012	15014	V	11	P	TL 518 485	1	02 APR 1996	A	7800	12	Black and White 9 x 9	NMR
OS/96168	15091	V	40	N	TL 505 500	1	16 JUN 1996	A	7700	12	Black and White 9 x 9	NMR
OS/96169	15092	V	6	P	TL 535 505	1	16 JUN 1996	A	7700	12	Black and White 9 x 9	NMR
OS/96169	15092	V	7	P	TL 535 510	1	16 JUN 1996	A	7700	12	Black and White 9 x 9	NMR
OS/96169	15092	V	87	N	TL 515 505	4	16 JUN 1996	A	7700	12	Black and White 9 x 9	NMR
OS/96169	15092	V	88	N	TL 515 500	4	16 JUN 1996	A	7700	12	Black and White 9 x 9	NMR
OS/96169	15092	V	168	P	TL 525 509	6	16 JUN 1996	A	7700	12	Black and White 9 x 9	NMR
OS/96169	15092	V	169	P	TL 525 504	6	16 JUN 1996	A	7700	12	Black and White 9 x 9	NMR
OS/96169	15092	V	170	P	TL 525 500	6	16 JUN 1996	A	7700	12	Black and White 9 x 9	NMR
OS/99142	15261	V	130	N	TL 510 484	4	27 MAY 1999	A	7100	12	Black and White 9 x 9	NMR
OS/99142	15261	V	131	N	TL 515 485	4	27 MAY 1999	A	7100	12	Black and White 9 x 9	NMR
OS/99142	15261	V	132	N	TL 520 485	4	27 MAY 1999	A	7100	12	Black and White 9 x 9	NMR
OS/99142	15261	V	212	N	TL 510 495	6	27 MAY 1999	A	7100	12	Black and White 9 x 9	NMR
OS/99142	15261	V	213	N	TL 515 495	6	27 MAY 1999	A	7100	12	Black and White 9 x 9	NMR
OS/99142	15261	V	214	N	TL 520 495	6	27 MAY 1999	A	7100	12	Black and White 9 x 9	NMR
OS/99142	15261	V	215	N	TL 525 495	6	27 MAY 1999	A	7100	12	Black and White 9 x 9	NMR
OS/52R10	20192	V	42	N	TL 530 494	2	29 APR 1952	A	8040	10	Black and White 9 x 9	NMR
OS/52R10	20192	V	64	N	TL 527 489	3	29 APR 1952	A	8040	10	Black and White 9 x 9	NMR
OS/52R10	20192	V	93	N	TL 517 478	5	29 APR 1952	A	8040	10	Black and White 9 x 9	NMR

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OS/93320	20990	V	333	N	TL 522 486	7	17 MAY 1993	A	7800	12	Black and White 9 x 9	NMR
OS/93320	20990	V	334	N	TL 515 486	7	17 MAY 1993	A	7800	12	Black and White 9 x 9	NMR
OS/93320	20990	V	335	N	TL 508 486	7	17 MAY 1993	A	7800	12	Black and White 9 x 9	NMR
OS/93321	20991	V	26	N	TL 508 495	1	17 MAY 1993	A	7800	12	Black and White 9 x 9	NMR
OS/93321	20991	V	27	N	TL 514 495	1	17 MAY 1993	A	7800	12	Black and White 9 x 9	NMR
OS/93321	20991	V	28	N	TL 521 495	1	17 MAY 1993	A	7800	12	Black and White 9 x 9	NMR
OS/93321	20991	V	29	N	TL 527 495	1	17 MAY 1993	A	7800	12	Black and White 9 x 9	NMR
MAL/61466	21284	V	89763	N	TL 535 506	4	05 MAR 1961	A	11000	6	Black and White 9 x 9	NMR
MAL/61466	21284	V	89764	N	TL 532 496	4	05 MAR 1961	A	11000	6	Black and White 9 x 9	NMR
MAL/61466	21284	V	89765	N	TL 528 487	4	05 MAR 1961	A	11000	6	Black and White 9 x 9	NMR
OS/95716	22173	V	13	N	TL 520 491	1	15 AUG 1995	A	8200	12	Black and White 9 x 9	NMR
OS/95716	22173	V	14	N	TL 521 498	1	15 AUG 1995	A	8200	12	Black and White 9 x 9	NMR
OS/95716	22173	V	15	N	TL 524 504	1	15 AUG 1995	A	8200	12	Black and White 9 x 9	NMR
OS/99064	22913	V	32	N	TL 512 500	2	08 APR 1999	A	7400	6	Black and White 9 x 9	NMR
OS/99064	22913	V	33	N	TL 516 494	2	08 APR 1999	A	7400	6	Black and White 9 x 9	NMR
OS/99064	22913	V	34	N	TL 520 488	2	08 APR 1999	A	7400	6	Black and White 9 x 9	NMR
OS/00334	23370	V	155	N	TL 508 493	8	26 OCT 2000	A	8000	12	Black and White 9 x 9	NMR
OS/03928	24260	V	1054	N	TL 523 490	1	14 AUG 2003	A	6000	12	Black and White 9 x 9	NMR
OS/03928	24260	V	1055	N	TL 517 489	1	14 AUG 2003	A	6000	12	Colour 9 x 9	NMR
OS/03928	24260	V	1056	N	TL 512 489	1	14 AUG 2003	A	6000	12	Colour 9 x 9	NMR
OS/03928	24260	V	1057	N	TL 507 489	1	14 AUG 2003	A	6000	12	Colour 9 x 9	NMR
OS/03931	24262	V	3394	N	TL 518 509	6	16 AUG 2003	A	6000	12	Colour 9 x 9	NMR
OS/03931	24262	V	3395	N	TL 523 509	6	16 AUG 2003	A	6000	12	Colour 9 x 9	NMR
OS/03931	24262	V	3396	N	TL 529 510	6	16 AUG 2003	A	6000	12	Colour 9 x 9	NMR
OS/03931	24262	V	3502	N	TL 529 499	7	16 AUG 2003	A	6000	12	Colour 9 x 9	NMR
OS/03931	24262	V	3503	N	TL 523 499	7	16 AUG 2003	A	6000	12	Colour 9 x 9	NMR
OS/03931	24262	V	3504	N	TL 518 499	7	16 AUG 2003	A	6000	12	Colour 9 x 9	NMR
OS/03931	24262	V	3505	N	TL 512 499	7	16 AUG 2003	A	6000	12	Colour 9 x 9	NMR
OS/03952(Z)	24349	V	2818	N	TL 507 500	4	13 JUL 2003	A	6000	12	Colour 9 x 9	NMR
OS/04067	24413	V	194	N	TL 512 506	6	15 JUN 2004	A	10000	12	Colour 9 x 9	NMR
OS/04082	24418	V	32	N	TL 508 493	1	23 JUL 2004	A	10000	12	Colour 9 x 9	NMR
OS/04082	24418	V	33	N	TL 517 493	1	23 JUL 2004	A	10000	12	Colour 9 x 9	NMR
OS/04118	24438	V	39	N	TL 526 507	2	04 SEP 2004	A	10000	12	Colour 9 x 9	NMR
OS/04118	24438	V	40	N	TL 517 507	2	04 SEP 2004	A	10000	12	Colour 9 x 9	NMR
OS/04118	24438	V	41	N	TL 508 507	2	04 SEP 2004	A	10000	12	Colour 9 x 9	NMR
OS/04118	24438	V	78	N	TL 526 492	4	04 SEP 2004	A	10000	12	Colour 9 x 9	NMR

OS/04118	24438	V	79	N		4	04 SEP 2004	A	10000	12	Colour 9 x 9	NMR
OS/04118	24438	V	80	N	TL 508 493	4	04 SEP 2004	A	10000	12	Colour 9 x 9	NMR
OS/10026	24898	V	153	N	TL 524 516	8	22 MAY 2010	A	10000	6	Colour 9 x 9	NMR
OS/10026	24898	V	154	N	TL 516 516	8	22 MAY 2010	A	10000	6	Colour 9 x 9	NMR
OS/10026	24898	V	192	N	TL 516 499	11	22 MAY 2010	A	10000	6	Colour 9 x 9	NMR
OS/10026	24898	V	193	N	TL 524 499	11	22 MAY 2010	A	10000	6	Colour 9 x 9	NMR
ADA/058	26079	V	518	N	TL 499 488	1	11 AUG 1981	A	10500	3.25	Black and White 9 x 9	NMR
ADA/058	26079	V	519	N	TL 499 497	1	11 AUG 1981	A	10500	3.25	Black and White 9 x 9	NMR
ADA/130	26196	V	216	N	TL 500 490	10	06 JUN 1983	A	10000	6	Black and White 9 x 9	NMR
ADA/395(W)	27101	V	183	N	TL 537 504	5	20 JUL 1988	A	8000	6	Black and White 9 x 9	NMR
Total Sorties										49		
Total Frames										182		



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Air Photographs

Customer oblique listing - Obliques, Standard Order

Customer enquiry reference number: 121890

Photo reference (NGR and Index number)	Film and frame number	Original number	Date	Film type	Map Reference (6 figure grid	What can you order?		
						Photocopy	Laser copy	Photographic copy
TL 5149 / 1	CCC 11752 / 2118	SEE PRINTS	Unknown	Black & white	TL 515495	Y	Y	Y
TL 5149 / 2	CCC 11752 / 1832	SEE PRINTS	Unknown	Black & white	TL 518491	Y	Y	Y
TL 5149 / 3	NMR 15097 / 63		28 JUN 1994	Black & white	TL 517492	Y	Y	Y
TL 5149 / 4	NMR 15047 / 26		28 JUN 1994	Colour slide	TL 516494	Y	Y	Y
TL 5149 / 5	NMR 15047 / 27		28 JUN 1994	Colour slide	TL 516494	Y	Y	Y
TL 5149 / 6	NMR 15047 / 28		28 JUN 1994	Colour slide	TL 516493	Y	Y	Y
TL 5149 / 7	HEA 29353 / 007		06 JUL 2015	Digital colour	TL 514498	Y	Y	Y
TL 5149 / 8	HEA 29353 / 008		06 JUL 2015	Digital colour	TL 515498	Y	Y	Y
TL 5149 / 9	HEA 29353 / 009		06 JUL 2015	Digital colour	TL 515498	Y	Y	Y
TL 5149 / 10	HEA 29353 / 010		06 JUL 2015	Digital colour	TL 515497	Y	Y	Y
TL 5149 / 11	HEA 29353 / 011		06 JUL 2015	Digital colour	TL 517496	Y	Y	Y
TL 5149 / 12	HEA 29353 / 012		06 JUL 2015	Digital colour	TL 517496	Y	Y	Y
TL 5149 / 13	HEA 29353 / 013		06 JUL 2015	Digital colour	TL 517496	Y	Y	Y
TL 5150 / 2	NMR 1970 / 003		17 JUL 1981	Black & white	TL 516498	Y	Y	Y
TL 5150 / 23	NMR 1970 / 004		17 JUL 1981	Black & white	TL 513503	Y	Y	Y
TL 5150 / 24	NMR 1970 / 005		17 JUL 1981	Black & white	TL 513503	Y	Y	Y
TL 5150 / 25	NMR 1970 / 006		17 JUL 1981	Black & white	TL 513503	Y	Y	Y
TL 5150 / 26	NMR 1970 / 007		17 JUL 1981	Black & white	TL 513503	Y	Y	Y
TL 5150 / 27	NMR 1970 / 008		17 JUL 1981	Black & white	TL 513503	Y	Y	Y
TL 5249 / 2	NMR 2601 / 056		16 APR 1985	Black & white	TL 526496	Y	Y	Y
TL 5249 / 3	NMR 2601 / 057		16 APR 1985	Black & white	TL 526496	Y	Y	Y
TL 5249 / 4	NMR 2601 / 058		16 APR 1985	Black & white	TL 526496	Y	Y	Y
TL 5249 / 5	NMR 18811 / 10		12 JUL 2000	Black & white	TL 525494	Y	Y	Y
TL 5249 / 6	NMR 18811 / 11		12 JUL 2000	Black & white	TL 525494	Y	Y	Y
TL 5249 / 7	NMR 18811 / 12		12 JUL 2000	Black & white	TL 523496	Y	Y	Y
TL 5249 / 8	NMR 18811 / 13		12 JUL 2000	Black & white	TL 524496	Y	Y	Y
TL 5249 / 9	NMR 18708 / 17		12 JUL 2000	Colour neg	TL 524494	Y	Y	Y
TL 5249 / 10	NMR 18708 / 18		12 JUL 2000	Colour neg	TL 525493	Y	Y	Y

TL 5249 / 11	NMR 18708	/ 19		12 JUL 2000	Colour neg	35 mm	TL 525495	Y	Y	Y	U
TL 5250 / 1	CAP 7938	/ 73	BY	07 APR 1949	Black & white	Unknown	TL 525506	N	N	N	U
TL 5250 / 2	CAP 7938	/ 74	BY	07 APR 1949	Black & white	Unknown	TL 525506	N	N	N	U
TL 5250 / 3	NMR 2108	/ 1029	APR1726	24 MAR 1982	Black & white	70mm, 120,220	TL 525505	Y	Y	Y	U
TL 5250 / 4	NMR 2108	/ 1030	APR1726	24 MAR 1982	Black & white	70mm, 120,220	TL 525505	Y	Y	Y	U
TL 5250 / 5	NMR 2108	/ 1031	APR1726	24 MAR 1982	Black & white	70mm, 120,220	TL 525505	Y	Y	Y	U
TL 5250 / 6	HEA 29353	/ 001		06 JUL 2015	Digital colour	35 mm	TL 525506	Y	Y	Y	U
TL 5250 / 7	HEA 29353	/ 002		06 JUL 2015	Digital colour	35 mm	TL 525505	Y	Y	Y	U
TL 5250 / 8	HEA 29353	/ 003		06 JUL 2015	Digital colour	35 mm	TL 525505	Y	Y	Y	U
TL 5250 / 9	HEA 29353	/ 004		06 JUL 2015	Digital colour	35 mm	TL 525506	Y	Y	Y	U
TL 5250 / 10	HEA 29353	/ 005		06 JUL 2015	Digital colour	35 mm	TL 525504	Y	Y	Y	U
TL 5250 / 11	HEA 29353	/ 006		06 JUL 2015	Digital colour	35 mm	TL 525506	Y	Y	Y	U
Total 40 records											

Oblique listing - Military obliques, Standard order

Customer enquiry reference: 121890

Library and frame number	Photo reference (NGR and Index)	Original number	Date	Film type	Map Reference (6	What can you order?		
						Photocopy	Laser copy	Photographic copy
M50 31286 / HHO-7	TL 5148 / 2	140/S571	01 OCT 1941	Black & white	5x6"	Y	Y	U
Total 1 records								

B. Results: Gazetteer

Table B.1: Gazetteer of heritage assets transcribed as a part of this AIM project

Unique Identifier	NRHE	CHER	Period	Type	Evidence	Description	Source
AIM01		09356a	Neolithic	HENGES / RING DITCH	Cropmark	2016 geophysical survey and evaluation at the Cambridge International School identified a large prehistoric ring ditch or henge. It is visible on vertical aerial photographs of 2018 as a narrow, light curvilinear cropmark. The light colour of the cropmark is an example of the unusual phenomenon of cropmark reversal on chalk bedrock, often seen a considerable way into a prolonged period of drought, as in this case. The curvilinear cropmark is not continuous; this is likely due to the 2016 archaeological trial trenches, and/or variations in soil conditions affecting the formation of the cropmark, rather than genuine interruptions to the underlying feature.	2018 World Imagery - Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
AIM02			Medieval / post-medieval	FIELD BOUNDARY / BOUNDARY BANK / FIELD SYSTEM	Earthwork	A system of interconnecting linear banks not recorded on historic OS maps form a series of rectilinear plots. Not on a totally different alignment to the surviving field boundaries around them, so they may represent early subdivisions of this system. Their considerable width is due to plough-levelling. They are very faintly visible on lidar (almost fully levelled) across a range of visualisations of both the DTM and DSM. Some of these former boundary banks appear to be crossed by the remains of later ridge and furrow (AIM03), suggesting an earlier date for the banks.	EA Lidar 2018 DTM & DSM 1m
AIM03			Medieval / post-medieval	RIDGE AND FURROW	Earthwork	Almost fully-levelled ridge and furrow is very faintly visible on lidar as three large areas. The northernmost two may continue northwards, but that represents the edge of the lidar coverage. They appear to cross earlier field boundary banks (AIM02) also faintly visible as almost fully-levelled earthworks.	EA Lidar 2018 DTM & DSM 1m
AIM04			Medieval / post-medieval	EXTRACTIVE PIT	Earthwork	A likely former extractive pit is visible as an earthwork on lidar beneath the trees of Chalkpit Plantation. It is not recorded on historic OS maps, despite others within this patch of woodland being included. It is possible that it represents activity of a later date, though a medieval or post-medieval origin cannot be ruled-	EA Lidar 2018 DTM 1m

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Unique Identifier	NRHE	CHER	Period	Type	Evidence	Description	Source
						out. The channel that appears to lead from the pit to the outer edge of the woodland may represent a trackway used to remove the quarried chalk.	
AIM05			Medieval / post-medieval	EXTRACTIVE PIT	Earthwork	A possible former extractive pit is visible on lidar as a shallow hollow. Part of a chalk landscape scattered with former quarry pits. This one is not recorded on historic OS maps.	EA Lidar 2018 DTM & DSM 1m
AIM06			Medieval / post-medieval	FIELD BOUNDARY / BOUNDARY BANK	Earthwork	Former field boundaries are visible as wide linear earthworks on lidar. Only very faintly visible - almost fully levelled. All appear to be crossed by the faint remains of ridge and furrow (AIM07).	EA Lidar 2018 DTM & DSM 1m
AIM07			Medieval / post-medieval	RIDGE AND FURROW	Earthwork	Former ridge and furrow is very faintly visible as almost fully levelled earthworks on lidar. The ridge and furrow remains cross at least two modern fields. May continue to the south, but the possible earthworks visible on the lidar are too indistinct there. The ridge and furrow appears to cross several earlier field boundary banks (AIM06) also faintly visible as earthworks on the lidar.	EA Lidar 2018 DTM & DSM 1m
AIM08			Medieval / post-medieval	RIDGE AND FURROW	Earthwork	Almost fully-levelled ridge and furrow is visible as extremely faint earthworks in a field on the northern side of the River Granta, on the southern side of Babraham. The furrows are aligned NE-SW, draining down the gentle slope towards the river.	EA Lidar 2018 DTM & DSM 1m
AIM09	MCB15995		Post-medieval	BEDWORK WATER MEADOW	Earthwork	An intermittent linear bank is visible on lidar as an earthwork. Located on a thin strip of land between the River Granta to the north, and a drain marked on the 1st ed OS map of 1886 (now the field boundary - this drain appears to be no longer extant). The Babraham water meadows form an extensive system of what appears to be mostly catchwork water meadows utilising the gentle slope on the northern side of the river (as seen to the east of this point). This field however is more level, with only a very subtle height difference between the drain/sluice to the south-west, and the river to the north-east. This field may therefore have been utilised as a bedwork water meadow, requiring a slightly different form of irrigation. The linear bank visible on the lidar may have formed part of a central conduit or sluice for this system.	EA Lidar 2018 DTM & DSM 1m
AIM10			Medieval /	FIELD BOUNDARY /	Earthwork	A fragment of a possible former field boundary is visible on lidar as a faintly extant L-shaped bank within the field on the south-	EA Lidar 2018 DTM & DSM 1m

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Unique Identifier	NRHE	CHER	Period	Type	Evidence	Description	Source
			post-medieval	BOUNDARY BANK		eastern side of The Old Vicarage. Not recorded on historic OS maps. The considerable width of the bank will have been caused by the extensive plough-levelling.	
AIM11			Medieval / post-medieval	SPOIL HEAP / FIELD BOUNDARY	Earthwork	A large, irregularly shaped earthwork is visible in the field on the south-eastern side of The Old Vicarage. It may be a surviving fragment of a former field boundary but, given its shape, it is perhaps more likely that it is the remains of an almost fully-levelled spoilheap. Small-scale extractive pits (chalk, clay) were common across this landscape, and not all are recorded on historic OS maps.	EA Lidar 2018 DTM & DSM 1m
AIM12			Medieval / post-medieval	EXTRACTIVE PIT	Earthwork	Two former extractive pits are visible as shallow depressions on lidar visualisations. Adjacent to the southernmost pit is what appears to be the remains of a spoil heap mound. Not recorded on historic OS maps. Chalk and clay quarry pits were common across this landscape but have not all been previously recorded on historic mapping.	EA Lidar 2018 DTM & DSM 1m
AIM13			Medieval / post-medieval	EXTRACTIVE PIT	Earthwork	A likely former quarry pit is visible on lidar as a shallow hollow. Small-scale extraction of clay and chalk was common across this landscape, though not all pits were recorded on historic OS maps.	EA Lidar 2018 DTM & DSM 1m
AIM14			Medieval / post-medieval	FIELD BOUNDARY / BOUNDARY BANK	Earthwork	An extensive system of former field boundaries is visible on lidar as almost fully-levelled earthworks across the large open arable fields to the south of the River Granta. They are not recorded on historic maps, which also record this area as open. The irregular shape and considerable width of these former boundaries in some places is due to plough-levelling in multiple directions. This area contains further hints of similar linear earthworks, but so subtle that it is not possible to discern whether or not these are simply the traces of former ploughing. Ridge and furrow is just visible in some areas (AIM15), and appears to overlie the former field boundaries.	EA Lidar 2018 DTM & DSM 1m
AIM15			Medieval / post-medieval	RIDGE AND FURROW	Earthwork	Almost fully-levelled ridge and furrow is very faintly visible on certain lidar visualisation models, across the area between the River Granta to the north and the former railway (Cambridge Haverhill & Melford Line) to the south. Former field boundaries are also visible across this area (AIM14), which appear to lie beneath the ridge and furrow, though it is difficult to be certain due to the very slight survival of the earthworks in each case.	EA Lidar 2018 DTM & DSM 1m

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Unique Identifier	NRHE	CHER	Period	Type	Evidence	Description	Source
AIM16			Medieval / post-medieval	EXTRACTIVE PIT	Earthwork	A former extractive pit is visible as a shallow depression on lidar visualisations. Adjacent to it are, what appear to be, the remains of two spoil heap mounds. Not recorded on historic OS maps. Chalk and clay quarry pits were common across this landscape, but have not all been previously recorded on historic mapping.	EA Lidar 2018 DTM & DSM 1m
AIM17			Medieval / post-medieval	SPOIL HEAP	Earthwork	Two former extractive pits are visible as shallow depressions on lidar visualisations. Adjacent are what appear to be the remains of two spoil heap mounds. Not recorded on historic OS maps. Chalk and clay quarry pits were common across this landscape, but have not all been previously recorded on historic mapping.	EA Lidar 2018 DTM & DSM 1m
AIM18		MCB15995	Post-medieval	CATCHWORK WATER MEADOW	Earthwork	Two large areas of former catchwork water meadow are visible on lidar and vertical aerial photographs of the 1940s extending both east and west from Bourn Bridge along the northern side the River Granta. Any former remains of this system situated within the gap between the two areas mapped here was destroyed by road and bridge construction in the 1990s. These were catchwork water meadows, which irrigated a gentle slope by means of a contour leat cut into the top of the slope. The area of water meadow to the west of Bourn Bridge has had the contour leat infilled to convert the area to one large open field. The remains of the leat are visible on lidar as a slight earthwork, and on modern aerial photographs as a clear dark cropmark. Lidar shows that the contour leat for the stretch of water meadow to the east of Bourn Bridge survives, though the meadow itself is intermittently covered with trees. This tree cover was recorded on the 1st ed OS map of 1885, suggesting the area was out of use as a water meadow by that time.	EA Lidar 2018 DTM & DSM 1m / 2018 World Imagery - Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
AIM19			Medieval / post-medieval	FIELD BOUNDARY / BOUNDARY BANK	Earthwork	A number of almost fully-levelled former field boundary banks are faintly visible on lidar across the triangular group of fields between Pampisford Hall, to the south, and the disused railway line (Cambridge Haverhill & Melford Line) to the north. Some of them are continued to the south and north. They are not recorded on historic OS maps, which record this triangular area as a single open land parcel. The irregular shape and considerable width of these former boundaries in some places is due to centuries of plough-levelling in a variety of different directions. This area also contains further hints of earthworks visible on the lidar, but so subtle that it is not possible to discern whether or not these are simply the traces of former ploughing, or past extractive activity.	EA Lidar 2018 DTM & DSM 1m

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Unique Identifier	NRHE	CHER	Period	Type	Evidence	Description	Source
AIM20			Medieval / post-medieval	RIDGE AND FURROW	Earthwork	Ridge and furrow is just visible in some areas (AIM20), and appears to overlie the former field boundaries. Almost fully-levelled ridge and furrow earthworks are very faintly visible on various lidar advanced visualisation models. The ridges and furrows appear to cut linear former field boundary banks (AIM19, not recorded on historic OS maps), suggesting an earlier date for the banks. However, when earthworks are so faintly surviving, it is very difficult to ascertain with certainty which feature may overlie the other.	EA Lidar 2018 DTM & DSM 1m
AIM21			Medieval / post-medieval	FIELD BOUNDARY / BOUNDARY BANK	Earthwork	Possible former field boundary banks are visible on lidar across the field to the east of Pampisford Hall. Those in the southern half of the field do not fall within the study area of this project, so have not been included in this transcription. The roughly east-west aligned bank continues west into the grounds of Pampisford Hall. None of these possible former boundaries are recorded on the historic OS maps. The possible former boundary banks are almost fully-levelled (hence their considerable width) and are only visible on certain lidar advanced visualisation models.	EA Lidar 2018 DTM & DSM 1m
AIM22			Medieval / post-medieval	EXTRACTIVE PIT	Earthwork	Four large possible extractive pits are visible on lidar as extremely faintly extant hollows on Abington Playing Field. Due to their considerable size and extremely shallow depth, they would not be noticeable at ground level. Not recorded on historic OS maps, though many nearby examples have been included as chalk and clay extraction was commonplace across this landscape, most likely during the post-medieval period although earlier quarrying cannot be ruled-out on the basis of this evidence.	EA Lidar 2018 DTM & DSM 1m
AIM23			Medieval / post-medieval	RIDGE AND FURROW	Earthwork	Almost fully-levelled ridge and furrow is faintly visible on lidar as subtle earthworks aligned north to south across Abington Playing Field. Due to the barely extant nature of the earthworks, it is extremely unlikely they would be noticeable at ground level.	EA Lidar 2018 DTM & DSM 1m
AIM24			Medieval / post-medieval	FIELD BOUNDARY / BOUNDARY BANK	Earthwork	A possible former field boundary bank is visible as a slightly curved linear earthwork within the playing fields of Cambridge International School. Due to the almost fully-levelled nature of this earthwork, it is unlikely to be noticeable at ground level. Not recorded on historic OS maps.	EA Lidar 2018 DTM & DSM 1m
AIM25			Medieval /	RIDGE AND FURROW	Earthwork /	Ridge and furrow is clearly visible on vertical aerial photographs of 1968 as extant earthworks. Modern lidar reveals this has since	MAL-68038 85-6 02-JUN-1968 /

Unique Identifier	NRHE	CHER	Period	Type	Evidence	Description	Source
AIM26			post-medieval		Levelled earthwork	been fully levelled. The eastern third of the field was destroyed by road construction in the 1990s.	EA Lidar 2018 DTM & DSM 1m
			Bronze Age	RING DITCH / PENANNULAR ENCLOSURE	Cropmark	A penannular ring ditch cropmark is visible on vertical aerial photographs of 1952. It appears to have an opening to the north. Measures approximately 20m in diameter, to the outer edge of the ditch.	OS-52R32 23 23-MAY-1952
AIM27	132286	6281	Bronze Age	RING DITCH / ROUND BARROW	Cropmark	Four probable round barrows are visible as ring ditch cropmarks on a range of aerial photography over multiple decades. Transcribed here from a vertical aerial photograph of 1952, but also clearly visible more recently (2015).	MAL-68038 119 02-JUN-1968 / TL5250-6 HEA29353-001 06-JUL-2015
AIM28			Medieval / post-medieval	EXTRACTIVE PIT	Cropmark	Two probable former extractive pits are visible as shallow earthworks and cropmarks either side of the A11, to the south of Claypit Plantation. Small-scale chalk and clay quarrying was widespread across this landscape, though not all quarry pits were recorded on historic OS maps. This could be attributable to either the ad-hoc and commonplace nature of medieval and post-medieval extractive activity; or it may indicate a much earlier origin for some of these features. The pale cropmark ring visible on some aerial photographs, which could result in confusion with ring ditches or ditched enclosures is caused by the cut of the quarry pit through the sub-surface layer of chalk. Further diffuse and irregular cropmarks are visible across the field on the western side of the A11. These may also indicate former quarrying activity, although variations in the underlying geology are also particularly prominent as cropmarks across this area.	TL5250-2 74 07-APR-1949 / 2018 World Imagery - Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
AIM29	1624093		Iron Age / Roman	DITCHED ENCLOSURE / RECTILINEAR ENCLOSURE	Cropmark	Two substantial ditched rectilinear enclosures, one nested inside the other, are visible on oblique aerial photographs of 2015. Their southern edges are indistinct. Archaeological excavation c.200m to the SE in 1994 (ECB296) identified finds and features dating from the Paleolithic to the early medieval periods (CHER: 11317, 11317A-D, 13044, CB14745, MCB17799). These included a Bronze Age ring ditch, a Late Iron Age / Romano-British field system, and Roman and early medieval settlements. Given the proximity of these multi-period archaeological remains, it is possible that these enclosures are related, perhaps to the Iron Age or Romano-British features. This field is saturated with the dense cropmarks of the underlying chalk geology, such as frost wedges. These are visible as irregular maculae and curvilinear	TL5149-7 HEA29353-007 06-JUL-2015

Unique Identifier	NRHE	CHER	Period	Type	Evidence	Description	Source
cropmarks, and may serve to confuse or mask archaeological interpretations.							

C. Figures

Figure C.1: 403394-MMD-ENV-00-DR-EN-0230

