Alison Deegan

AIR PHOTO MAPPING,
INTERPRETATION AND
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Desk-Based Resource Assessment and Research and Management Framework of Aggregate-Producing Landscapes in the East Riding of Yorkshire

(4828 MAIN)

Air Photo Mapping Project

MANAGEMENT OVERVIEW:
SUMMARY OF RESOURCES AND RESULTS

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SUMMARY

The Desk-Based Resource Assessment and Research and Management Framework of Aggregate-Producing Landscapes in the East Riding of Yorkshire is funded by the Aggregates Levy Sustainability Fund (as disbursed by English Heritage) and operated by Humber Field Archaeology. The air photo element of this project was undertaken for Humber Field Archaeology by Alison Deegan.

The air photo mapping covers six pilot areas, all within the Holderness area of the East Riding of Yorkshire. These areas were surveyed to English Heritage's National Mapping Programme standards using existing air photographs. Digital maps, at a nominal scale of 1:10,000, and supporting records were created by Alison Deegan and Daniel van den Toorn. This team was based with English Heritage's Aerial Survey and Investigation team at Tanner Row, York.

New National Monument Record entries were created for 213 monuments or monument groups and a further 21 existing monument records were amended or enhanced.

NMR Parent Collection UID:	EHC01/111
NMR Event UID:	1459306
Project dates:	August 2007 to February 2008
Project authors:	Alison Deegan Daniel van den Toorn

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1 INTRODUCTION

This air photo mapping project is an element of the Desk-Based Resource Assessment and Research and Management Framework of Aggregate-Producing Landscapes in the East Riding of Yorkshire (hereon East Riding Aggregates Assessment or ERAA). The ERAA is operated by Humber Field Archaeology (HFA) and the work is funded by the Aggregates Levy Sustainability Fund (ALSF) as disbursed by English Heritage (EH).

The ERAA aims to address the stated ALSF priorities, which are broadly to inform and assist in planning and managing the future development of aggregates extraction, reduce the impact on the historic landscape in the study areas caused by current quarrying, and mitigate the effects of past extraction. A further element will be to provide a tool for further archaeological research.

The air photo mapping element was carried out to EH's standard National Mapping Programme (NMP) specification by Alison Deegan and Daniel van den Toorn. This team was based with EH's Aerial Survey and Investigation team at Tanner Row, York.

The NMP is ongoing and is generating a comprehensive record of the archaeology that is visible on air photographs for the whole of England. As of February 2008 approximately 37% of the country has been covered by the programme.

The ERAA air photo mapping project began in August 2007 and was completed in February 2008.

2 AIMS AND OBJECTIVES

The objectives of the ERAA are laid out in the project design (Steedman and Brigham 2007, 15-16). The aims of the air photo mapping element are consistent with those of the National Mapping Programme. That is to produce a comprehensive record of the archaeology of England, from prehistory to modern times through the interpretation and mapping of remains that are visible as earthworks, crop marks, parchmarks and soilmarks on air photographs.

3 SCOPE OF THE SURVEY

3.1 Geographical scope of the survey

The overall ERAA project covers approximately two-thirds of the East Riding and takes in parts of the following Natural England Joint Character Areas: Vale of York, Humberhead Levels, Humber Estuary and Holderness; much of the Yorkshire Wolds is excluded from this project. Within the overall project area there are five smaller study areas. The six pilot areas selected for air photo mapping focus on parts of those study areas that are within

Holderness. The other study areas had previously been covered by the Vale of York NMP Project or the Yorkshire Wolds air photo mapping project, undertaken by English Heritage and its predecessor the Royal Commission on the Historic Monuments (England) (see Fig. 1). The Holderness pilot areas together cover 94km2 and range in size from 9km2 to 20km2.

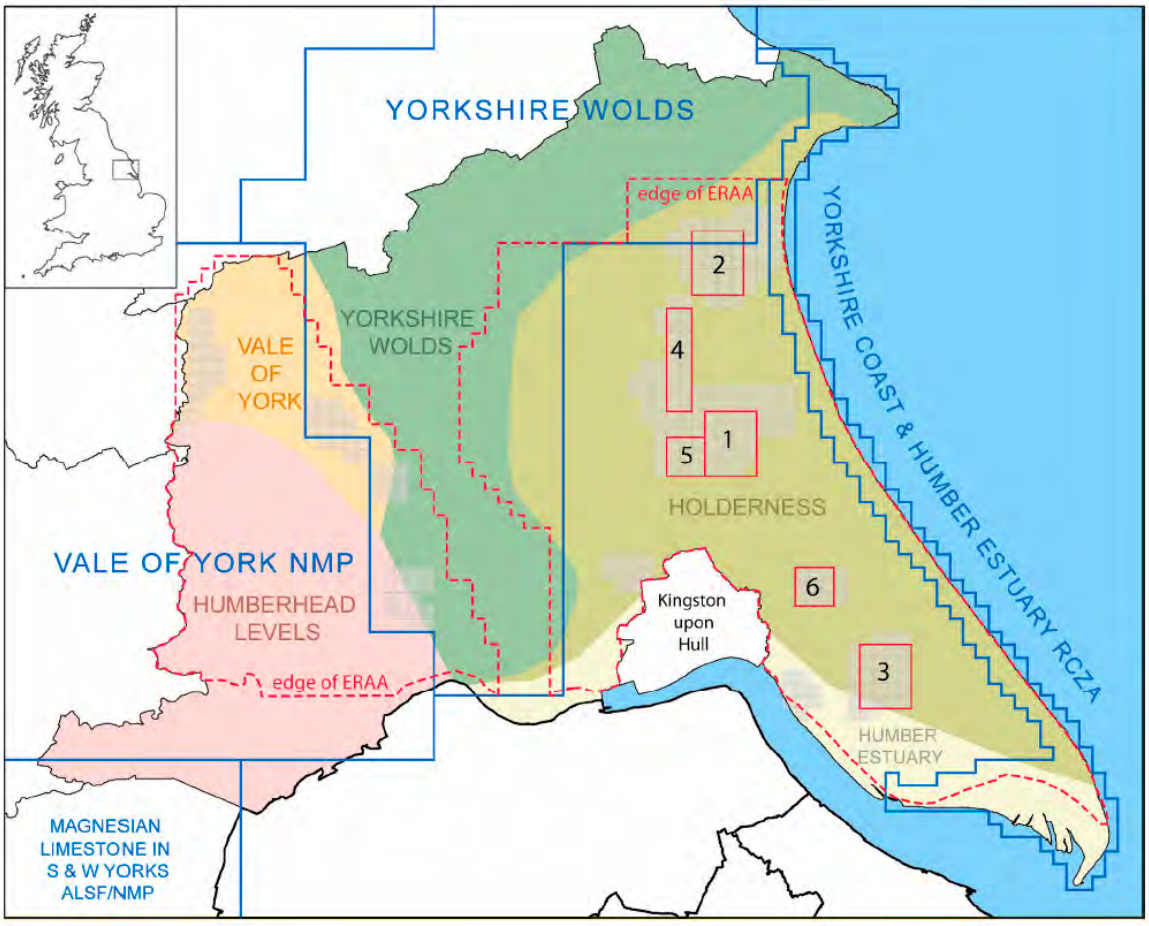

Figure 1 - Overview of the ERAA project area, the ERAA study blocks (shaded grey), the six AP pilot areas, the Joint Character Areas and other large-scale mapping projects

Holderness is an intensively farmed, low-lying landscape centred on the shallow valley of the River Hull. The gentle terrain relates to its glacial history and there are widespread remnants of glacial features in the landscape (Countryside Commission 107)

3.2 Archaeological scope

The scope of this project broadly mirrors that of the 2004 National Mapping Programme Sphere of Interest document (Boutwood & Winton 2004). The main aspects that are pertinent to this particular project are summarised below

Levelled Archaeology- All crop mark and soilmark features identified as archaeological in origin were plotted.

Earthwork Archaeology- All extant and vestigial archaeological features were plotted.

Ridge and furrow- All extant, vestigial, soilmark and crop mark evidence of ridge and furrow was recorded. The extent of ridge and furrow was outlined, with reference to the original furlongs, where these could be identified, or units of common ploughing trend. The direction of ploughing within each outlined unit was indicated by a single arrow.

Extraction sites – All evidence of extraction that was visible as earthworks or cropmarks was recorded. Large areas of extraction and associated activities were outlined either from appropriate vertical photographs or documentary and cartographic sources.

Industrial archaeology-Few features within this category were observed by this survey. Where such features were observed they were recorded.

Modern military archaeology- Former military sites and installations were mapped. *Buildings* – All building or structural remains foundations that were observed as crop marks, soilmarks, parchmarks, earthworks or ruins were mapped and recorded.

Post-medieval and modern field boundaries and dew ponds – In general such features were not mapped. However for the sake of clarity post-medieval and later field boundaries were mapped where they coincided with earlier cropmarked or earthwork features. Dew ponds were recorded where they sat on medieval ridge and furrow or post medieval narrow ridge and furrow.

Geological features -In general, geological features were not recorded except for the sake of clarity where they coincided with cropmarked archaeological features or could be mistaken for archaeological features.

4 SOURCES

4.1 Air Photographs

The collections listed in Table 1 were consulted by the air photo mapping project, full contact details for each collection are given in Appendix 1.

Collection Name	**Quantity consulted**	
	oblique air photos	**vertical air photos**
National Monuments Record	605 specialist 13 military obliques	1396
Unit for Landscape Modelling	65	6
Humber SMR	80	1
Total	763	1403

Table 1. Air photo collections and summary of material consulted (includes duplicates between collections)

The prompt and efficient servicing of photo loans by the NMR's Enquiry and Research Services team, and in particular Luke Griffin ensured that this project was able to progress smoothly and to timetable. The NMR loan reference numbers for each quarter sheet are given in Appendix 4. This project was carried out in collaboration with Cambridge University's Unit for Landscape Modelling (ULM): their contribution being the loan of air photographs from their collection to EH's Aerial Survey and Investigation (York). Appendices 7 and 8 list the SMR and ULM photos consulted for this project.

4.2 Existing records

The National Monuments Record database and EH's Webgis was routinely consulted during the course of this project. Existing NMR monument records were updated with new information from the air photos. Where there was no existing monument record pertaining to archaeological features mapped from the air photos then a new record was created.

Data for the project area from Humber SMR was provided to HFA and made available to the air photo mapping project. Where possible the records that were created or enhanced by this project were concorded with the SMR records.

5 METHODOLOGY AND RECORDING

5.1 Mapping Methods

All the available air photographs from the specified sources were examined under magnification and stereoscopically where possible. Photographs selected for transcription (rectification and mapping) were then scanned at a suitable resolution, this was usually 300 dpi, and output as uncompressed TIFF format images (.TIF). Permission to scan was sought and obtained from the various copyright holders during the course of the project.

Scanned images were rectified using the specialist software AERIAL5.29. Control information was mostly derived from the Ordnance Survey Land-Line™ 1:2500 scale vector maps, which were also used as a base for mapping. Height information from the OS Land-form ProfileTM (5m vertical interval, 1:10,000 scale) was used to create Digital Terrain Models in AERIAL, where the topography rendered this necessary. Accuracy for the Ordnance Survey raster 1:2500 maps is in the range of ±2m and rectification of photographs is normally within ±2.5m.

Rectified images were generally output from AERIAL in uncompressed TIFF format at a resolution of 300 dpi and a scale of 1:2500. A World file (.TFW) was created alongside each TIFF file and the control information was retained in the AERIAL RDA file (.RDA).

In MAPINFO Professional 7.5 individual digital drawings were created for each of the six pilot areas (except Pilot Area 5, which was generated in Autodesk Map®). The rectified

image was placed into the relevant map drawing and the archaeological features were then digitised from the photograph into the standard NMP layers using the established NMP conventions (see Appendix 2). This data was then exported into Autodesk Map® and interim versions were sent to HFA. When all mapping was completed the pilot areas were divided into thirteen separate drawings by quarter sheet for dissemination to HFA and the NMR.

5.2 Recording Strategy

There are two strands to the NMP recording strategy and these were both employed for this project. The main strand is the creation of new or the enhancement of existing monument records in the National Monument Record (NMR) database. The NMP-generated entries or enhancements for each monument or monument group in this database record the location, the monument types present and their dating, the nature of the evidence, a free text description of the monument or monument group, the source of record information (i.e. photograph and any bibliographic or cartographic references) and administrative details such as concordance with SMR/HER records, record authorship, and links to NMR event records and archives. Under current NMR guidance the indexed evidence term should be the known or inferred condition of the monument based on the latest available photographs. However in the records created by this project the evidence index reflects the nature of the feature as it appeared on the source photo or photographs ie crop mark, earthwork or structure.

To assist in the management and querying of the actual map data in the Autodesk Map® or in a GIS environment a summary of some of the database information is attached to each individual mapped feature. The content of this data table is listed Appendix 3.

6 PROJECT MANAGEMENT

This project started in August 2007. The mapping and recording for the project was carried out by principally by Alison Deegan. Daniel van den Toorn mapped and recorded Pilot Area 5 and assisted with Pilot Area 6 and loan management tasks. Alison Deegan was the project team leader, reporting to Ken Steedman (HFA) and Marcus Jecock (EH Project Officer).

The overall time spent on this air photo mapping project was allocated to different tasks as follows:

Tasks	Total person days
Mapping & recording	58
Project Management (including quality assurance)	3
Management report	4
Data export & dissemination	7
Management of NMR & ULM loans	5
Preparation for & attendance at Monitoring Point meetings	2
Total	79

Table 2. Summary of project tasks.

This summary does not include the day to day contribution made to the project in terms of support, advice and assistance from English Heritage's Aerial Survey and Investigation team.

Given that 58 days were dedicated to mapping and recording an area of 94km2 this averages at 15.5 days per whole OS 1:10 000 scale quarter sheet (25km2, the unit of measure for most inland NMP projects). Including all tasks this project average 21 days per quarter sheet. This is an exceptionally efficient result.

7 QUANTIFICATION AND OVERVIEW OF PROJECT RESULTS

7.1 New and updated records

This project created new NMR entries were created for 213 monuments or monument groups and a further 21 existing monument records were amended or enhanced. Of those 234 records 74 were concorded with existing SMR records. The periods and monument types that were indexed in the NMR records are listed in Appendices 5 and 6.

7.2 Prehistoric monuments

Few known or putative Neolithic or Bronze Age monuments are visible on the air photographs. There are upstanding but incomplete remains of a round barrow at North Frodingham (UID 79381) but all the other examples are levelled and appear as cropmarked ring ditches. At Burton Agnes there are small ring ditches (<10m diameter) of possible Bronze Age date that are associated with a small square barrow cemetery. There are other ring ditches at Brandesburton (UID 1463783), Catwick (UID 1460336), Sproatley (UID 1464827) and Burstwick (UID 1462789). These are likely to be the remains of Bronze Age or Neolithic round barrows, although at least one of the Catwick examples might be described as a hengiform enclosure and an Iron Age or Roman date for any of these

cannot be completely discounted. There is also potential for confusion with the remains of medieval or post medieval windmill mounds, which also appear as ring ditches (see for example UID 1460458 at Catwick). Perhaps also of pre-Iron Age data are the three sub-circular enclosures with wide well-defined entrances, one at Ottringham and two at different locations in Brandesburton (UIDs 1462831, 1464075 and 1464065). These are reminiscent of the rather poorly understood causewayed ring ditch form identified at Raunds, Northamptonshire and other locations in that county (Deegan 2008, 56).

The small cluster of square barrows at Burton Agnes (UID 910648) perhaps reflects the proximity to the Yorkshire Wolds where Iron Age cemeteries are a particular feature. Conversely, the only good example of a multiple-ditch system, a form which is also closely associated with the Wolds landscape is at Halsham (UID 81679), one of the parishes furthest from the Wolds in this survey (Stoertz 1997, 40).

7.3 Iron Age and Roman settlement

Enclosures of possible Iron Age or Roman date are more prolific and are recorded singly or in small groups at 39 locations within the pilot areas. Some enclosure or enclosure groups are associated with ring ditches that may be the remains of hut circle (eg UID 1460422 and UID 1336235) and are likely to be settlements. Most of the enclosures are of seemingly simple rectilinear plan, occasionally with internal sub-divisions, so the group mapped on Farndon Hill (UID 1460426) which includes a large curvilinear enclosure with two internal hut circles and another to the south is of particular note. Although some fragmentary field systems and/or trackways are in evidence at Routh (UID 1334599), Leven (UIDs 1460431 & 1460347), Catwick (UID 1460420), Riston (UID 1460429), Sproatley (UID 1464825) and Halsham (UID 1336228) there is a notable lack of the extensive articulate landscapes than have been observed to the north and west on the Yorkshire Wolds, the Sherwood Sandstones and the Magnesian Limestone belt (cf Stoertz 1997, 34; Riley 1980, fig 12; Deegan in prep, fig 16) . No doubt this is due in large part to the underlying soils and geology as small islands and ribbons of freer draining deposits such as sand and gravel are interspersed with expanses of alluvial clays and silts which are less likely to produce crop marks (see below). Many of the enclosures appear in apparent isolation and quite often in areas that were still under upstanding ridge and furrow in the middle of the 20th century. It is likely that geophysical survey, intrusive investigations or perhaps even further aerial reconnaissance will reveal that there is much more to these fragmentary landscapes.

7.4 Distribution of later prehistoric and Roman sites with relation to the surface geology.

The superficial geology of the six pilot areas comprises three main types: till, alluvium and glaciofluvial deposits. Pilot Area 3 also has Kelsey Hill Gravels (beds) and tidal flat deposits. The till covers more than half of the combined pilot areas and produced almost two-fifths of the 49 later prehistoric or Roman sites. The freely draining glaciofluvial deposits cover less than a fifth of the area but produced one-third of these sites. The alluvium, which covers one-quarter of the ground, also produced more than one-fifth of these crop marks. Alluvium often buries and conceals prehistoric and Roman features but it is clear from Figure 2 that in parts it is sufficiently shallow over underlying gravels to allow the buried features to produce crop marks.

Figure 2 - Left, aerial photograph (HCC HL19 25-JUN-1989) showing crop marks within a band of riper crop and presumed freer draining soil. Right this band is not differentiated in the BGS mapping of the superficial geology.

7.5 Medieval and post medieval landscapes

The remains of ridge and furrow ploughing are extensive and cover over one-fifth of the total area surveyed for this project. Interestingly though very little has been recorded on the alluvium, presumably because in this area was difficult to plough and was reserved for pasture at this time. Most of the ploughing remains are thought to have originated in the medieval period but a few fields of post medieval narrow ridge and furrow have also been detected. In the 1940s over two-thirds of the known ridge and furrow survived as earthworks, however survival was not uniform across the six pilot areas. At that time over 90% of the ridge and furrow in pilot area 2, the most northerly, was visible as earthworks. Meanwhile in the two southern-most areas, 3 and 6 only 50% and 38% respectively appeared to have been upstanding. Since widespread levelling of ridge and furrow ploughing is almost always brought about by modern ploughing these difference in survival probably reflect different agricultural regimes in the post medieval period and early 20th

century, perhaps influenced by the relative proximity to the major urban centre of Hull. By the end of the 20th century it appears that as little as 3% of all the known ridge and furrow survived as earthworks – this amounts to a little more than a handful of fields in each area. If these earthworks still survive today then they are a potentially valuable resource as they may offer small pockets of protection to earlier medieval, Roman or prehistoric features.

There are medieval and post medieval settlement and associated remains within and around most of the villages including Great Kelk (UID 1460723), Gembling (UID 80857), Burshill (UID 1464149), Catwick (UIDs 1460475, 460475 & 1460361), Long Riston (UID 1460412) and Ottringham (UID 1462828). The earthworks at Gransmoor (UIDs 80854 & 1460750) and Manor Farm, Seaton (UID 1460528) hint that there were once larger settlements at these hamlets. Most of the medieval and post medieval earthworks appear to be ditched or banked croft, toft and field boundaries with occasional small clusters of building platforms or low building remains, for example at Great Kelk and Manor Farm, Seaton (UIDs1460723 & 0460528). The “old garths” at Gransmoor were well-preserved until at least 1998 (the date of the most recent photographs) but features on the south-west side of the hamlet and others at Catwick, Ottringham, and Manor Farm, Seaton had been levelled by then. Several groups of features at Long Riston, Sproatley and Ottringham had been built over by the end of the 20th century.

Amongst the medieval and post medieval earthworks there are possible moats at Catwick (UID 80660), Long Riston (UID 80731), Manor Farm, Seaton (UID 1,460,528) and Routh (UID 1463567). At Brandesburton (UIDs 1464086 & 1464076) and Halsham (UID 81682) there are large enclosures of possible medieval data. One of the Brandesburton examples encircles the remains of the chapel of St Nicholas (UID 1464076) and the Halsham example lies within the curve of a possible prehistoric multiple ditch system (UID 81679). Other features of these periods are windmill mounds (eg at Catwick UID 1460458), a bield and an embankment cross (UIDs 1031892 & 79157) and various embanked boundaries, some of which appear to underlie ridge and furrow (eg UIDs 1460401 & 1464794). At Brandesburton there is a wide funnel-shaped arrangement of ditches (UID 1463803) that may have served in the movement of animals between the wetter ground along the banks of the River Hull in the west and the marginally higher and better drained ground to the west and the village of Burshill.

7.6 20th century monuments

World War 1 and World War 2 military remains are notably scarce in these pilot areas even though none lies more than 15km from the coastal zone where such sites dominate the record (Deegan 2007, 6-7). The notable exception is the airfield at Lissett and its associated camps, weapons stores and other structures (UID 1401983).

Perhaps because of the rather fragmentary nature of the crop marks together with presence of often inscrutable marks of unknown origin a considerable proportion of features are recorded as of uncertain date and/or interpretation.

Period	**No. of NMR monument records ***
LATER PREHISTORIC	10
NEOLITHIC or BRONZE AGE	4
IRON AGE or ROMAN	43
MEDIEVAL or POST MEDIEVAL or UNKNOWN MEDIEVAL	154
20TH CENTURY or EARLY 20TH or CENTURY SECOND WORLD WAR or LATE 20TH CENTURY	38
UNCERTAIN	38
* some records may be attributed to more than one period	

Table 3. Summary of records by period.

8 DATA ARCHIVING AND DISSEMINATION

8.1 Copyright

The copyright of the air photo mapping and associated records produced by this project lies with English Heritage. Licence to use this data has been extended to Humber Field Archaeology.

8.2 Project Archive

This project produced 13 Autodesk Map® drawing files, one for each OS 1: 10 000 scale quarter sheet that was partly covered by the pilot areas. These will be deposited with the NMR archive and the Aerial Survey and Investigation shall also retain digital copies.

There is no precedent for the formal archive deposition of other digital data associated with the project: the scanned image files (.TIF), rectified image files (.TIF), World files (.TFW), AERIAL rectification files (.RDA) and lists of consulted material (.XLS). For the time being this information will be retained by the Aerial Survey and Investigation team.

8.3 Project dissemination

During the course of this project progress reports were shared with the ERAA heritage partners and stakeholders through Monitoring Point meetings and disseminated by email.

The air photo mapping team attended one Monitoring Point meeting held on 17th December 2006.

To allow a smooth progression of the ERAA work interim maps and records were passed to HFA as each pilot area was completed. The air photo mapping results will be integrated into the ERAA and that data then disseminated as specified in the project design (Steedman and Brigham 2007). Finalised versions of the maps will be supplied to the ERAA team and the NMR. The maps and records generated by this air photo mapping project will also be available directly through the NMR.

9 RECOMMENDATIONS FOR THE FUTURE

Air photo mapping in these six small pilot areas have revealed landscapes of surprising time depth and complexity. In terms of surface geology and photographic coverage these pilot areas are reasonably representative of the remainder of the Holderness and give a good base from which to extrapolate the potential costs and timescale to cover the rest of this area to the same standard. Any further mapping work would be greatly enhanced by a preceding programme of well-timed aerial reconnaissance.

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Stoertz, C 1997 Ancient landscapes of the Yorkshire Wolds. London: RCHME

APPENDIX 1 AIR PHOTO COLLECTION DETAILS

Humber SMR Humber Archaeology Partnership, The Old School, Northumberland Avenue, Hull HU2 0LN

National Monument Record English Heritage, National Monuments Record Centre, Great Western Village, Kemble Drive, Swindon SN2 2GZ

Unit for Landscape Modelling University of Cambridge, Air Photograph Library, Sir William Hardy Building, Tennis Court Road, Cambridge CB2 1QB http://www.uflm.cam.ac.uk

APPENDIX 2 AUTODESK MAP® LAYER CONTENT AND DRAWING CONVENTIONS

Layer Name	Layer content	Data?	Colour and linetype
BANK	closed polygons for supra-surface earthen features such as banks, platforms, mounds and spoil heaps	Y	1 (red) continuous
BANKFILL	solid fill for bank layer polygons	N	1 (red) continuous
DITCH	closed polygons for cut or wear features such as ditches, pits and hollows	Y	3 (green) continuous
DITCHFILL	solid fill for ditch layer polygons	N	3 (green) continuous
EXTENT OF AREA	closed polygons outlining complex or extensive remains such as mining or army camps	Y	8 (grey) dashedx2
MONUMENT POLYGON	closed polygons encircling all the features comprised within a single NMR record.	Y	7 (white) continuous
RIGARREWK	polyline showing the plough direction of earthwork ridge and furrow	N	4 (cyan) continuous
RIGARRLEVEL	polyline showing the plough direction of levelled or crop mark ridge and furrow	Y	6(magenta) acad_iso03w100
RIGDOTSEWK	closed polygon defining the furlongs or extent of extant ridge and furrow	Y	4 (cyan) dotx2
RIGDOTSLEVEL	closed polygon defining the furlongs or extent of levelled or crop mark ridge and furrow	Y	6 (magenta) dotx2
STRUCTURE	for all stone, concrete, metal and timber features, structures and erections	Y	52 (white)
T HACHURE	convention to schematise the top & direction of slope	Y	5 (blue)

APPENDIX 3 AUTODESK MAP® ATTACHED DATA TABLE

MONUMENT DATA TABLE

The Monument Data table consists of six fields that are input directly through Mapinfo Profession or Autodesk Map®. The contents of the MONARCH, PERIOD, TYPE and EVIDENCE fields duplicate that of the related fields in the corresponding NMR monument record. In this context the PHOTO field identifies the photograph from which the feature was actually traced. This may not reflect the reference given in the monument record as the latter is intended for the “best illustrative” photograph of the archaeology.

Field name	Field content	Sample data
MONARCH	NMR Unique Identifier (UID)	1460426
PERIOD	date of features (EH Thesaurus)	LATER PREHISTORIC
TYPE	monument type (EH Thesaurus)	RING DITCH/ROUND HOUSE (DOMESTIC)
EVIDENCE	Form of remains as recorded on the source photograph (EH Thesaurus)	CROPMARK
PHOTO	NMR or other reference for the photograph from which the feature was plotted and its date of photography	HCC HAP 91/13/7 16-JUL-1991
SMR	Corresponding record in Humber SMR (where appropriate)	MHU7716

APPENDIX 4 MAP SHEET INFORMATION

Part of OS 1/4 sheet	Area covered (km2)	NMR AP loan ref. no.	NMR Collection no.	Author	Started	Completed	NMR records		Days to	
							Created	Enhanced	Map	Record
TA04NE	6	21024	MD002241	AD	08/01/2008	25/01/2008	21	1	3	1
TA04SE	6	21024	MD002240	DVDT	07/01/2008	25/01/2008	17	1	4	1
TA05SE	10	21024	MD002242	AD	08/01/2008	25/01/2008	24	2	4	1.5
TA13SE	6	22081	MD002243	AD	21/01/2008	07/02/2008	19	1	4	1
TA14NW	8	16691	MD002211	AD	21/08/2007	09/11/2007	30	1	3	0.5
TA14SW	15	16991 & 21024	MD002212	AD & DVDT	21/08/2007	25/01/2008	37	4	8	2.5
TA15NW	16	18052	MD002213	AD	20/09/2007	20/11/2007	19	4	5	2
TA16SW	4	18052	MD002214	AD	20/09/2007	20/11/2007	6	1	1.5	0.5
TA22NW	8	19860	MD002215	AD	20/11/2007	03/01/2008	22	0	3	2
TA22NE	8	19860	MD002216	AD	20/11/2007	03/01/2008	11	6	3	1.5
TA22SW	2	19860	MD002217	AD	20/11/2007	03/01/2008	0	0	1	0
TA22SE	2	19860	MD002218	AD	20/11/2007	03/01/2008	2	0	1.5	0.5
TA23SW	3	22081	MD002244	AD	21/01/2008	07/02/2008	5	0	2	1

APPENDIX 5 EH PERIOD TERMS INDEXED BY THE PROJECT

LATER PREHISTORIC	UNKNOWN MEDIEVAL
NEOLITHIC	20TH CENTURY
BRONZE AGE	SECOND WORLD WAR
IRON AGE	EARLY 20TH CENTURY
ROMAN	LATE 20TH CENTURY
MEDIEVAL	UNCERTAIN
POST MEDIEVAL	

APPENDIX 6 EH THESAURUS TERMS INDEXED BY THE PROJECT

AIRCRAFT OBSTRUCTION	FIRING RANGE	RING DITCH
ARCHERY BUTTS	GRAVE	ROAD
AVENUE	GRAVEL PIT	ROUND BARROW
BANK (EARTHWORK)	HENGIFORM MONUMENT	ROUND HOUSE (DOMESTIC)
BIELD	HOLLOW	RUNWAY
BLAST WALL	HOLLOW WAY	SAND AND GRAVEL EXTRACTION SITE
BOMB CRATER	ISLAND	SAND PIT
BOUNDARY	LINEAR EARTHWORK	SPOIL HEAP
BOUNDARY BANK	MILITARY BUILDING	SQUARE BARROW
BRICK AND TILEMAKING SITE	MILITARY CAMP	STACK STAND
BUILDING	MOAT	STRUCTURE
BUILDING PLATFORM	MOUND	SUB CIRCULAR ENCLOSURE
CAUSEWAY	MULTIPLE DITCH SYSTEM	TARGET
CAUSEWAYED RING DITCH	NARROW RIDGE AND FURROW	TAXIWAY
CLAY PIT	NATURAL FEATURE	TERRACE
CROFT	NISSEN HUT	TOFT
CURVILINEAR ENCLOSURE	OVAL ENCLOSURE	TRACKWAY
DECOY POND	PATH	TREE ENCLOSURE RING
DEWPOND	PIT	TURNING CIRCLE
DITCH	PLATFORM	UNCERTAIN
DRAIN	PLOUGH HEADLAND	WALL
DROVE ROAD	POND	WATER CHANNEL
EARTHWORK	POUND	WEAPONS PIT
EMBANKMENT CROSS	QUARRY	WEAPONS STORE
ENCLOSURE	RECTILINEAR ENCLOSURE	WINDMILL
EXTRACTIVE PIT	RIDGE AND FURROW	WINDMILL MOUND
FIELD BOUNDARY	RING BANK	

APPENDIX 7 HUMBER SMR AIR PHOTOGRAPHS EXAMINED FOR THIS PROJECT

PARISH	SOURCE	REFERENCE NO.	ADDITIONAL REFERENCES	DATE
BARMESTON	No photos for the pilot areas in this parish file			
BEEFORD	No photos for the pilot areas in this parish file			
BRANDESBURTON	HARTLEY (Leics Museum)	HL19		25/06/1989
BRANDESBURTON	HARTLEY (Leics Museum)	HL20		25/06/1989
BRANDESBURTON	HCC (E. Dennison)	HAP89/21/1		29/06/1989
BRANDESBURTON	HCC (E. Dennison)	HAP89/21/2		29/06/1989
BRANDESBURTON	HCC (E. Dennison)	HAP89/21/5		29/06/1989
BRANDESBURTON	HCC (E. Dennison)	HAP89/21/6		29/06/1989
BRANDESBURTON	HCC (E. Dennison)	HAP89/21/7		29/06/1989
BRANDESBURTON	HCC (J. Dent)	HAP/89/17/1		17/03/1989
BRANDESBURTON	HCC (J. Dent)	HAP/89/17/11		17/03/1989
BRANDESBURTON	HCC (J. Dent)	HAP89/17/10		17/03/1989
BRANDESBURTON	HCC (J. Dent)	HAP89/17/12		17/03/1989
BRANDESBURTON	HCC (J. Dent)	HAP89/17/2		17/03/1989
BRANDESBURTON	HCC (J. Dent)	HAP89/17/9		17/03/1989

PARISH	SOURCE	REFERENCE NO.	ADDITIONAL REFERENCES	DATE
BRANDESBURTON	No photos for the pilot areas in this parish file			
BURSTWICK	No photos for the pilot areas in this parish file			
BURTON AGNES	NMR	TA1258/1	NMR772/122	02/08/1974
BURTON AGNES	NMR	TA1258/1	NMR772/126	02/08/1974
BURTON AGNES	ULM	ANG96		19/03/1966
BURTON AGNES	ULM	ANG97		19/03/1966
BURTON AGNES	ULM	ANG98		19/03/1966
CATWICK	HCC (E. Dennison)	91/13/2		16/07/1991
CATWICK	HCC (E. Dennison)	HAP89/20/11		29/06/1989
CATWICK	HCC (J. Dent)	HAP89/1/13		21/02/1989
CATWICK	NMR (DNR)	TA1246/1	DNR353/9	24/08/1971
CATWICK	NMR (JAP)	TA12245/5	788/24	20/08/1974
CATWICK	NMR (JAP)	TA12245/5	788/23	20/08/1974
CATWICK	NMR (JAP)	TA1245/6	788/25	20/08/1974
CATWICK	ULM	BGU1		22/7/1971
CATWICK	ULM	BGU2		22/7/1971
CATWICK	ULM	BGU3		22/7/1971

PARISH	SOURCE	REFERENCE NO.	ADDITIONAL REFERENCES	DATE
CATWICK	ULM	BGU81		22/7/1971
CATWICK	ULM	BRU76		
CATWICK	ULM	BRU77		
CATWICK	ULM	BTD19		25/6/1975
CATWICK	ULM	CAA43		20/7/1976
CATWICK	ULM	CAA44		20/7/1976
CATWICK	ULM	CAA45		20/7/1976
FOSTON	No photos for the pilot areas in this parish file			
HALSHAM	HCC (J. Dent)	HAP89/11/13		07/03/1989
HALSHAM	ULM		MN42	22/07/1953
HALSHAM	ULM		MN43	22/07/1953
HALSHAM	ULM		MN44	22/07/1953
HALSHAM	ULM		MN45	22/07/1953
HALSHAM	ULM		MN46	22/07/1953
HALSHAM	ULM		MN47	22/07/1953
HALSHAM	ULM		PF47	28/03/1955
HARPHARM	No photos for the pilot areas in this parish file			

PARISH	SOURCE	REFERENCE NO.	ADDITIONAL REFERENCES	DATE
KELK	No photos for the pilot areas in this parish file			
KEYINGHAM	No photos for the pilot areas in this parish file			
LEVEN	HCC (E. Dennison)	HAP89/18/8		29/06/1989
LEVEN	HCC (E. Dennison)	HAP89/18/9		26/06/1989
LEVEN	HCC (E. Dennison)	HAP89/20/12		26/06/1989
LEVEN	HCC (E. Dennison)	HAP89/20/13		26/06/1989
LEVEN	HCC (E. Dennison)	HAP91/13/10		16/07/1991
LEVEN	HCC (E. Dennison)	HAP91/13/10		16/07/1991
LEVEN	HCC (E. Dennison)	HAP91/13/9		16/07/1991
LEVEN	HCC (E. Dennison)	HAP92/11/1		20/07/1992
LEVEN	HCC (E. Dennison)	HAP92/11/2		20/07/1992
LEVEN	NMR	TA1243/2/130	NMR1145/130	09/08/1977
LEVEN	NMR	TA1243/2/131	NMR1145/131	09/08/1977
LEVEN	NMR	TA1243/2/132	NMR1145/132	09/08/1977
LEVEN	NMR (RAF)		RAF 58/554 182	20/11/1962
LEVEN	ULM	BGU78		22/7/1971
LEVEN	ULM	BGU79		22/7/1971

PARISH	SOURCE	REFERENCE NO.	ADDITIONAL REFERENCES	DATE
LEVEN	ULM	BGU82		22/7/1971
OTTRINGHAM	BKS LTD		UK89 01 180	21/02/1989
RISE	HCC (J. Dent)	HAP88/3/4		27/07/1988
RISTON	HCC (E. Dennison)	HAP89/18/19		29/06/1989
RISTON	HCC (E. Dennison)	HAP91/13/7		16/07/2001
RISTON	HCC (E. Dennison)	HAP91/13/8		16/07/2001
RISTON	HCC (J. Dent)	HAP89/3/1		21/02/1989
RISTON	HCC (J. Dent)	HAP89/3/2		21/02/1989
RISTON	NMR	TA1243/1	NMR1147/123	09/08/1977
RISTON	NMR	TA1143/1	NMR1147/133	09/08/1977
RISTON	HARTLEY (Leics Museum)	HL18		25/06/1989
RISTON	ULM	BGU84		22/7/1971
RISTON	ULM	CAA42		20/07/1976
ROUTH	HCC (E. Dennison)	HAP91/13/11		16/07/1991
ROUTH	HCC (E. Dennison)	HAP91/13/12		16/07/1991
ROUTH	HCC (E. Dennison)	HAP91/13/13		16/07/1991
ROUTH	NMR	TA1043/1/406		07/05/1975

PARISH	SOURCE	REFERENCE NO.	ADDITIONAL REFERENCES	DATE
ROUTH	NMR	TA0844/1/195		07/05/1975
ROUTH	NMR	TA0844/1/191		07/05/1975
ROUTH	NMR	TA0844/1/193		07/05/1975
ROUTH	NMR	RAF 58/554 216		20/11/1962
SEATON	No photos for the pilot areas in this parish file			
SIGGLESTHORNE	No photos for the pilot areas in this parish file			
SKIPSEA	No photos for the pilot areas in this parish file			
SPROATLEY	HCC (E. Dennison)	HAP91/15/1		16/07/1991
SPROATLEY	HCC (E. Dennison)	HAP91/15/2		16/07/1991
ULROME	No photos for the pilot areas in this parish file			

APPENDIX 8 ULM AIR PHOTOGRAPHS EXAMINED FOR THIS PROJECT

Oblique photographs	BGU2	BQU84
MN42	BGU3	BQU85
MN43	BGU4	BTD18
MN44	BGU5	BTD19
MN45	BQS13	BVO10
MN46	BQS14	BVR63
MN47	BQS15	BVR64
PF40	BQS16	CAA40
PF41	BQS17	CAA41
PF42	BQU47	CAA42
PF43	BQU56	CAA43
PF44	BQU57	CAA44
PF45	BQU58	CAA45
PF46	BQU59	CFS71
PF47	BQU60	CFS72
PF48	BQU61	CFS73
AJD16	BQU62	
AJD17	BQU76	**Vertical photographs**
ANG96	BQU77	RC8LK231
ANG97	BQU78	RC8LK232
ANG98	BQU79	RC8LK233
ANH1	BQU80	RC8LK234
ANH2	BQU81	RC8LK235
ARB71	BQU82	RC8LK236
BGU1	BQU83	

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