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**LAND ADJACENT TO FORMER
MELTON PARK CHURCH,
MELTON PARK,
AREA CENTRED TM281516,
SUFFOLK:**

AERIAL PHOTOGRAPHIC ASSESSMENT

REPORT No: 2010/4

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Commissioned by:
Archaeological Solutions Ltd
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**LAND ADJACENT TO FORMER MELTON PARK CHURCH,
MELTON PARK, AREA CENTRED TM281516,
SUFFOLK:
AERIAL PHOTOGRAPHIC ASSESSMENT**

SUMMARY

This assessment of aerial photographs examined an area of about 1 sq km centred on Melton Park churchyard (TM281516) in order to identify and accurately map archaeological, recent and natural features.

No archaeological features have been identified on the aerial photographs examined although short lengths of possible (but unlikely) ditches were identified north-west of the churchyard.

Former field boundaries have been mapped as have the extents of woodland prior to 1967.

Four small areas of quarrying have been identified and mapped.

Discussion of land use shows there has been little opportunity for aerial photographs to indicate the presence of archaeological features in the study area and especially in land adjacent to the churchyard. The modern field west of the churchyard is the only area in which aerial photographs may have recorded archaeological features and the result there is almost negative.

Original photo interpretation and mapping was at 1:2500.

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Rog Palmer MA MIFA

INTRODUCTION

This assessment of aerial photographs was commissioned to examine an area of about 1 sq km centred on Melton Park churchyard (TM281516) in order to identify and accurately map archaeological, recent and natural features and thus provide a guide for field evaluation. The level of interpretation and mapping was to be at 1:2500.

ARCHAEOLOGICAL AND NATURAL FEATURES FROM AERIAL PHOTOGRAPHS

In suitable cultivated soils, sub-surface features – including archaeological ditches, banks, pits, walls or foundations – may be recorded from the air in different ways in different seasons. In spring and summer these may show through their effect on crops growing above them. Such indications tend to be at their most visible in ripening cereal crops, in June or July in this part of Britain, although their appearance cannot accurately be predicted and their absence cannot be taken to imply evidence of archaeological absence. In winter months, when the soil is bare or crop cover is thin (when viewed from above), features may show by virtue of their different soils. Upstanding remains, which may survive in unploughed grassland, are also best recorded in winter months when vegetation is sparse and the low angle of the sun helps pick out slight differences of height and slope.

Grass sometimes shows sub-surface features through the withering of the plants above them. This may occur towards the end of very dry summers and usually indicates the presence of buried walls or foundations. Such dry summers occurred in Britain in 1949, 1959, 1975, 1976, 1984, 1989 and 1990 (Bewley 1994, 25) and more recently in 1995, 1996, 2006 and 2010. This does not imply that every grass field will reveal its buried remains on these dates as local variations in weather and field management will affect parching. However, it does provide a list of years in which photographs taken from, say, mid July to the end of August may prove informative.

Such effects are not confined only to archaeological features as almost any disturbance of soil and bedrock can produce its own range of shadow, crop and soil differences. One of the skills of a photo interpreter, especially one familiar with local soils, is an ability to distinguish archaeological from other features. There may, however, remain some features of unknown origin that cannot be classified without specialist knowledge or input from field investigation.

PHOTO INTERPRETATION AND MAPPING

Photographs examined

The most immediately informative aerial photographs of archaeological subjects tend to be those resulting from observer-directed flights. This activity is usually undertaken by an experienced archaeological observer who will fly at seasons and times of day when optimum results are expected. Oblique photographs, taken using a hand-held camera, are the usual products of such investigation. Although oblique photographs are able to provide a very detailed view, they are biased in providing a record that is mainly of features noticed by the observer, understood, and thought to be of archaeological relevance. To be able to map accurately from these photographs it is necessary that they have been taken from a sufficient height to include surrounding control information.

Vertical photographs cover the whole of Britain and can provide scenes on a series of dates between (usually) 1946-7 and the present. Many of these vertical surveys were not flown at times of year that are best to record the archaeological features sought for this Assessment and may have been taken at inappropriate dates to record crop and soil responses that may be seen above sub-surface features. Vertical photographs are taken by a camera fixed inside an aircraft and with its exposures timed to take a series of overlapping views that can be examined stereoscopically. They are often of relatively small scale and their interpretation requires higher perceptive powers and a more cautious approach than that necessary for examination of obliques. Use of these small-scale images can also lead to errors of location and size when they are rectified or re-scaled to match a larger map scale.

A cover search was obtained from the National Monuments Record: Air Photographs (NMRAP), Swindon. Photographs included those resulting from observer-directed flights and routine vertical surveys. Images current on Google Earth and Flashearth at the time of this work (July 2010) were also examined.

Photographs consulted are listed in the Appendix to this report.

Base maps

No suitable base map was provided and so a background was constructed by underlying an image cropped from Google Earth and then geolocated using AirPhoto (Scollar and Palmer 2008).

Study Area

Photographs were examined in detail for an area extending some 500m from the churchyard boundaries. This produced a Study Area of about 1 sq km.

Photo interpretation and mapping

All photographs were examined by eye and under slight (2x) magnification, viewing them as stereoscopic pairs when possible. Digital copies of the most informative were transformed to match the geolocated Google Earth background using the specialist program AirPhoto (Scollar

2002; 2010). Screen captures from the Microsoft layer of Flash Earth were treated in the same way but information in Google Earth was traced directly from the geolocated background. When it seemed beneficial, digital photographs were enhanced using the default setting in AirPhoto before being examined on screen. Transformed files were set as background layers in AutoCAD Map, where features were overdrawn, making reference to the original prints, using standard conventions. Layers from this final drawing have been used to prepare the figure in this report and have been supplied to the client in digital form.

Accuracy

The accuracy of the geolocated Google Earth background fixes the greatest accuracy that can be achieved from transforming other photographs on to it. When that facility was being added to AirPhoto and tested, checks were made on a random sample of 12 UK triangulation points and showed most to be positioned within 2.0 metres (Scollar and Palmer 2008, 16).

Only one photograph was transformed to match the Google Earth background and mismatch values for this were less than +/- 2.0 metres.

COMMENTARY

Soils

The Soil Survey of England and Wales (SSEW 1983) shows the most of the area to be located on chalky till and glaciofluvial drift (soil association 572p: BURLINGHAM 2), with a small part of the south-west of the Study Area being glaciofluvial drift over Cretaceous sand or Crag (soil association 551e: NEWPORT 2). To judge by their appearance on the photographs examined, crops on these soils have the potential to show sub-surface archaeological features although none were identified.

Melton Park churchyard

The churchyard appears to have been well maintained between 1945 and 2007. South-east of the church is a rectangular area defined by a series of short parallel lines of stones. These appear to be too closely spaced to mark individual graves, but may be memorial markers. They occupy a space about 20m east-west and extending some 12-14m from the southern boundary of the churchyard. A photograph taken in 1973, when lighting and tree shadows permitted a view of the ground, shows similar lines extending to the western edge of the churchyard. There is no sign of these on the Google Earth photographs (2000 and 2007) although the northern edge of the extended area can be seen in March 2007.

Oblique photographs taken by RCHME in 1993 show a scatter of recumbent stones east of the church and another scatter west of the chapel. These may remain from former cemeteries.

Archaeological features

No definite archaeological features were identified within the Study Area but the field west of the churchyard showed three short lengths of what may be probable (but unlikely) ditches that were visible in 2007 on what appeared to be a local area of slightly higher ground. These features are unlikely to be relevant to the Development Area.

Non-archaeological features

A number of recently-removed field boundaries have been identified and mapped. Many of these were extant boundaries in the 1940s and 50s. The extent of wooded areas at that time (to 1967) has also been indicated on the map.

Four areas of hand-dug quarrying have been identified and mapped in southern parts of the Study Area.

Land use

Within the Study Area, cultivated land use has been fairly constant on all dates of photography. In the 1940s and 50s fields south of Grove Farm were in pasture and remained so until at least 1993. They had been converted to arable use by 2000.

Closer to Melton Park churchyard there have been more significant changes, although none that assist the detection of archaeological features from aerial photographs. During the span of aerial photographs (1945 to 2007) only the field immediately west of the churchyard has been in arable use, and thus may have had the potential to indicate archaeological features through crop growth or soil differences. No such differences have been identified although on several photographs a former field boundary has been visible in this field, showing that crops in it do respond to certain sub-surface differences. Indeed, on some dates of photography, the crops have shown a slightly mottled appearance, or changes of growth due to variations in the soil or subsoil structure.

Buildings that were part of the St Audry's Hospital, the former County Asylum (OS 1:2500 map, 1904), have been on land east of the churchyard on all dates of photography. Some wings of the hospital were demolished between 1993 and 2000 when a small housing estate was built that also extended on previously open land at the south of that small land parcel. Prior to building, this southern land was grass or small-holdings/horticulture.

The land immediately adjacent to the north and south boundaries of the churchyard have also been used for small-holdings or horticulture, and photographs show them to be growing small strips or blocks of unidentified crops. Archaeological features are rarely visible in this type of land use and none have been identified in Melton Park area.

There has been a scatter of buildings in the land north of the churchyard since at least 1945 and these remained relatively unchanged until 1993. By 2000, most of those buildings had been demolished and replaced by a housing estate that abutted the northern boundary of the churchyard. This housing estate expanded to the north over the former playing field, leaving

only the square bowling green undeveloped. The sports field was relocated to a former arable field on the south side of the village. Between that field and the southern boundary of the churchyard, a small parcel of land that previously had been used for horticulture was built over between 1993 and 2000.

In summary, much of the land use within the Study Area has been such that crops have the potential to indicate archaeological features, but no such evidence has been identified even though crops show the ditches of recently-removed field divisions and some geological noise. Land adjacent to the churchyard, other than the field to its west, was used for horticulture prior to its development for housing and this has masked any indications of sub-surface features.

REFERENCES

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APPENDIX

Aerial photographs examined

Source: Cambridge University Collection of Aerial Photographs

Access to this collection is closed until further notice

Source: Google Earth (aerial photographs)

4 March 2000
5 March 2007
3 August 2007

Source: National Monuments Record: Air Photographs (cover search 52324)

Specialist collection

<i>Photo reference</i>	<i>Film and frame number</i>	<i>Date</i>	<i>NGR</i>
TM 2851 / 1	NMR 4865 / 15	07 JUN 1993	TM 283519
TM 2851 / 2	NMR 4865 / 16	07 JUN 1993	TM 283518
TM 2851 / 3	NMR 4865 / 17	07 JUN 1993	TM 283518
TM 2851 / 4	NMR 4865 / 18	07 JUN 1993	TM 284518
TM 2851 / 5	NMR 4865 / 19	07 JUN 1993	TM 284518
TM 2851 / 6	NMR 4865 / 20	07 JUN 1993	TM 284519
TM 2851 / 7	NMR 4865 / 21	07 JUN 1993	TM 283519
TM 2851 / 8	NMR 4865 / 22	07 JUN 1993	TM 283519
TM 2851 / 9	NMR 4865 / 23	07 JUN 1993	TM 284518
TM 2851 / 10	NMR 4865 / 24	07 JUN 1993	TM 283517
TM 2851 / 11	NMR 4865 / 25	07 JUN 1993	TM 284518
TM 2851 / 12	NMR 4824 / 56	07 JUN 1993	TM 283518
TM 2851 / 13	NMR 4824 / 57	07 JUN 1993	TM 283518
TM 2851 / 14	NMR 4824 / 58	07 JUN 1993	TM 284518
TM 2851 / 15	NMR 4824 / 59	07 JUN 1993	TM 283519
TM 2851 / 16	NMR 4824 / 60	07 JUN 1993	TM 283519
TM 2851 / 17	NMR 4824 / 61	07 JUN 1993	TM 283519
TM 2851 / 18	NMR 4824 / 62	07 JUN 1993	TM 283518
TM 2851 / 19	NMR 4824 / 63	07 JUN 1993	TM 283518
TM 2851 / 20	NMR 4824 / 64	07 JUN 1993	TM 283518
TM 2851 / 21	NMR 4824 / 65	07 JUN 1993	TM 283518
TM 2851 / 22	NMR 4824 / 66	07 JUN 1993	TM 283518
TM 2851 / 23	NMR 4824 / 67	07 JUN 1993	TM 284518
TM 2851 / 24	NMR 4824 / 68	07 JUN 1993	TM 284519
TM 2851 / 25	NMR 4824 / 69	07 JUN 1993	TM 283517
TM 2851 / 26	NMR 4824 / 70	07 JUN 1993	TM 284519
TM 2851 / 27	NMR 4824 / 71	07 JUN 1993	TM 284519

TM 2851 / 28	NMR 4824 / 72	07 JUN 1993	TM 283517
TM 2851 / 29	NMR 4824 / 73	07 JUN 1993	TM 283519
TM 2851 / 30	NMR 4824 / 74	07 JUN 1993	TM 283518
TM 2851 / 31	NMR 4824 / 75	07 JUN 1993	TM 283518
TM 2851 / 32	NMR 4824 / 76	07 JUN 1993	TM 283517
TM 2851 / 33	NMR 4824 / 77	07 JUN 1993	TM 283519

Vertical collection

<i>Sortie number</i>	<i>Library number</i>	<i>Camera position</i>	<i>Frame number</i>	<i>Centre point</i>	<i>Date</i>	<i>Sortie quality</i>	<i>Scale 1:</i>
RAF/106G/UK/832	75	RP	3066	TM 292 519	23 SEP 1945	AB	10000
RAF/106G/UK/832	75	RP	3067	TM 293 513	23 SEP 1945	AB	10000
RAF/106G/UK/832	75	RS	4067	TM 277 519	23 SEP 1945	AB	10000
RAF/106G/UK/832	75	RS	4068	TM 278 512	23 SEP 1945	AB	10000
RAF/106G/UK/1365	336	FV	7231	TM 283 522	03 APR 1946	A	9800
RAF/106G/UK/1365	336	FV	7232	TM 276 522	03 APR 1946	A	9800
RAF/106G/UK/1589	408	FP	1178	TM 288 516	21 JUN 1946	AB	10000
RAF/106G/UK/1589	408	FP	1179	TM 283 512	21 JUN 1946	AB	10000
RAF/543/1879	2113	F22	13	TM 278 531	25 SEP 1962	AB	10000
RAF/543/1883	2116	F21	200	TM 285 502	27 SEP 1962	A	12000
RAF/543/1883	2116	F21	201	TM 278 502	27 SEP 1962	A	12000
RAF/543/1883	2116	F22	200	TM 284 524	27 SEP 1962	A	12000
RAF/543/1883	2116	F22	201	TM 277 524	27 SEP 1962	A	12000
RAF/58/76	2970	V	5132	TM 289 515	27 JUL 1948	A	7500
RAF/58/76	2970	V	5133	TM 284 520	27 JUL 1948	A	7500
RAF/58/76	2970	V	5134	TM 278 524	27 JUL 1948	A	7500
RAF/58/76	2970	V	5151	TM 284 512	27 JUL 1948	A	7500
RAF/58/76	2970	V	5152	TM 278 516	27 JUL 1948	A	7500
MAL/65095	4165	V	30	TM 282 519	03 NOV 1965	A	12000
MAL/65095	4165	V	31	TM 292 518	03 NOV 1965	A	12000
MAL/65096	4166	V	66	TM 286 516	06 NOV 1965	A	12000
OS/73097	10434	V	56	TM 283 528	25 APR 1973	A	7500
OS/73097	10434	V	57	TM 276 528	25 APR 1973	A	7500
OS/73097	10434	V	95	TM 274 514	25 APR 1973	A	7500
OS/73097	10434	V	96	TM 280 514	25 APR 1973	A	7500
OS/73097	10434	V	97	TM 287 513	25 APR 1973	A	7500
OS/67055	11658	V	32	TM 280 511	24 APR 1967	A	7500
OS/67055	11658	V	33	TM 280 516	24 APR 1967	A	7500
OS/77126	12268	V	20	TM 284 523	29 AUG 1977	A	7500
OS/77126	12268	V	21	TM 279 519	29 AUG 1977	A	7500
OS/77126	12268	V	22	TM 275 515	29 AUG 1977	A	7500
OS/80065	12433	V	10	TM 286 506	10 MAY 1980	A	7600
OS/80065	12433	V	11	TM 289 511	10 MAY 1980	A	7600
OS/80065	12433	V	12	TM 293 517	10 MAY 1980	A	7600

OS/80065	12433	V	16	TM 278 522	10 MAY 1980	A	7600
OS/80065	12433	V	17	TM 275 516	10 MAY 1980	A	7600
OS/93365	14480	V	19	TM 286 519	18 JUL 1993	A	7600
OS/93365	14480	V	20	TM 281 519	18 JUL 1993	A	7600
OS/93365	14480	V	21	TM 275 519	18 JUL 1993	A	7600
OS/63003	20587	V	15	TM 274 517	17 MAR 1963	A	8500
OS/63003	20587	V	16	TM 281 522	17 MAR 1963	A	8500
OS/63003	20587	V	17	TM 287 526	17 MAR 1963	A	8500
MAL/61474	21275	V	91196	TM 278 526	12 MAY 1961	A	10500
MAL/61474	21275	V	91197	TM 269 523	12 MAY 1961	A	10500
MAL/61465	21285	V	89595	TM 277 527	03 MAR 1961	A	10500
MAL/61465	21285	V	89596	TM 271 525	03 MAR 1961	A	10500

Most informative photographs

Google Earth: 5 March 2007

NMR: TM2851/21
 RAF/106G/UK/832: 4067
 OS/73097: 96
 OS/93365: 20

TERMS AND CONDITIONS

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Due to the nature of aerial photographic evidence, Air Photo Services cannot guarantee that there may not be further archaeological features found during ground survey which are not visible on aerial photographs or that apparently 'blank' areas will not contain masked archaeological evidence.

We suggest that if a period of 6 months or more elapses between compilation of this report and field evaluation new searches are made in appropriate photo libraries. Examination of any newly acquired photographs is recommended.

That the original working documents (being interpretation overlays, control information, and digital data files) will remain the property of Air Photo Services and be securely retained by it for a period of three years from the completion date of this assessment after which only the digital files may be retained.

It is requested that a copy of this report be lodged with the relevant Sites and Monuments Record within six months of the completion of the archaeological evaluation.

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Land adjacent to former Melton Park Church, Melton Park, Suffolk:
Features identified on aerial photographs



- Study Area
- Possible archaeological ditch
- Recent boundary
- ▨ Woodland (prior to 1967)
- ▨ Former quarry

[NB. The blue circle near the map centre is a calibration point that cannot be erased.]

Original photo interpretation and mapping at 1:2500 level
based on photographs at NMRC and Google Earth.

Air Photo Services Cambridge
August 2010
Drawing: 1004MelPk1.dwg

Background image from Google Earth 2007