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**HOLLAND PARK, TF233215, SPALDING,  
LINCOLNSHIRE:**

**AERIAL PHOTOGRAPHIC ASSESSMENT**

**REPORT No: 1998/13**

**MAY 1998**

**COMMISSIONED BY**

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**HOLLAND PARK, TF233215, SPALDING,  
LINCOLNSHIRE:  
AERIAL PHOTOGRAPHIC ASSESSMENT**

**SUMMARY**

This assessment of aerial photographs was to examine an area of 6 hectares in order to identify and accurately map archaeological and natural features. Post-Roman silts, and recent use of the development area as a nursery area made it likely that aerial photographs would offer little direct evidence, so the immediate environs, covering some 4 square kilometres, was studied to provide context.

West of the development area are now-levelled tracks, field divisions and settlements of probable Roman date. These appear to show a general trend in alignment which may be projected into the development area where continuity may be buried by the later deposits.

A small group of probable enclosures was identified within the development area. These do not align with the main trend of features, have dissimilar characteristics to Fenland Romano-British forms and, it is suggested, may be of Saxon origin.

Channels of former water courses also occur in the development area.

Mapping is at 1:10000.

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Rog Palmer MA MIFA

**INTRODUCTION**

This assessment of aerial photographs was commissioned to examine an area of some 6 hectares (centred TF233215) in order to identify and accurately map archaeological and natural features. Mapping was to be at 1:10000.

**ARCHAEOLOGICAL AND NATURAL FEATURES FROM AERIAL PHOTOGRAPHS**

In suitable cultivated soils, sub-surface archaeological features – including 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 ripe 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. Winter photography has been especially valuable in recording Fenland archaeology. Upstanding remains 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.

Natural features can cause similar differences in crops and appear as colour changes in bare winter soils. In the Fenland these tend to comprise former watercourses and the edges of islands of other high ground. The former can show as a broad, light-toned band (roddon) which represents the maximum width of a watercourse before it became silted. These sometimes contain a dark meandering 'central' line which shows the final flowing channel. Smaller watercourses may now be identified as only a former channel.

The most informative aerial photographs of archaeological subjects tend to be those resulting from specialist reconnaissance. 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 product 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. Unfortunately these vertical surveys are not necessarily flown at times of year that are best to record the crop and soil responses that may be seen above sub-surface features. Vertical photographs are taken by a camera fixed inside an aircraft and adjusted 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.

## PHOTO INTERPRETATION AND MAPPING

### *Photographs examined*

Cover searches were obtained from the Cambridge University Collection of Aerial Photographs (CUCAP) and the National Library of Air Photographs (NLAP), Swindon. Photographs included those resulting from specialist archaeological reconnaissance and routine vertical surveys.

Photographs consulted are listed in the Appendix to this report.

### *Base maps*

A current-edition base map of the development area at a scale of 1:2500 was provided by Broadgate Builders (Spalding) Ltd. Extracts from the OS 1:10560 map were used as a base on which to compile a broader picture of the area. Features on this older map provided essential control information to allow mapping from the majority of the aerial photographs. No attempt has been made to update the 1:10560 background.

### *Photo interpretation and mapping*

All photographs were examined by eye and under slight (1.5x) magnification, viewing them as stereoscopic pairs when possible. Interpretations were marked on overlays to individual prints following procedures described by Palmer and Cox (1993). All rectification was computer assisted and carried out using AERIAL 4.2 software (Haigh 1993).

AERIAL computes values for error of control point match between the photograph and map. In all rectifications prepared for this assessment the mean error values were less than  $\pm 4.0\text{m}$  although occasional individual points were as much as  $\pm 7.0\text{m}$  in error. With some photographs there was no alternative to using this relatively poor control information, which may be due to slight shifting of boundaries or recutting of drainage ditches. Rectified output was combined and edited to form the digital plan that illustrates this report. This is available as an Autocad file (or its export formats) if required.

## COMMENTARY

### *Soils*

The Soil Survey of England and Wales (SSEW 1983) shows the area to be covered by marine alluvium (series 812b). This is a post-Roman deposit (Hayes and Lane 1992, 5-7; Waller 1994, 75-79) and thus has the potential to bury and thus mask earlier features. This is of relevance to the present assessment.

### *Archaeological features*

In view of the expected masking by later marine deposits and the use of the development area as, primarily, nursery throughout its photographed history, it was agreed that more extensive mapping of archaeological features to the west would be undertaken. This, it was hoped, may indicate alignments of features that could extend into the development area and thus help guide any field investigation (telephone conversation with Dan Slatcher, JSAC, 6 May 1998).

Parts of the archaeological and natural landscape had been previously mapped by Sylvia Hallam as part of her study of the Roman Fenland (Phillips 1970, Map 4). Since Hallam's work, based largely on the immediate post-war verticals, more aerial photographs have been taken of the area, and understanding of the Fenland has been advanced by the recent archaeological and environmental survey (summarised in Hall and Coles 1994). The mapping presented here adds considerably to Hallam's and shows some of the typical complexity of the Roman landscape on the Lincolnshire Fens in which tracks, often following locally high ground, linked settlements and fields (compare, for example, with land to the west in Palmer 1997, figures 2 and 8). Lying among the cut ditches are features mapped as 'former water channels'. These are of uncertain date although some in other parts of the Fens were flowing in Roman times as evidenced by ditches cut to tap into them. Not all channels that lie outside the development area have been mapped for this assessment.

*Date  
these  
channels*

The high ground in Roman times included the silted roddons whose sinuous courses often dictated the direction of tracks and the alignment of related features thus hindering attempts to predict alignments. Such changes in direction, especially of double-ditched tracks, can be seen in several places in the small area of this assessment's map. However, there is an general alignment to these features which seems to follow a broadly south-west to north-east trend. This can be seen in many places on the map and extends into (at least) the south-western corner of the development area.

Elsewhere in the development area is a small group of roughly rectilinear features. Most are incomplete due to changes in landuse in 1965 (the only year they were recorded) but they appear to form a cluster of enclosures which may indicate a former settlement area. The ditches are broad and irregular and are not characteristic of the usual forms attributed to the Roman period in this part of the Fenland (see also the features at TF230207). It should be remembered, however, that the Spalding area was occupied in Saxon times, as were the late silts in general (Hall and Coles 1994, 122-124). Elsewhere there are examples of either reuse of, or continuity on, Roman settlement sites, as evidenced by finds of Saxon pottery in areas of (apparently) Roman ditched settlements (Palmer 1997, 14; figure 7). The uncharacteristic form of the

*Saxon/Roman  
enclosures*

features in the development area *may* suggest a Saxon date – as perhaps is supported by its non-alignment with the general trend of the ditched landscape to the west.

### *Non-archaeological features*

Other than the former water courses mentioned above, no relevant natural features (such as the edge of later silts) were identified.

Crossing the map from south-east to north-west is a linear feature, now mostly filled and levelled, that is likely to show the cutting of an earlier main drain [note that it is almost parallel to South Drove Drain west of the area mapped]. Soil-marked evidence shows this to be a broad feature which clearly cuts across the grain of the archaeological system. A small pasture field (centred TF233208) retained this as two parallel upstanding banks, until ploughed between 1965 and 1975.

A spread bank, roughly central to the long axis of the modern field centred TF229209, may mark a western extension of the track which bounds the southern side of the development area.

The map also shows the course of the former railway (as from OS) running east-west and branching within the development area.

### *Land use*

Most land west of the development area has been in arable use throughout the span of the aerial photographs examined. Exceptions include those fields marked as allotments, the pasture field noted above (TF233208), and the two fields in the north-west corner of the study area which were orchards until first seen in arable use in 1975.

Land within the development area appears to have been in use as nursery ground since 1946. Up to 1952, this has entailed frequent (probably annual) cultivation, usually on a whole-field basis, and then planting in narrow beds over parts of the land. Thus, some photographs dated 1946 and 1947 show what appears to be arable land, while at other times in the same years the nursery beds had been laid. By 1965, and thereafter, a single crop was grown on a each field (in the years photographed) while other nursery activities may have been confined to the greenhouse buildings which were extended in, or about, 1975 and are shown on current maps.

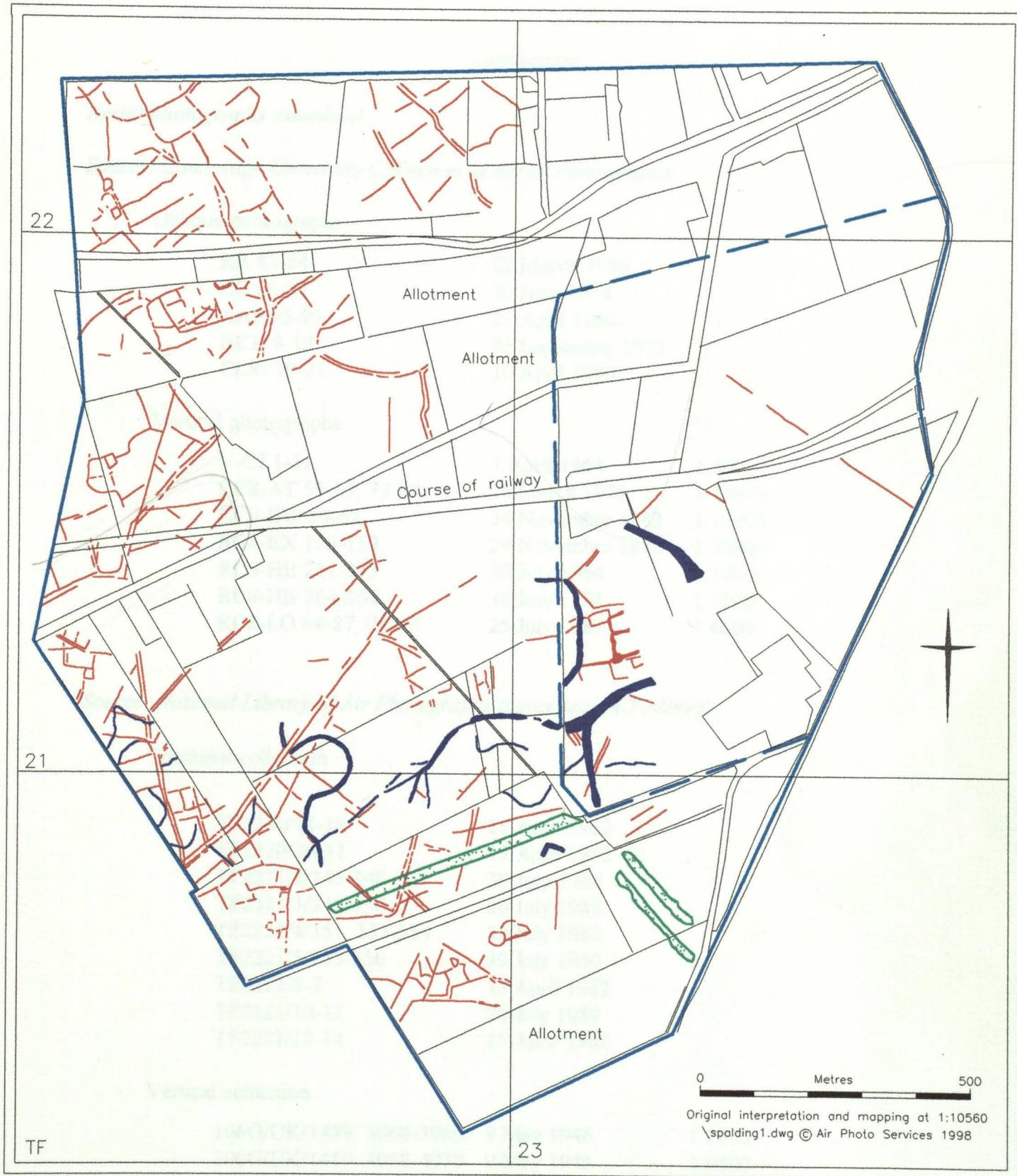
Annual cultivation is likely to cause some soil loss, which may be a reason why crop-marked evidence of ditches was visible within the development area in 1965. It is possible that the later silts had been thinned sufficiently to allow moisture in the buried ditches to be reached by, and affect the growth of, crops above them.

No evidence was apparent on aerial photographs from the land, now mostly built up, on the east and north sides of the development area. This included a small number of arable fields in the 1940s.

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Holland Park, Spalding, Lincolnshire:  
 Features identified on aerial photographs.



- Levelled archaeological ditch
- Former water channel
- Earthwork bank
- Former major drain (now levelled)

- Study area
  - - Development area
- Background based on OS 1:10560 map

APPENDIX

*Aerial photographs examined*

*Source: Cambridge University Collection of Aerial Photographs*

Oblique photographs

RR 83-84	22 March 1956
ZG 86-87	30 June 1954
AAP 95-97	21 April 1960
BKK 9-10	25 September 1972
CLM 19-21	10 April 1980

Vertical photographs

V-CJ 1-11	7 April 1964	1:3000
RC8-AT 59-63, 79-80	17 March 1975	1:13650
RC8-EW 59-62	24 November 1982	1:10000
RC8-EX 156-159	24 November 1982	1:10000
RC8-HB 211-213	30 July 1984	1:10000
RC8-HB 264-266	30 July 1984	1:7000
RC8-LO 84-87, 94-97	25 July 1989	1:4000

*Source: National Library of Air Photographs (cover search 7249899)*

Specialist collection

TF2220/14-18	15 April 1982
TF2220/29-31	15 April 1982
TF2221/2/345-348	30 July 1980
TF2221/3/349-350	30 July 1980
TF2221/4/351, 353-354	30 July 1980
TF2221/5/355-356	30 July 1980
TF2221/6-7	15 April 1982
TF2221/10-11	20 July 1989
TF2221/12-14	15 April 1982

Vertical collection

106G/UK/1489: 3068-3069	9 May 1946	1:9800
106G/UK/1489: 4068-4070	9 May 1946	1:9800
106G/UK/1489: 4159-4160	9 May 1946	1:9800
106G/UK/1717: 3121-3122	6 September 1946	1:9800
106G/UK/1717: 4166-4168	6 September 1946	1:9800
CPE/UK/1932: 2263-2264	17 January 1947	1:9960

CPE/UK/1932: 3263-3264	17 January 1947	1:9960
CPE/UK/2054: 1014-1018	8 May 1947	1:6000
CPE/UK/2054: 2086-2091	8 May 1947	1:6000
CPE/UK/2054: 3013-3018	8 May 1947	1:6000
CPE/UK/2054: 3088-3091	8 May 1947	1:6000
CPE/UK/2077: 2007-2010	18 May 1947	1:6500
CPE/UK/2077: 4007-4010	18 May 1947	1:6500
58/873: 3274-3276	19 May 1952	1:5000
F62.543/2843: 278-279	5 May 1964	1:10000
OS/65097: 43-45	4 June 1965	1:7500
OS/65172: 11-13	12 August 1965	1:7500

***Most informative photographs (development area)***

CPE/UK/1932: 3263-3264  
OS/65097: 43-45  
OS/65172: 11-13

## 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.

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