WICKHAMBREAUX, KENT

RING DITCH SURVEY

Fiona Small







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SUMMARY

This report reviews the results of an archaeological evaluation from aerial photographs undertaken by the Aerial Survey and Investigation section of English Heritage of a site of a linear group of at least five plough-levelled Bronze Age round barrows at Wickhambreaux, Kent. This survey carried out as part of the Natural England's Higher Level Stewardship Scheme.

The results of the aerial survey will be used to aid the field investigation and excavation, with the overall aim to assess the condition of the archaeological remains and the effects of prolonged deep ploughing.

The aerial photographs revealed not only the cropmark traces of known ring ditches, but also identified up to 5 further potential barrow sites within the group and several undated linear ditches. Also noted were the cropmark traces of the Roman road between Richborough and Canterbury with evidence of a contemporary roadside building.

CONTRIBUTORS

The air photo interpretation and transcription and report were carried out by Fiona Small, Aerial Survey and Investigation, English Heritage, Swindon.

ACKNOWLEDGEMENTS

We would like to thank the English Heritage National Monuments Record Enquiry and Research Service team for their assistance and patience in providing the mapping team with the aerial photographs essential for this survey.

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DATE OF SURVEY

2008

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INTRODUCTION

This survey of aerial photographs was carried out at the request of Ann Clark, Historic Environment Field Advisor for English Heritage (Surrey and West Sussex region), to assist with an archaeological evaluation of a presumed Bronze Age barrow cemetery at Wickhambreaux, Kent. This evaluation will contribute to the Natural England's Higher Level Stewardship Scheme (AG00245099) which the landowner had entered into. The site is centred at approximately TR2175 5861 in fields situated immediately to the southwest of Wickhambreaux village and north of the course of the Little Stour River.

The field evaluation will be carried out by Canterbury Archaeology Trust in accordance with Kent County Council's specification for evaluation (Site Manual Part B). This examined one of the double ring ditches noted on aerial photographs, and assessed the level to which they are being affected by ploughing.

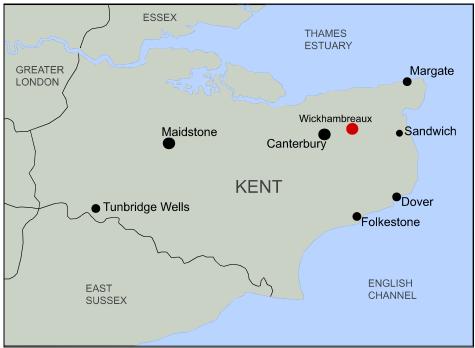


Figure 1. Location of Wickhambreaux

BACKGROUND AND TOPOGRAPHY

The site comprises the cropmark traces of at least five plough-levelled ring ditches, presumed to represent plough-levelled early Bronze Age round barrows. These form a linear cemetery running NE-SW alongside the Little Stour, a tributary of the River Stour, to the south west of the village of Wickhambreaux, Kent. The ring ditches are a mixture of single and double-concentric forms ranging in size from approximately 7m to 24.5m in diameter.

The site extends across two adjacent fields and is aligned approximately along the 10m contour line parallel to the river. The terrain adjacent to the river rises gently from approximately 5m to the high point of 35m some 750m to the west. The site occupies a small tongue of 2nd river terrace gravels overlying Head Brickearth over Eocene Thanet Beds.

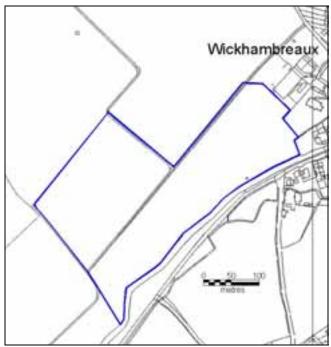


Figure 2. Plan of area to be surveyed

SOURCES

Aerial Photographic Sources

All readily available aerial photographs were examined from The National Monuments Record (NMR). There are eleven NMR specialist oblique photographs of the site dating from 1986 to 2001. All showed parts of the barrow cemetery and adjacent features as cropmarks.

There are 35 RAF and OS verticals. None of the vertical photographs were taken for archaeological purposes, but the cropmark traces of the central double ditched barrow could be seen on two of the eight sorties of RAF photographs (those taken in May 1946 and July 1959), and the south-western double ditched barrow and the smaller adjacent ring ditch could be seen on OS verticals taken in June 1993.

2

All photographs consulted are listed in Appendix 2

On-line sources for satellite and conventional vertical photographs (Google Earth and Microsoft local.live) provide recent vertical colour coverage of the area (usually millennium or later) at a resolution almost as good as the historic air photos. The images on these websites are updated when new photography becomes available. These images were viewed, but did not provide any further detail to the features visible on the aerial photographs.

Documentary Sources

In addition to the photographic sources a range of documentary evidence was also consulted during the mapping, interpretation and subsequent analysis and recording. The main sources from monument information were the NMR AMIE database and NMR WebGIS.

A range of historic and modern Ordnance Survey maps were supplied by the OS in a digital format (Licence No. English Heritage 100019088. 2008). 1:2500 scale tiles were used for rectification of aerial photographs offering an accuracy of +/- 3m. 1:10,000 scale contour data applied, but 1:10,000 scale maps were used as base maps within the AutoCAD drawings; the lower degree of detail giving a less cluttered drawing background against which to map. Historic mapping information was obtained from paper copies of the most recent edition of the OS 1:10,560 scale maps, and the 1st-4th edition OS maps were consulted digitally through the NMR WebGIS.

The drift edition of the BGS geology map for the survey area, Canterbury (Sheet 289) provided information on the underlying solid and drift geology.

The project was carried out to National Mapping Programme (NMP) standards and therefore set out to identify, interpret and transcribe archaeological features dating from the Neolithic to the twentieth century, visible as cropmarks, soilmarks or earthworks on aerial photographs. The background, philosophy and approach to English Heritage's National Mapping Programme are explained in Understanding England's Historic Landscapes: An Aerial Perspective (Bewley 2001).

Copies of the transcriptions and the associated monument records are available from the NMR in Swindon. Summary versions of the AMIE records appear on the PastScape web site.

SUMMARY OF RESULTS FROM THE AERIAL SURVEY

The survey identified the cropmark traces of five probable Bronze Age round barrows, all of which were already known and recorded in the English Heritage NMR AMIE monuments database and Kent HER. A further three possible and two potential round barrows were identified. In addition to these possible Bronze Age features the cropmark traces of the Roman road from Richborough to Canterbury (Margary 10), possible contemporary roadside buildings, and the structural remains of a WWII pillbox were also recorded. These features are discussed in detail below.

With the exception of the WWII pillbox (Z on Figure 3) all features were seen as cropmarks. The barrow cemetery is aligned NE-SW following the 10m contour across a gentle slope which rises from the river to around 35m. The site occupies a narrow tongue of river terrace gravel which runs parallel to the course of the Little Stour. The cropmark traces of the ring ditches and other features are more distinct and clear over the gravel deposits.

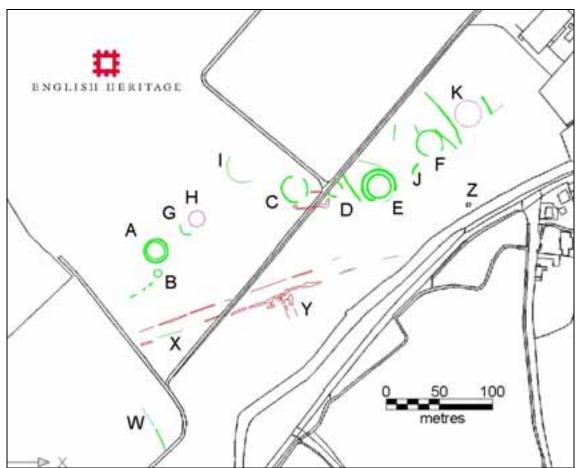


Figure 3. Annotated illustration of archaeological features mapped from aerial photographs. Base map: English Heritage 100019088. 2008

The earliest aerial photographs of the site are RAF verticals taken for general reconnaissance on 17th January, 1st May and 5th November 1946, though cropmarks of the two double-ditched barrows could only be seen on the photographs taken in May. One or both barrows were subsequently visible on vertical photographs taken in July 1959 (RAF), Jun 1993 (Ordnance Survey). This illustrates the fact that the site has been plough-levelled since the early 20th century, and the absence of any barrow mounds on the first edition OS maps would indicate that the barrows were levelled by the mid 1800s.

However, the oblique photographs taken specifically to record the archaeology in 1986, 1990 and 2001 have revealed the site in the most detail. This is almost certainly due to selecting the time when the cropmarks were more likely to be at their best.

A – NMR TR25NW 162 (1386707). A double concentric ring ditch centred at TR 2158 5856.

The inner ditch circuit measured approximately 16.5m and the outer circuit approximately 21.8m.

- B NMR TR25NW 162 (1386707). A small ring ditch centred at TR 2158 5854 with a diameter of approximately 7.2m. Extending south-west from B were fragments of a possible ditch or pits of uncertain date.
- C NMR TR25NW 161 (1386704). An incomplete single ring ditch centred at TR 2171 5862 with an approximate diameter of 24.5m. The southern part of the ditch circuit is masked by a darker cropmark of a negative feature which appears to be surrounded by either upcast material or part of a structure.
- D NMR TR25NW 160 (1386699). An incomplete single ring ditch centred at TR 2175 5862 with an approximate diameter of 14.5m. The northern half is obscured by the modern field boundary, the southern edge by the darker cropmark traces of deeper soil or alluvium. On the eastern side of this ring ditch is a linear ditch which on some images gives the impression of part of a second outer circuit to the ring ditch. However, on the clearer aerial photographs this ditch appears straight and extends beyond the ring ditch into the darker cropmark (see Figure 4 below).
- E NMR TR25NW 139 (466473). A double concentric ring ditch centred at TR 2179 5862. The inner ditch circuit measured approximately 22.6m and the outer circuit approximately 32m. The southern edge of the outer circuit appears to be obscured by a darker cropmark, possibly deeper soil or alluvium.
- F NMR TR25NW 159 (1386696). An incomplete single ring ditch centred at TR 2184 5866 with an approximate diameter of 24.2m. The southern part of the ditch circuit is less distinct due to the darker cropmark traces of deeper soil or alluvium.

- G Centred at TR 2161 5857, this appeared as a faint cropmark trace of a curving ditch forming an arc 13m across. This may be part of a ring ditch.
- H Centred at TR 2162 5859. The very faint cropmark traces of a pale curvilinear patch approximately 14.5 m in diameter which could only be seen on the most recent aerial photographs taken in 2001. (NMR TR 2158/14 (21268/09) 16-JUL-2001)
- I Centred at TR 2166 5863, this appeared as a faint cropmark trace of a curving ditch forming an arc 30m across. This may be part of a ring ditch. (NMR TR 2158/I (3115/0016) 02-JUL-1986)
- J Centred at TR 2182 5863, this appeared as a faint cropmark trace of a ditch which may be part of a ring ditch. (NMR TR 2158/5 (4645/22) 02-JUL-1990)



Figure 4. Aerial view of the site from the south showing ring ditch D and adjacent ditch. NMR TR 2158/7 (3115/0017) 02-JUL-1986 © English Heritage (NMR)



Figure 5 Extract of aerial photograph showing the ring ditches and traces of the Roman road with adjacent building foundations visible. NMR TR 2158/5 (4645/22)



Figure 6. Colour photograph showing parts of the site under different crop conditions. NMR TR 2158/13 (21268/08) 16-JUL-2001 © English Heritage (NMR)

K - Centred at TR 2188 58659. The very faint cropmark traces of a possible ring ditch approximately 24.5m in diameter which could only be seen on the most recent aerial photographs taken in 2001. (NMR TR 2158/14 (21268/09) 16-JUL-2001)

W- Centred at TR 2155 5839- a length of linear ditch of uncertain date or origin visible as a cropmark.

X and Y – NMR Linear 339 UID:1042632. Two parallel linear features visible as a fragmented positive (bank) feature with traces of ditch) aligned ENE-WSW between TR 2157 5847 and TR 2181 5855. These are the faint cropmark traces of the Roman road between Richborough and Canterbury (RR10, Margary) representing the lateral ditches and banks of the road running parallel to the remains of the Bronze Age barrow cemetery immediately to the north. No trace of the metalled road surface could be seen. Attached to the southern side of the road at TR 2171 5851 were the faint traces of what may be the remains of a building visible as fragmented positive cropmarks.

Z - NMR TR25NW 166 (1417729). The structural remains of a WW2 hexagonal concrete pillbox with brick shuttering (typeFW3/ 24, Cassini ref 659767) which was centred at approximately TR 2188 5860.

DISCUSSION

The barrow cemetery follows both the course of the Little Stour River and the line of the 10m contour above the river. This is not a ridge, rather the beginning of the slight rise in the terrain to high point of 35m to the north-west. This forms the low wide gently undulating ridge between the lesser tributary river of the Little Stour and the course of the River Stour and the Westbere Marshes and Stodmarsh to the north.

It is possible that the barrow cemetery extends further to the north-east beneath Wickhambreaux village, and south-west into adjacent fields. However, the area to the south-west has been cultivated with orchards of fruit trees since the earliest photographs of the site were taken in the 1940s, effectively obscuring any traces of buried features.

The map and photographic evidence indicate this site has been ploughed for a number of centuries and all features appear to have been levelled. It is likely that very little of the barrow structures survive, though on the southern edge of the alignment deeper soil which appears to obscure parts of some of the ring ditches may have helped to preserve more of the buried remains.

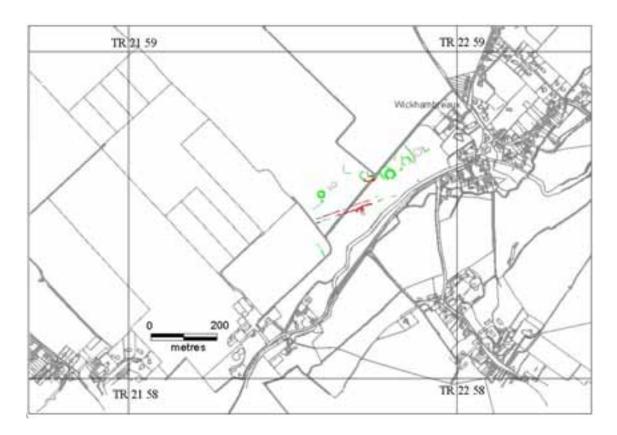


Figure 8. Plan of all archaeological features mapped from aerial photographs

SUMMARY OF CANTERBURY ARCHAEOLOGY TRUST'S EVALUATION AND EXCAVATION AT WICKHAMBREAUX, KENT

The following is based on the results of the evaluation report by Andrew Linklater of Canterbury Archaeology Trust (Linklater 2008).

Following the provision of the aerial survey and report by English Heritage, Canterbury Archaeology Trust excavated a single evaluation trench across the double ring ditch ((E) Figure 3) between 22nd and 26th September 2008. The excavation located both the inner and outer ditches, both cut into the underlying natural gravel deposits, confirming the presence of a possible Bronze Age round barrow. The inner ditch measured approximately 2.02m wide and was excavated to a depth 1.12m from the present ground surface. The outer ditch measured approximately 2.02m across and was excavated to a depth of 1.55m. Deep ploughing of the site had removed any traces of a possible central mound or external bank. There were frequent finds of flint gravel in the topsoil, probably due to the plough scouring the upper surface of the underlying geology. The depth of the surviving topsoil (between 0.36m and 0.44m) suggests that archaeological structures would be under threat from deep ploughing necessary for crops such as potatoes. Between 2002 and 2006 the field containing the evaluated ring ditch was subjected to intensive metal detecting by several individuals, with a number of important finds being reported to Kent County Council's Finds Liaison Officer (FLO). These included medieval and post medieval coins, jettons, buckles and finger rings, an early medieval coin and brooch, and Roman brooches and coins. There are also unconfirmed reports of at least one Bronze Age bronze axe head.

Following the evaluation by Canterbury Archaeology Trust, further metal detecting and field walking was again undertaken by private individuals in the area to the west of the excavated barrow. This yielded a quantity of archaeological material including Roman coins, pottery and roof and box flue tiles adjacent to the course of the Roman road. The combined evidence of the finds and the cropmark traces of a potential building identified during the English Heritage aerial survey strongly suggest the presence of a Roman roadside settlement.

Post Evaluation Recommendations

As a result of the excavation and evaluation at Wickhambreaux, Canterbury Archaeology Trust made the following recommendations:

- 1. The site would benefit from further non-intrusive projects.
- 2. They recommended a programme of geophysical survey across adjacent fields to locate known features and perhaps identify further features not visible on aerial photographs.

3. Following geophysical survey they recommended a scheme of controlled field walking and metal detecting. The combined results of the geophysical survey and finds would provide artefactual dating evidence for the site.			

REFERENCES

BGS 1966. Geological Survey of Great Britain (England & Wales) Drift Sheet 289, Canterbury.

Linklater, A 2008. An Archaeological Evaluation and Assessment At Wickhambreaux Barrow cemetery, Reynolds Farm, Wickhambreaux, Kent. Canterbury Archaeology Trust Ltd, Canterbury Oct 2008.

Ordnance Survey 1988. 1:50,000 Landranger Series. Sheet 179, Canterbury and East Kent.

APPENDICES

Appendix I Methodology and archaeological scope of the survey

For this survey 46 aerial photographs from English Heritage's National Monument Record (NMR) were consulted. Photographs with relevant archaeological features were scanned and then rectified using AERIAL 5.29 Photograph Rectification programme designed by John Haigh at the University of Bradford. Control information was taken from digital copies of Ordnance Survey 1:2500 scale maps with a level of accuracy of +/-3m to the base map. Digital terrain models were created from the Ordnance Survey Land-Form Profile digital height information and used to compensate for height differences across the area. The resultant rectified photographs were imported into AutoDesk Map 2007 and archaeological detail was transcribed using the appropriate layers and conventions.

New archaeological features were recorded in the National Monuments Record database, known as AMIE. Existing AMIE records were updated or revised where more detailed information could provide a better understanding of the site. These records also included a reference to the relevant Kent HER record. Each English Heritage monument number was also attached to the relevant transcription within AutoDesk Map along with basic period, classification, form and photographic source.

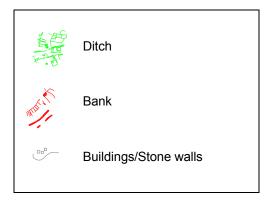


Figure 7. Standard NMP mapping conventions for mapping in AutoCAD

Copies of the transcription and the associated monument records are available from the NMR.

Appendix 2 Period Classifications

Earthworks, plough levelled features and buried remains Cropmarks and soilmarks of cut features such as ditches and built-up features such as banks have been mapped whether they are extant or have been levelled and only show as cropmarks or soilmarks.

For the purposes of this survey and report, all period classifications used are those used for the NMR's AMIE database. These classifications are as follows:

?500 000BC - 43AD Prehistoric ?500 000BC - 43AD Prehistoric/Roman 4500BC - 2200BC Neolithic Bronze Age 2500BC - 700BC 800BC - 43AD Iron Age Roman 43AD - 410AD Early medieval 410AD -1066 Medieval 1066 - 1540 Post medieval 1540 - 1901 Modern 1901-present 1939 - 1945 World War II

Uncertain

The air photo transformations were carried out using the University of Bradford Aerial5 photo rectification program. Control information was taken from the Digital copies of current OS 1:2500 scale maps. All digital transformations are therefore accurate to within circa 5m of true ground position, and typically less than 2m to the base map. The transcription was produced in AutoCAD by tracing the archaeology from the transformed and georeferenced aerial images.

Appendix 3 Gazetteer of sites

Site Ref	AMIE UID	Period	Interpretation	Form	Photographic source	
А	1386707	Bronze Age	Round barrow	Cropmark	NMR TR 2158/1 02-JUL-1986, NMR TR 2158/5 02-JUL-1990, NMR OS/93351 056 29-JUN-1993	
В	1386707	Bronze Age	Round barrow?	Cropmark	NMR TR 2158/1 02-JUL-1986, NMR OS/93351 056 29-JUN-1993	
С	1386704	Bronze Age	Round barrow	Cropmark	NMR TR 2158/1 02-JUL-1986	
D	1386699	Bronze Age	Round barrow	Cropmark	NMR TR 2158/8 02-JUL-1986	
Е	466473	Bronze Age	Round barrow	Cropmark	NMR TR 2158/1 02-JUL-1986, NMR TR 2158/5 02-JUL-1990	
F	1386696	Bronze Age	Round barrow	Cropmark	NMR TR 2158/5 02-JUL-1990, NMR TR 2158/14 16-JUL-2001	
G	1481542	Uncertain /Bronze Age?	Ring ditch?	Cropmark	NMR TR 2158/8 02-JUL-1986	
Н	1481542	Uncertain	Ring ditch?	Cropmark	NMR TR 2158/7 02-JUL-1986	
I	1481542	Uncertain /Bronze Age?	Ring ditch?	Cropmark	NMR TR 2158/7 02-JUL-1986	
J	1481542	Uncertain /Bronze Age?	Ring ditch?	Cropmark	NMR TR 2158/5 02-JUL-1990	
K	1481542	Uncertain	Ring ditch?	Cropmark	NMR TR 2158/14 16-JUL-2001	
W	1481568	Uncertain	Ditch	Cropmark	NMR TR 2158/14 16-JUL-2001	
X	1042632	Roman	Road	Cropmark	NMR TR 2158/5 02-JUL-1990, NMR TR 2158/14 16-JUL-2001	
Υ	1481557	Roman	Building	Cropmark	NMR TR 2158/5 02-JUL-1990, NMR TR 2158/14 16-JUL-2001	
Z	1417729	Modern	Pillbox	Structure	NMR TR 2158/14 16-JUL-2001	

Appendix 4 Vertical Photographs

Sortie number	Library	Frame	Date flown	Film held
Sortie number	number	number	Date nown	by
RAF/106G/UK/1131	169	4086	17 JAN 1946	MOD
RAF/106G/UK/1131	169	4087	17 JAN 1946	MOD
RAF/106G/UK/1131	169	4088	17 JAN 1946	MOD
RAF/106G/UK/1131	169	4089	17 JAN 1946	MOD
RAF/106G/UK/1449	339	3063	01 MAY 1946	MOD
RAF/106G/UK/1449	339	3064	01 MAY 1946	MOD
RAF/106G/UK/1449	339	3065	01 MAY 1946	MOD
RAF/106G/UK/1449	339	3108	01 MAY 1946	MOD
RAF/106G/UK/1449	339	3109	01 MAY 1946	MOD
RAF/106G/UK/1449	339	3110	01 MAY 1946	MOD
RAF/106G/UK/1449	339	4050	01 MAY 1946	MOD
RAF/106G/UK/1449	339	4051	01 MAY 1946	MOD
RAF/106G/UK/1449	339	4052	01 MAY 1946	MOD
RAF/106G/UK/1449	339	4064	01 MAY 1946	MOD
RAF/106G/UK/1449	339	4065	01 MAY 1946	MOD
RAF/106G/UK/1449	339	4066	01 MAY 1946	MOD
RAF/CPE/UK/1829	505	4158	05 NOV 1946	MOD
RAF/CPE/UK/1829	505	4159	05 NOV 1946	MOD
RAF/CPE/UK/1829	505	4160	05 NOV 1946	MOD
RAF/540/458	1151	4494	17 APR 1951	MOD
RAF/540/458	1151	4495	17 APR 1951	MOD
RAF/540/458	1151	4496	17 APR 1951	MOD
RAF/540/458	1151	4497	17 APR 1951	MOD
RAF/58/2859	1919	1	13 MAY 1959	NMR
RAF/58/2859	1919	2	13 MAY 1959	NMR
RAF/543/626	1929	138	08 JUL 1959	NMR
RAF/543/626	1929	139	08 JUL 1959	NMR
RAF/543/626	1929	140	08 JUL 1959	NMR
RAF/543/626	1929	141	08 JUL 1959	NMR
OS/93351	14473	10	29 JUN 1993	NMR
OS/93351	14473	11	29 JUN 1993	NMR

OS/93351	14473	12	29 JUN 1993	NMR
OS/93351	14473	13	29 JUN 1993	NMR
OS/93351	14473	55	29 JUN 1993	NMR
OS/93351	14473	56	29 JUN 1993	NMR
OS/93351	14473	57	29 JUN 1993	NMR
OS/95017	14631	51	10 MAR 1995	NMR
OS/95017	14631	52	10 MAR 1995	NMR
OS/95017	14631	53	10 MAR 1995	NMR
OS/95017	14631	54	10 MAR 1995	NMR
OS/95017	14631	82	10 MAR 1995	NMR
OS/95017	14631	83	10 MAR 1995	NMR
OS/95017	14631	84	10 MAR 1995	NMR

MOD – Ministry of Defence NMR – National Monuments Record

Appendix 5 Oblique Photographs

Photo reference	Film and		Date flown
(NGR & Index	frame		
number)	number		
TR 2158 / 1	NMR 3115	/ 0016	02 JUL 1986
TR 2158 / 2	NMR 4645	/ 19	02 JUL 1990
TR 2158 / 3	NMR 4645	/ 20	02 JUL 1990
TR 2158 / 4	NMR 4645	/ 21	02 JUL 1990
TR 2158 / 5	NMR 4645	/ 22	02 JUL 1990
TR 2158 / 7	NMR 3115	/ 0017	02 JUL 1986
TR 2158 / 8	NMR 3115	/ 0018	02 JUL 1986
TR 2158 / 9	NMR 5444	/ 1	02 JUL 1986
TR 2158 / 10	NMR 5444	/ 2	02 JUL 1986
TR 2158 / 11	NMR 21310	/ 15	16 JUL 2001
TR 2158 / 12	NMR 21310	/ 16	16 JUL 2001
TR 2158 / 13	NMR 21268	/ 08	16 JUL 2001
TR 2158 / 14	NMR 21268	/ 09	16 JUL 2001













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