

Survey of the open-fields for the Bosworth Battlefield Survey (with an addendum on documentary evidence)

David Hall

Open-fields and their physical remains

Before hedges were planted to form modern ring-fenced farms, land in the East Midlands was cultivated on an open-field system. A typical farm, called a yardland, consisted of about 60 strips, each about 7 by 200m, scattered throughout a township. There were no hedges except around the village farmsteads and cottages. Since arable lands occupied most of the township, cultivation of the large number of strips of intermixed farms was controlled by manorial courts. Each strip was owned or tenanted privately, but it had to fit in with a regulated communal cropping scheme, which typically was on a three-year cycle of corn, peas-and-beans, and bare fallow. After crops were removed the land was open to the common village herd for rough grazing, until it was ploughed and planted again. Damp areas of meadow were similarly held in strips and when hay was taken off they were also open to common grazing.

The remains of this system of agriculture can be seen in modern grass fields as blocks of 'ridge and furrow'. Each strip of arable was ridged up to obtain a well-drained seed bed. Furrows at the edges of the ridged lands acted as open drains and provided a clear division between neighbouring lands in different ownership. Ridges were formed by ploughing, going round the land repeatedly in a clockwise motion beginning at the middle, a strip of ground being turned over (towards the right) with each passing of the plough. Repetition of this process a few times led to permanent ridges being formed in the centre and furrows at the edge. An anticlockwise motion was adopted in the fallow season to take some of the soil back to maintain a low ridge and to prevent the furrows penetrating too deeply into infertile subsoil. In plan, the ends of most lands were curved, so that the whole strip took the shape of a very elongated, mirror-image of an 'S'. A block of parallel lands was called a furlong and had a locational name.

As well as moving soil towards the centre of the strip, the action of the plough moved small quantities in the direction of motion, towards the ends. This soil was deposited when the plough was lifted out of the ground to turn, and over the years small heaps formed at each end. As a result of these soil movements the physical pattern of the open fields became 'fossilized' into the landscape, leaving earthwork remains that allow the system of furlongs to be reconstructed using archaeological fieldwork techniques.

A modern field of grass ridge and furrow can be measured and mapped easily enough, and where sufficient survives the pattern of furlongs and lands can be recorded. However, most modern fields are now arable and ploughed flat. Ridges disappeared rapidly but the soil piled up at the ends of the lands, called the 'heads', was not much flattened by modern ploughing, but became merged with the heads of the neighbouring lands. The net result was formation of long smooth banks lying along the edges of each furlong. Survey of furlong boundary soil-banks in an entire township allows a complete plan of the furlongs to be made, even if there are

no grass fields of earthwork ridge and furrow surviving. More detail of field techniques has been given (Hall 1994 & 1995).

As well as the ground evidence, there are two other useful sources of information. The principal one being a contemporary open-field map – however none of five townships studied has such a map. The other main source is evidence of ridge and furrow recorded on aerial photographs, especially, for this area, verticals taken by the RAF in April 1944 and May 1948, now held at the National Monuments Record at Swindon.

R. F. Hartley has used RAF photographs to plot ridge and furrow for the whole of Leicestershire at the 1:10,560 scale. These maps are held in the Leicestershire Historic Environment Record. He has published the results for some areas. The Bosworth area has not been published by Hartley and so as part of the preparation for the recent survey copies of his relevant 1:10,500 scale maps were made available.

Techniques in the field and data processing

The five Bosworth Battlefield townships were surveyed in October 2005 – February 2006 with a supplementary area in Higham on the Hill being added in March 2007. Each modern field in turn was examined for the survival of earthwork ridge and furrow and for the relevant linear soil banks. Care was taken not to confuse the results of open-field ploughing with banks produced by modern agriculture. The results were plotted on 1:10,500 scale maps. Strip orientation was recorded where it could be observed as extant ridges or as soilmarks, or on the aerial photographs. Elsewhere, strip orientation was estimated according to the lie of the land and to the whereabouts of neighbouring furlong boundaries. In open-field times there was no under-draining of the land and furrows were aligned across the contours to achieve water run-off by gravity.

As well as archaeological features, modern land-use was recorded, and the principal soil types were mapped, noting particularly those likely to represent former meadow and pasture. The results were plotted at the end of each day on modern OS Landline maps printed at a scale of 1:10,000. The purpose was to prepare an outline accurate furlong map for the whole area with strips schematically drawn in, not being measured in detail. Lands have the correct orientation but only about a quarter of the actual number is reproduced to ensure clarity.

A plan of each township, with no background, was manually drawn on thick tracing paper (112gsm), which dries quicker than film. The manuscript maps were then processed by Tracey Partida to produce digital mapping following the methodology developed for the Rockingham Forest Project.¹ The maps were first scanned, then put through a vectorizing process and transferred to GIS (Mapinfo) to create a seamless map (figure 1).

¹ Hall, et al., (forthcoming)

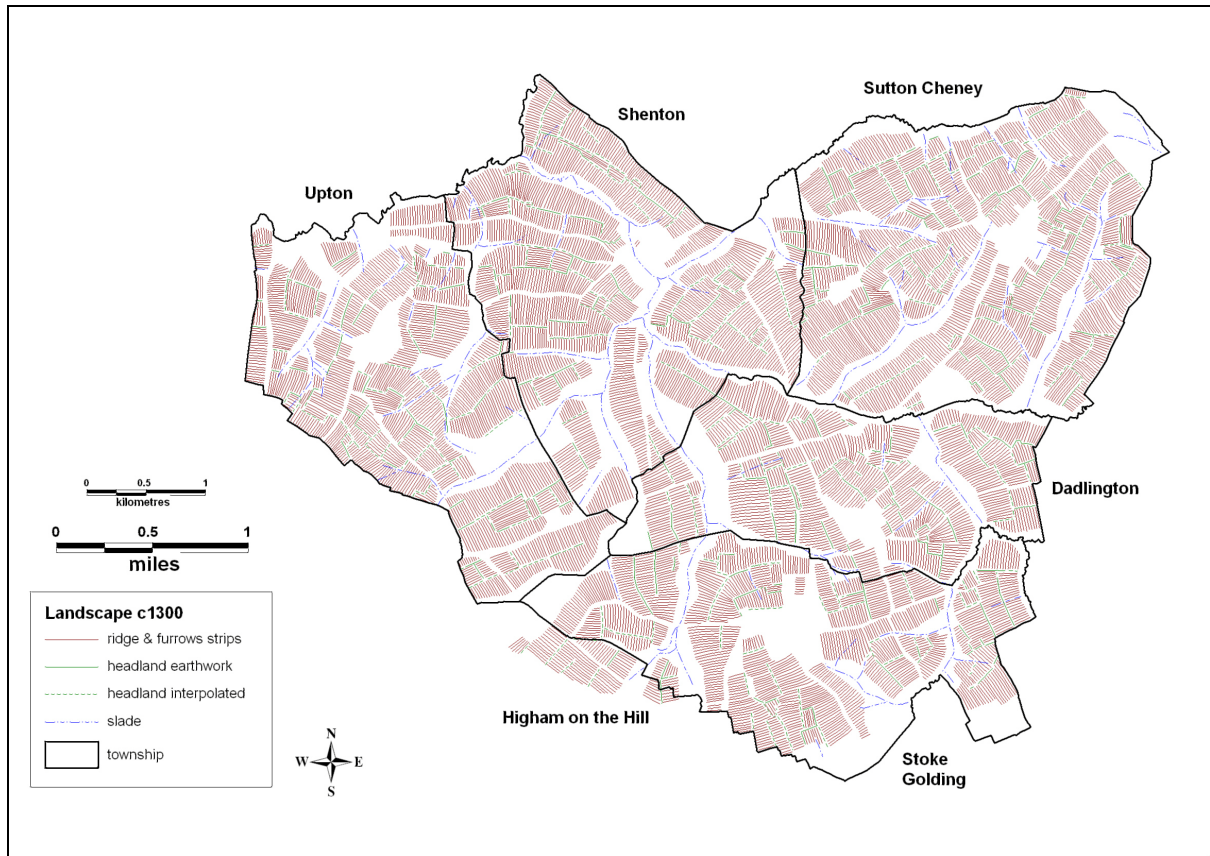


Figure 1: Open field furlongs

Results

A plot of the open-field patterns of the area is given in Figure 1 with a reconstruction of land use circa 1300 in figure 2. It is a typical East Midland landscape, showing that all five townships had been subjected to extensive arable cultivation, leaving only wet, poorly drained places for meadow and pasture. These grasslands were never-the-less of importance, since they provided grazing after hay was removed for winter fodder. The unploughed areas give a good view of the drainage pattern and the extent of meadow land, highlighting waterlogged areas particularly to the south and south west of Shenton in the Battlefield area.

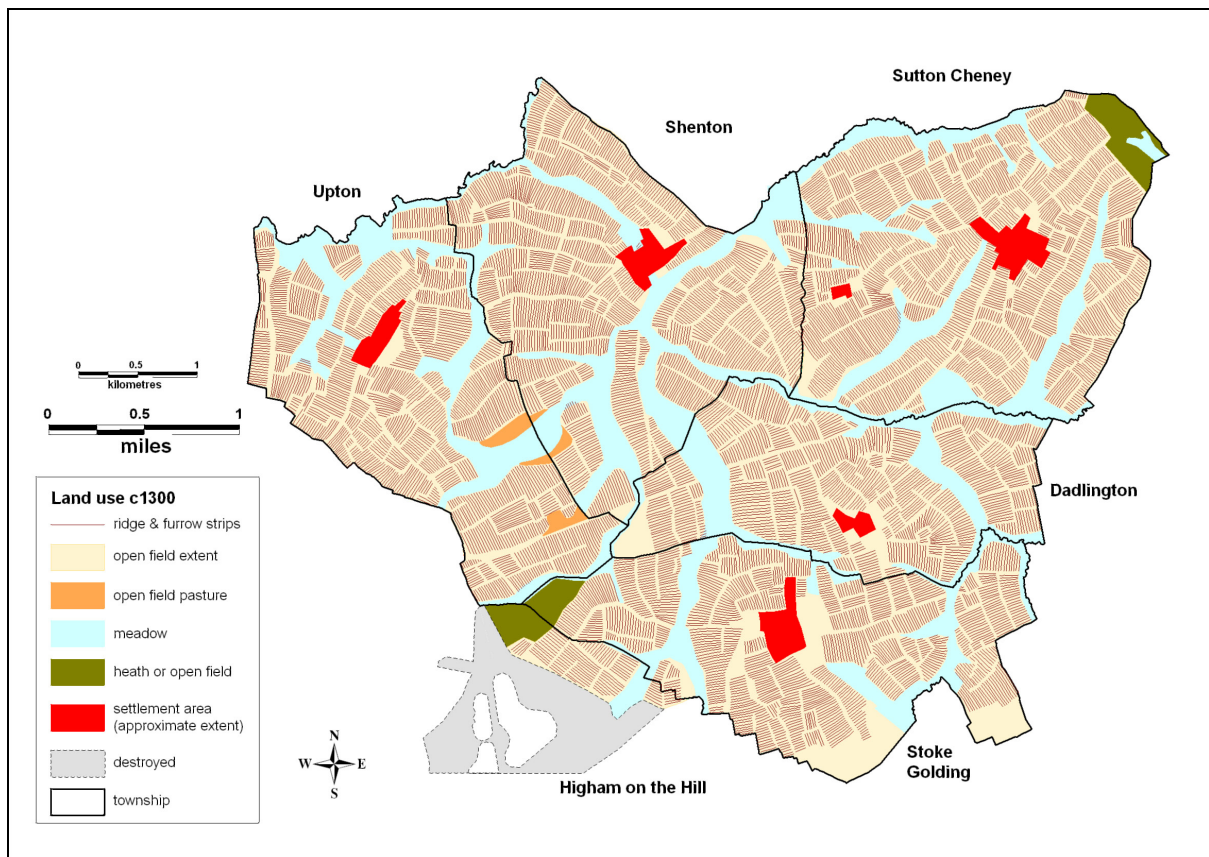


Figure 2: Land use map for circa 1300 AD. The ‘destroyed’ area is the MIRA Vehicle Proving Ground on the site of the WWII airfield.

The mapped furlong patterns represent the maximum extent of the arable in about 1400. During the 15th century there was reduction of population and of the arable area. By 1485 there would have been more pasture where furlongs of poor quality soil and far distant from settlements were left to grass over. The field pattern is typical of the region, with many furlongs having strips in similar alignments, implying that large blocks of land were laid out for strip-farming in one operation. An example can be seen west of Shenton where most of the strips lie on a north-west line in a gentle curve. Where the arable lands of neighbouring townships touch, it is possible to interpret the nature of the boundary. Thus Shenton and Sutton Cheney boundary next to Ambion has a discontinuous pattern of furlongs either side, showing that it is older than the open fields. The southern boundary of Stoke Golding has a cranked form, going around furlongs, suggesting that it was formed after the furlongs had been laid out.

Having established the furlong pattern it is possible identify open-field furlong names where they survive as modern field-names. Furlongs can also be identified from detailed abuttal descriptions sometimes given in terriers (descriptions or surveys of dispersed holdings). Occasionally, identification is achieved from the name-form itself, such as *garbroad furlong* at Stoke Golding, which means a furlong containing triangular strips (gores) introduced because it lies on the ‘corner’ of a hillside. Such a furlong, the only one, is evident on the plan, and on aerial photographs, lying immediately west of Stoke.

The chief purpose of producing a furlong map was so that the open-field topography could be identified to narrow down the potential location of the marsh described by Virgil, to seek other topographical details recorded in the primary battle accounts, and to enable a detailed context of historic terrain for 1485 to be constructed within which the action revealed by the military history and the battle archaeology could be interpreted.

The plans can also be used to study the open-field history of a particular township. For instance Dadlington has detailed manorial records relating to the management and regulation of its fields in the 15th century and later. Tenants were to repair the *Fennewey* (1429) and *pinfold* (1478) [Leics CRO 2D71/34 & 78]. There was a recognized series of manorial 'by-laws' by 1484, and tenants were presented to the court for allowing horses to trespass in the corn (1520) [DE226/4/2]. Detailed lists of open-field orders were made for the years 1592, 1617 and 1632 [6D40/4/1&10&16]. They included the usual items restricting the number of animals allowed for each yardland (because pasture was so limited), ordering the repair of fences. Horses were not to be put in the meadows until the hay was carried, peas were only to be gleaned on the tenants' own land etc. The records also provide topographical information.

Bibliography

D. Hall 1994, in Parker Pearson and Schadla-Hall 1994.

D. Hall 1995, 36-50.

R. F. Hartley:

1984. *The medieval earthworks of North-western Leicestershire*

1987. *The medieval earthworks of North-eastern Leicestershire*

1989. *The medieval earthworks of Central Leicestershire*, Leicester
Museums & Art Gallery Archaeological Reports

M. Parker Pearson and R.T. Schadla-Hall 1994.

*Looking at the land: archaeological landscapes in eastern England:
recent work and future directions: a conference held at Jewry Wall
Museum, Leicester, 6-7 October 1989.*

Leicestershire Museums, Arts and Records Service.

Acknowledgements

D Hall is grateful to: Richard Mackinder for arranging access to farmland; LCC for provision of OS Landline maps; P. Liddle and R.F. Hartley for providing copies of the Hartley ridge and furrow plots.

Hall, David, Tracey Partida, and Glenn Foard. *An Historical Atlas of Rockingham Forest*.
Northamptonshire Record Society, forthcoming.

An addendum on the documentary evidence for the open field systems

Glenn Foard

Open field terriers were identified for two townships in the survey area. That for Sutton Cheney is of the 18th century and was fully searched for relevant topographical names. None was identified and so a full reconstruction of the furlong and meadow names for Hall's open field map was not attempted. The survey of 1467-1484 of the demesne lands of Leicester Abbey in Stoke Golding, identified by Cox, is the only medieval terrier recovered in the present study and provides key information on the medieval landscape of that township immediately prior to the battle. A partial and highly conjectural reconstruction of the location of the furlong names in Garbrodfelde in the north western part of the township is presented here.

The entries in the terrier of the land in Stoke Golding belonging to Leicester Abbey, dated between 1467 and 1484, follow a geographical sequence within each great field, enabling a general location to be given to most furlongs via reference to later records of furlong and field names (see historic map report).² The meadows are separately listed in the terrier but can in some cases be located with reference to later field names and also relative to furlongs which refer to them. Some names can be more accurately placed than others.

The location of various of the furlongs can be identified with reference to the names from the 1605 enclosure of Stoke (see below) complemented by the later field names and by the 1599 reference to Badlow hill on the Stoke boundary on the heath in the northern corner of Higham. From this it is clear that the terrier follows a roughly anti-clockwise sequence through Garbrod field, the great field of the open field system of Stoke which encompassed the north west part of the township. Where names do not appear later they can be approximately placed with some confidence, as shown by the Mere (boundary) furlong which fits neatly with the location of the Higham boundary in the sequence between Badlow and Plache, though further refinement should be possible. This sequence may enable several important names to be located. Garbrode is the name for what is now Crown Hill, not only because it fits in the correct position in the sequence, between Ston and Hollow, but because the name itself is used for a specific type of furlong where strips radiate from a corner giving the strips the shape of spears.³ Just such a furlong still survives as ridge and furrow on the northern facing crest of Crown Hill thus securely placing the name. This distinctive furlong undoubtedly gave its name to the great field it overlooks because the 'spears' will have been clearly visible from much of that great field.

For Brown Heath, which does not appear in later documents is given an approximate location here based on the sequence within Garbrod field in the terrier, appearing between two furlongs which abut the Hollow Meadow which is securely located.

² The terrier was identified by Barrie Cox in his research on the field names of the county.

³ Hall, pers com.

Further documentary research, particularly on the records relating to Leicester Abbey, may reveal additional evidence which would enable the more accurate allocation of the furlong and meadow names. In particular it would be valuable to determine when between the 1460s and 1605 the name was changed Garbrodys to Crown Hill, to further reinforce the conclusion that the name change is a genuine record of the fact that Henry Tudor was crowned on this hill. It is unclear whether the Brown Heath recorded in the terrier is that which gave its name to the battle recorded one primary source, however it is significant that, whichever furlong it actually refers to, Brown Heath (if correctly located) lies in a direct line between Crown Hill and the battlefield in the general area where Richard's army was originally deployed before the battle.

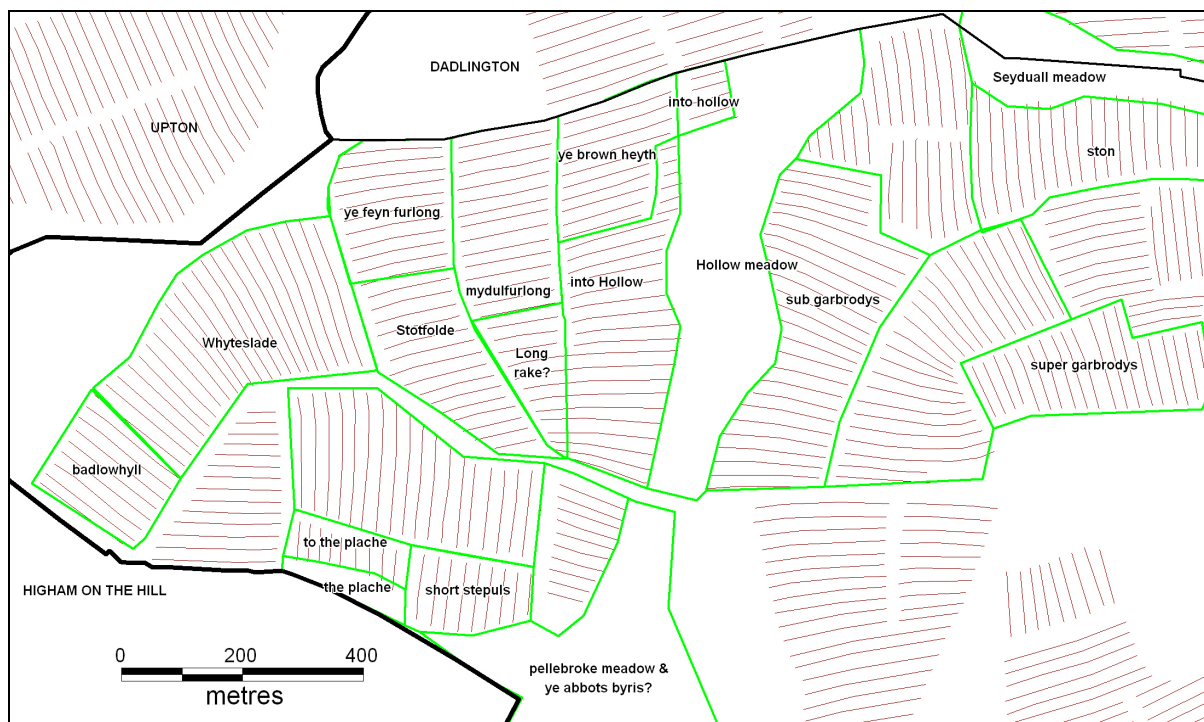


Figure 3: Conjectural reconstruction of furlong names in Garbrod great field which comprised the western part of Stoke Golding's open field system in 1467-84

Appendix 1: Extract from terrier of lands of Leicester Abbey in Stoke Golding between 1467-1484

LRO Microfilm MF2 copy of British Library Galba EIII.13, f.170

The Halmorefelde

9 rods *iacent extendent super copud more*
1 hadland
1 hadland in smalthornfurlong
half acre super heyngynglondis
3 rods in smalthorns
1 rod there
1 rod in nether small thorns
2 rods extendit in heyham *ferneys*
2 rods called schort rodis
2 rode abuttant super 1 hadland *ecclesie?*
2 rode there
1 rod there
2 r super brechefurlong
2 r super stanylandis
Half acre super *brerlandis*
1 hadlond super stanylandis
2 rode super pysleyhyll
6 blakpyttes
3 rode super lytulhyll
4 selliones qtm una acra abbuttant super pellybroke
2 ?? lowfurlong
2 rode extendit in thortell
1 roda ibide
1 roda *sub monte*

Garbrodfelde

2 rode in michchelcroft
1 rod there
2 rod there
2 rode super ston
1 rod there
3 rode super garbredys
2 rode super *monkyslong?*
2 rode super *hamus diche*
1 roda super garbrodys
1 acra extendes in to holow
2 rode sub garbrodys
2 rode *watt* Schortbuttes extendet in to holow
1 roda extendes in to holow

1 acre in ye brown heyth
2 rode extendet in to ye hollow
2 rode there
2 rode at the long *rake*
2 rode super mydulfurlong
2 rode super stotfolde
2 r un ye *feyn* furlong
1 r there
1 r in Whyteslade
1 r there
1 r extendens super badlowhyll
1 r ad ulteriore part merefurlong
2 r in medio merefurlong
1 r in to the plache
1 r at the schort stepuls
1 r super pellethyll

Whytmorefelde

2 r super Woupoll
2 r super barwelldyche
2 r there
2 r super lytulwoldon
2 r super aliud lytulwoldon
1 r usq *kylbrygge*
1 r super pese ferrys
2 r super Whytmorforlong
1 r there
1 r extendens in to *Weldon*
1 r super catishornegrene
1 r there
1 r ley there
3 r super schortbaro
1 r there
2 r super longbaro
1 r super deykmanysyke
2 r super Rylandis
1 r there
1 r there 2 r super capudmor
2 r super Whathyll
2 r super blakpytt
1 r there
1 r super berfurlong
2 r inter *montes*
1 r super beynehyll
1 r ??? beynehyll
1 r super gothyll

Meadow

4 hades in seyduall
1 ley had apud Woldgoris
3 hadys in the hollow
7 had in medio de hollow ex una parte rivuli et aliud had ex altera parte rivuli
2 hades ad superiore parte de hollow
1 had ad le mer
1 had in le plesche
Una placea prati vocat ye abbotes byris
2 haddis in pellebroke
Un flate prati iuxta campum de barwell
2 hades in Woupol
2 hades in barwel dicke
1 hade at kylbryche
1 hade in dekmansyche
2 hades ? Whytmorehol
1 hade in barwelstonys
2 hadys in ye nether ende of the breche
2 hades in medio of ye breche
2 hades in ye ovyr ende of the breche

Appendix 2: Sources for the open field mapping

Vertical Air Photographs

All VAPs from 1940s relevant to battlefield that are in NMR and in LRO have been examined. All VAPs listed below in bold text have been scanned, warped and registered in GIS, either in this project (VAPs from LRO) or by the Battlefields Trust (VAPs from NMR) which have been made accessible by the Trust for this project. Where listed in italics the photos have been seen at NMR but no copies obtained as they contain no major data additional to those copied, although in a full survey project all these additional air photos should be examined and any additional data transcribed into GIS. No 1950s or later VAPs were examined but it is also recommended that these are examined in a full project to establish if they contain any additional information. The 1940s VAPs not listed here but appearing on the printout coversearch (28/08/2003) from NMR held by the Battlefields Trust are not considered worth further examination.

106g_uk_636_4294, LRO, NMR; 106g_uk_636_4295, LRO, NMR; 106g_uk_636_4296, LRO, NMR; 106g_uk_636_4297, NMR, LRO; 106g_uk_636_4298, LRO, NMR; 106g_uk_636_4299, NMR, LRO; 106g_uk_636_4300, LRO, NMR; cpe_uk_2555_3023, LRO, NMR; cpe_uk_2555_3024, NMR; cpe_uk_2555_3025, NMR, LRO; cpe_uk_2555_3026, NMR; cpe_uk_2555_3027, NMR; cpe_uk_2555_3028, NMR; cpe_uk_2555_4023, LRO, NMR; cpe_uk_2555_4024, NMR; cpe_uk_2555_4025, LRO, NMR; cpe_uk_2555_4026, NMR; cpe_uk_2555_4027, LRO, NMR; cpe_uk_2555_4028, NMR; cpe_uk_2555_4204, NMR; cpe_uk_2555_4205, NMR; cpe_uk_2555_4206, NMR; cpe_uk_2555_4207, NMR; cpe_uk_2555_4208, NMR; 541 212 3027, LRO, NMR 541 212

3029, LRO, NMR; 541 212 3030, NMR; 541 212 3031, LRO, NMR; 541 212 3032, NMR;
541 212 3033, LRO, NMR; 541 212 3034, NMR; 541 212 3035, LRO, NMR; 541 29 4115,
NMR; 541 29 4065, NMR; 541 29 4066 NMR; 541 29 4067, NMR; 541 251 3024, NMR;
541 251 3025, NMR; 541 251 3026, NMR; 541 251 3027, NMR; 541 251 3028, NMR; 541
251 4024, NMR; 541 251 4025, NMR; 541 251 4026, NMR; 541 251 4027, NMR; 541 251
4028, NMR; 541 213 3029, NMR; 541 213 3030, NMR; 541 213 3031, NMR; 541 213 3032,
NMR; 541 213 3033, NMR; 541 213 3034, NMR; 541 213 3035, NMR