# A topographic earthwork survey of Thynghowe. Hanger Hill, Nottinghamshire.



NCA-016

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# Contributors

The survey was undertaken by Andy Gaunt, Emily Gillott and Lorraine Horsley of Nottinghamshire County Council Community Archaeology along with members of the Friends of Thynghowe group.

# The surveyors:

Stuart Reddish, Lynda Mallett, Steve Horne and Paul Walsh

The Friends of Thynghowe group: http://www.thynghowe.org.uk/

### Acknowledgements

- Andy Norman and the Forestry Commission for access to the site.
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- The Friends of Thynghowe group

# Photograph front cover:

Nottinghamshire Community Archaeologists surveying the top of Thynghowe reproduced with permission from Lynda Mallett ©.

From http://www.flickr.com/photos/lyndamallett/ (at time of report).

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### <u>A topographic earthwork survey</u> <u>of Thynghowe.</u> <u>Hanger Hill, Nottinghamshire.</u>

### 1. Introduction

Thynghowe is the ancient name for Hanger Hill in Nottinghamshire. The site sits on the boundary of the parishes of Warsop, Budby cum Perlethorpe and Edwinstowe. The name of the site indicates its former use as a meeting site either for the parishes upon which it bounds, or for a wider regional scale.

Recent work undertaken by the Friends of Thynghowe group has helped to reawaken public interest in the site. Initially work undertaken by Stuart Reddish and Lynda Mallett using a document from their private collection entitled 'The Manor of Warsop Perambulation Verdict Dated 26 July 1816' discovered a number of boundary stones and those situated on the top of Thynghowe at Hanger Hill. Work by the Friends of Thynghowe group to create a way-marked trail has helped to raise the profile locally. Interpretation of the site as a 'Thing' or Scandinavian meeting site has helped to raise its profile on a national scale, with recent articles in publications such as Current Archaeology magazine, and internationally through the presenting of findings at the Northern Periphery Programme THING project (Thing Sites International Networking Group) conference in Orkney (2010) and the Faroe Islands (October 2010). On a number of occasions Thynghowe has been featured on BBC radio, both local and national, including BBC Radio 4's 'Open Country' programme. It is hoped that an application can be put forward to English Heritage for scheduling of the site due to its local and potential regional and national importance, in the near future.

With the above in mind it was decided to undertake an archaeological survey of the site. The survey was divided into two parts. Part one was a topographic earthwork survey of Thynghowe conducted to English Heritage level 2/3 standards. The second was an English Heritage level 1 walkover survey of the hinterland, to record the locations of archaeology and earthworks in the surrounding area.

# 2. Site location, geology and topography.

Hanger Hill lies at the junction of the three parishes of Warsop, Edwinstowe and Budby cum Perlethorpe, at OSGR 459,928 368,368. It is situated on the Castle Rock formation, of the Sherwood Sandstones.

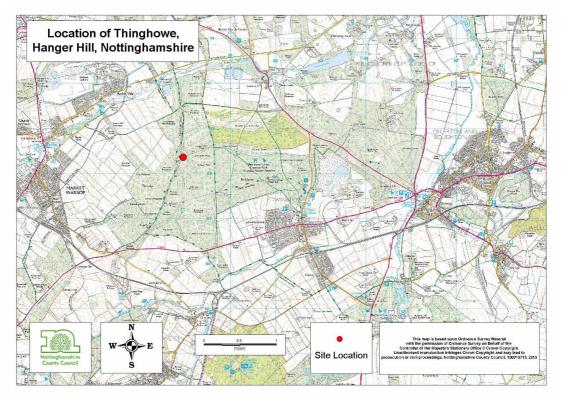


Figure 1: Survey Location on Ordnance Survey 1:25,000 Map

# 3. Historical background

The English Place names Society volume for Nottinghamshire published in 1940 defines Hanger Hill as "formerly Thynghhowe". It goes on to state that the name changes over time and spellings include Thinghowe c1300 and Thingaw hill in the early 17<sup>th</sup> century, and that the derivation of Thynghowe is ping haugr, meaning 'hill of assembly or meeting place' (EPNS 1940). "p" is the Saxon letter thorn pronounced "th". Thynghowe appears in a 14<sup>th</sup> century

boundary perambulation of Birklands and Billhaugh, possibly produced for the Forest Eyre of 1334, and is recorded in 'The Sherwood Forest Book', edited by Helen Boulton in 1964 (p54). Boulton in her footnotes for the perambulation, states "Hanger Hill, formerly Thynghowe". Thynghowe is clearly located as Hanger Hill on a sketch map, drawn c1606. (photographic copy NAO, WP/5/S). Here it is shown as Thinghaw Hill, and is located in the same location as the current Hanger Hill. A Tynghough Assart is shown as adjoining the hill to the northwest, between Warsop and Budby, on an early 17<sup>th</sup> century map of Sherwood Forest. The map is probably part of the Crown Survey of Sherwood Forest in 1609 by Richard Bankes (PRO,MPF 295 [map 2]) (Mastoris & Groves 1997).

The location of Hanger Hill at the junction of a number of parishes may explain its original name. It has also been suggested as a possible location for the meeting place of the wapentake of Bassetlaw, the whereabouts of which remain uncertain. An alternative suggestion is Beacon Hill in the area of Markham moor (Crook 1982).

Recent work by the Friends of Thynghowe both at home and abroad is researching the possibility that the site is a 'Thing' site as seen in Scandinavia, tying this site into a network of meeting sites stretching across northern Europe. This work is continuing at the time of writing. The site has also been included in a University College London (UCL) 'Landscapes of Governance' project to record the meeting and assembly sites of Britain. A Geophysical magnetometer survey was undertaken by Stuart Brookes and John Baker of UCL to coincide with the fieldwork in this project.

#### 4. Aims and purposes of the evaluation

- To establish the overall shape and nature of the earthworks, resulting in a hachure plan of recorded features.
- The recording of X, Y and Z coordinates of points across the site, to enable creation of a Digital Elevation Model (DEM) to study the earthwork in 3D, and to analyse its setting in the wider landscape, through 3D analysis.

- To attempt a relative dating of features as recorded in the field, and to help in interpretation of the earthworks.
- To be used to inform future site management, by measuring the condition of the earthwork, and indicating its local historical importance.
- The project was also conceived as an opportunity for public involvement in Archaeology.

# 5. Methodology

#### 5.1. Topographic survey methodology

#### 5.1.1. Equipment

The survey was undertaken using Differential survey grade Global Positioning System (GPS) and an Electronic Distance Measuring (EDM) Total Station. The GPS system used was a Leica GPS *Viva* enabled to use Smartnet technology. This GPS system operates using Differential GPS (DGPS), where corrections are given to errors in the satellite location data received. Originally this method required a second GPS station onsite, located over a known point. This second station then transmitted corrections to the rover station. The rover station was operating in Real-time Kinematic mode, where corrections are received from a remote system of control stations. This Smartnet system, corrects the rover station, allowing points to be recorded 'on the fly' to sub-centimetre accuracy levels, via a mobile telephone connection. This removes the need for a second base-station receiver onsite. The GPS rover was set to record either continuously or to take static points, depending on requirements as recommended in Ainsworth, S. & Thomason, B. 2003.

EDM Total Station combines a Theodolite to record vertical and horizontal angles, and an Electronic distance measurement device, to enable the acquisition of 3-Dimentional coordinate data. Total stations work by reflecting infra red laser against a prism. The Total Station requires two operators, one to operate the device and the other to position the prism pole in the required location for surveying. EDM total stations also provide sub-

centimetre relative accuracy for recordings (http://totalstation.org/total-stationfunctionality.php). The Total Station used in this survey was a Leica TCR805.

#### 5.1.2. Control of survey

'Control is the accurate framework of carefully measured points within which the rest of the survey is fitted' (Ainsworth, et al. 2007). Section 2.1 Control of Survey in Metric Survey Specifications for English Heritage (Lutton. 2003) states that metric survey 'must provide reliable and repeatable control capable of generating the required coordinates within the tolerances stated'. The prescribed tolerance level is to a precision of  $\pm 10$  mm (Lutton. 2003). This level of control was achieved by using Real-time Kinematic DGPS rovers; set to take readings within ±10mm accuracy levels, to stake-out station points which provided inter-visibility across the site for optical survey using EDM Total Stations. Total stations were set up above these station points when required and orientated by the other survey control points to provide control between GPS and optical survey. As well as falling within the accepted tolerance levels, this technique also fulfills the requirement that the control must be repeatable. The use of Kinematic DGPS to stake-out the control points means that the survey area can be re-occupied easily in the future using technology of the same specification or higher, without the need to leave permanent markers onsite.

### 5.1.3. Topographic survey methodology

The survey was undertaken using a combination of objective and subjective survey techniques.

#### 5.1.4. Objective survey

The objective, systematic part of the survey was carried out using the Real-time Kinematic DGPS systems described above. 2m transects were surveyed across the site at right angles to the edges of the survey areas. Transects were controlled using tape measures and ranging-poles for

guidance. Surveyors walked these transects, and recordings were automatically taken every 0.5 metres. Where tree cover prevented GPS recordings within the prescribed tolerance levels, EDM Total Stations were set up and used to take readings. This method fits in with English Heritage suggestions for interchanging between GPS and EDM survey (Ainsworth, S. & Thomason, B. 2003). EDM survey was employed where GPS signal was not sufficient, for general topographic readings, as part of the systematic survey process.

#### 5.1.5. Subjective survey

Subjective survey was used as a means to record features in more detail. It relies on the expertise of the surveyor to analyse the earthworks and to record them. For this procedure, EDM Total Stations were used to record the tops and bottoms of slopes. These recordings were highlighted in the survey data using the feature code facility available in total stations. This subjective survey method was employed in order to allow a hachure plan of the site to be created as recommended by English Heritage (Bowden 2006). This was then used for interpretation.

#### 5.1.6. Data preparation and analysis.

All data was processed in Mapinfo Geographic Information Systems (GIS). Vertical Mapper 3.0: *Spatial Analysis and Display software*, a Mapinfo software extension was used to create a nearest neighbour interpolation model to present the site in 3D. This Digital Elevation Model (DEM) was then subject to slope surface analysis, which measures and displays relative slope severity. In order to interpret the 3-Dimensional earthworks in a 2-Dimensional map, the data has been plotted using a combination of objective contouring, and subjective hachure plans, as recommended by English Heritage. This plan produced in MapInfo and Vertical Mapper software, and was drawn to English Heritage conventions (Ainsworth, S., Bowden, M., McOmish, D. & Pearson, T. 2007. pp14-19).

Vertical Mapper was also used to combine survey data with Ordnance Survey digital Terrain Models to study the site in its wider landscape context.

# 5.2. Level 1 walkover survey methodology

The level 1 survey was undertaken using a hand held GPS and computer to give coordinates for the sites, and consisted of a photographic record and written description.

# 6. Results

# 6.1 Topographic survey

# 6.1.1 Hachure plan

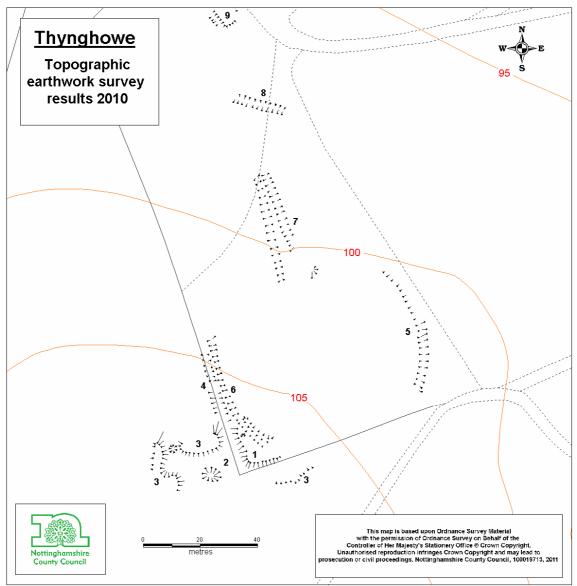


Figure 2: hachure plan of survey results

The survey results are discussed in the following section in relation to the hachure map and numbers in figure2.

The topographic GPS and Total Station survey mapped features both on the top of the mound and in the immediate vicinity. The top of the mound is made up of the hill top labeled 1 in the map in figure 2. This is the top of Thynghowe and is where the three boundary stones stood before one fell into the area of quarrying to the west (2). Only two of the stones are still in situ on the mound. This hilltop (1) has been steepened on its southern and western sides by quarrying as depicted on the map by the lines of hachuring to these sides. This is also shown well in the threedimensional results below in figures 3 and 4. The area of quarrying (2) is subsequently lower than the mound and is surrounded by a number of earthworks (3) which stand as higher ground. These areas were probably untouched by the quarrying or were created as a result of re-deposition of quarried material. These earthworks are higher relative to area 2, but are lower than the hilltop labeled 1. To the north of this collection of earthworks is a north-south linear ditch or holloway that runs downhill to the north (4). This seems to provide access to the site from this direction. It is on the alignment however of a 20th century forestry boundary and it should not be overlooked that it could result from modern forest management. To the north east of the mound is a curved linear holloway or ditch (5) which follows to some extent the natural contours of the hill. The feature appears as a v-shaped holloway at its northern end but towards its southern end loses its eastern side, and only survives on its western side as a cutting into the slope of the hill.

Feature 6 is a series of small curved linear hollows or ditches running from the mound (1) downslope to the north. Feature 7 represents two near parallel linear holloways running north-south; diagonal to the slope of the hill. Feature 8 is a short but well cut hollow running for a short distance across the hill roughly where the slope becomes gentler, and begins to flatten out. To the north of the survey area is a platform surrounded by small cut ditches; this is most probably a modern feature; with remains of army activity present close by.

# 6.1.2 Three-Dimensional survey results

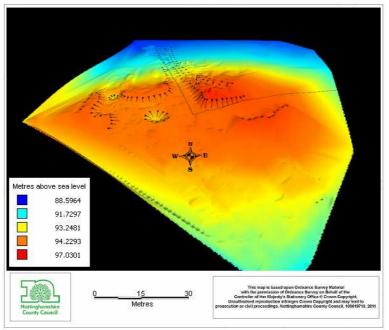


Figure 3: 3D of earthworks at the top of Thynghowe facing north

The three-dimensional results displayed in figures 3 and 4 focus on the area at the top of the hill. The results clearly show a number of raised features. Those labeled 1-3 in figure 2, and the hollow or ditch labeled 4 in figure 2. They show how the area has been subject to quarrying and how this has steepened the sides of the top of Thynghowe hill or mound (1 in figure 2).

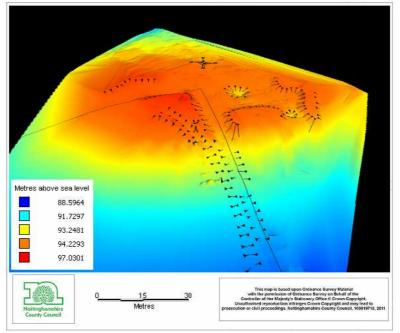


Figure 4: 3D of earthworks at the top of Thynghowe facing south

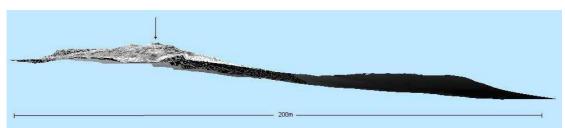


Figure 5: Thynghowe from the east showing cross-section. Thynghowe is on the left with the mound marked by an arrow. The valley extends to the north.

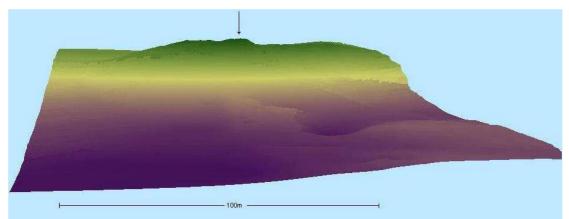


Figure 6: Thynghowe from the north. The valley is shown in purple with the high ground to the south in green. The mound is marked with an arrow.

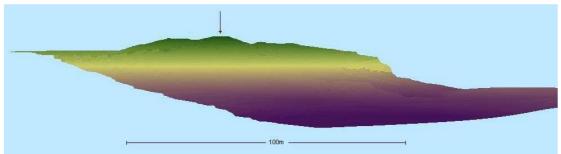


Figure 7: Thynghowe from the northeast. The valley is shown in purple with the high ground to the south in green. The mound is marked with an arrow.

The three-dimensional images in figures 5-7 show all the area covered by the topographic survey rather than just that at the top of the hill. This gives a view of Thynghowe in its immediate setting. The mound can clearly be seen to dominate the skyline when viewed from its surroundings. It is clearly a very prominent feature when the trees that cover it are removed from the equation.

# 6.2. Level 1 survey results

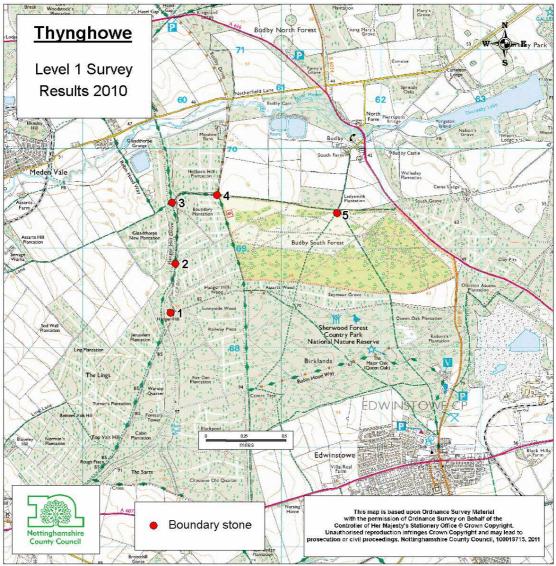


Figure 8: Location of level 1 survey results

The level 1 survey was aimed at recording a number of recently discovered stones which were within the wider area of the site. They have been photographed here for entry on the HER along with the names of the people who discovered them by walking tirelessly up and down the borders of the different parishes in search of them. Hopefully they will be inspected in greater detail in the future to determine a possible source based on a petrological analysis.



Photograph 1: Stone 1. Reproduced with permission from Lynda Mallett ©.

This stone is situated on top of Thynghowe hill. The stone is mentioned as a boundary stone on the 1816 perambulation. It is described as 'without a letter'. This differentiates it from the two other stones here which are marked with an 'E' for Edwinstowe and a 'W' for Warsop respectively.



Photograph 2: Stone 2

This stone sits half a kilometre to the north of stone 1 on Hanger Hill Drive. It is 60 cm long by approximately 30cm wide at its base and is rounded at the top, although it looks natural and shows no signs of carving. The stone is suggested to be one mentioned on the 1816 perambulation.

The stone was discovered by Steve Horne, Graham Burton, Andrew Norman and Les Smith.



Photograph 3: Stone 3

This stone stands 60cm from top to ground level and leans at a 45° angle. The stone is tapered towards the top where it is slightly rounded. At the base the stone is 45cm long and 20cm wide. This stone has been identified as being the one mentioned in the 1816 perambulation as 'a very ancient stone set upon Budby Forest said to be the stone set to mark the extent of Budby township'. The stone was discovered and identified by Lynda Mallett, Stuart Reddish and Eleanor Mallett.



Photograph 4: Stone 4. Potential boundary stone GPS for scale is 7cm by 4 cm.

This stone is 70cm wide by 35cm wide and stands approximately 30cm proud of the ground. The stone is located on the northern boundary of Budby South

Forest. The stone has not as yet been identified by reference to historic documentation. It is included here due to its location on a prominent boundary and its similarity to stones 1-3.

The stone was found by Paul Walsh and Stuart Reddish.



Photograph 5: Stone 5. Potential boundary stone

This large stone is located at the top of a lane from Budby Village on the northern edge of Budby South Forest. It was discovered by Paul Walsh and is recorded here as a possible boundary stone due to its location on the boundary and lane. This stone is larger than the others recorded and is more angular. It stands 50cm above the ground and is 70cm long by 50 cm wide.

A reasonable assumption is that the boundary stones mark the outline of the area known as 'Budby South Forest'. This area of open lowland heath seems to have had its own character at least dating back to medieval times. The area is known as 'Budby owte feldes' on a 15<sup>th</sup> century map of Sherwood Forest known as the Belvoir map (Barley 1986). There is a possibility the stones could have been placed to mark a medieval boundary. Equally they could have been placed at the same time as the Edwinstowe and Warsop stones marking the boundaries in this location (presumably 18<sup>th</sup> century) as a number of the stones are mentioned on the 1816 perambulation. They could of course be far older. Dating these stones would require further investigation.

# 7. Landscape analysis

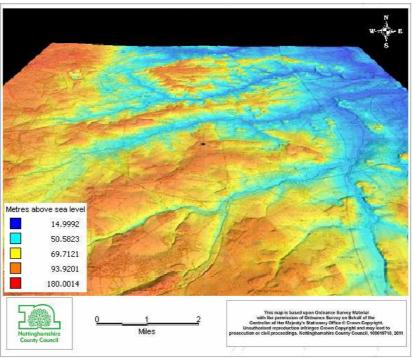


Figure 9: Landscape context of Thynghowe

Thynghowe sits on a ridge of relatively high ground defined by the valley of the River Maun to the south and east and the valley of the River Meden to the North. It is evident that the site is a prominent feature in the local landscape from the three-dimensional results in figures 5-7 above.

By combining the results of the survey with ordnance survey Digital Terrain Models (DTM) it is possibly to run different analyses to investigate the sites location. One such method is viewshed analysis which works out where can be seen in the area from a designated location. The viewshed analysis for Thynghowe can be seen in figure 10 below. The area which is visible is shown in green. From the results it is clear the site was most visible from the north into the Meden valley. This area has been inhabited right back to Bronze Age times with a socketed spearhead found near Sookholme on the River Meden (L11084) (Nottinghamshire Historic Environment Record); a Bronze Age spearhead at Warsop (L4082); and a Bronze Axe also at Warsop (L10048). National mapping Project cropmark data shows that this area was part of the Brickwork-Plan Field-Systems of the 1<sup>st</sup> century BC to first century AD (Garton 2008) (see figure 11 below). This shows that the area has been inhabited over

many thousands of years and that at certain times the landscape was cleared of much of its tree cover to allow for arable farming. This would allow the site of Thynghowe to be seen from a long distance. Its location on a hill top would also make the site a peripheral location back through history. Settlement would be concentrated on the lower ground adjacent to the rivers within this area of porous sandstones. A site at the periphery of a landscape or settlement area would make an ideal location for a meeting place or prominent site. An argument could certainly be made that this site has been at the boundary of communities far before the current parish boundaries.

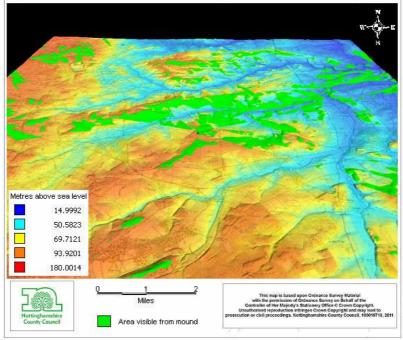


Figure 10: Viewshed analysis results

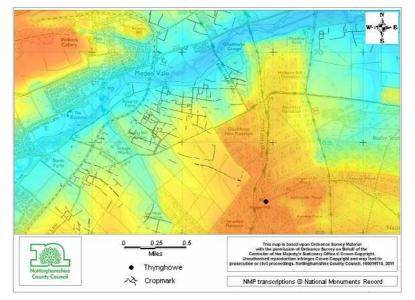


Figure 11: Cropmarks to the north side of Thynghowe

#### 8. Conclusions

The earthworks at the top of the mound clearly show signs of quarrying as seen in figures 2-4. This quarrying around a mound is quite characteristic for a number of potential meeting sites around Nottinghamshire, such as Hamilton Hill near Sutton-in-Ashfield (M2557). The site was clearly a meeting site as shown through place name evidence and its location in the landscape. The site is on the boundary of a number of parishes making it an obvious site for meetings. Its location on high ground overlooking a valley would also make it an obvious choice for a site of importance right back into prehistory. There is no direct evidence however of occupation from these earlier periods at this time. The place name evidence and its location in the landscape are certainly the most important clues as to its use and origins.

#### 9. Suggested future work

Further analysis of the wider landscape should be undertaken in the vicinity of the site continuing to focus on the boundaries between the parishes. Further stones are likely to be discovered along these lines. Further landscape analysis could be focused on the potential inter-visibility between other possible meeting place sites to help in further understanding of the landscape setting of Thynghowe. Work is already being undertaken by Stuart Reddish and Friends of Thynghowe to look at the place names in the area in relation to Thing sites. Lidar analysis of the surrounding area is planned for the future by the Friends of Thynghowe group and could reveal subtle features which can be further investigated on the ground. It is hoped that the findings of this survey may enable closer comparison with other local and national meeting sites and with Scandinavian examples. The possible application of targeted trial trenching by professional archaeologists could be considered for some of the features already detected to aid in a more comprehensive dating of the site. This would need to be undertaken with guidance from the county archaeologist and under discussion with English Heritage if the site is one day to be considered for scheduling.

# 10. References and bibliography

A Short Guide to GPS. 2004. British Archaeological Jobs Resource.

Ainsworth, S., Bowden, M., McOmish, D. & Pearson, T. 2007. *Understanding the Archaeology of Landscape.* English Heritage.

Ainsworth, S. & Thomason, B. 2003. Where on Earth are We? The Global Positioning System (GPS) in archaeological field survey. English Heritage.

Alexander, M. 2008. Fort Pitt, Chatham, Kent – *An earthwork analysis of Jackson recreation ground.* English Heritage.

Bannister, A., Raymond, S. and Baker, R. 1998. Surveying. Longman, Essex.

Barley, M.W. 1986. *Sherwood Forest*, in Skelton, R.A & Harvey P.D.A., (eds), *Local Maps and plans from medieval England* (Clarendon Press, 1986).

Bettess, F. 1990. *Surveying for Archaeologists*. Penshaw Press: University of Durham.

Boulton, H.E., (ed), 1965. *The Sherwood Forest Book*, Thoroton Society Record Series XXIII

Bowden, M. 1999. Unravelling the landscape. An inquisitive Approach to Archaeology. Tempus, Stroud.

Bowden, M. 2002. *With Alidade and Tape – Graphical and plane table survey of archaeological earthworks.* English Heritage.

Brown, A. 1987. *Fieldwork for Archaeologists and Historians*. Batsford, London.

Chapman, H. 2006. Landscape Archaeology and GIS. Tempus.

Crook, D. 1982. *The location of 'Bassetlaw'*, Transactions of the Thoroton Society LXXXVI.

English Placenames Society 1942. Placenames of Nottinghamshire.

Field, D. and Smith, N. 2008. *Croft Ambrey, Amestrey, Herefordshire investigation and analytical survey of earthworks.* English Heritage.

Gaunt, A. 2009. *An Ancient Work in Birkland- A topographic survey of an earthwork in Sherwood Forest National Nature Reserve.* Unpublished report for Nottinghamshire County Council. Report No. NCA-003.

Gaffney, C. & Gater J. 2006. *Revealing the Buried Past: Geophysics for Archaeologists.* Tempus Publishing.

Garton, D. 2008. *The Romano-British landscape of theSherwood Sandstone of Nottinghamshire: fieldwalking the Brickwork-Plan Field-Sytstems*. Transactions of the Thoroton Society 112.

Howard, P. 2007. Archaeological Surveying and Mapping. Routledge, Oxford.

IFA 1994 (updated) 2008. *Standards and Guidance: for archaeological field evaluation*. Institute of Field Archaeologists.

Lutton, S. 2003. *Metric Survey Specifications for English Heritage*. English Heritage.

Mastoris, S. and Groves, S. 1997. *Sherwood Forest in 1609. A crown survey by Richard Bankes.* Thoroton Record Series XL.

Muir, R. 2004. Landscape Encyclopaedia: A reference guide to the Historic Landscape Windgather Press.

National Monuments Record Thesauri. © English Heritage 1999 National Monuments Record Centre

Newsome, S., Canti M., Leary J., Martin L., & Pattison P. 2008. Ashby de la Zouch Castle, Leicestershire- A Multidisciplinary investigation of the Castle Garden. English Heritage.

Ordnance Survey. OS Mastermap Part 1: User Guide. V6.1.1-04/2006 © Crown Copyright.

Ordnance Survey, 2003. The GIS files. v2.0 © Crown Copyright.

Riley, H. & the Ridgeway Survey Group. 2008. Long Barrows on the South Dorset Ridgeway – A Survey by English Heritage and the Ridgeway Survey Group. English Heritage.

*Survey Basics – Laying out a Trench and Levelling.* 2005. British Archaeological Jobs & Resources.

Websites:

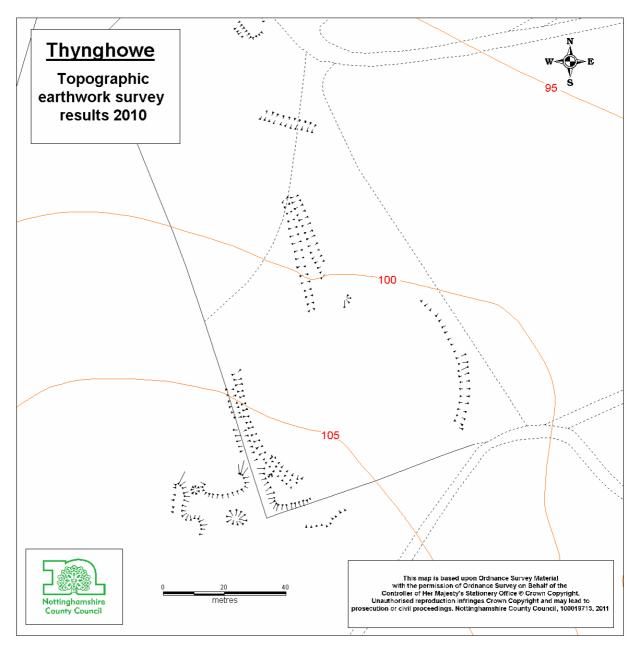
http://www.bajr.org http://www.bgs.ac.uk http://www.english-heritage.org.uk http://www.leica-geosystems.com

http://smartnet.leica-geosystems.co.uk

http://totalstation.org/total-stations-functionality.php

# Appendix I

Hachure Plan



Appendix I figure 1: Hachure Plan

# Appendix II

Survey photographs



Photograph 1: Summit of Thynghowe (marked by holly bush centre) from northeast Reproduced with permission from Lynda Mallett ©.



Photograph 2: Stones on summit of Thynghowe. Reproduced with permission from Lynda Mallett ©.



Photograph 3: Nottinghamshire Community Archaeologists surveying the top of Thynghowe. Reproduced with permission from Lynda Mallett ©.



Photograph 4: Community Archaeologist Emily Gillott undertaking GPS survey. Reproduced with permission from Lynda Mallett ©.



Photograph 5: Community Archaeologists Andy Gaunt and Lorraine Horsley undertaking EDM Total Station survey along with Andy Norman of the Forestry Commission. Reproduced with permission from Lynda Mallett ©.



Photograph 6: EDM Total Station survey, and GPS survey alongside UCL archaeologists undertaking magnetometer survey. Reproduced with permission from Lynda Mallett ©.



Photograph 7: Community Archaeologists undertaking EDM Total Station survey. Reproduced with permission from Lynda Mallett ©.



Photograph 8: Archaeological survey at the summit of Thynghowe, looking southeast. Reproduced with permission from Lynda Mallett ©.



Photograph 9: John Baker and Stuart Brookes of UCL, alongside Stuart Reddish of Friends of Thynghowe (right). Reproduced with permission from Lynda Mallett ©.

# **Appendix III**

**Community involvement** 

At the end of the weeks surveying the public were invited to participate in two guided walks around the site by the Friends of Thynghowe. A display was set up with previous research and maps for information and comment.

The author gave an explanation and demonstration of the topographical work undertaken during the previous week. A presentation of the results was also given to the Friends of Thynghowe group in the weeks following the survey.



Visitors at the summit of Thynghowe at an open day. Reproduced with permission from Lynda Mallett ©.



Visitors at the summit of Thynghowe at an open day. Reproduced with permission from Lynda Mallett ©.