GRAMPUS
Heritage and Training Limited

Blennerhasset: 'From Fort to Farms' Community Research Project
Geophysical Survey of Blennerhasset Roman Fort, Cumbria
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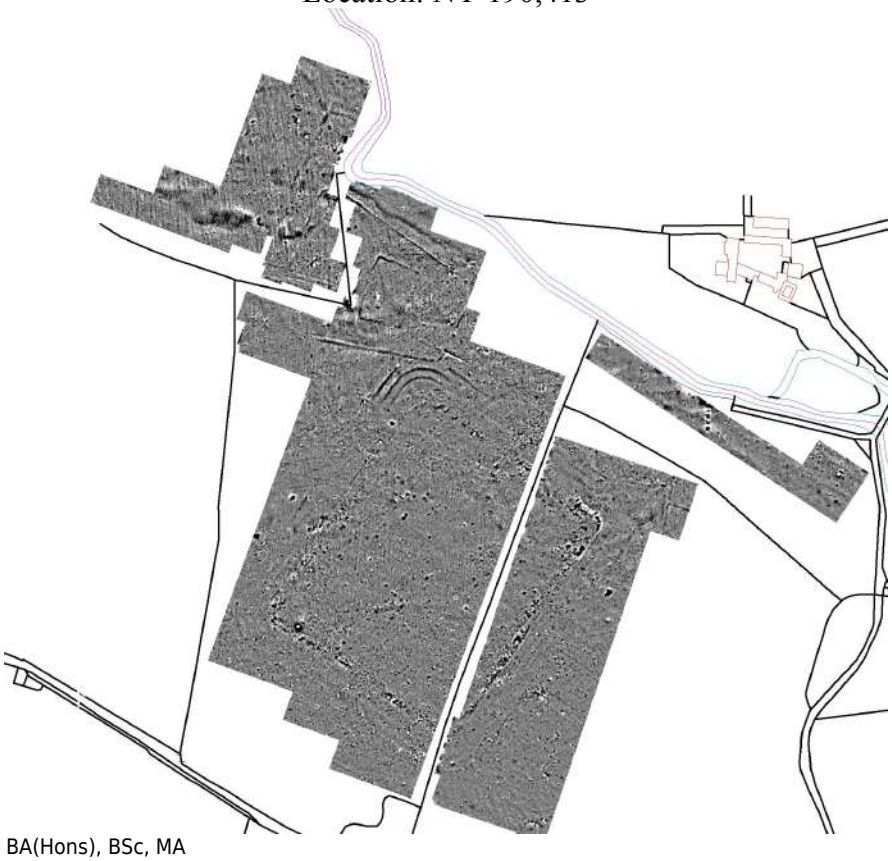

Mark Graham BA(Hons), BSc, MA
Grampus Heritage and Training Ltd,
Ashgill, Threapland,
Wigton, Cumbria,
CA7 2EL
United Kingdom
Tel: +44 (0) 16973 21516
Fax: +44 (0) 16973 23040
E.Mail mark@grampusheritage.co.uk
Web: www.grampusheritage.co.uk

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Summary

Between 18th February and 8th March 2013 Grampus Heritage and Training Ltd undertook a geophysical survey on the site of Blennerhasset Roman Fort, commissioned by the Aspatria Rural Partnership. The survey was funded as part of the 'From Fort to Farms' project, funded by the Heritage Lottery Fund 'All Our Stories' initiative.

This report shows the results of the geophysical survey of the scheduled fort area and surrounding land. The Fort was identified from aerial photography in 1984 and subsequent fieldwalking dated the construction occupation of the fort to the late 1st Century from surface pottery finds during fieldwalking. (Evans, J et al. 1990)

A team of committed local volunteers, many from the West Cumbria Archaeological Society, completed the magnetometry survey with training and supervision from Grampus Heritage and Training Ltd. The survey was conducted using the Geoscan FM256 dual system.

The survey results revealed evidence of a rampart foundation in the fort site and identified five possible entrances into the enclosure, suggesting that the site may have been established as a large marching camp. The survey of the fort interior revealed evidence of two possible ovens, a possible headquarters building and faint building foundations interpreted as possible beam slots. Other areas of magnetic disturbance, thought to be of archaeological origin, were also detected. The level of archaeological activity and structures detected within the fort does not suggest a long period of occupation at the site.

The survey also showed a large trapezoidal double enclosure to the north west of the fort site. This feature does not show at all on the aerial photograph and was a new discovery for the project. The outer ditch of the trapezoidal enclosure is clearly respected by the outer of the three Roman ditches, suggesting that the trapezoidal enclosure is earlier than the fort. If proven to be of late Iron Age origin, perhaps as a shrine by the river or as a high status settlement site, then the existence of the trapezoid could help to explain the unusual position of the fort.

The fieldwork volunteers recovered a total of 11 lithic artifacts from the topsoil in an area to the west of the trapezoidal enclosure. The flint report (appendix 1) suggests that activity in the area may date as far back as the Mesolithic period. Evidence of prehistoric flint working in the area was also a new discovery for the project, suggesting a long history of activity alongside an unusual bend in the River Ellen. Further fieldwork and targeted excavation is recommended to understand the date and function of the trapezoidal enclosure.

Acknowledgements

We would like to thank Shirley Muir and the Aspatria Rural Partnership for commissioning this fieldwork.

We would like to acknowledge the enthusiasm and commitment of the volunteer team. Without such a strong level of community participation the project would certainly not have been possible. Thank you to the West Cumbria Archaeological Society and to all volunteers who gave their time to conduct the survey. We were very fortunate to have such good weather and good company over the three weeks of fieldwork and, of course, to have achieved such significant survey results.

We gratefully acknowledge the permission granted by landowners Mrs Batty of East Farm, Blennerhasset and the Tinniswood family of Cockbridge House, Mealsgate to access the land and undertake the fieldwork

We are grateful to Mark Brennand, Senior Historic Environment Officer for Cumbria, for his support and advice on the early results of the survey and to David Jackson of Wardell Armstrong Archaeology for reporting on the recovered lithics. Thanks are also due to Andrew Davison, Principal Inspector of Ancient Monuments at English Heritage for granting permission for the survey to take place on this scheduled monument site.

1. Project Background and Research Aims

The fieldwork reported by Evans (Evans, J et.al 1990) is the only work carried out on the site prior to this research project. The previous research determined the size of the fort from the aerial photograph and provided a broad date for the construction and occupation of the fort to the Flavian period, placing the site as one of the earliest group of Roman monuments in the county, perhaps contemporary with the nearby turf and timber forts at Caermote. The previous research, reported in the Cumberland and Westmorland transactions by Evans also notes the large size of the fort and states that Blennerhasset is "the largest Roman fort in Cumbria".

Our project had several key research aims. Using high resolution geophysical survey we aimed to:
-Investigate the layout of the fort, both interior and defensive structures. (Fort or Marching Camp)
-Search for evidence of gate arrangements which may be indicative of date and function. (certain defended entrances styles may indicate a marching camp origin for the site)
-Search for evidence of phases of the fortification (single phase of multiple as at Caermote)
-Survey the fort environs, in particular following features identified outside the main fort area. Search for evidence of roads issuing from the fort, river crossing point or reasons to explain the unusual position of the fort, which is located on a north facing slope running down to the river Ellen and not the seemingly more defensible high ground to the south and east of the site.

2. Fieldwork Methodology

A magnetometer survey was carried out in 4 fields covering the scheduled monument and surrounding area (Figure 2). The survey was conducted using a Geoscan FM256 dual fluxgate gradiometer system, with data processed using Geoscan's Geoplot 3 software. All of the fieldwork was carried out by project volunteers with supervision and training provided by Grampus staff. Data was downloaded daily and a printed copy of the survey data brought to site. This enabled all volunteers to participate in continuous discussion and interpretation of the anomalies being discovered.

A 20 X 20m grid was established on each site using hand tapes. The survey was conducted at the following resolution: 0.1nT readings, traverse interval 0.5m, readings taken every 0.25m in the traverse direction. The final results were georeferenced within Ordnance Survey map data using the total station (Leica TCR 307) to plot the grid position in association with field boundaries. The main survey grids were aligned along a field boundary running across the site from NNE to SSW. The aerial photograph shows that the boundary does not follow the orientation of the main fort defences. It was important that the grid was positioned on a different alignment to the known main linear features of the fort, to ensure the maximum clarity of results and avoid survey errors (traverse striping and grid edges) being mistaken for archaeological features.

Plate 1: Volunteer Anne Asquith carries out geophysical survey on the fort site.

There was no systematic fieldwalking or surface recovery of archaeological material during the survey. The presence of flints on the site was only noted following the discovery of one struck flake on the surface by volunteer Mick Fairfield. After this discovery, several other lithics were discovered in the plough soil around the location marked in figure 5 to the north west of the fort. It is important to recognise that the flint scatter may extend beyond this position as the material was only recovered towards the end of the survey and were not part of a systematic fieldwalking exercise. It is worth noting however that no flints were recorded as a result of the surface collection reported by Evans (Evans, J. et. Al. 1990) which focused mainly on the area of the fort.

Plate 2. Above Left: Training for survey volunteers in magnetometry
Plate 3. Above Right: Local resident Jim Howis collects survey data

3. Results

The results of the magnetometer survey are shown in Figures 2 to 7 in appendix 2 of this report. Interpretation is offered for the clearest archaeological anomalies in figure 5. The parameters of the displayed data are shown in the key on the right hand side of each plot. For each area, several plots have been produced and studied to assist in interpretation including raw data, positive, negative, bluescale, dot density and relief. To illustrate the results clearly in this report, only positive and negative greyscale plots of the data are included. Raw data plots are also shown and have been important in the interpretation of this site. This is particularly significant following the identification of a previously unknown trapezoidal enclosure which was unfortunately aligned on the same orientation of the survey grid. Figure 4 shows the processed and raw data plots of this enclosure, and demonstrate the risk of processed plots removing important imformation, where linear features coincide with traverse striping.

The whole area surveyed is shown in figure 2. The survey grid was extended to the south east of the fort to cover the high ground and natural ridge. This was to investigate why the fort was not positioned on top of the ridge and search for earlier structures that could explain the unusual position of the fort on the slope. No archaeological features were discovered in this area. A survey grid was also established alongside the river to the north east of the fort in the hope of finding evidence of a river crossing point. No archaeological features were found in this area, though a revetted trackway still in use today is visible in the results (purple lines in figure 5).

3.1 The Fort (Figures 3 and 5)

Figure 3 shows the results of the fort survey as processed greyscale positive and negative plots. Interpretation of the main anomalies is shown in figure 5.

Ditches: Given the clarity of the fort ditches shown in the aerial photograph (Evans, J. 1990), we had hoped that the magnetometer survey would show these as strong positive anomalies. Figure 3 shows greyscale plots of the fort area as both positive and negative plots. As can be seen, the ditch signal varies considerably across the fort site, with the clearest signal showing in the north west corner of the fort where the three distinct ditch lines (also identified from the aerial photograph) can be seen. The fort site in both surveyed fields has been subject to regular ploughing since the aerial photograph was taken in 1984 and, while the eastern field is no longer cultivated, the western field is still ploughed. Without excavation it is not possible to determine if the varying ditch signal is due to plough damage, differences in the magnetic properties of the ditch fill or the result of re-cutting during the occupation of the site.

Rampart: The outline of the fort can clearly be seen in figures 2 and 3, with the main anomalies interpreted in figure 5. The outline of the fort is shown most clearly by the signal of the rampart rather than continuous ditches. This rampart signal is disturbed but is a useful addition to the ditch lines identified in the aerial photograph. The rampart signal allows us to calculate the internal area of the fort and also suggests that the rampart has a foundation structure. The varying magnetic signature given by the rampart is difficult to explain and it is not possible to say if this variation if the result of plough damage, demolition (perhaps by fire) or differences in the original construction. The rampart signal may be the result of a stone foundation or perhaps pits and postholes associated with a turf and timber fortification.

Entrances: Five possible entrances into the fort are identified and these are numbered in figure 5. The north and south gates (1 and 4) are perhaps the clearest and lie centrally in the northern and southern defences. On the eastern side of the fort, the entrance marked number 5 is the most convincing position for an entrance and coincides with a broad natural ridge in the ground heading to the east. On the western side of the fort two possible entrances are indicated (2 and 3). Multiple entrances in such a large enclosure would not be uncommon in a Roman marching camp, though details of the entrance defence arrangements are sadly insufficient in the geophysical data to offer further interpretation.

Ovens - A strong magnetic anomaly alongside the southern rampart close to the south west corner is interpreted as an oven and is marked in red in figure 5. A second possible oven is also shown in the western rampart to the south of the north west corner. The south western oven is particularly convincing as the disturbed rampart signal appears to respect the strongly magnetic oven feature. This suggests a planned arrangement, with the oven built into the southern rampart. The oven feature would be a useful target for future investigation to provide dating evidence for occupation of the site.

Buildings: The article by Evans, J et al. (1990) identifies a possible building from the cropmarks in the aerial photograph. This structure is shown in their report close to the western defences inside of the fort. Although the structure can not be seen in the geophysical survey data, the location of this possible building is disturbed and is close to one of five possible entrances into the fort. (Entrance number 2, Figure 5)

The structure outlined in red and shown as 'headquarters building' in the key of figure 5 is the clearest internal feature shown in the magnetometry results. The structure shows as a rectilinear arrangement of pits, which can be interpreted as post holes, perhaps for a substantial timber building. This site was identified on the ground before the survey grid was removed, and is sited on a plateau before the break of slope where the land falls away towards the river. The survey data also shows that the structure may be situated alongside a road entering the fort from the south gate.

To the north of this apparently isolated structure a number of faint linear features can be seen (red in figure 5) which are interpreted as building foundations. The anomalies are so faint that these are unlikely to be substantial foundations but may be beam slots or shallow trenches for simple timber structures. The alignment of the features is consistent with the broader orientation of the fort and, although the exact layout is difficult to determine, these can confidently be interpreted as planned structures contemporary with occupation of the fort.

Magnetic disturbance: A number of areas of magnetic disturbance can be seen inside the fort and are shown highlighted in orange in figure 5. It is not possible to determine the cause for all 'disturbance anomalies' or whether they result from archaeological activity or are geological in nature. There are certainly patches of strong magnetic disturbance in the data however which are likely to originate from the occupation of the fort. One concentration of magnetic disturbance lies within the fort around the north eastern rampart.

Dimensions: Measurements taken from the geophysical data show that the fort rampart encloses an interior area of 2.4 hectares. The fort area of 3.4 hectares given in the report by Evans, J et. Al (1990) presumably includes the area of the outer defences. The interior measurements of the enclosed area are 170m on the long axis (SW to NE) and 140m on the shorter axis (NW to SE). The large size of the enclosed area, and relative lack of internal features or evidence for consolidation to a smaller defended fort, as at nearby Caermote, suggests that the fort may have been occupied for a relatively short period of time. The site may have been established as a marching camp to accommodate large numbers of soldiers during the first phase of occupation in the area. It is not possible to say if the triple-ditch defences were constructed at the same time as the establishment of the Roman fortification or if these are a later addition.

3.2 Trapezoidal Enclosure (Figure 4)

If the fort survey result was somewhat disappointing in the clarity of the defences and internal features, this was more than compensated for by the discovery of a previously unknown trapezoidal double-enclosure to the north west of the fort. Figure 4 shows the survey results of this feature as both a raw data and processed survey plot. Figure 4 is a good example of the importance of using both raw data and processed data plots in the interpretation of survey data. Although the survey grid was aligned on a different orientation to the known fort alignment, the trapezoidal enclosure is aligned exactly with the survey grid on the eastern and western axis. Figure 4 shows how the processing of data to remove traverse striping also reduces the clarity of linear anomalies on the traverse alignment. The raw data shown on the left hand side of figure 4 clearly shows a broad straight ditch to the west of the enclosure and strong ditch signals in the western and eastern boundaries of the outer and inner enclosures. The 'zero mean traverse' function, commonly used in the post-processing of survey data to remove traverse striping, also removes much of the definition of these anomalies to create a more uniform image. For this reason, raw data plots are used and presented here for interpretation of the anomalies. Two hedge lines with metal fences run through this survey area.

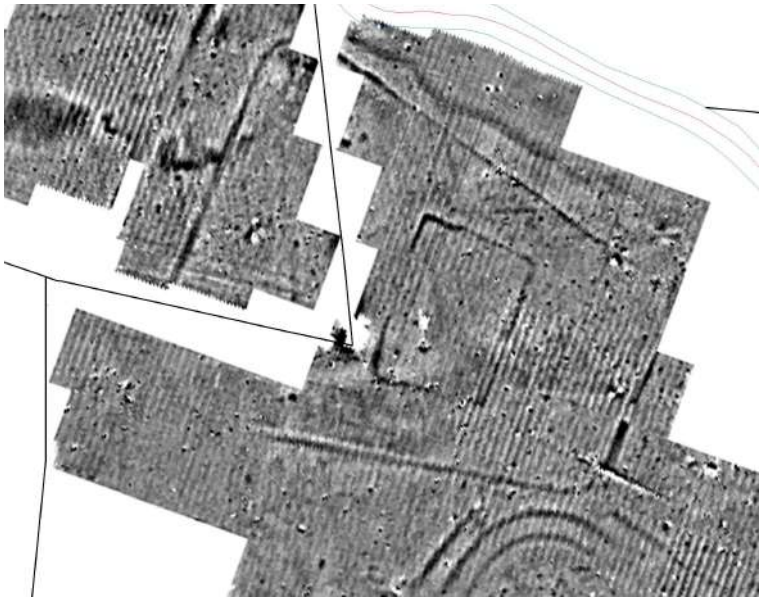

Plate 4: Detail of a raw data plot showing the trapezoidal double-enclosure and north west corner of the fort. Note that the outer of the three ditches respects the earlier trapezoidal enclosure.

The trapezoidal enclosure is not visible on the aerial photograph but is clearly defined in the raw survey data. This enclosure is aligned broadly east/west on the long axis and is positioned on the south bank of a sharp bend in the River Ellen. The enclosure is defined by a single outer ditch, with possible entrances to the east and another to the north in the north east corner facing the river. The southern boundary of the enclosure fades out toward the south west corner where two curving linear features are visible extending beyond the surveyed area (blue dotted lines in figure 5), perhaps representing an earlier feature.

The trapezoidal outer ditch surrounds a smaller rectilinear inner enclosure with a broad entrance on the western side. The survey shows few archaeological anomalies within either enclosure, with no obvious difference between the inner and outer areas. An electricity cable runs above ground over the site and the pole sits within the inner enclosure, shown as a white area in the survey data.

The interpretive plot shown in figure 5 highlights the main elements of the trapezoidal feature. Magnetic anomalies are shown in yellow in the eastern and western ends of the outer enclosure. A faint v-shaped feature (yellow dotted line in figure 5) appears to be associated with the eastern magnetic anomaly and may be a result of activity within the enclosure.

A broad ditch is visible to the west of the trapezoidal enclosure. This ditch shows as a strong positive anomaly and is aligned NNE / SSW, the same orientation as the eastern and western ditches of the trapezoid. The alignment suggests that this ditch is contemporary with the trapezoid and appears to end at an earlier river bank of the River Ellen (dark green in figure 5). The Ellen at this point appears to have moved north across the low flat plain since the ditch construction. A possible earlier ditch feature (brown in figure 5) appears to be cut by the western ditch of the trapezoid and may therefore represent earlier archaeological activity at the site. Other anomalies in this area, where surface flints were also recovered, are marked as geological anomalies in figure 5. This can only be stated with low confidence without excavation and they may be the result of archaeological activity.

Entrances: Three possible entrances are identified in the outer enclosure (numbers 6, 7 and 10) and are labelled in figure 5. The entrance marked number 6 in the eastern boundary of the enclosure is the most convincing. This is because, even though the boundary is aligned exactly with the traverse line, the gradiometer reading changes abruptly from a positive to negative at this point in the traverse. The raw data also shows that the positive signal of the ditch is slightly stronger either side of this entrance, suggesting possible post holes for a gated structure. The entrance marked number 7 in figure 5 is an apparent break in the boundary but would head straight into the river. No evidence of a river crossing was found at this point. The area marked number 10 is rather an absence of the outer ditch in the survey data but may equally have served as an entrance into the outer enclosure.

The inner enclosure has two possible entrances marked as numbers 8 and 9 in figure 5. Entrance number 8 is a small break in the ditch on the southern side and entrance 9 is a broader opening in the western side of the inner enclosure.

Dimensions: The outer trapezoidal ditch encloses an area of 0.9 hectares and measures measures 120m east/west along the long axis and 90m north/south at the west end. The internal rectilinear enclosure measures 40m north/south and 30m east / west, enclosing an area of 1,100 m^2 (0.11 hectares).

4. Surface Finds

The survey area was not subject to systematic fieldwalking due to the varying surface vegetation and soil visibility. Several pottery sherds were observed during the fieldwork. The vast majority of these were post-medieval in date, though two medieval green glazed sherds and one small abraded piece of Roman samian ware were also noted in the plough soil.

The most significant surface finds were a concentration of flints discussed in appendix 1 of this report. Survey volunteer Mick Fairfield was the first to find an orange coloured flint flake to the west of the trapezoidal enclosure (position marked in figure 5). This led to a more concerted fieldwalk in this area which recovered a total 11 lithic artefacts. These were all found in an area not more than 50m away from the point marked in figure 5. It is important to note that a systematic fieldwalking survey, with better soil visibility, may extend this distribution. Nonetheless, the area to the west of the trapezoid does appear to mark the concentration of lithic artefacts in the plough soil.

Plate 5: 11 flint artefacts recovered from the plough soil during the Blennerhasset survey.

The lithic analysis by David Jackson of Wardell Armstrong Archaeology states that dating of the assemblage is difficult and that 9 of the flakes are non-diagnostic for dating. However, the most diagnostic artefact is a small bladelet fragment, shown in the above photograph on the lower right of the flake assemblage. The lithic report states that "*Based upon this single bladelet fragment, it is possible to suggest that activity was taking place within the study area as early as the Mesolithic period*." (appendix 1)

The discovery of this flint assemblage in the plough soil is an indication of plough damage across the site, but also provides evidence of much earlier activity in the survey area than was previously known. This flint concentration is also in the area of the earliest features interpreted in the geophysical data, where the western ditch of the trapezoidal enclosure appears to cut an earlier irregular ditch or pit (marked in brown on figure 5).

5. Discussion

It is beyond the scope of this fieldwork report to undertake a comprehensive comparative analysis with other archaeological sites. The geophysical data collected by the community volunteers during the course of the survey is made freely available and presented here in the hope that further fieldwork and discussion may be inspired in the future.

The survey of the scheduled area was undertaken in the hope of gaining a greater understanding of the nature of the fort as well as to understand its position in the landscape. It was immediately noted by the survey team after the first site visit that the fort did not occupy the high ground in the area. The seemingly more strategic and defensible position to establish the fortification would be to occupy the ridge to the south east of the fort site, offering a broad flatter plateau with better visibility of the surrounding landscape. It was for this reason that the survey grid was extended across this area, to search for earlier features which may have influenced the location of the fort. No results were recorded in this area.

The last corner of the fort to be surveyed was the north west, and this area turned out to be the most significant. The three fort ditches are clearer here than anywhere else in the surveyed area, showing as strong positive anomalies. The reason for the clarity of the ditch signal here, as opposed to the rest of the fort, can not be understood without excavation. It is possible that later activity in the area resulted in a more magnetic ditch fill, or that the ditches have been re-cut in this section, or that the ditches here were always more substantial than other parts of the fort. Varying plough damage and protection by hill wash across the site should also be considered. This corner lies in flatter ground at the bottom of the slope, where the trapezoid occupies a terrace alongside the river.

Whatever the reason for the clear ditch signal in the north west corner of the fort, it was immediately clear upon downloading the data that the outer of the three defensive Roman ditches respected a ditch on a completely different alignment to the fort. This led to additional survey in the area to the north west of the fort and the discovery of the trapezoidal enclosure (Figure 4).

The relationship between the fort and the trapezoid has been the subject of much discussion and consideration by the survey team. The apparent precise layout of the trapezoidal outer enclosure, and curving corners, is suggestive of a Roman structure. The clearly defined and slightly less ‘precise’ inner rectilinear enclosure however, and the different alignment to fort, suggest that the trapezoid may be from a different period. The fieldwalking pottery suggests that the fort was constructed and occupied, perhaps for a relatively short period, in the late 1st century (Evans, J. 1990). If the three defensive ditches are contemporary with the fort construction, and the outer ditch clearly respects the trapezoidal enclosure, then this suggests a pre-Roman date for the trapezoidal enclosure.

Interpretation of phasing from geophysical survey alone, without the benefit of excavation, is imprecise. We must bear in mind what information we are not seeing from the survey data and the limitations of the technique. Nevertheless, we are bound to interpret the survey data in the hope that future fieldwork may answer these critical questions. Given that the outer of the three ditches is associated with a Roman fort of the late first century, and that this ditch is compromised, unable to complete it's circuit of the fort because it respects an earlier ditch, then we must conclude that the trapezoidal enclosure was extant at the time of the fort construction. This suggests a late iron age date for the trapezoid. The western ditch of the trapezoidal enclosure, in turn, appears to be cutting an earlier feature (marked 'early ditch?' and shown in brown in figure 5). The geophysical survey therefore suggests 3 main phases of activity on the site.

The implications of this interpretation are exciting and, if proven true by future research and excavation, give a significant insight into the early Roman occupation in Cumbria. Could the fort be positioned in the landscape to dominate this earlier feature, forgoing the naturally more defensive hilltop to occupy a dominant position adjoining the earlier trapezoidal enclosure? This is perhaps unlikely if we imagine the priorities of an invading and occupying army, and yet, we do not know the significance of the trapezoidal enclosure to the local population. Could the position of the fort be strategically symbolic rather than purely defensive? The Roman defensive outer ditch stops some 5 metres away from the trapezoidal enclosure. It does not adjoin or damage this proposed earlier structure in any way but respects it. This is a small but perhaps significant and symbolic concession. There are, after all, two further ditches and a rampart between the trapezoid and the fort interior.

This discussion leads us to the obvious question. What function did the trapezoidal enclosure serve? If the interpretation of an iron-age structure is correct, then we should look for other comparative Iron Age sites in Britain. The form of the trapezoid is certainly not typical of the common sub-circular settlement enclosures with hut circles commonly found in Cumbria and usually broadly dated 'Iron Age / Romano-British'. Further afield however, a rapid assessment has discovered two sites worthy of consideration.

5.1 Hayling Island Iron Age Shrine

The English Heritage document 'Later Prehistoric Shrines and Ritual Structures' (May 2011) provides some valuable criteria against which to assess possible shrine sites. The document states that shrines "often occur in or at natural feature like rivers, springs, bogs, caves, rocks and clumps of trees (the sacred groves referred to by classical writers)". The proximity of the Blennerhasset site, built on a terrace overlooking a sharp bend in the River Ellen fits well with this description though, of course, there are many other benefits of siting enclosures close to watercourses.

The English Heritage document makes it clear that shrines exist in a variety of forms and that identification based on size and form can be difficult. The document states that *"...it*

may be the case that no simple sequence exists, shrines instead taking a variety of forms over a short space of time."

One shrine site in particular appears to have similarities in form to the Blennerhasset site, though the Blennerhasset site is much larger. In his book 'Coins and Power in Late Iron Age Britain', J Creighton (2004) states that:

"*In the late first century BC a wooden structure was erected on Hayling Island (King and Soffe, in press; Fig 7.5). The first phase was a trapzoidal enclosure containing a rectangular enclosure, with a central feature, possibly a post or a large pit. At some stage this was significantly redeveloped with the construction of a much more square enclosure and a roundhouse encircling the original central feature. For various reasons this site has been interpreted as an Iron Age temple*."

Evidence of ritual votive deposits were discovered at Hayling Island and the shrine was adapted and used in the Roman period, demonstrating the respect shown by the Romans for native shrine sites. (Creighton. 2004)

Plate 6: Excavation plan of the Hayling Island shrine site showing the first phase of the site highlighted in red. A comparative plot of this phase of the Hayling Island with the Blennerhasset trapezoidal enclosure is shown in Figure 6 (Appendix 3) Plan reproduced from English Heritage Later Prehistoric Shrines and Ritual Structures (May 2011)

A plan of the Hayling Island shrine site is reproduced here from the English Heritage document (2011), with the first phase described by Creighton highlighted in red. This first phase is shown in figure 6 (appendix 2) alongside the Blennerhasset enclosure. Both plans are shown in the correct orientation and at the same scale and while the similarity in form and orientation is obvious, the scale of these two enclosures is markedly different. Could we then rule out the Blennerhasset enclosure as a shrine site on size alone?

The English Heritage guidance document states that: "*While the shrine structures are uniformly small, not serving large congregations, it is clear from Hayling Island and*

elsewhere that they were often enclosed within a larger defined area of sacred space. These ditched enclosures can be of a very substantial scale, suggestive of major tribal centres for ritual activity. Some contained shrines, such as that at Harlow, which was oval in plan with a maximum diameter of over 300m and Fison Way, Thetford, Norfolk, which had dimensions of about 222m x 165m)". (English Heritage. 2011)

The Blennerhasset site fulfills the criteria of a double enclosure, with a possible central smaller 'shrine' enclosed within a larger external boundary. The alignment of the site is also of relevance when considering ritual function. The Blennerhasset site is broadly aligned East West along the long axis, though not as precisely aligned as the Hayling Island site.

The location of identified shrine sites within the broader landscape is interesting and varied. The English Heritage guidance states that "…*some are associated with hillforts or enclosed settlements, while others appear isolated, with some evidence that they may be located near tribal boundaries…*" (English Heritage. 2011)

One final consideration when discussing the potential of the Blennerhasset trapezoidal enclosure as an Iron Age shrine site is the evidence for earlier activity in the area. The recovery of 11 lithic artefacts from the area to the west of the trapezoid, combined with the suggestion in the geophysical data that the western ditch of the trapezoid cuts and earlier feature, demonstrates an earlier period of activity at the site (Jackson. 2013. Appendix 1). The English Heritage guidance document states that "*A few shrines are associated with much older ritual sites, including a Neolithic monument at Ulley and a Bronze Age barrow at Haddenham, Cambridgeshire (where the main Romano-British shrine may have had a small rectangular Iron Age predecessor).*" (English Heritage. 2011)

This discussion creates an appealing scenario, of an unusual bend in the River Ellen used for ritual activity culminating in the creation of an iron age shrine and dominated, though not destroyed, by the positioning of a fort in the first phase of Roman occupation in the area. There are, or course, other avenues to consider. Could the trapezoidal enclosure have been a site of occupation in the late iron age? In addition to the unusual form of the enclosure in comparison to other Iron Age settlement sites in the north west, there is also no evidence of hut circles in the survey data. Nevertheless, given the varying signal of the Roman ditches around the fort, and the regular ploughing of the land, it could be that evidence of hut structures has been destroyed and only the lower part of more substantial ditches remain. Or, perhaps, any hut circles were simple timber structures and are not detected by the gradiometers.

5.2 Blagdon Park 2

The April 2013 edition of the Current Archaeology Journal (Issue 277) published an article by Nick Hodgson entitled '*Divide and Conquer. Hadrian's Wall and the native population*'. The article documents recent excavations of late Iron Age sites to the north of the wall in the south east Northumberland coastal plain. One site in particular has some strong parallels with the Blennerhasset trapezoidal enclosure and is referred to as 'Blagdon Park 2'.

This enclosure is more similar in size to the Blennerhasset site, though perhaps not as 'precise' in form. The Blagdon Park 2 site is described in the journal article as follows:
"*Blagdon Park 2 has concentric inner and outer enclosures originating around 200BC, again overlying and unenclosed settlement of the earlier - to mid-Iron Age. In the Late Iron Age the leading families of the settlement probably occupied the inner, most substantial enclosure; this contains the two largest roundhouses, which produced the most finds.*" (Hodgson. 2013)

The form of the Blagdon Park 2 settlement, with a roughly trapezoidal outer enclosure and rectilinear inner enclosure is strikingly similar to the arrangement at Blennerhasset. Furthermore, the dating of this enclosure to the late Iron Age would fit well with the idea of an extant settlement at the time of the construction of the fort. The obvious difference between the two sites is the absence of hut circles in the geophysical data at Blennerhasset. As has already been discussed however, plough damage may have destroyed or heavily damaged the occupation levels inside of the Blennerhasset enclosure, leaving only the lower sections of the enclosure ditches.

The size of the Blagdon Park 2 site is also comparable to the Blennerhasset enclosure, which would have sufficient interior to space to accommodate hut circles in the central and outer enclosures. The excavations at Blagdon revealed evidence of sub-divisions in the outer enclosure for livestock and cattle bones were recovered from the site. The excavations also found evidence of metal working in the outer enclosure. Could the magnetic anomalies in the outer enclosure at Blennerhasset (shown in yellow, figure 5) be related to metal working?

The Blagdon Park 2 outer enclosure measures approximately 145m along the long axis east/west and 110m North/South at the west (broad) end. The internal enclosures measures approximately 60m X 50m in an irregular rectilinear enclosure. The Blennerhasset enclosure is more regular in appearance, though excavation may change this, and measures 120m east west along the long axis and 90m north/south at the west end. The internal enclosure measures 40m north/south and 30m east/west and is more rectilinear in form than the squarer interior enclosure at Blagdon Park 2. The Blennerhasset enclosure is therefore slightly smaller than Blagdon Park 2 but sufficiently similar in size and form to infer a possible function as a settlement site.

6. Conclusions

The Blennerhasset survey aimed to investigate the scheduled area of the fort site and add to the information gained from the previous fieldwork described in the fieldwork report by Evans, J et al. (1990)**.** Furthermore, as a Heritage Lottery Funded community archaeology project, the survey aimed to raise awareness of the Roman history in the area and engage the local community in the investigation of the site.

The survey successfully added to our knowledge of the Roman fort, identifying internal features and establishing the remains of a rampart foundation. The most remarkable achievements of the survey however are the identification of the previously unknown trapezoidal enclosure through geophysical survey and the recovery of lithic artfacts from field observation and surface recovery from the ploughsoil. These suggest a much longer chronology of activity by the bend in the river Ellen and could help us to understand the reason for the position of the Roman Fort. Credit for these discoveries belongs to the team of dedicated and enthusiastic volunteers who freely gave their time to conduct the survey and increase our understanding of this historic landscape.

The discussion in this report establishes the presence of trapezoidal double enclosures in the late Iron Age in Britain for both settlement sites and for ritual practice. The nature of the newly discovered enclosure however can not be accurately dated, nor its function proven, without targetted excavation. The discussion has considered two examples from the Late Iron Age in Britain because the enclosure appears to be respected by the outer ditch of an early Roman fort and, taking the survey results on face value, this would seem the most logical chronology. The Roman fort site itself has never been excavated and is only dated from surface finds through fieldwalking. If the outer ditch of the triple ditch fortification were proven to be later than the establishment of the site, perhaps as a bolstering of defences for a temporary marching camp, then the trapezoidal enclosure may indeed be of a Roman origin, though its form is unusual for a Roman site and its function would still be open to question.

It is hoped that this survey report serves as a catalyst for further investigation of the Blennerhasset site, to clarify the date of the fort establishment and the relationship with the trapezoidal enclosure. If the proposed chronology of the site is correct, and the fort position is influenced by an Iron Age site, of ritual function or as a high status settlement, then future fieldwork at Blennerhasset has great potential for providing a new insight into the early Roman occupation in the north west and the relationship between the Roman conquest and indigenous population.

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Appendix 1

Blennerhasset Fort Survey Lithic Analysis

David Jackson, Wardell Armstrong Archaeology

April 2013

Blennerhasset Fort Survey Lithic Analysis

Introduction

During the survey, a total of eleven struck lithics were retrieved from the plough soil. As a result, all pieces are heavily abraded and plough damaged to varying degrees. The assemblage displayed differing degrees of post-depositional staining and patina, indicating that the assemblage has been subject to different post-depositional processes. This attribute could indicate differing depositional time-frames for the assemblage, although this is not definitive due to the degree of movement which the assemblage has been subjected to.

All lithic artefacts were analysed macroscopically only. Measurements were taken using digital callipers to an accuracy of 0.1 mm.

Table 1: Summary of lithic assemblage

Category	*Number*
Flakes	4
Chunks	1
Fragments (inc. flake fragments)	4
Retouched Flake	1
Bladelet Fragment	1

Discussion

Nine of the pieces within the assemblage can be classified as non-diagnostic debitage, including one heavily cortical chunk, four flakes and four fragments, as they do not retain any physical attributes which can be ascribed to any particular industry. All of the complete flakes are diminutive in size, having a comparable length:breadth ratio. Included within the assemblage was a retouched flake of unknown function. The flake measures 26.75mm in length, 17.67mm in width and 6.67mm in thickness, and retains direct abrupt/semi-abrupt retouch along its entire distal end and right lateral margin. It is probable that this flake represents a simple expedient tool.

The most diagnostic element of the assemblage was a small bladelet fragment. The fragment has a square planform and measures 10.44mm in length, 10.15mm in width and 1.90mm in thickness and is a mesial portion only, having lost both its proximal and distal ends. It is possible that the fragment represents a knapping break or was damaged during post-deposition. However, it is also possible that the bladelet was snapped intentionally during microlith manufacture. Most microliths appear to have been produced using the microburin technique, in order to break the bladelet down into several smaller pieces. This technique involved the creation of a small notch on the edge of the bladelet before the piece was broken obliquely at the notch to remove the proximal end (the microburin) and the piece to be turned into the microlith (Butler 2005: 88). Although the bladelet fragment within the assemblage does not appear to have been produced via the microburin technique, it has been noted that not all microliths were produced in this way. In these instances, it is probable that microliths were produced by a technique that involved the simple snapping of bladelets into smaller pieces (*ibid*: 89), similar to the example within the assemblage.

Raw Material

The entire assemblage recovered from the survey is comprised of flint artefacts. Outcrops of flint-bearing chalks and tills occurs to the east in Yorkshire and Lincolnshire (Henson 1985), whilst unpredictable amounts of beach flint occur on the West Cumbrian coast (Hodgson & Brennand 2004). Both of these sources were exploited throughout the prehistoric period within Cumbria (Cherry & Cherry 2002). It is probable that the assemblage comprises material from both sources due to the presence of yellowish flint with heavily rolled cortex, characteristic of beach pebble flint from the west coast (*ibid*: 4), and the presence of mottled brownish blue/grey flint and red-brown flint, typical of Eastern Yorkshire tills (Henson 1985).

Dating

Ten of the eleven pieces are non-diagnostic and as such cannot be associated with any particular industry or period. The dating of the assemblage is made more difficult as all pieces were recovered from the ploughsoil and could have been deposited sporadically over a relatively long time period. This appears to be a common feature of surface scatters within Cumbria which have been found to contain lithics from several different periods (Cherry & Cherry 1987, 1996, 2002),

indicating that various areas continued to be occupied or revisited throughout the prehistoric period. It is possible that the presence of raw material types from at least two separate sources and the differing degrees of patina and staining could be used to suggest different depositional time-frames. However, the chemical alterations which lead to the patination and staining of lithic material are poorly understood processes (Scott 2006), and whilst there appears to be a preference for certain raw material sources during different prehistoric periods (Cherry & Cherry 2002), the use of raw material type as a dating indicator remains equivocal.

The presence of the bladelet fragment strongly suggests that the assemblage included a Mesolithic component. A single flake within the assemblage was also of the same red-brown flint as the bladelet, suggesting that it may have come from the same parent nodule. Bladelet technology and its microlithic bi-products are the most recognisable form of flint working during the Mesolithic period (Butler 2005). This technology appears to largely disappear across most of the country at the beginning of the Early Neolithic period. However, it has been noted elsewhere that this technology persisted within Cumbria well into the Neolithic period (Cherry and Cherry 1996; 2002, Evans 2004), although Evans (2008) has also highlighted several chronological and interpretative problems regarding many Cumbrian lithic assemblages and suggests that the continuation of particular technologies within Cumbria may not be as clearly defined as some other researchers propose.

Based upon this single bladelet fragment, it is possible to suggest that activity was taking place within the study area as early as the Mesolithic period.

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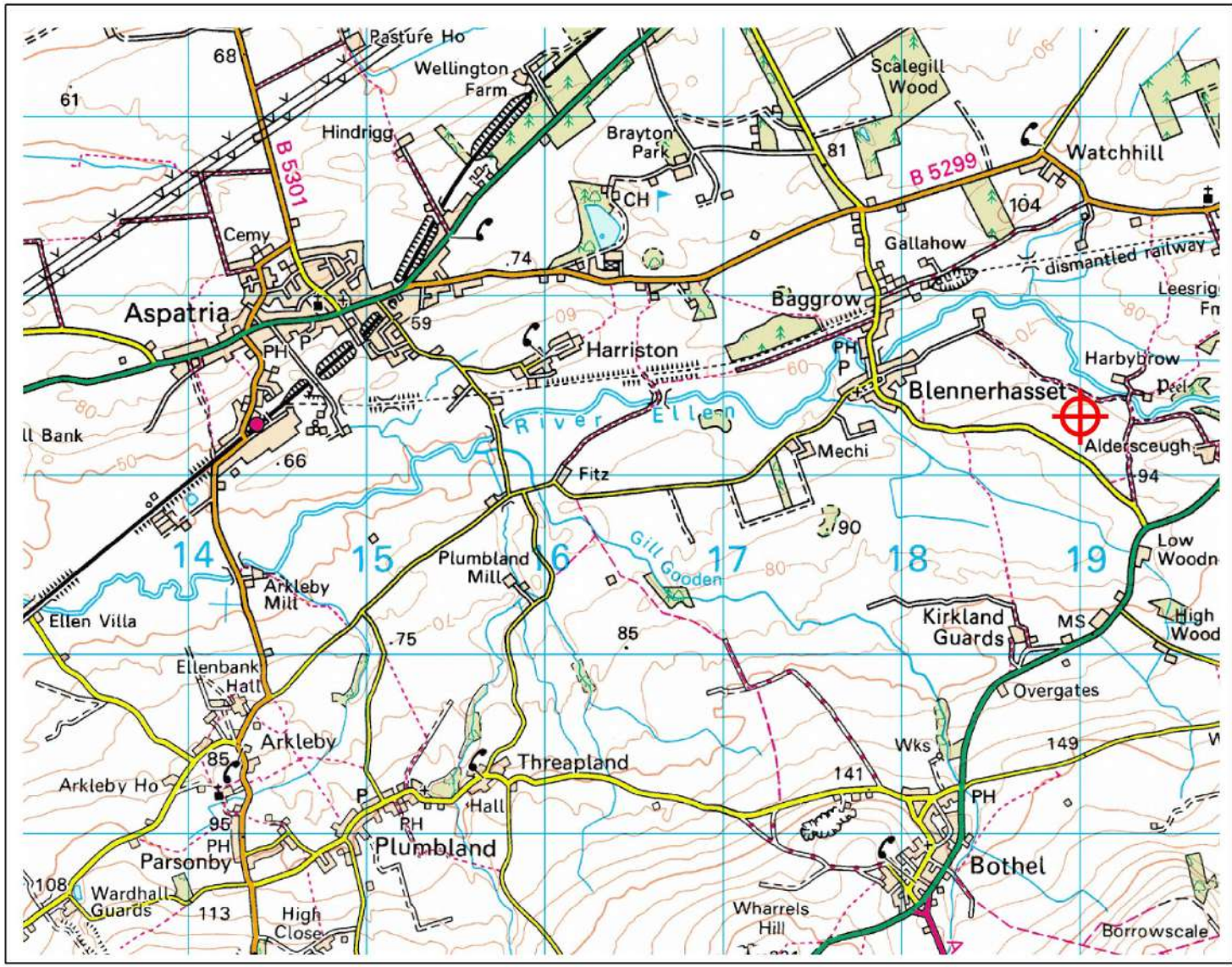
Appendix 2

Blennerhasset Fort Survey Results

Figures 1 to 6



GRAMPUS
Heritage and Training Limited

Blennerhasset: From Fort to Farms Community Research Project

Geophysical Survey of Blennerhasset Roman Fort
Monument No: SM32849

NGR NY 190 , 413

Scale 1:30,000

February / March 2013

Drawn By: MG

KEY

Survey Location

Figure 1: Location Plot

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heritage lottery fund
LOTTERY FUNDED

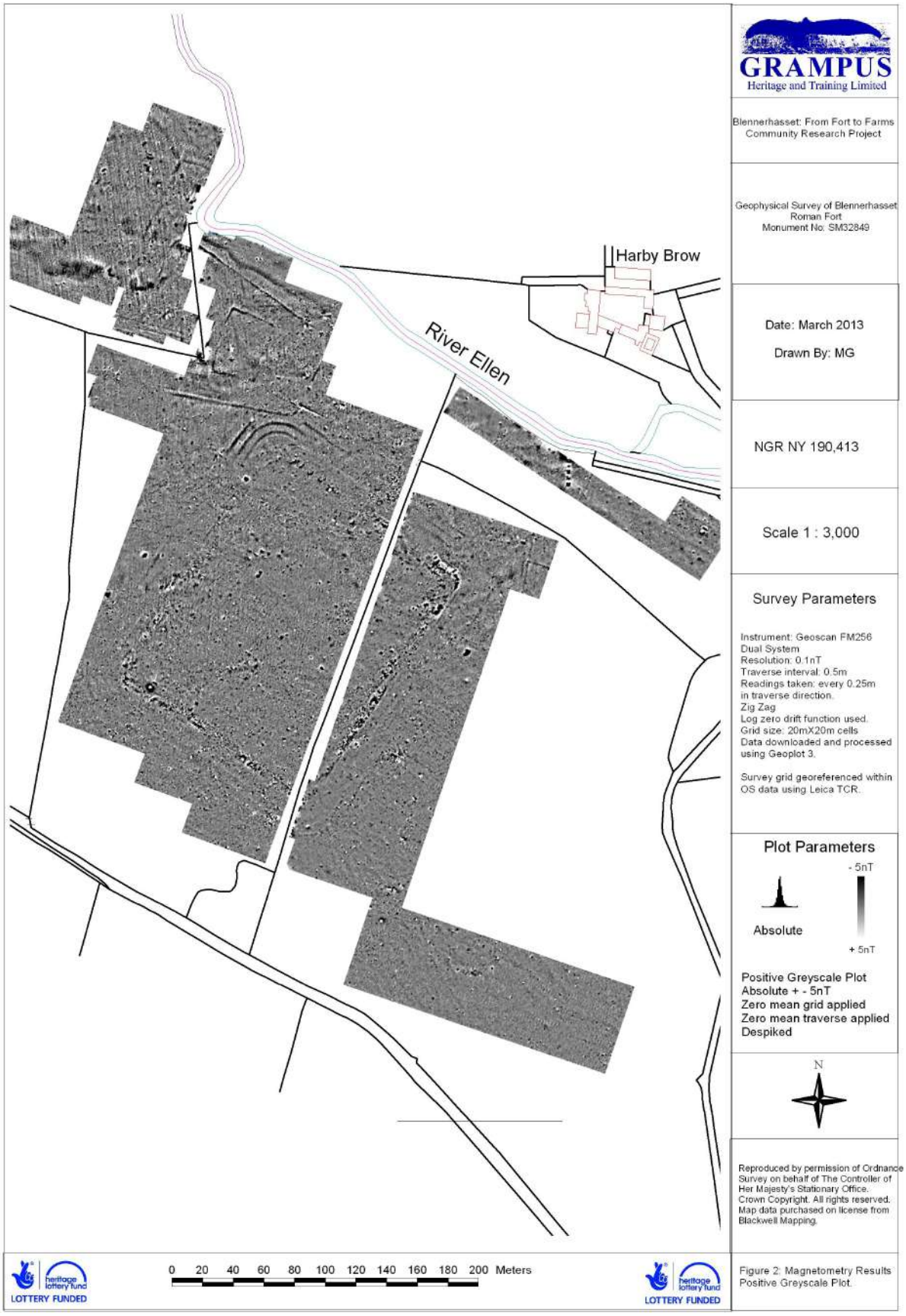
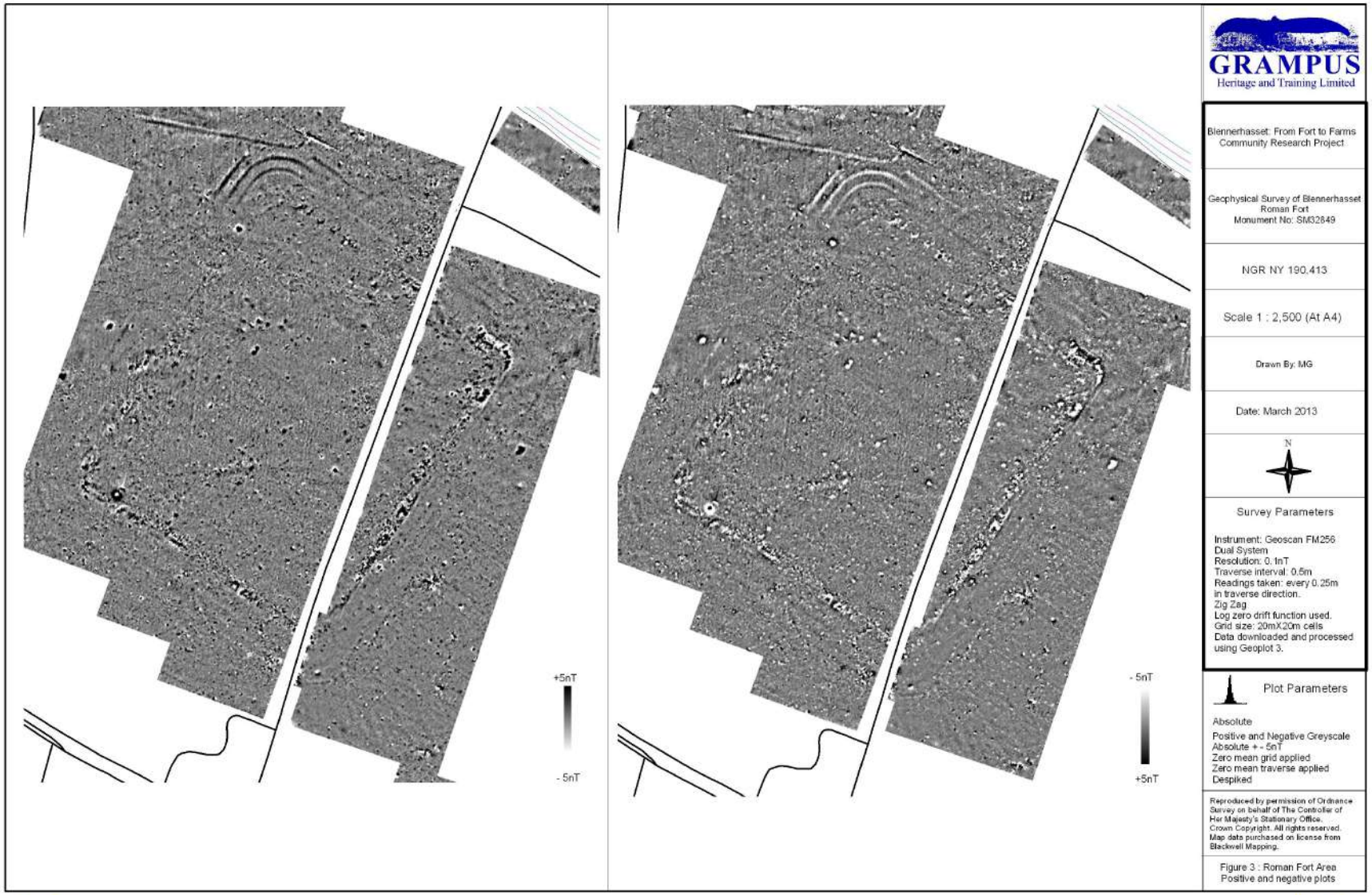


Figure 2: Magnetometry Results Positive Greyscale Plot.


+5nT
- 5nT
- 5nT
+5nT
0 20 40 60 80 100 Meters
0 20 40 60 80 100 Meters
GRAMPUS
Heritage and Training Limited
Blennerhasset: From Fort to Farms Community Research Project
Geophysical Survey of Blennerhasset Roman Fort
Monument No: SM32849
NGR NY 190,413
Scale 1 : 2,500 (At A4)
Drawn By: MG
Date: March 2013
N
Survey Parameters
Instrument: Geoscan FM256 Dual System
Resolution: 0.1nT
Traverse interval: 0.5m
Readings taken: every 0.25m in traverse direction.
Zig Zag
Log zero drift function used.
Grid size: 20mX20m cells
Data downloaded and processed using Geoplot 3.
Plot Parameters
Absolute
Positive and Negative Greyscale
Absolute + - 5nT
Zero mean grid applied
Zero mean traverse applied
Despiked
Reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office. Crown Copyright. All rights reserved. Map data purchased on license from Blackwell Mapping.
Figure 3 : Roman Fort Area
Positive and negative plots
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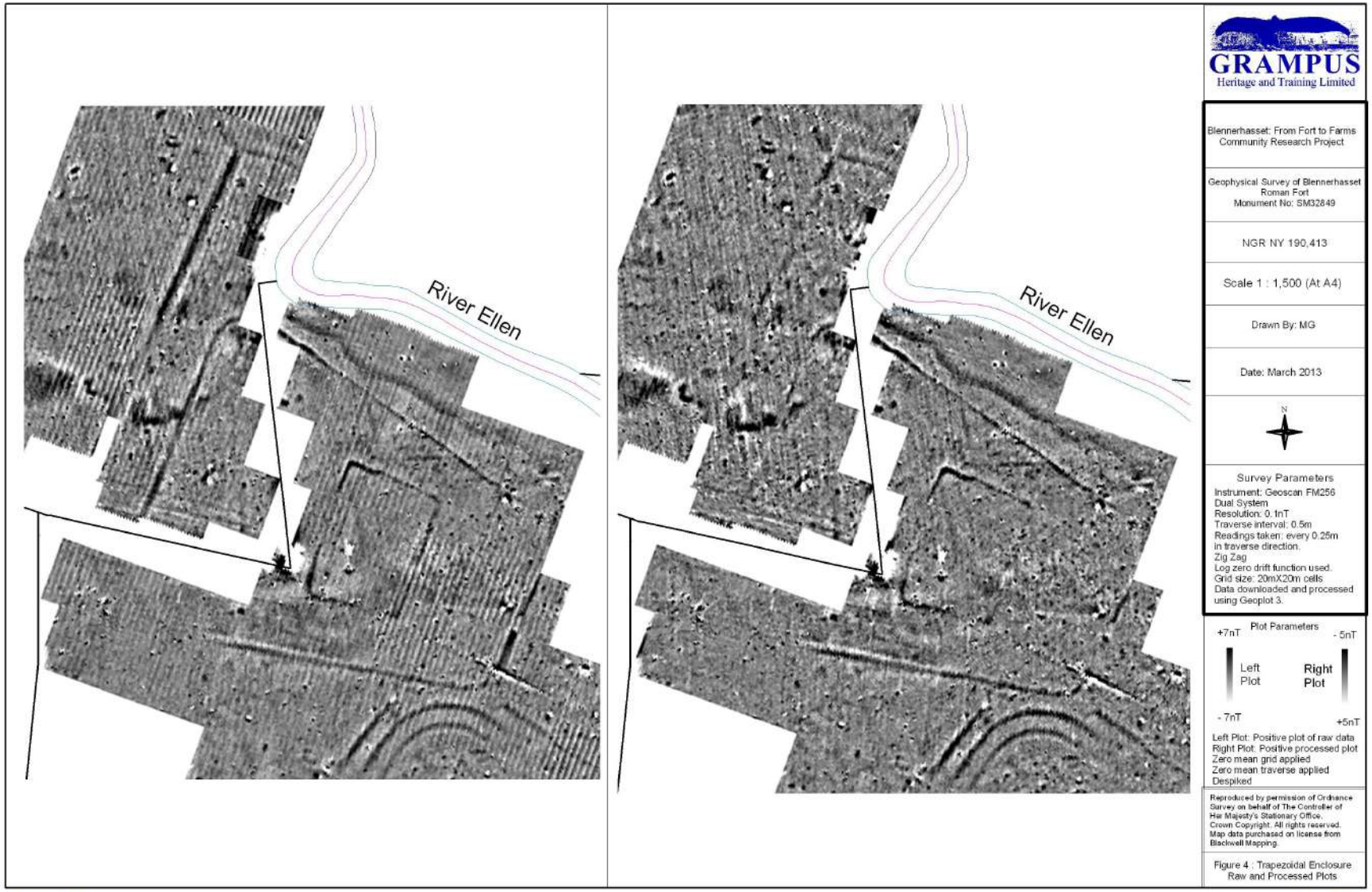
River Ellen
River Ellen
GRAMPUS
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Blennerhasset: From Fort to Farms
Community Research Project
Geophysical Survey of Blennerhasset
Roman Fort
Monument No: SM32849
NGR NY 190,413
Scale 1 : 1,500 (At A4)
Drawn By: MG
Date: March 2013
N
Survey Parameters
Instrument: Geoscan FM256
Dual System
Resolution: 0.1nT
Traverse interval: 0.5m
Readings taken: every 0.25m
in traverse direction.
Zig Zag
Log zero drift function used.
Grid size: 20mX20m cells
Data downloaded and processed
using Geoplot 3.
Plot Parameters
+7nT
- 5nT
Left
Plot
Right
Plot
- 7nT
+5nT
Left Plot: Positive plot of raw data
Right Plot: Positive processed plot
Zero mean grid applied
Zero mean traverse applied
Despiked
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Survey on behalf of The Controller of
Her Majesty's Stationary Office.
Crown Copyright. All rights reserved.
Map data purchased on license from
Blackwell Mapping.
Figure 4 : Trapezoidal Enclosure
Raw and Processed Plots
0 10 20 30 40 50 Meters
0 10 20 30 40 50 Meters
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LOTTERY FUNDED
heritage lottery fund
LOTTERY FUNDED

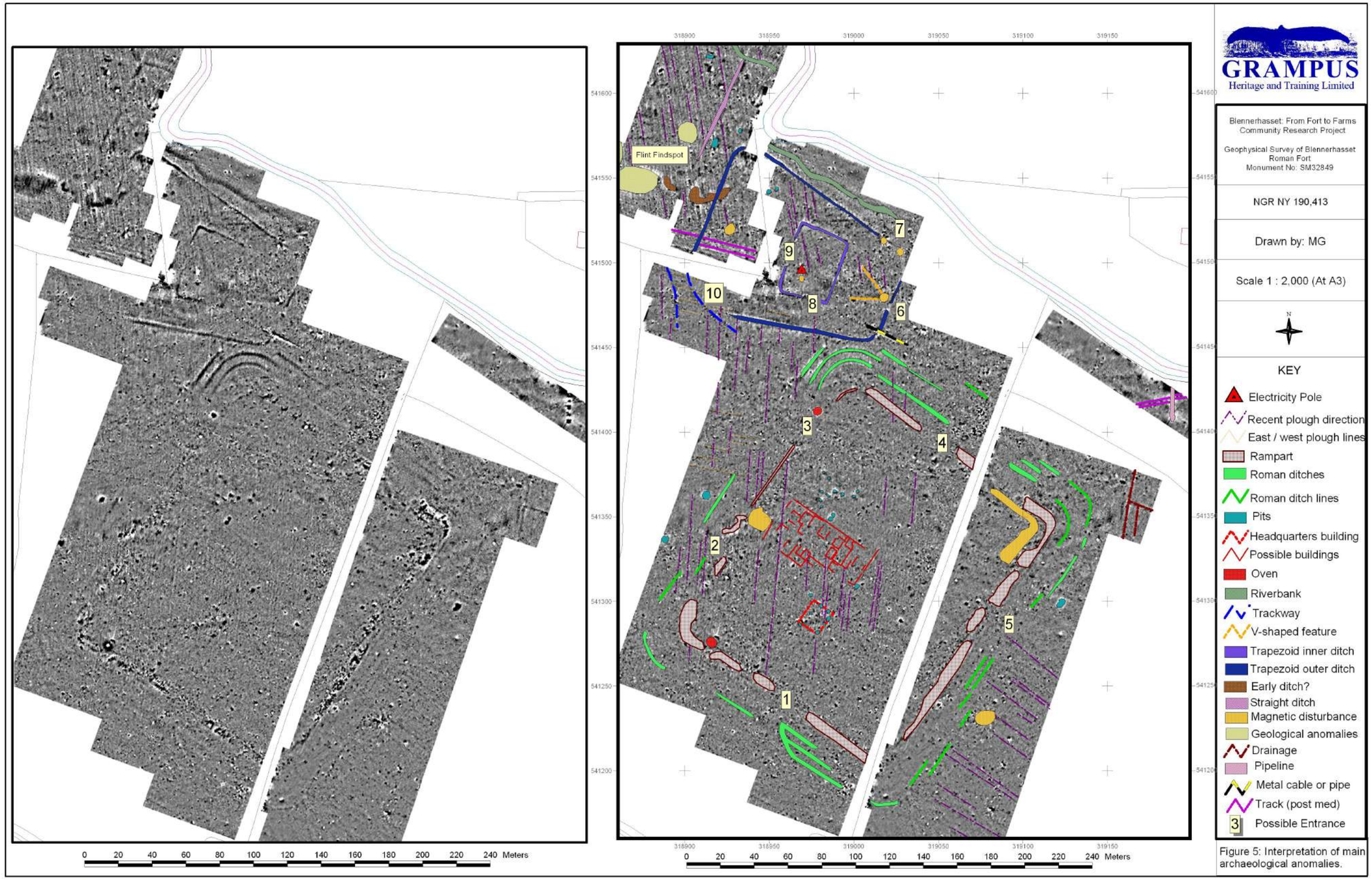

Figure 5: Interpretation of main archaeological anomalies.

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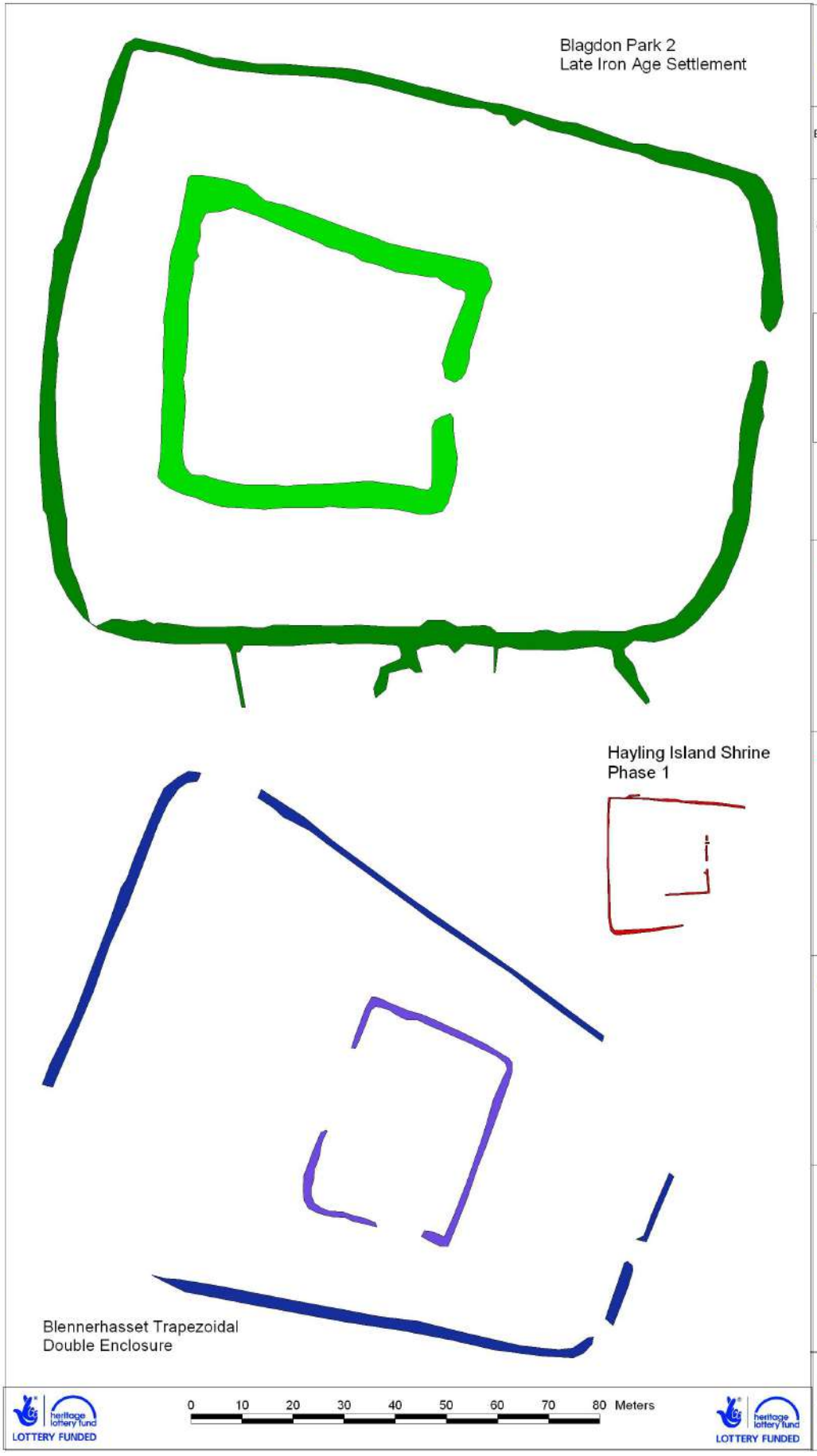

Figure 6: Comparative Plot of Blennerhasset trapezoidal enclosure with Blagdon Park 2 Iron Age settlement and Hayling Island shrine (First Phase).