Report on geophysical survey at Forteviot, Perthshire, September 2006

By the Department of Archaeology, University of Glasgow

provided to

Historic Scotland, the Royal Commission on Ancient and Historical Monuments for Scotland, and Perth Museum

Contents

Abstract

Extensive geophysical survey utilising resistivity and magnetometry techniques was carried out at Forteviot in September, 2006, where aerial photography had detected cropmarks suggestive of Neolithic and early historic activity. These features lay in three fields to the south of the modern village of Forteviot. 100m by 100m areas were surveyed within two of these fields, investigating key cropmark features, and also targeting areas where no cropmarks were readily apparent. The results from the geophysical survey not only demonstrate the continued survival of the previously detected archaeology, but also revealed a number of other monuments. Additional survey at Haly Hill, immediately to the north of the main Forteviot complex, suggests that there is no surviving trace of a documented early historic Pictish and Scottish palace in that area.

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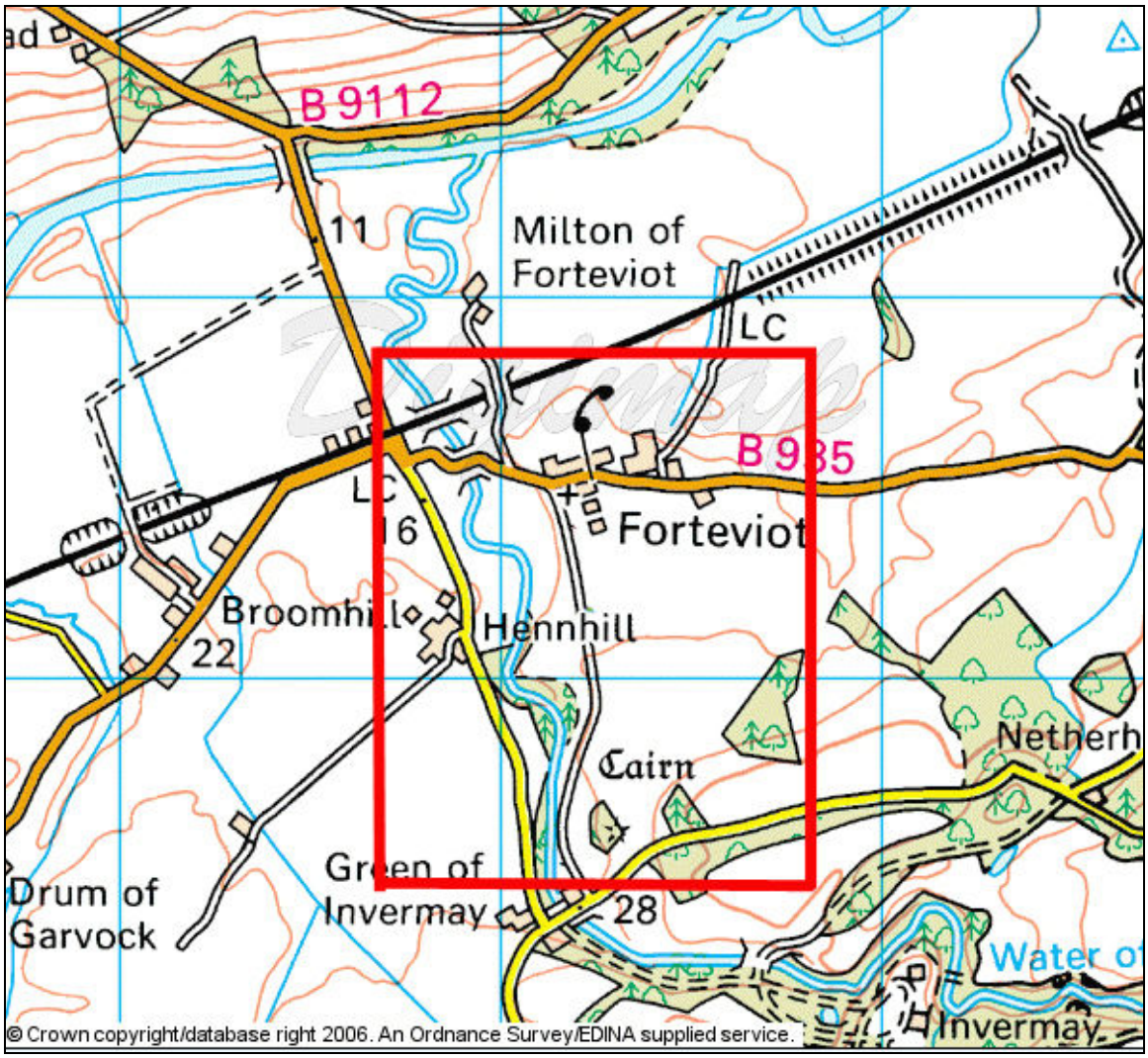
Acknowledgements

The 2006 survey at Forteviot would not have been possible without the generous financial assistance of the British Academy and of the Glasgow University Department of Archaeology. The work was carried out by a group of volunteers drawn from a variety of backgrounds, who exhibited great enthusiasm and ability in carrying out a major survey. Many thanks are due to; Carla Cappai, Tom Craig, Martin Goldberg, Jack Lyttle, Fiona McKenzie, John Malcolm, Kirsty Millican, and Collette Thompson. The Glasgow University Archaeological Research Division (GUARD) generously loaned a Bartington gradiometer, which significantly improved the speed and quality of data acquisition. Dr. Lorna Sharpe was a valuable source of off-site technical support, despite illness keeping her away from Forteviot. Access to the lands at Forteviot and Haly Hill was granted by Lord Forteviot through the involvement of his factor, Mr. Smith. Access to the manse garden was kindly granted by Mr. T. and Mrs. E. Philips, Greylag House, Forteviot. Copies of the aerial photographs and their transcriptions have been provided courtesy of the Royal Commission on Ancient and Historical Monuments for Scotland (RCAHMS). The maps are all reproduced courtesy of the Landmark Information Group Ltd. and are copyright of the Crown.

Location maps

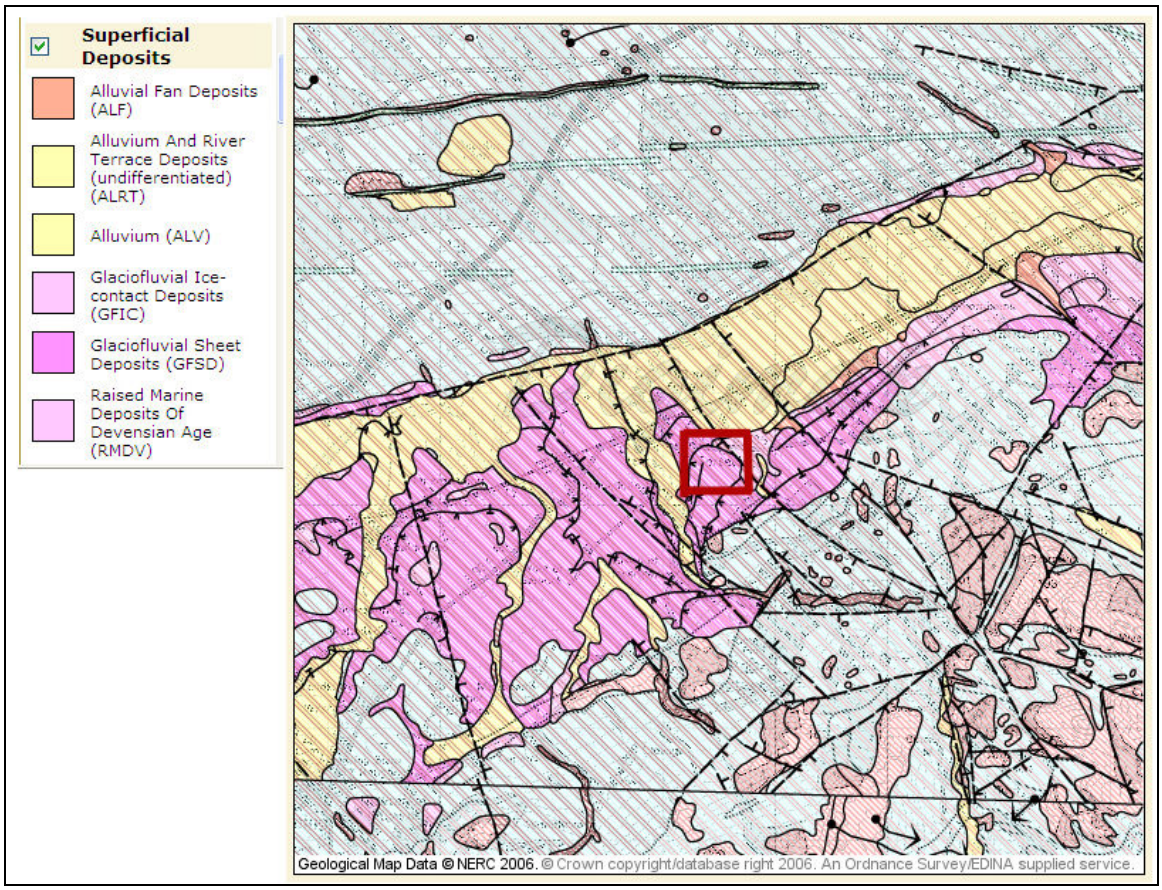
Forteviot – general location map

Location maps



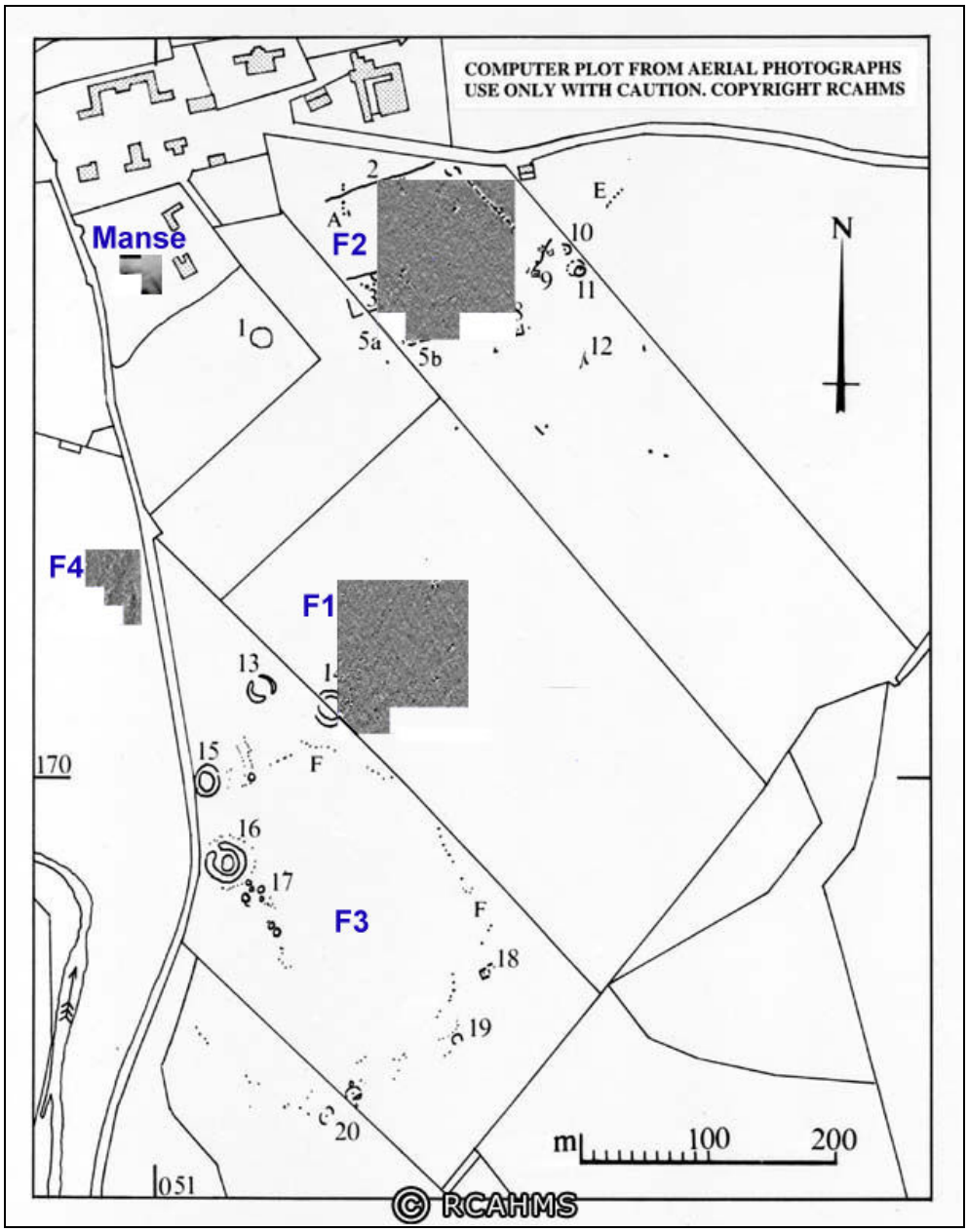
Forteviot – core survey area map

Geological map



Forteviot, 'hard' geology map – main survey area

Location maps



Forteviot – Main survey area, F1 - F4 and Manse

Location maps

Forteviot –Haly Hill location map (F5), to N of Forteviot village

Aerial photographs

Forteviot – aerial photograph of F2

Aerial Photographs

Forteviot – aerial photograph of F3 cropmarks

Introduction

The village at Forteviot (NO 0516) lies on a level terrace overlooking the River Earn at the eastern end of the Strathearn valley, some 10km south-west of Perth. The village is located at a point where the valley narrows to a 1km wide gap between the Gask Ridge on the north side, and the Ochil Hills on the south. The immediate hinterland of the village features extensive cropmarks, identified in repeated overflights by RCAHMS. These probably represent a Neolithic enclosure and associated monuments, and a Pictish cemetery. Moreover, there are strong historical associations with a Pictish and Scottish royal residence at Haly Hill, located to the immediate north-west of Forteviot village (Aitchinson 2006). Although there are no extant archaeological remains or cropmark features from the early historic royal complex, the cropmark complexes extend over a 40 hectare area in the fields immediately to the south of the village. As part of a wider programme of archaeological study in Strathearn, enhancing our understanding of the Forteviot area constituted a major research objective. Deep ploughing of the fields containing cropmarks also had implications for the continued survival of the archaeological features. As a preliminary step, a major geophysical survey was instigated, focusing on the cropmark complex and on the putative location of the early historic palace. These geophysical investigations at Forteviot were carried out by the University of Glasgow's Department of Arcraaeology in September 2006. Survey conditions were generally favourable for the deployment of both resistivity and magnetometry. Weather conditions were generally dry, although several particularly wet days occurred. None of the targeted areas had upstanding archaeology, which eliminated spurious topographical responses in the dataset. The four fields to the south of the village were designated F1 – F4 (see main survey area map), and the field at Haly Hill was designated F5 (see Haly Hill location map). A further suitable site for survey was recognised within the gardens of the church manse, which lies immediately to the south of the modern church. This latter site is simply designated as the manse garden.

The ‘hard’ geology of the core survey area (see map) consists entirely of deposits of Old Red Sandstone, geologically identified as Glaciofluvial Sheet Deposits (GFSD) and as Glaciofluvial Ice-contact Deposits (GFIC). Overlying this geology is a relatively deep layer of glacial drift deposits, largely composed of sands and gravels. The soils in the survey area consist of a silty clay which is of very high agricultural potential, although extensive deposition of nightsoil and deep ploughing in the survey area has further enriched this natural formation. The ploughsoil depth in F1 varied from 0.4m to 0.5m. It would be expected that geophysical responses from this geological area would be relatively unattenuated. The generally flat topography of the core survey area is significantly elevated over the high water mark of the Water of May, a stream which runs along the western edge of the area. This topography has historically lent itself to relatively dry ground conditions, which are also favourable for good geophysical responses. Moreover, the general topography has minimised the requirement for extensive drainage systems, reducing the likelihood that field drains and dykes would be encountered during survey.

Apart from F4, which has been grazed since at least *c*.1950, the fields at Forteviot and at Haly Hill have been deep ploughed for a variety of crops in the recent past. A crop of wheat had been recently harvested from F1, and the stubble had not been turned over. F2 was under a crop of surplus carrots when survey commenced, and the grubbing-up of this crop demonstrated that the topsoil is constantly turned over at that location. A crop of potatoes was present in F3 throughout the survey period. Grazing activity in F4 does not seem to have been especially intensive, and the sod layer was in good condition, with extensive grass growth throughout. Haly Hill (F5) had a recently harvested crop of wheat, and ploughing had not occurred. Set-aside lines of unseeded grass areas up to six metres across fringed the field boundaries of F5. The manse garden consisted entirely of well-tended lawn and associated flowerbeds. Survey in F3 was not feasible, but F2 was surveyed using magnetometry. Resistivity was

not deployed in F2 because of the lack of sufficient ground contact, due to an overburden of organic material from the grubbed-out crop. Conditions in F1, F4 and F5 were conducive to the use of both techniques.

Objectives of the geophysical survey

- To establish the continued survival of archaeological features apparent from the aerial photographic surveys.
- To identify archaeological features in areas that had not revealed significant numbers of cropmarks, such as F1, F4 and F5.
- To assess the potentially complementary nature of magnetometry and resistivity techniques at Forteviot.
- To locate any surviving remains of the early historic royal residence.

Methodology

Two core survey blocks of 100m by 100m were established, in F1 and F2. Each block was further subdivided into 25 grids of 20m by 20m. Nine grids of 20m by 20m were established in F4, and 23 grids of similar size in F5. Three 20m by 20m grids were set up in the manse garden. One resistivity meter and three magnetometers were deployed in the field. The resistivity meter was a Geoscan Research RM15, with a probe separation of 1 metre. One Bartington 601-1 fluxgate gradiometer and a Geoscan Research FM36 gradiometer were initially used, with a second Bartington 601-1 becoming available in the second week of survey. Both types of Geoscan Research devices moved along traverses that were 1m apart, and took samples every 1m. The Bartington gradiometers used traverses spaced 1m apart, but took samples every 0.25m. Field data was downloaded into Geoscan Instruments' *Geoplot* version 3.00s (2005). The resistivity data was clipped (using +/-2 standard deviations) and edge matched,

and subsequently processed with a uniform high pass filter using X- and Y-radii of 10. Further processing steps were undertaken, but did not enhance the data to any degree. The magnetometry data was clipped (generally using absolute values from +/-15 to +/-25), uniformly assigned a zero mean for the grid dataset, and despiked to remove spurious anomalies. To remove ‘striping’ of the data, a zero mean was also established for the traverses. No further processing steps were necessary. All data is presented below in the form of shade plots, with histograms showing the relative values that lie behind the varying nature of the shading.

F1 (Middle Field) Magnetometry Survey

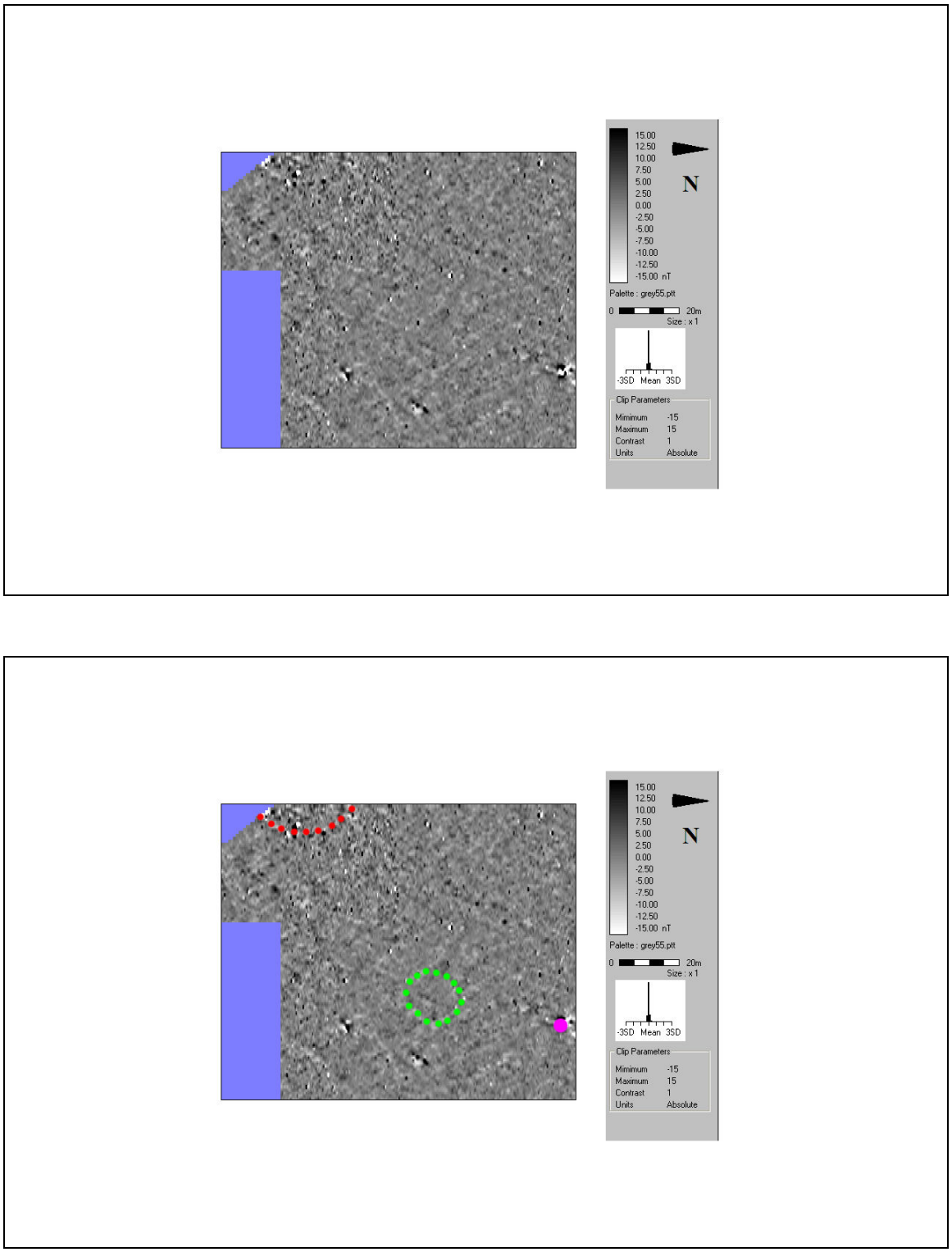


Figure 1 **Original and interpretative plots of F1 magnetometry survey**

Commentary on the results

The magnetometry survey results from the middle field confirmed the existence of the hengiform feature visible in the aerial photographs. An arc of the enclosing ditch (plotted in red in Fig. 1) was clearly visible in the raw data, with an area of significant magnetic disturbance to the north-west of the site. Processing of the raw data also revealed the faint magnetic signature of a sub-circular enclosure of curvilinear plan in the centre of the survey area. This is indicated in green on Fig. 1. In the north-east of the surveyed area, a sizeable magnetic spike was noted, and has been plotted in purple on Fig. 1. This has a strongly dipolar magnetic signature, consistent with a metal object or area of intense burning beneath the surface.

Discussion of the magnetometry survey

The magnetometry survey revealed that the hengiform enclosure was still clearly defined by its enclosing ditch, but no clear trace of the outer bank was evident. It is entirely possible that this bank has an insufficiently strong magnetic signature, but the greater likelihood is that it has been destroyed by ploughing. Moreover, a spread of relatively strong magnetic responses immediately to the west of the monument appears to represent material from the bank of the monument. Due to the proximity of a steel wire field fence, it was impossible to survey the southernmost extent of the monument, where an entrance feature was visible in the aerial photographs. No features are obvious from the internal platform of the monument. The sub-circular feature from the central part of the survey area is defined by a probable shallow ditch. Considering the weak magnetic responses recorded here, this feature is unlikely to be in good condition. In addition, this feature lies in an area that corresponds to one of the plough furrows detected in the resistivity survey (see below). The probable metal object in the north-east of the survey area was not found in a 1m by 1m test trench located at that position, which examined the topsoil and ploughsoil, to a

total depth of 0.49m. The magnetometer was used at the conclusion of this trial excavation, and the anomaly lay below the excavated depth.

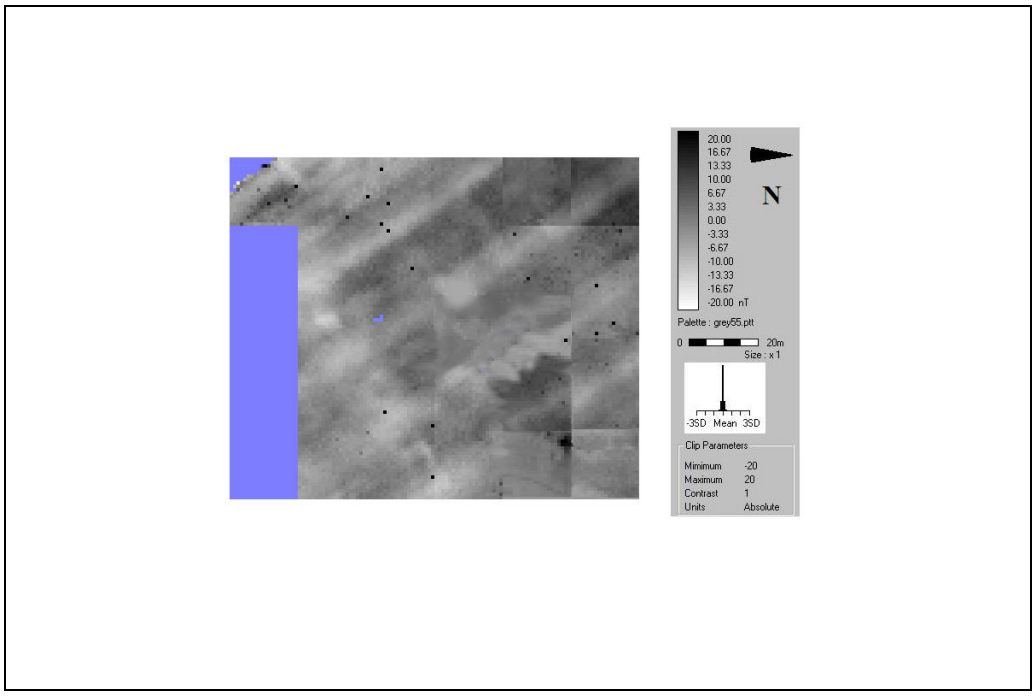
F1 (middle field) resistivity survey

Commentary on the results

Due to varying levels of soil moisture experienced over the course of the project, and also due to the fact that a small number of grids had to be resurveyed, the data acquired from the survey area has a pronouncedly 'tiled' appearance, even after edge-matching of the processed data. Nevertheless, a significant amount of previously-undetected archaeology became apparent. The hengiform feature evident in the aerial photographs and in the magnetometry survey is also visible here (depicted in red on Fig. 2), although the resistivity data adds no new information on the morphology or condition of the monument. The most obvious feature are the parallel plough furrows that run from NW-SE, marked in yellow on Fig. 2. These furrows are parallel with the existing field boundary to the west. They appear to cut earlier furrows (dark blue on fig. 2) that ran at right angles to the extant field boundary.

In the east of the survey area, a curvilinear arc (green on Fig. 2) was noted in the raw data. Processing revealed this to be a feature defined by a shallow depression, rather than a ditch. It is not certain if this feature is continuous, because it is partly crossed by one of the NW-SE furrows. No stratigraphic relationship between the two can be determined. Another curvilinear feature in the south of the survey area (purple on Fig.2) is defined by a thinly defined depression, probably a ditch. The western arc of the feature may have been truncated by one of the NW-SE furrows. A rectilinear ditched feature is evident in the south-eastern corner of the survey area (light blue on Fig.2), close to one of the later furrows. Only three sides of this are evident in the data.

F1 (Middle Field) Resistivity Survey



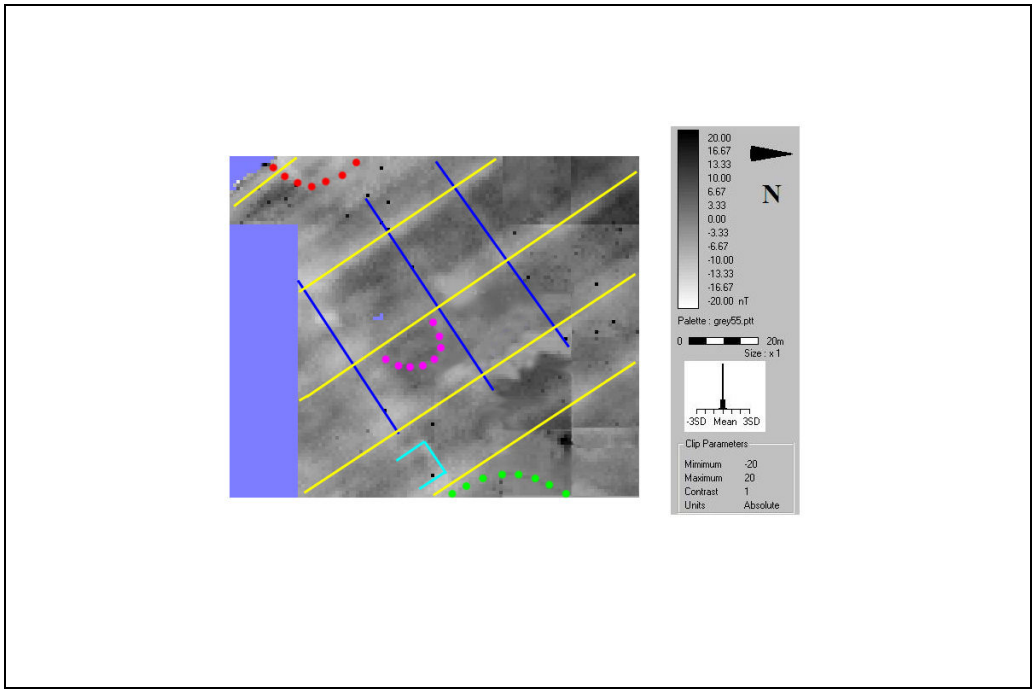


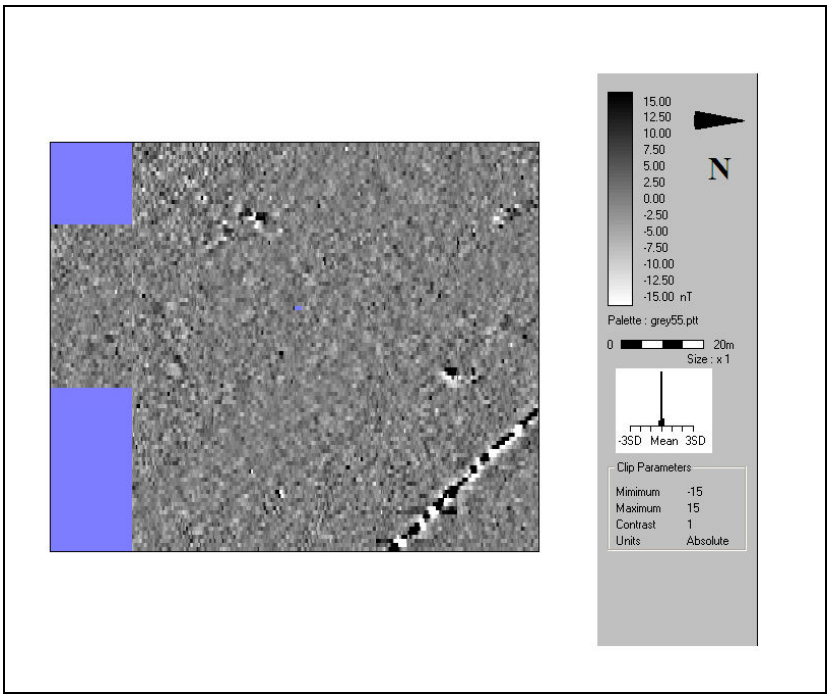
Figure 2 **Original and interpretative plots of F1 resistivity survey**

Discussion of the resistivity survey

While the resistivity survey did not reveal any new information on the hengiform enclosure, the survey did add valuable data on the landscape history of the complex. The NW-SE furrows appear to represent ploughing using broad ridges and furrows. The possibility that these furrows were field drains was considered, but rejected on the basis that the features ignored the general topography of the site, and could not have removed excess water to the edges of the field. The actual gaps between the furrows varied from 15m to 18m, and while this represents relatively large plough ridges, such widths are not unprecedented. The fact that the furrows lie parallel to the extant field boundary suggests that the current field was once sub-divided into a series of furlongs. The furrows running at right angles to these features are degraded in nature, and appear to be truncated by the NW-SE furrows, indicating an earlier date.

The curvilinear arc in the east of the study area is problematic. Its enclosing feature is spread over a very wide area, and does not have a particularly low resistivity signature, which is ordinarily indicative of a ditch. This feature may not be archaeological, as a large stack of hay bales was kept in this area during the early stages of survey, and a tractor was working in the area. Continuous turning and manoeuvring may have created a shallow curvilinear depression. A similar phenomenon was observed by this writer during geophysical survey at Auchendavy Fort, on the Antonine Wall. The curvilinear feature in the south of the survey area has a sharply defined ditch, but the arc is not fully circular. While the possibility that it was truncated by one of the NW-SE furrows has been suggested, this is impossible to determine from the extant data. Finally, the rectilinear feature in the south-east of the survey area is clearly defined by a narrow depression or ditch. It is located in the line of one of the NE-SW furrows, but the stratigraphic relationship is not immediately clear. The fact that it is more sharply defined than the furrow suggests that the feature is later.

F2 (North Field) magnetometry survey



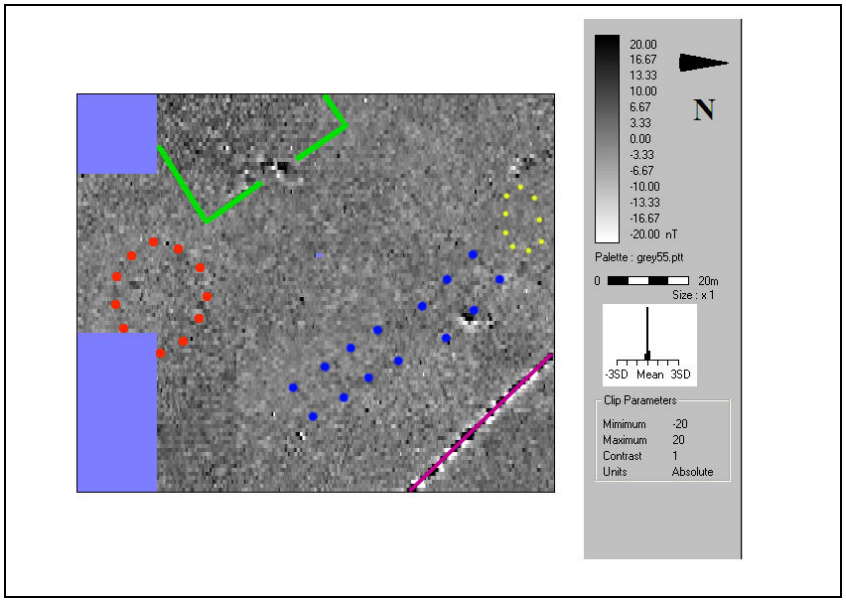


Figure 3 **Original and interpretative plots of F2 magnetometry survey**

Commentary on the results

The results for F2 exceeded expectations, and added much information not evident on the aerial photographs (Fig. 3). The large rectilinear feature (outlined in green on Fig. 3) was very obvious in both air photos and from the magnetometry plots, although much of the internal detail evident from the former proved to have no magnetic signature. An entrance feature is obvious in the north-eastern aspect of the structure. Within this opening, there appears to be a small anomaly with a response which suggests that there may be a stone feature set within. However, the response is weak, and this area would benefit from further survey using different methods. The linear anomaly in the north-eastern corner of the surveyed area (outlined in purple on Fig. 3) exhibited a strongly dipolar response, suggesting that it is a metallic object, almost certainly a water pipe used to service a trough which was formerly located in the field boundary to the east. Several less obvious features were detectable in the raw data, and have emerged more fully with processing. Two curvilinear anomalies are evident in the extreme north and extreme south of the surveyed area, outlined in yellow and in red respectively on Fig. 3. Neither are evident on any aerial photographs, but are defined by moderately strong magnetic responses. The southern curvilinear anomaly has a diameter of just over 20m, and has a slightly elliptical profile. The northern curvilinear anomaly has a very elliptical profile, with a maximum width of *c*.18m. Two rectilinear features are also obvious in the area to the northwest of the large rectilinear structure, and are highlighted in blue on Fig. 3. The more southerly of these appears to be internally divided into three roughly equal parts, and has an orientation that is perpendicular to the long axis of the large rectilinear feature. The overall dimensions of this feature are *c*.28m by *c*.10m, with the internal compartments measuring an average of *c*.10m square. The more northerly of the rectilinear anomalies does not share the same orientation, but deviates from it by about 10°W. This feature is internally divided into two compartments of roughly equal area to those found in the more southerly anomaly.

Discussion of the results from F2

The large rectilinear feature evident on the aerial photograph of F2 displayed a strong magnetic signature, which might suggest that it is still in reasonable condition.

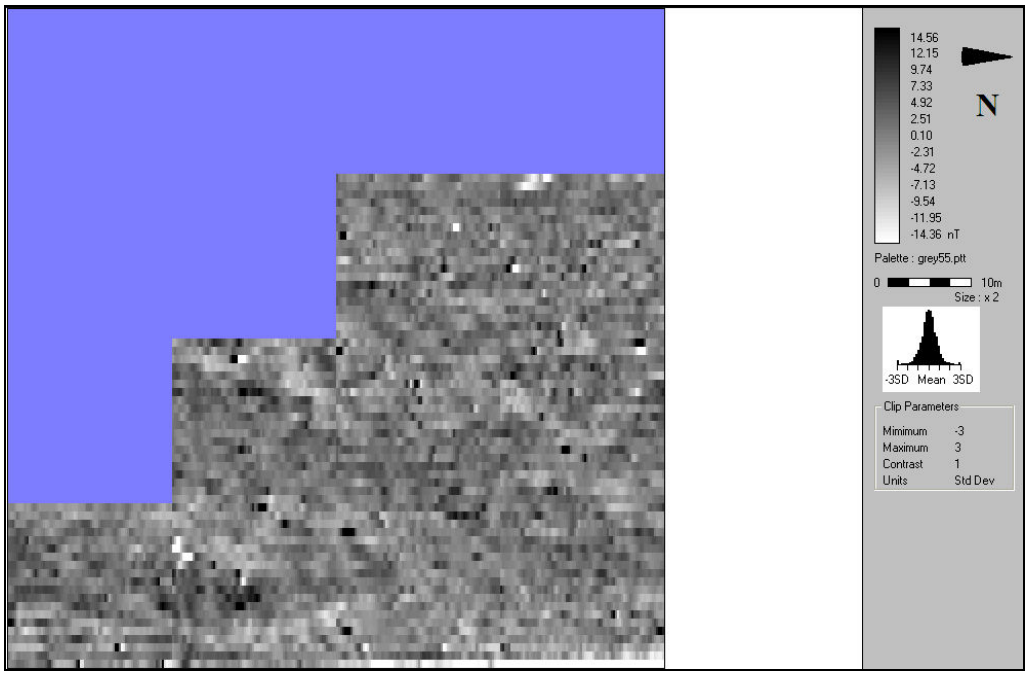
The southernmost of the curvilinear anomalies is located in an area where a number of graves and pit features were evident on the aerial photographs. These features are not visible in the geophysical data. Nevertheless, there is a strong possibility that the curvilinear anomaly is a real archaeological feature that has not left a visible cropmark. It is of interest that this anomaly appears to surround the area where the photographed features were located, and it may prove to be the remains of an enclosing element.

The northern curvilinear anomaly is of a form that is difficult to archaeologically categorise. Sinkholes of an elliptical form and of similar size have been noted by this writer in limestone regions of western Ireland, but they are not known to occur in strata of Old Red Sandstone. It is, however, very likely that this feature is not of an archaeological nature

The smaller rectilinear features picked out in blue on Fig. 3 appear to represent two sets of conjoined square barrows. It is impossible to demonstrate conclusively that these features have open corners, typical of Pictish square barrows. Nevertheless, their general appearance and dimensions are consistent with this monument type. It is of some interest that these features are not evident on the aerial photographs.

The existence of the water pipe in the north-east of the surveyed area was not suspected before work commenced. Local inquiries revealed the former existence of a water trough *c*.90m to the east of the survey area, and it is thought likely that the pipe work was associated with this. The fact that the pipe appears to be largely undamaged strongly suggests that it is buried deeply enough to have avoided plough damage. This has implications for the survival of archaeology despite the apparent depth of ploughing.

F4 (Promontory field) magnetometry survey



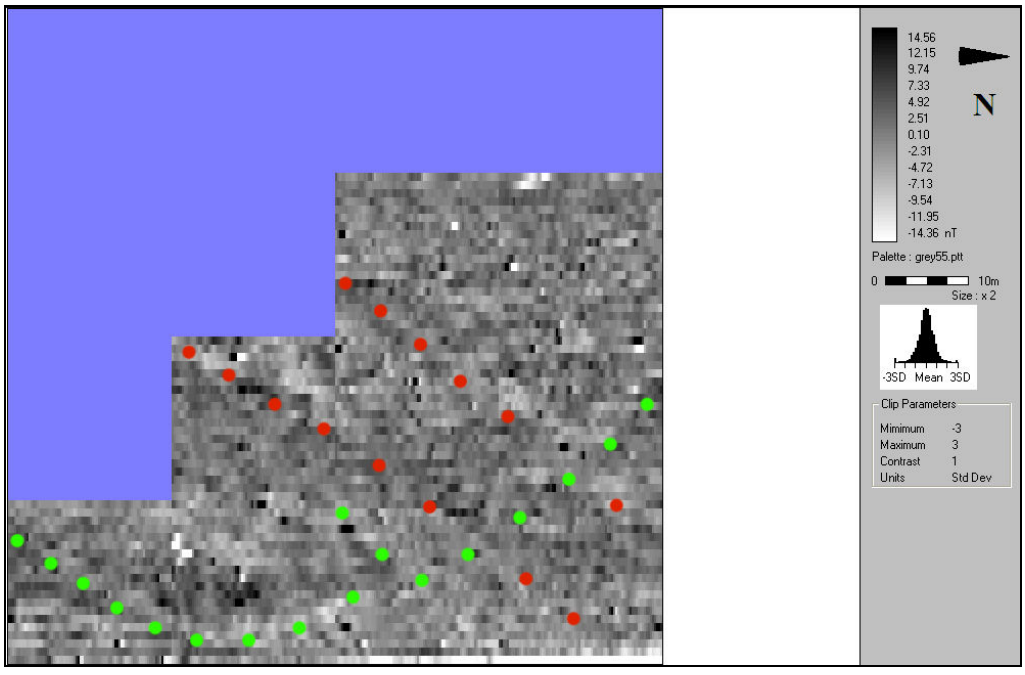


Figure 4 **Original and interpretative plots of F4 magnetometry survey**

F4 (Promontory field) magnetometry survey

Commentary on the magnetometry results

Nine grids in total were surveyed on the promontory to the west of the main sequence of cropmarks. Two previously unknown features were identified in this field. A curvilinear feature (plotted in green on Fig. 4) defined by a magnetic signature consistent with a shallow ditch was detected, which appears to largely enclose the promontory. A possible entranceway is apparent on the north-eastern part of the arc. Two parallel linear anomalies (plotted red on Fig. 4) on a NE-SW alignment pass radially through the arc of the curvilinear feature and probably continue beyond its line. Although the precise stratigraphic relationship between the two features cannot be ascertained, the curvilinear feature is more faintly defined where it appears to intersect with the parallel linear features.

Discussion of the magnetometry results

The curvilinear feature may appear to cut off the promontory on the edge of the river terrace. However, this does not necessarily mean that it is an actual promontory enclosure. It has not yet been determined whether the promontory is a relatively recent geological formation. The Water of May is a particularly active river, and its erosional capacities are well attested. The prevailing Old Red Sandstone bedrock geology in this part of the Forteviot complex has suffered considerably in the recent past, and the promontory may have been created within the modern period. In short, the enclosure may in fact represent part of a sub-circular enclosure which has been largely destroyed. The parallel linear features are *c*.15m apart, and their alignment closely mirrors that seen in the earlier plough furrows detected in the neighbouring ‘middle field’ (F1) (See Fig. 2). These features are quite possibly the remains of broad rig. The fact that they are not truncated here by later rig on a NW-SE alignment, as in F1, suggests that ploughing of this area was ended at an earlier date than in F1.

F4 (Promontory field) resistivity survey

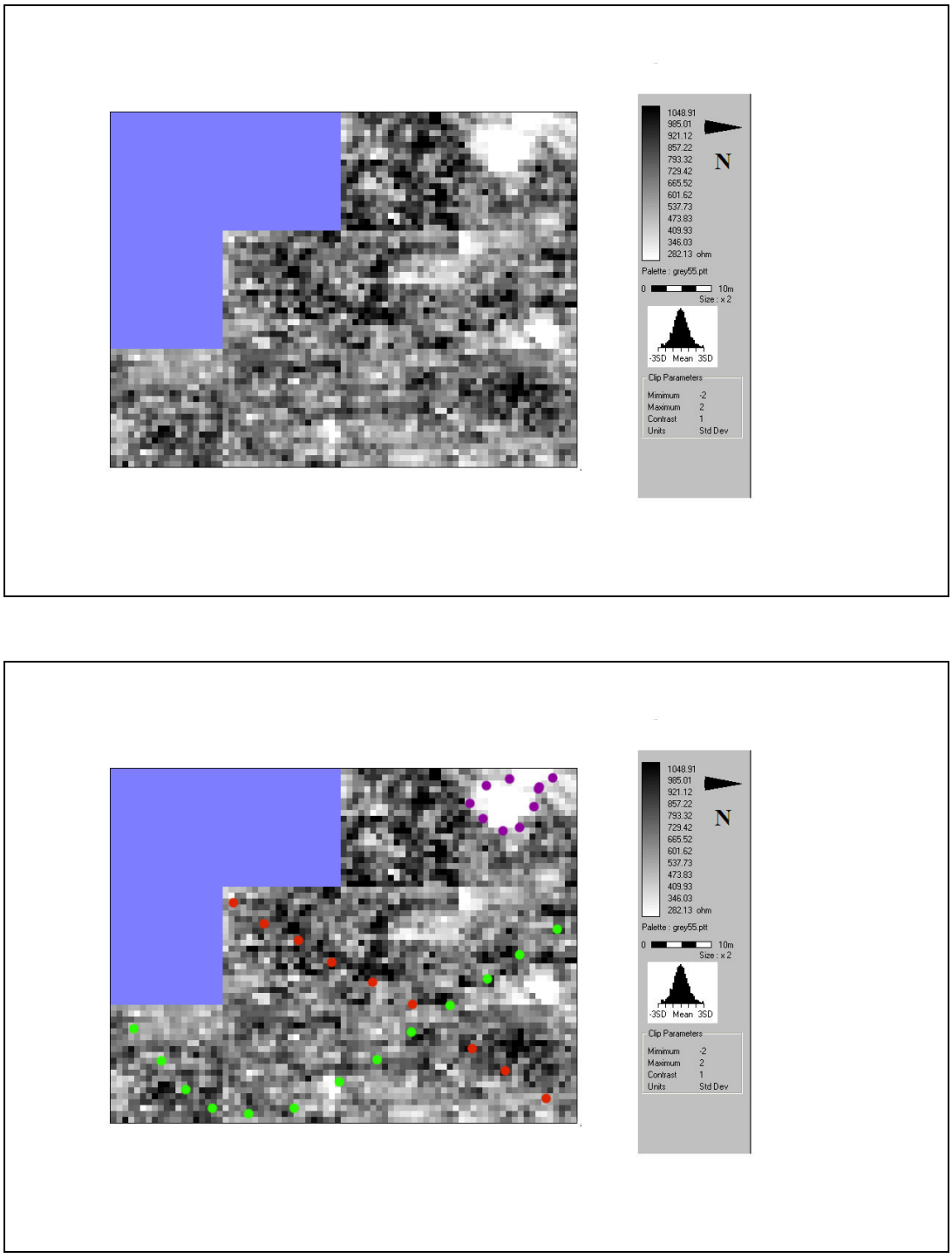


Figure 5 **Original and interpretative plots of F4 resistivity survey**

F4 (Promontory field) resistivity survey

Commentary on the resistivity results

The same curvilinear feature (plotted in green on Fig. 5) evident from the magnetometry results is also revealed in the resistivity data. Unlike the magnetometry data, the feature is quite vaguely defined by a spread of relatively high-resistance material. A linear feature aligned NE-SW (plotted in red on Fig. 5) passes over the line of the curvilinear feature. It appears to be the more easterly of the two parallel linear features identified in the magnetometry survey. As with the curvilinear feature, it is less sharply defined than in the magnetometry data. However, the processed data suggests that it is not a precisely straight feature, but is in a shallow 'S-shaped' form. Once again, the precise relationship between the two features cannot be ascertained, as both are very vaguely defined at their potential intersection. The area of low resistance (plotted in purple on Fig. 5) observable in the north-west of the survey area represents the recent site of a cattle-feeding trough and hay-bale trailer.

Discussion of the resistivity results

The attenuated geophysical responses seen in the resistivity data is mitigated by the quality of the magnetometry data. The effective failure to detect the westernmost of the parallel linear anomalies found in the latter survey cannot be easily explained. Nevertheless, there is no reason to doubt that this western linear is of a less substantial form than the parallel feature to the east. It is of some interest that the resistivity survey in F1 detected the plough ridges, when the magnetometry did not. It is quite probable that this was the result of slightly different underlying geologies in the two fields. This hypothesis may be borne out by the lack of identifiable cropmarks or parchmarks in the aerial photographs for F5.

F5 (Haly Hill) resistivity survey

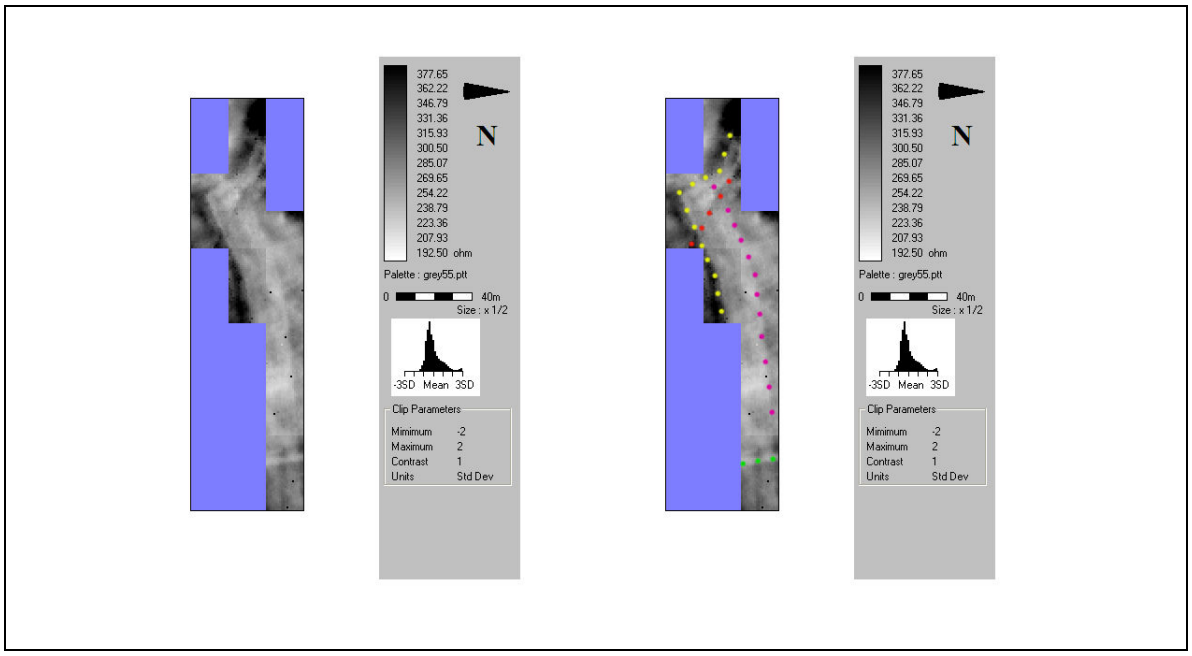


Figure 6 **Original and interpretative plots of F5 resistivity survey**

Commentary on the results

The most obvious geophysical feature in the resistivity data is a linear feature (plotted in yellow on Fig. 6) with a right angle, defined by a pronounced resistance gradient. This feature represents the position of a set-aside agricultural area, and was clearly visible on the ground. A higher resistance linear feature (plotted in red on Fig. 6) that passes across this set-aside line in a north-westerly direction is the pipe trench for a septic tank. The high resistance (dark) features evident in the north-west of the survey area represent the steep slopes to the north of Haly Hill. Groundwater collecting at the bottom of these slopes caused higher resistance values in those areas. Another long linear anomaly (plotted in purple on Fig. 6) follows an alignment which is parallel to the set-aside line, but also parallels the line of the modern field boundary. This feature is characterized by relatively low resistance values. A short length of a linear

anomaly (plotted in green on Fig. 6) defined by a generally low resistance signature was detected in the east of the survey area.

Discussion of the resistivity results

All of the features identified in the survey have a modern origin. The clearly defined nature of the set-aside line is down to the fact that more moisture collects in these areas, where grass allows more groundwater to be retained during the warmer summer months. The appearance of the septic tank outlet in the survey data was anticipated prior to survey. The short linear anomaly in the east of the survey area represents another septic tank outlet. The remaining anomaly represents a field boundary that was created some time after the 1st edition of the Ordnance Survey 6-inch map, and which was subsequently destroyed at some point after the 1st Imperial edition (1948-77) of the same map.

Haly Hill (F5) magnetometry survey

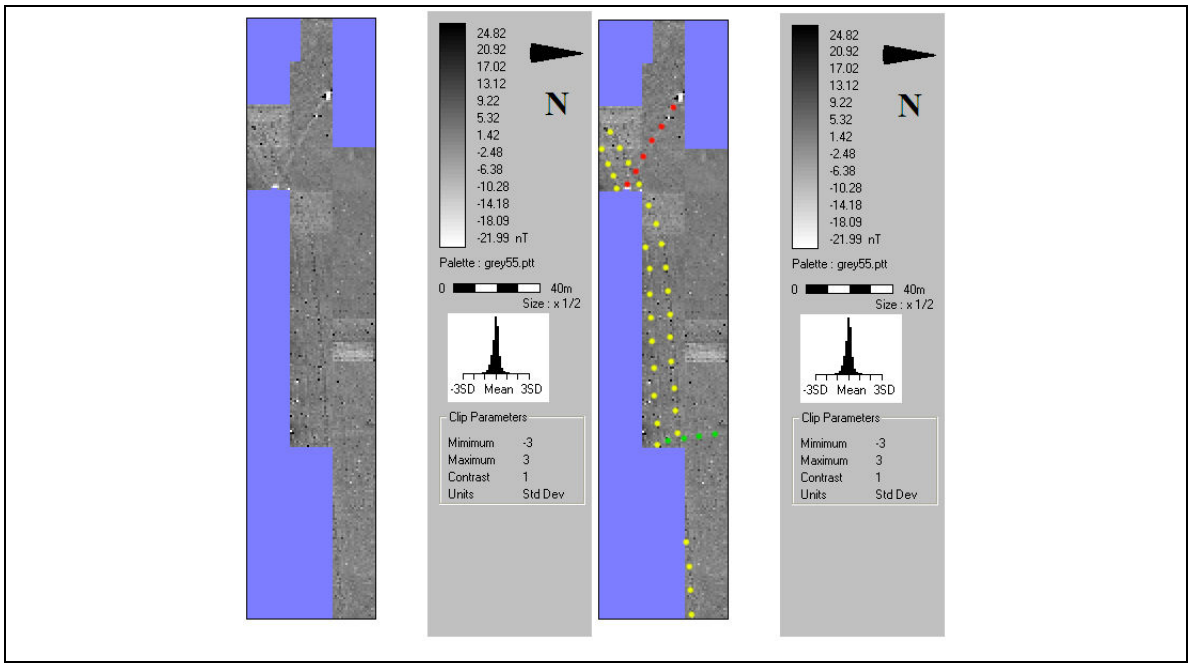


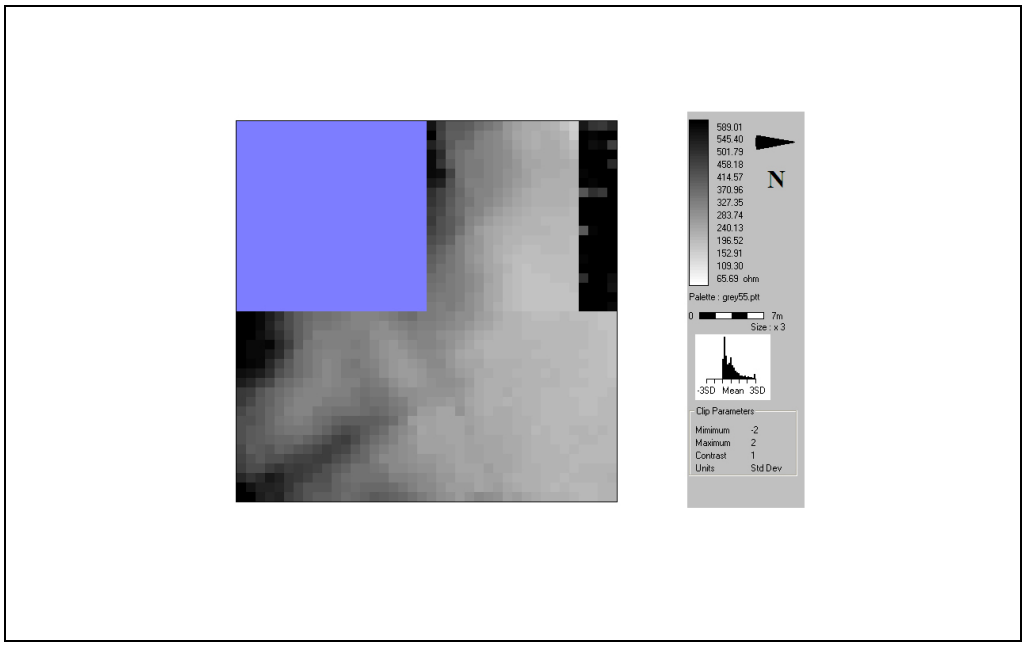
Figure 7 Original and interpretative plots of F5 magnetometry survey

Commentary on and discussion of the magnetometry results

Two parallel linear features with a curvilinear western terminal are clearly visible (plotted in yellow on Fig. 7), defined by relatively high magnetic signatures, consistent with stone material. A linear feature that crosses these anomalies in a north-westerly direction has been plotted in red on Fig. 7, and has a relatively strong magnetic signature, which represents a concrete pipe. A short linear anomaly in the east of the survey area is plotted in green on Fig. 7.

The more northerly of the parallel features represents the set-aside line visible in the resistivity data (see above, Fig. 6). The other parallel feature represents an earlier line of agricultural set-aside. Both are defined on this data set by the small stones and sand that collects at the end of modern ploughing ridges. The other features have been discussed above.

Manse garden resistivity survey



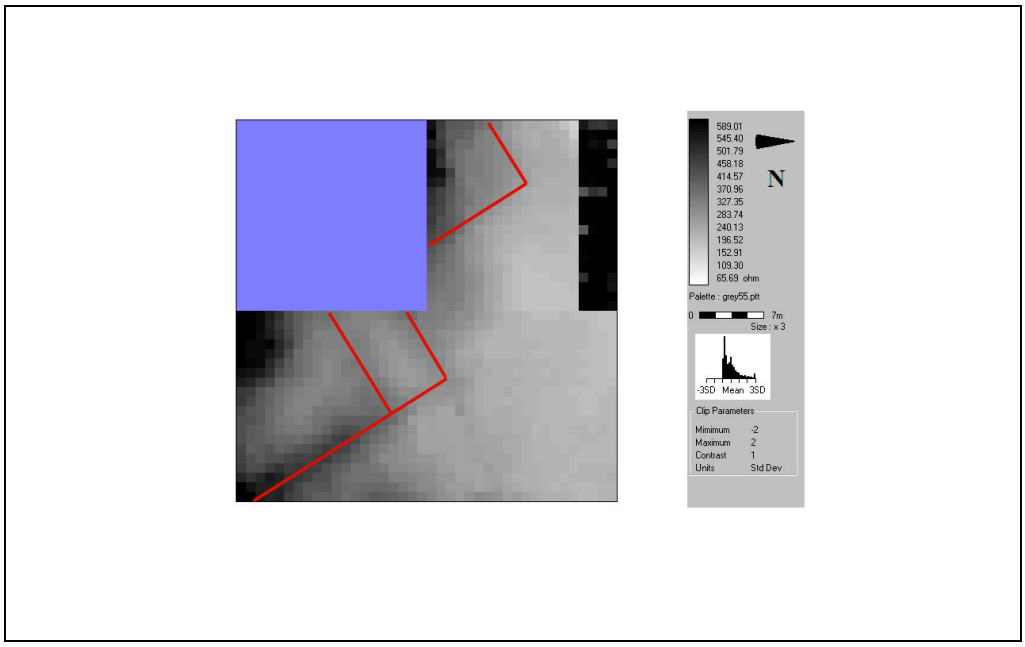


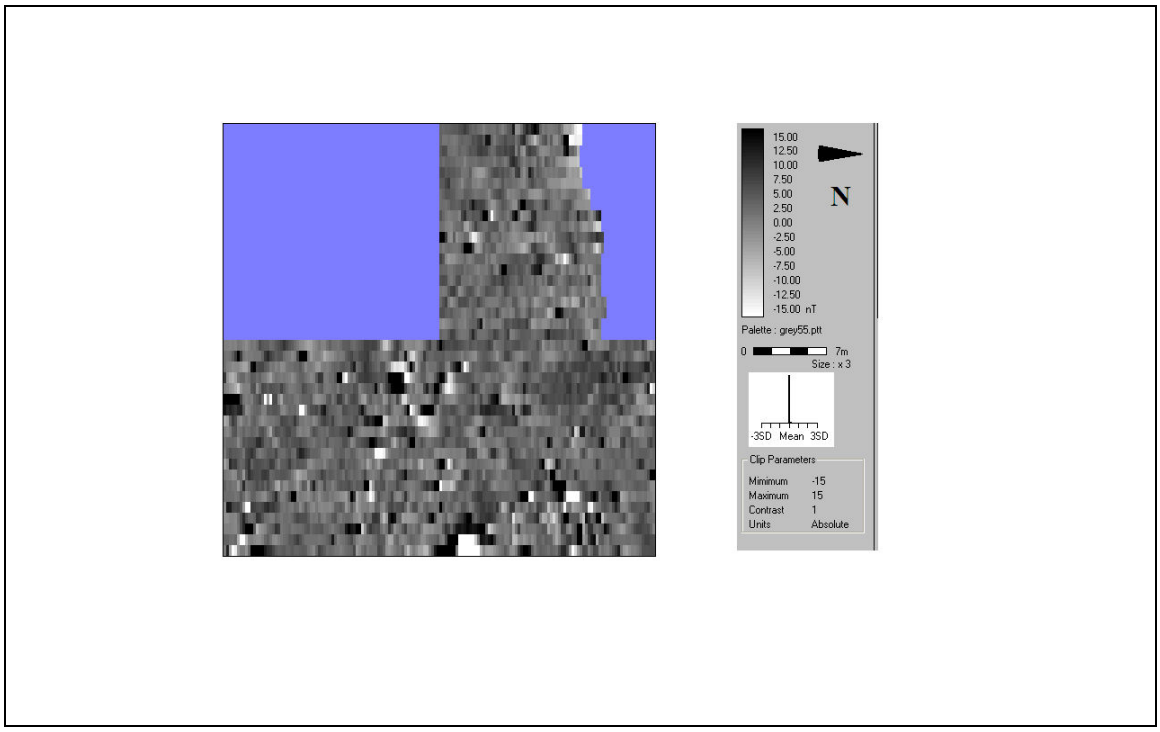
Figure 8 **Original and interpretative plots of manse garden resistivity survey**

Manse garden resistivity survey

Three grids were surveyed with a single Geoscan RM15 in the manse garden, on the basis that the property lay between the area of cropmarks and the probable location of the medieval church. The ground conditions here were excellent, with the surface entirely consisting of well-rolled turf. Ground conditions were consistently dry throughout. Minor equipment issues were encountered in the manse field, which led to the corruption of a small amount of data from the north-west of the survey area.

Two separate but probably related rectilinear anomalies were evident in the data, outlined in red on Fig.8. Both consist of relatively high-resistance linear features, forming clear right angles. The resistivity signatures are consistent with underlying stone foundations, and the overall plan suggests that these represent the remains of buildings with a high proportion of stone used in their lower structure. The fact that these features are so well-defined strongly suggests that the buildings were either extensively robbed out, or that the structures had a timber superstructure. The other high resistance anomalies found in the south-west of the survey area are entirely consistent with former garden features that were evident in the topsoil.

Manse garden magnetometry survey



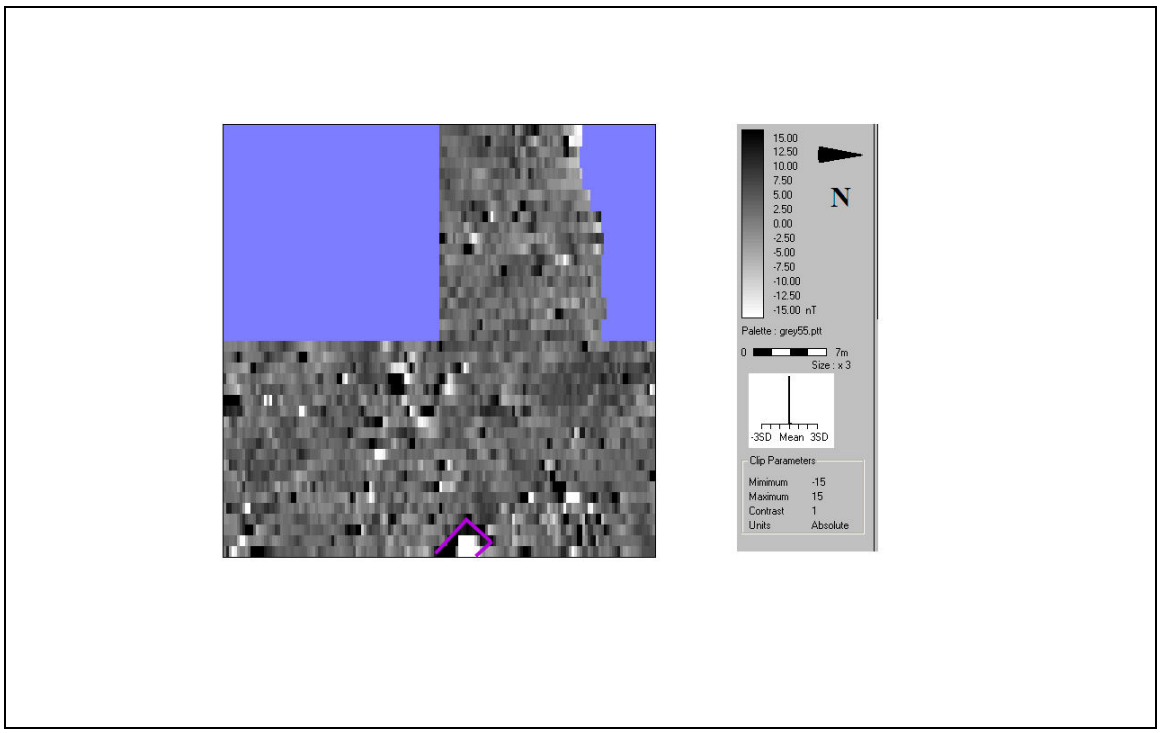


Figure 9 Original and interpretative plots of manse garden magnetometry survey

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The same three grids examined in the resistivity survey were then re-examined with a Bartington 601, using the standardised setup. The results from the magnetometry survey in the manse garden were disappointing. It is very likely that the presence of brick waste noticeable in the topsoil masked the magnetic signature of the underlying archaeological features. None of the features evident in the resistivity survey were detectable in the raw data, and processing did not reveal obvious archaeological features. One rectilinear anomaly (plotted in purple on Fig.9) detected in the west of the survey area exhibited a dipolar response entirely consistent with the presence of a large metallic object or area of intense burning.

Discussion of the results from the manse garden survey

The identification of at least one structure in the manse garden was an interesting development. It is unclear if the results indicate one conjoined building, or two similar buildings sharing a common axis. Unfortunately, the area where the two buildings would meet was not available for survey. However, further resolution of the problem is possible. Cartographic study has demonstrated that the building that preceded the present manse was not in this area of the property. The current owners have no recollection of any structure within the survey area. It is possible that the structures identified in the survey represent the remains of sheds or outbuildings associated with either the earlier or current manses. Nevertheless, it is equally possible that the features represent the remains of earlier building work on the site. Given their northwest/southeast orientation, the buildings are unlikely to represent a church *per se*, although this does not preclude an ecclesiastical use.

Conclusions

Assessed against the intended outcomes for the project, the use of geophysics at Forteviot and at Haly Hill can be seen to be justified. The results from F1 demonstrate the continued survival of the hengiform enclosure, as well as illustrating a palimpsest of the agricultural landscape from the medieval to modern periods. The magnetometry data from F2 demonstrates the large degrees of complementarity between different prospecting techniques; the aerial photographs revealed features not found during the geophysical survey, and the geophysics results highlighted archaeology not visible in the aerial photographs. The location of two hitherto-unsuspected conjoined sets of square barrows in F2 represents a particularly exciting find. Taken together, the data from F1 and F2 demonstrate that despite extensive deep ploughing in both fields over the last two decades, much of the early prehistoric and early historic archaeology remains relatively intact. Investigations at F4 revealed a ditched element apparently enclosing the promontory, and this again represents a new and potentially interesting find. The survey at F5 (Haly Hill) once again demonstrated the complementary nature of magnetometry and resistivity. Unfortunately, all of the features identified at Haly Hill are of modern date, and the actual location of the Pictish and Scottish royal centre remains open to question – if it did lie on the hill, its existence cannot be proven by further geophysical prospection. By contrast, the brief survey in the garden of the manse revealed the remains of rectilinear stone buildings, aligned NW-SE. While these buildings definitely pre-date the first edition of the Ordnance Survey 6-inch map, they may not be considerably earlier than it. Nevertheless, the precise dating of the structures is open to question. In assessing the value of the geophysical survey overall, it must be noted that a considerable number of hitherto unsuspected archaeological features have been identified, and in some cases, general dates can be provisionally applied to them.

A number of recommendations can be made with regard to future geophysical survey at Forteviot. The survey area in F1 should be expanded to the north-east and to the south, especially so that the so-called 'Glebe Ring' to the south of the manse can be covered. Given the results from the 2006 survey, it is recommended that resistivity is given priority in this area. If archaeological features are revealed by the expanded F1 resistivity survey, the findings should be followed up with the use of magnetometry over specific anomalies. If ground conditions are more favourable, a resistivity survey should be undertaken in F2, over the same area surveyed this year with magnetometry. If resources allow, a larger area of F2 should be surveyed using magnetometry, preferably to the south-east of the existing survey blocks. If useful results were gained from this extension, the field to the east of F2 may also be rapidly surveyed using a 20m wide transect. If ground conditions are suitable, magnetometry (and possibly resistivity) survey should be undertaken in F3. Targeting the cropmarks revealed in the aerial photographs should be prioritised, so as to assess the condition of the monuments. The survey area in the promontory field (F4) should be extended to the north of the existing survey block, although the presence of agricultural implements may prevent this. At Haly Hill (F5), no further geophysical survey is recommended. One further site of interest may also be suitable for geophysical survey in this year's campaign. The field to the north-east of the village of Forteviot known as 'Miller's Acre' is reputedly the site of Edward Balliol's temporary encampment during his Scottish campaign of 1332. It was noted during field survey this year that Miller's Acre is suitable for geophysical work. It remains to be established which geophysical method might be suitable for further investigations.