

# **SOLVA PROMONTORY HILLFORT AND GRIBIN RIDGE HILLFORT, PEMBROKESHIRE: GEOPHYSICAL SURVEY 2015**



Prepared by DAT Archaeological Services  
for: Pembrokeshire Coast National Park



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March 2015



**SOLVA PROMONTORY HILLFORT AND  
GRIBIN RIDGE HILLFORT,  
PEMBROKESHIRE:  
GEOPHYSICAL SURVEY 2015**

Gan / By

Charles Enright

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**SUMMARY**

*DAT Archaeological Services were commissioned by the Pembrokeshire Coast National Park (PCNP) to undertake a geophysical survey at the site of two hillforts near Solva: Solva promontory hillfort (SAM PE410, PRN 2780) and Gribin Ridge hillfort (undesigned).*

*The interior of hillforts are often rich in archaeology and have been found to contain a plethora of archaeological features including rectangular and circular structures constructed of stone or timber, storage pits, enclosures and hearths.*

*The surveys were conducted on the 5<sup>th</sup> and 6<sup>th</sup> February 2015 using a fluxgate gradiometer which detects variations in the earth's magnetic field. The purpose of the surveys was to attempt to identify possible areas of intense and/or prolonged burning associated with hearths. Identifying the location of these hearths would allow areas of particular interest to be targeted that may provide artifactual or environmental evidence. It is this type of evidence that can give an insight into the daily occupations of those who once lived within the hillforts.*

*Unfortunately the geophysical surveys did not detect any evidence of burning in either hillfort but a number of other features were identified possibly associated with the hillfort. These included a potential inner ditch, roundhouse structure and rectilinear enclosure within Solva promontory hillfort and a possible ditched entrance at Gribin Ridge hillfort.*

*Further archaeology may exist within the hillforts but due to lack of variation in the magnetic susceptibility of the feature from its natural surroundings it may not be possible to detect.*

## **1. INTRODUCTION**

### **1.1 Project Commission**

- 1.1.1 DAT Archaeological Services were commissioned by the Pembrokeshire Coast National Park to undertake geophysical survey within Solva promontory hillfort (SAM PE410, PRN 2780) and Gribin Ridge hillfort (Figure 1) (centred at NGR SM 80210 23899 and SM 80612 24162 respectively).
- 1.1.2 The purpose of the geophysical surveys was to attempt to identify possible areas of intense and/or prolonged burning associated with hearths within the known Iron Age settlements.

### **1.2 Report outline**

- 1.2.1 This report provides a summary and discussion of the geophysical surveys and their results.

### **1.3 Abbreviations**

- 1.3.1 Sites recorded on the Regional Historic Environment Record (HER) are identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Gradiometer readings are measured in nanoTesla (nT).

### **1.4 Illustrations**

- 1.4.1 Printed map extracts are not necessarily produced to their original scale.

## 1.5 Timeline

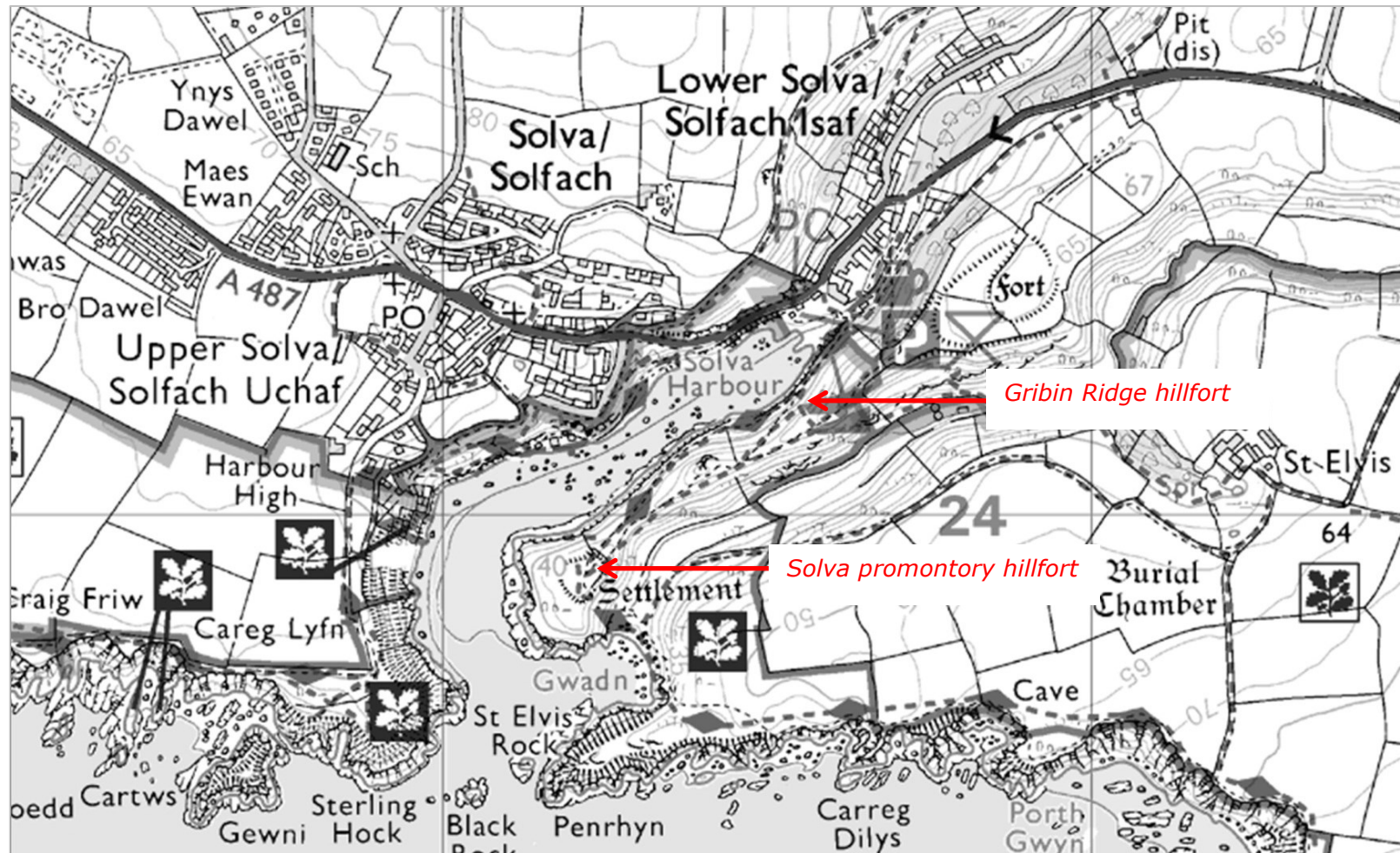
1.5.1 The following timeline (Table 1) is used within this report to give date ranges for the various archaeological periods that may be mentioned within the text.

| Period                               | Approximate date                 |             |
|--------------------------------------|----------------------------------|-------------|
| Palaeolithic –                       | c.450,000 – 10,000 BC            | Prehistoric |
| Mesolithic –                         | c. 10,000 – 4400 BC              |             |
| Neolithic –                          | c.4400 – 2300 BC                 |             |
| Bronze Age –                         | c.2300 – 700 BC                  |             |
| Iron Age –                           | c.700 BC – AD 43                 |             |
| Roman (Romano-British) Period –      | AD 43 – c. AD 410                | Historic    |
| Post-Roman / Early Medieval Period – | c. AD 410 – AD 1086              |             |
| Medieval Period –                    | 1086 – 1536                      |             |
| Post-Medieval Period <sup>1</sup> –  | 1536 – 1750                      |             |
| Industrial Period –                  | 1750 – 1899                      |             |
| Modern –                             | 20 <sup>th</sup> century onwards |             |

**Table 1:** Archaeological and Historical Timeline for Wales.

<sup>1</sup> The post-medieval and industrial periods are combined as the post-medieval period on the Regional Historic Environment Record as held by Dyfed Archaeological Trust





**Figure 1:** OS map showing the location of Solva promontory hillfort and Gribin Ridge hillfort.

Reproduced from the Ordnance Survey 1:25,000 scale Landranger Location map, based on the Ordnance Map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright Dyfed Archaeological Trust Ltd., The Shire Hall, Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AF. Licence No 100020930



## **2. SITE AND LOCATION**

- 2.1 Solva promontory hillfort (SAM PE410, PRN 2780) is located in an area known as Gribin and is owned by the National Trust (Figure 1). The promontory hillfort is a pear-shaped enclosure approximately 56m by 74m, set across a narrow ridge above the inlet to Solva harbour. It is defined by strong scarps, possibly concealing stone walling, and is ditched on the north-east and south sides. Internally there appear to be two circular and two rectangular structures (Coflein).
- 2.2 Gribin Ridge hillfort is located to the northeast of Solva promontory hillfort (Figure 1), approximately midway between this hillfort and Solva defended Iron Age enclosure (SAM PE480, PRN 2798). Gribin Ridge hillfort has not yet been designated as an archaeological asset and therefore not been assigned a PRN. Gribin Ridge hillfort is a probable defended Iron Age settlement and contains a number of likely round house platforms as well as strong scarps.

## **3. ARCHAEOLOGICAL POTENTIAL**

- 3.1 The interior of hillforts are often rich in surviving archaeological deposits and features. Past archaeological excavations within hillfort sites have identified, amongst many other features, rectangular and circular structures constructed of stone and/or timber, storage pits, enclosures, gullies and hearths.
- 3.2 A hearth is essentially a fire pit used for heating, cooking and the processing of natural resources. They would have been an integral part of any prehistoric settlement and can be found associated with areas of habitation and industry.
- 3.3 Identifying the location of hearths could help to determine areas of importance or activity within an Iron Age settlement. Excavation of such areas may provide artifactual or environmental evidence that could give an insight into the lives of the occupants of the Iron Age settlement.

## **4. METHODOLOGY**

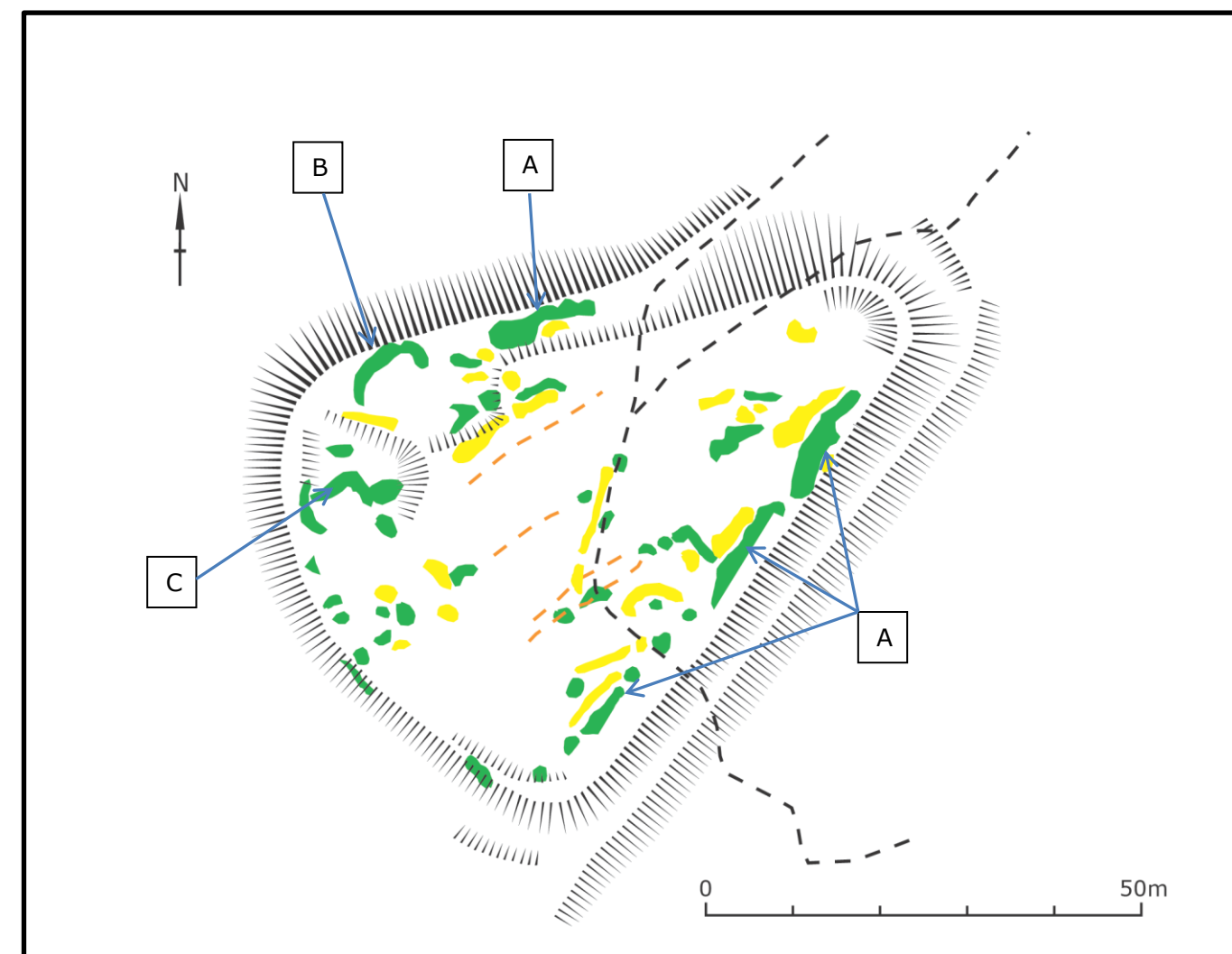
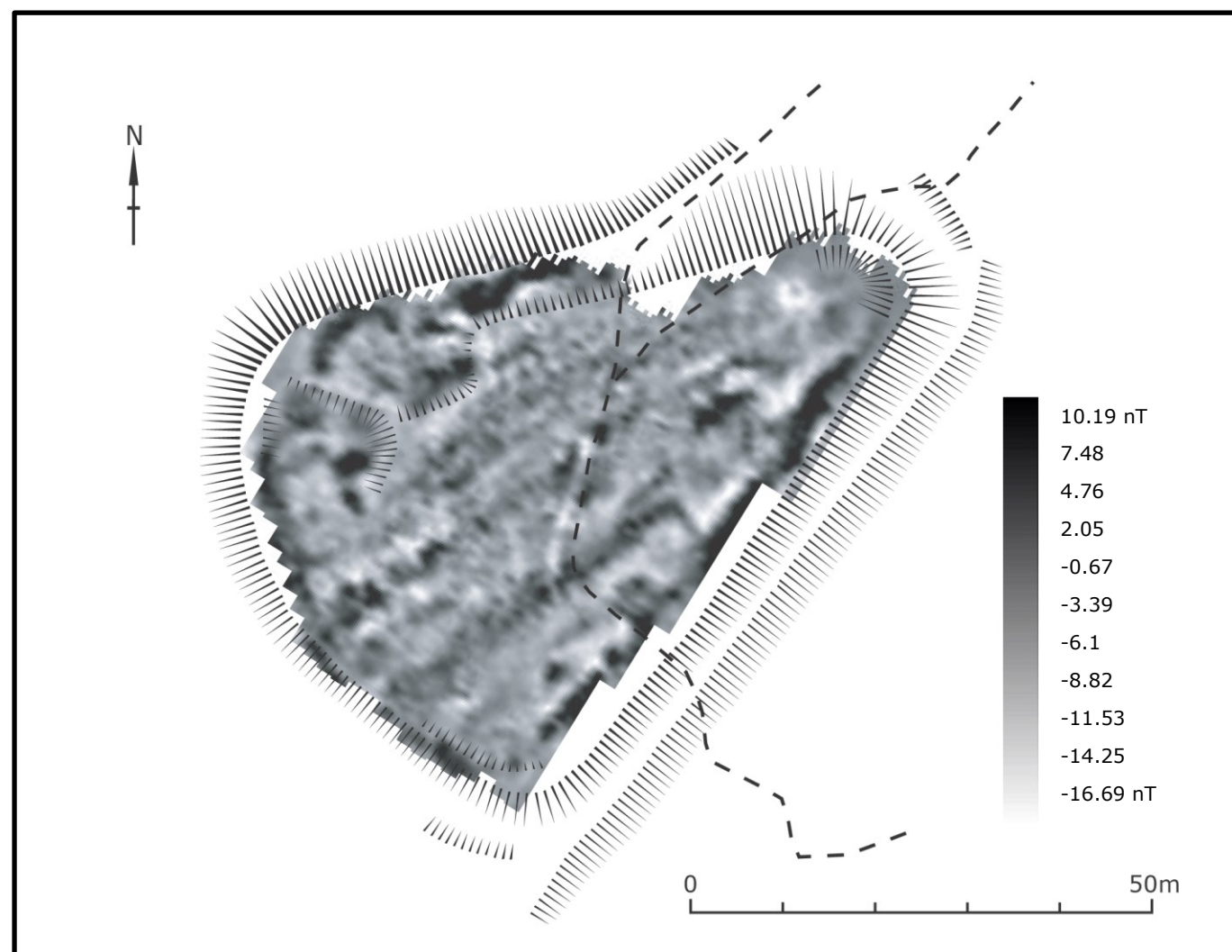
- 4.1 A fluxgate gradiometer with a DL601 data logger was used to conduct the detailed survey, which detects variations in the earth's magnetic field. A sample interval of 0.25m (four readings per metre) was used with 0.5m wide traverses across 20m x 20m grids using the zigzag traverse method of collecting data. The gradiometers sensitivity was set to detect a magnetic variation in the order of 0.1 nanoTesla.
- 4.2 Gradiometer survey is a non-intrusive form of survey requiring an intense walkover of the site area. Grid markers are used (bamboo canes and survey poles) to enable accurate measurements to be made, these are removed at the end of the survey. The survey area will be tied in to the local ordnance survey grid by measuring to fixed points in the landscape.
- 4.3 The geophysical survey within Solva promontory hillfort was conducted along two orientations (north-south and east-west) in order to aid interpretations and increase confidence levels in judgments. At Gribin hillfort the survey was only conducted along a north-south traverse because of the topography of the site.
- 4.4 The data was processed using *Terrasurveyor 3.0* and presented with a minimum of processing. The presence of high values caused by ferrous objects, which tend to hide fine details and obscure archaeological features, have been 'clipped' to remove the extreme values allowing finer details to show through.

- 4.5 The processed data has been presented as a grey-scale plot, overlaid on local topographical features. The main magnetic anomalies have been identified and an interpretation of those results is also given.
- 4.6 The resulting survey results and interpretation diagrams should not be seen as a definitive model of what lies beneath the ground surface; not all buried features will provide a magnetic response that can be identified by the gradiometer. In interpreting those features that are recorded the shape is the principal diagnostic tool, along with comparison with known features from other surveys. The intensity of the magnetic response could provide further information, a strong response for example indicates burning, high ferric content or thermoremnancy in geology. The context may provide further clues but the interpretation of many of these features is still largely subjective.
- 4.7 All measurements given will be approximate as accurate measurements are difficult to determine from fluxgate gradiometer surveys. The width and length of identified features can be affected by its relative depth and magnetic strength.

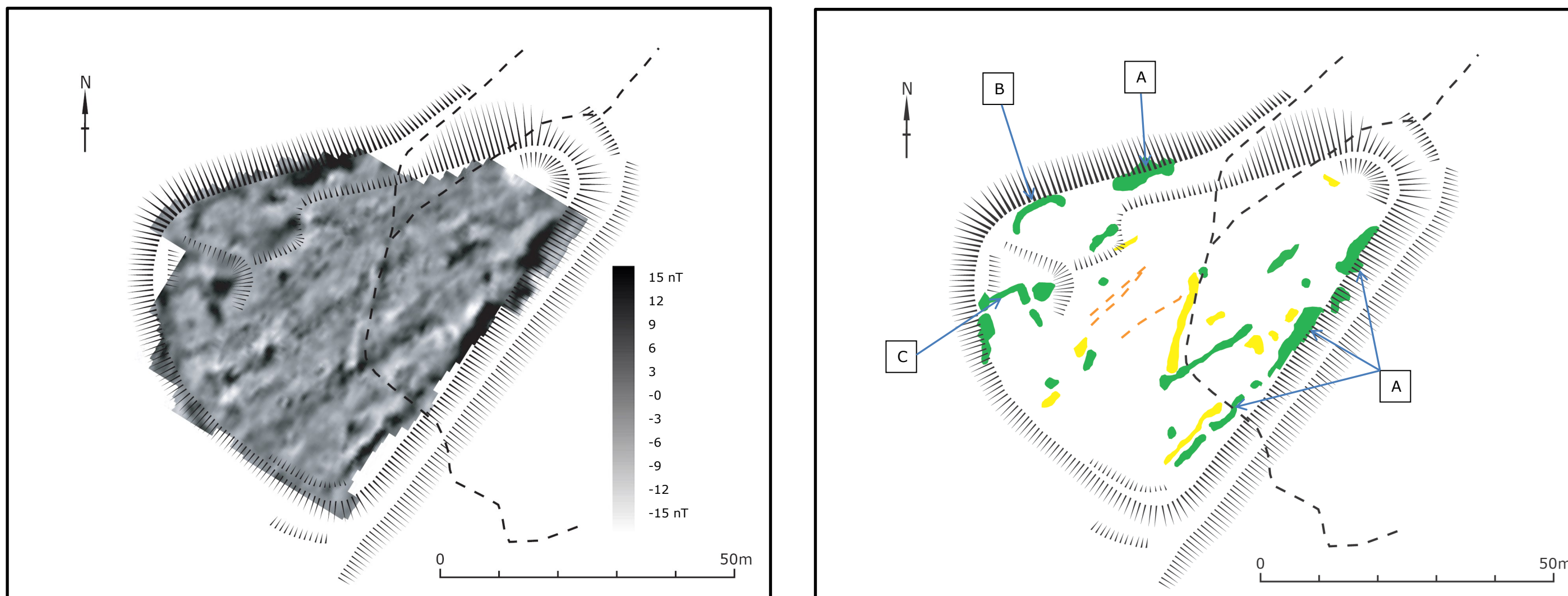
## **5. RESULTS AND DISCUSSION**

### **5.1 Solva promontory hillfort (Figures 2 & 3)**

- 5.1.1 The site was surveyed on the 5<sup>th</sup> and 6<sup>th</sup> of February, 2015. The gradiometer survey was based on 20x20m grids with some partial grids due to constraints of working within the interior of the hillfort.
- 5.1.2 The survey was initially conducted along a north-south traverse and then repeated along an east-west traverse. A graphical representation of the results has been superimposed onto a plan of the site and is provided in Figure 2 (north-south traverse) and Figure 3 (east-west traverse). It may be useful to refer to these greyscale plots in conjunction with the following description of results.
- 5.1.3 The area was generally free from ferrous anomalies that are usually caused by modern interference. Prominent features include areas of high magnetism along the periphery of the hillfort [A], particularly evident along the southeastern boundary but also along the northern boundary. These possibly represent a silted up ditch located inside the ramparts.
- 5.1.4 Noteworthy features detected inside the hillfort include a potential semi-circular feature [B] located against the northern boundary. The feature exhibits a positive response which would suggest an infilled ditch and it may represent a former structure such as a roundhouse c.10m in diameter. In addition to this a possible rectilinear feature [C] can be seen abutting the rampart and could be associated with a former enclosure.
- 5.1.5 A series of weak magnetically enhanced parallel linear features (represented by orange hatching) appear to be running southwest to northeast through the interior of the hillfort and they may represent former attempts to cultivate the land or be the result of natural geological formations.
- 5.1.6 A number of small positive and discrete anomalies were detected across the site that may represent cut features and banks but their character is nebulous which makes it difficult to determine if they have an archaeological or natural origin.



**Figure 2:** Solva promontory hillfort - processed gradiometer survey data (north-south) with interpretation.  
Positive features are represented in green; negative features are represented in yellow; orange hatching represents ostensible linear features.

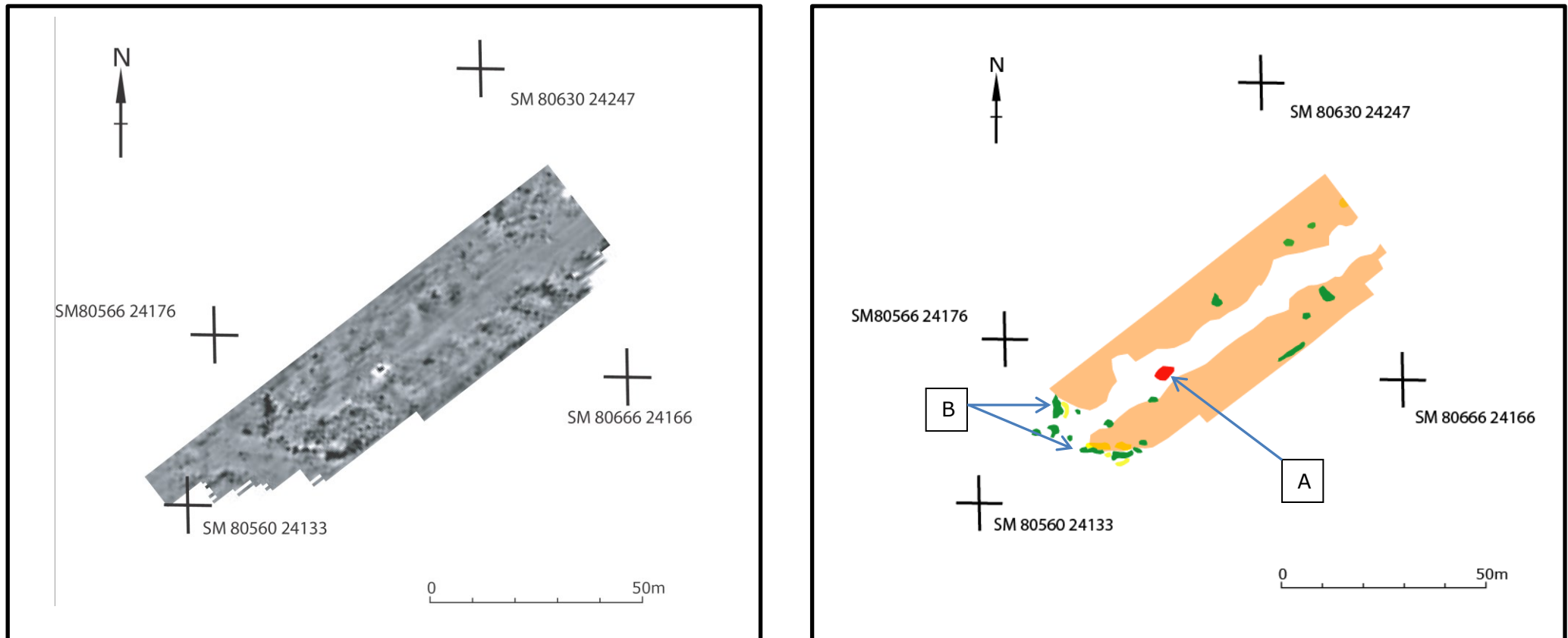


**Figure 3:** Solva promontory hillfort - processed gradiometer survey data (east-west) with interpretation.  
Positive features are represented in green; negative features are represented in yellow; orange hatching represents ostensible linear features.

## **5.2 Gribin Ridge hillfort (Figure 4)**

- 5.2.1 The site was surveyed on the 6<sup>th</sup> February, 2015. Only a minimal area within the interior of the hillfort provided suitable conditions for survey and it was only possible to survey along one traverse, southwest - northeast. A graphical representation of the results is provided in Figure 4.
- 5.2.2 It was difficult to find a sufficiently quiet location within the area of Gribin Ridge hillfort to calibrate the gradiometer, possibly due to the natural geology. The overlying soil layer was thin and friable with frequent outcrops of exposed bedrock. This resulted in the gradiometer having to be calibrated some distance from the survey area which may introduce some discrepancies into the data.
- 5.2.3 As at Solva promontory hillfort the area was generally free from ferrous disturbances. The only ferrous signal detected (represented by a dipole response) is located in the centre of the survey area but this is likely to be emanating from the trig point used for the topographic survey [A].
- 5.2.4 The area through the centre of the survey area is relatively free from noise and is probably the result of erosion caused by the continuous use of the footpath. Either side of the public footpath, the results demonstrate a general disturbance but unfortunately no features are easily discernible in the results. Although there is no obvious cause for the general disturbance it could possibly be archaeological as a number of apparent hut circles are visible in these areas.
- 5.2.5 Towards the southwest of the survey area there appears to be a pair of ditch-like anomalies [B] almost coming together, possibly forming part of the entrance to the hillfort.
- 5.2.6 Apart from the ditch-like features forming a possible entrance there are a number of points entirely positive in polarity. Typically these are caused by cut features that have been infilled and can include pits of archaeological interest but may also represent naturally occurring features.





**Figure 4:** Gribin Ridge hillfort - processed gradiometer survey data with interpretation.

Positive features are represented in green; negative features are represented in yellow; orange hatching represents areas of general disturbance.

## **6. CONCLUSION**

- 6.1 This geophysical survey provides an enhanced interpretation of Solva promontory hillfort and Gribin Ridge hillfort. It is worth mentioning that in comparison to geophysical surveys of other known hillforts the results here are relatively 'quiet' and it is difficult to differentiate with confidence between archaeological and natural features, particularly at Gribin Ridge hillfort.
- 6.2 The results of the two geophysical survey traverses within Solva promontory hillfort correspond with each other which thereby increases confidence in the interpretation but unfortunately repeating the survey in different orientations appears to have added little additional information.
- 6.3 The surveys have been successful in identifying some evidence of a number of typical hillfort features including a potential inner ditch, a possible roundhouse structure and rectilinear enclosure at Solva promontory hillfort and a possible ditched entrance at Gribin Ridge hillfort. However, neither survey was able to detect evidence of intense or prolonged burning activity.
- 6.4 Although the geophysical surveys found relatively little evidence of structures within the hillforts this does not negate the possibility for further archaeology to survive in these areas. Further archaeological features may exist within the hillfort but due to lack of variation in the magnetic susceptibility of the features from their natural surroundings, they may not be possible to detect by geophysical survey alone.

## **7. SOURCES**

### **Databases**

Dyfed Archaeological Trust Historic Environment Record, housed with Dyfed Archaeological Trust in The Shire Hall, Llandeilo, Carmarthenshire, SA19 6AF

RCAHMW Coflein Database <http://www.coflein.gov.uk/>

### **Cartographic**

Ordnance Survey, 2003, 1:25 000, Pembrokeshire.

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**Mawrth 2015**

**March 2015**

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Yn unol â'n nôd i rod-di gwasanaeth o ansawdd uchel, croesawn unrhyw sylwadau sydd gennych ar gynnwys neu strwythur yr adroddiad hwn

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