# GGAT 128: Cwm Nash Cemetery, Monknash Vale of Glamorgan

## Geophysical and Topographical Survey

**March 2013**

A report for Cadw
by Rowena Hart BSc MA
and Dr Tim Young (GeoArch) MA PhD FSA FGS

GGAT report no. 2013/029
Project no. GGAT 128

The Glamorgan-Gwent Archaeological Trust Ltd
Heathfield House Heathfield Swansea SA1 6EL

# Contents Page



# Figures

## Plates Page

## Summary

*A number of reported incidents of human skeletal material being discovered eroding from the cliffs at Cwm Nash have already resulted in two recent response excavations. As further human remains continue to be noted, Cadw have provided a grant following a successful application for funding by GGAT to undertake a geophysical survey of the area and to also conduct a baseline survey of the cliff edge. The geophysical survey included resistivity and magnetometry techniques and was undertaken in order to map the extent of the cemetery area whilst the baseline survey would map the current line of the cliff to which future surveys could be compared and a rate of cliff erosion deduced. Together these data sets will provide for a management plan for the site.*

*The geophysical survey was not able to identify individual grave cuts. The most significant feature revealed by the geophysical survey was a small enclosure, bounded perhaps by a bank incorporating large rocks, adjoining a track and enclosing the area immediately above its descent to the beach. This does not lie on the break of slope in the obvious place for a boundary to the track itself, so its nature and age remain unclear. The known burials all lie outside this enclosure to the north.*

*In summary, the burials were probably interred close to the edge of the terrace, where it sloped down to the beach, just outside a small enclosure of unknown origin. The area of the burials does not appear itself, to have been enclosed.*

## Acknowledgements

The project was managed by Richard Lewis BA MIfA (GGAT Head of Projects) and the fieldwork was undertaken by Dr Tim Young (GeoArch), Rowena Hart BSc MA (GGAT Project Officer) and Charlotte James BA AIfA (GGAT Assistant Project Officer). Tim Young provided the technical expertise both in the field and in the data processing. The report and illustrations were compiled by Tim Young and Rowena Hart. Paul Jones (Senior Illustrator – GGAT) is gratefully acknowledged for producing Figure 1 and for finalising all other illustrations.

Thanks are extended to all the volunteers who played a vital role in the project and collected survey data in all weather. The authors would also like to thank Richard Hamilton for his expertise in high ropes providing the safety harnessing to facilitate the cliff edge survey. The land owner, Mr Robert Hubbard, is also gratefully acknowledged for allowing access to the site and for sharing his extensive knowledge of the area.

# 1. Introduction

## 1.1 Project background

A number of reported incidents of human skeletal material being eroding out from the cliffs at Cwm Nash have already resulted in two response excavations (Locock 1993a; Dunning and Bowen 2011). As further human remains have been noted, Cadw have provided a grant following a successful application for funding by GGAT to undertake a geophysical survey of the area and to also conduct a baseline survey of the cliff edge. The geophysical survey included resistivity and magnetometry techniques and was undertaken in order to map the extent of the cemetery area whilst the baseline survey would map the current line of the cliff to which future surveys could be compared and a rate of cliff erosion deduced. Together these data sets will provide for a management plan for the site.

This project was deigned to be accessible to the public with opportunities to learn both geophysical and GPS survey techniques. GGAT advertised the project to its robust voluntary group which included members of the Arfordir Coastal Heritage Group and to members of the public as a whole. The survey was undertaken between 4 March- 7 March 2013.

## 1.2 Location, geology and topography

Cwm Nash lies on the south Wales coast, 7km south of Bridgend, in the parish of Monknash, Vale of Glamorgan (NGR SS 9044 7020; Figure 1). The bedrock geology is composed of interbedded limestone and shales of the Porthkerry Formation (Lower Lias) overlain by scree deposits. This is cut by steep-sided valleys that contain significant tufa deposits laid down over the last 12,000 years. The small stream (Nash Brook) runs west from Monknash, before dropping into the deep valley of Cwm Nash. At its western extent the valley has been filled by a series of tufa deposits to a depth of 5m (Evans *et al.* 1978, 68). The sequence of these tufa deposits at Cwm Nash are important as they also contain the fossilised remains of land snails which provide a detailed record of the environmental and climatic history of the site (Evans *et al* 1978). This process of deposition is still active in Cwm Nash, with the small cascades and waterfalls being continually coated with lime, demonstrating a rare example of contemporary tufa formation (CCW 2008). At the Nash Brook outlet, the tufa forms a flat platform to the north of the stream, on which the survey area was located. The tufa is overlain by a thin layer of hillwash and covered by a thick layer of turf.

## 1.3 General historical and archaeological background

The site at Cwm Nash forms part of the wider area of Monknash that was part of the land granted to the Monks of Neath Abbey following the conquering of the Lordship of Ogmore by Robert Fitzhamon in the late 11th century (Glamorgan County History 1980, 286). It is from this occurrence that the place name derived its prefix. A church was already present in the vicinity (Williams 1984, 237), which was the parish church. However, when it was granted to the monks along with the land rights, parochial burial and baptism rights were extinguished as Neath Abbey was used instead and the building became a chapel (Green 1906, 75-77).

Early-medieval metalwork (02082s), including a brooch, has been recovered from a field to the northeast of the current survey, and post-Roman re-occupation of the Iron Age forts along the coast, including The Nash to the south and Dunraven to the north, is possible. The numerous

surviving buildings of Monknash Grange have been described elsewhere (RCAHMW 1982, 262-5). Additionally, a number of associated sites have been suggested, including the mill (01585s) at the head of Cwm Nash, a chapel site southeast of Cwm Nash (00398s) and a holy well (00232s) within Cwm Nash itself. The mill has been recently recorded as part of the Arfordir Coastal Heritage project (Bowden 2013). Old grange sites were sometimes retained as burial grounds, for example, Llanfair Gilgoed grange continued to be used for burials into the late 18th century, in addition to Sker (Williams 1984, 235), north of Monknash. No evidence has been found for this practice at Monknash grange.

## 1.4 Site specific background

In 1982, a human long-bone was washed out of the cliff (01584s) and reported to the HER. In 1990, GGAT was contacted by the owner of Blaen-y-cwm, who reported the exposure of human bones by marine erosion, and a site visit recovered part of a skull (Wardle 1991).

The same landowner reported that further exposure had occurred in 1993, which resulted in an archaeological excavation. Three grave cuts were visible in the cliff face and Cadw made funding available for GGAT to excavate the human remains in February 1993. The excavations (Locock 1993a) revealed three well-defined east-west aligned grave cuts. Each grave-cut contained an extended adult burial. The central grave, in addition to the main burial, contained disarticulated remains of at least two further individuals. Furthermore, at the western end a skull had been carefully positioned. The upper parts of the main burials had been eroded, and some of the disturbed bones were recovered from the base of the cliff. The artefactual assemblage provided poor dating evidence, although it concurred with the early Post-medieval date suggested by the radiocarbon determination.

It was concluded that the skeletons were a series of Post-medieval burials, most likely buried as an ‘unofficial’ burial ground by the parishioners of Monknash between 1542-1607. It is possible that following the granting of a license for burial to resume at St. Mary’s, Monknash in 1607, the Cwm Nash burial place continued to be preferred by recusants due to its association with the well and grange, while more Puritan individuals used the churchyard of St. Mary’s (Locock 1993a).

A further excavation was undertaken in 2011 to remove leg bones that were exposed in the cliff face. These were not dated although it was been suggested in the 2011 report that they might be of similar date to those excavated in 1993 (Dunning and Bowen 2011).

Another possible explanation for the presence of human remains at the location is the burial of shipwreck victims. It is well documented that numerous ships have been wrecked on the sand bars in the Bristol Channel adjacent to Monknash and recorded by the RCAHMW. One of the most noteworthy being the sinking of the Frolic in 1831 (Lewis 1833).

# 2 Methodology

Fieldwork was undertaken between the 4th and 7th of March, 2013. Weather conditions were variable, generally cold and at times with heavy rain. The geophysical survey focused on the flatter ground on the terrace between a steep drop to the stream to the south and the valley side to the north. The topographic survey was primarily of the cliff and of visible features within the geophysical survey area. Limited survey of features outside the immediate project area was undertaken to ensure a suitable basis for registration with historic mapping.

*Topographic surveying and grid layout*

The topographic survey was undertaken using a Trimble survey-grade RTK GPS system, employing a Trimble 4700 base and a Trimble 5700 rover.

The base station was located on a prominent cliff-top location to the south of the survey area, to ensure maximum GPS reception. Base station data were logged to the receiver. Grid layout was undertaken in RTK mode and subsequent surveying in PPK mode. All data were processed in Trimble Geomatics Office (TGO), using Rinex data from the OS Passive Network. Conversion of raw datafiles into a form suitable for processing in TGO was undertaken using Trimble's RinexConvert utility and v1.5 of the RinexDates utility from Christof Lambrecht.

The survey grids were laid out using paint spray marks and bamboo canes (Figure 2).

*Magnetic gradiometry*

Magnetic gradiometry was undertaken with a Bartington Grad 601 Dual fluxgate gradiometer: Data were collected at 0.125m intervals on traverses 2m apart (giving data traverse interval of 1.0m; single density). Grids were walked in parallel, in a downslope direction, to reduce walking errors.

Data were downloaded from the instrument, assembled and cleaned using DW Consulting's 'Archeosurveyor 2' software. The grids were assembled, the data clipped and the destriping function employed for data in which there was an imbalance between the two component gradiometers. In practice the destriping was undertaken using the 'mean' method (with the threshold progressively increased until the striping was largely removed, typically at 1.0 SD).

*Ground Resistivity*

The ground resistivity surveys were undertaken with a Geoscan RM15 resistivity meter, operating with three mobile electrodes with 0.5m probe spacing, on a PA5 frame, via an MPX15 multiplexer. In this configuration, the system operated as two parallel twin electrode pairs with a 0.5m centre spacing and 0.5m probe spacing (giving the main component of the response from 0.5-0.7m depth), with 1m between centres, to give a 1m effective traverse interval. Data were collected on 20m grids, walked in parallel pattern, with 0.5m sample interval (i.e. the raw data grid has 0.5 x 0.5m node spacing).

Initial data processing in Geoplot was limited to removal of any minor data spikes (due to poor electrode contact). Data were exported from Geoplot and imported to Golden Software's Surfer. The remotes electrodes were not moved during the survey and the grids required no edge-matching.

In addition to the simple exported data, the data were further processed using a high-pass filter, to remove some of the underlying trends of geological origin and thus make the smaller

anomalies of archaeological origin clearer against a more constant background. This filtered dataset was also exported for imaging in Surfer.

*Data presentation*

All geophysical data are presented as raw (pixellated) data (Figures 6 and 8) and as interpolated versions to a 0.125m grid by imaging in Golden Software's *Surfer* software where required. *Surfer* was also employed for the preparation of all site plans, before final graphics were prepared in *CorelDraw*.

*Standards for geophysical survey*

The geophysical survey was conducted in accordance with English Heritage guidelines *Geophysical Survey in Archaeological Field Evaluation (2008)* and *IfA Standard and Guidance for Archaeological Geophysical Survey (2011).*

# 3 Results

## 3.1 Topographic Survey and Map Regression

The general setting of the site is on a terrace, at least partially of tufa-like calcareous deposits, which overlies an earlier scree, which in turn rests on the buried bedrock slope. In historic times a track led down the terrace to the beach, descending down a gully, of which only the upper part survives. The lower part of the route of the track to the beach has now been truncated by coastal erosion.

The lower leg bones of two bodies were exposed at the cliff face at the time of survey and their positions recorded by GPS. These positions were:

- Skeleton 1(Southern most) 290483.68,170045.55, 14.07mOD (i.e. c. 0.4m below surface) (Figs 3, 4, 5, 6 and 11).
- Skeleton 2 (Northern most) 290478.77, 170051.73 , 14.22mOD (i.e. c. 0.40m below surface) (Figs 3, 4, 5, 6 and 11).

The topographic survey results show, in combination with map regression (Figures 3, 4, 5 and 6), that in the area of the evidence for burials (the northern and southern crosses on Figure 12 show the location of burials exposed at the time of survey; the central cross indicates the location of that excavated in 2011) there has been rather little retreat of the cliff top during the last 130 years. The quality of the successive historical surveys and the accuracy of their registration, means that detailed estimates of retreat are not possible. However, it would appear that the majority of the observed retreat in the cliff top is since the survey published in c. 1920 (although a lack of revision of 1870s linework through the various revisions of the 1st Edition might also explain the apparent stability of the coast during the preceding 40 years). The area of the maximum cliff top retreat would appear to be in the area of the southern exposed burial and is estimated to be of less than 4m. This figure decreases rapidly to both north and south, reducing to almost no retreat greater than 15m to the north and 5m to the south.

The map regression and survey suggest, however, that there has been a much greater rate of retreat of the foot of the cliff. Indeed, the historic surveys suggest that a sub-vertical cliff may be relatively modern, with a much gentler slope in the past, down which descended the main trackway along the terrace. The mapped foot of the slope appears to have retreated approximately 8m in the area of the burials – meaning that the topography has become very much steeper than it was historically. As with the retreat of the cliff top, the cartographic evidence suggests that this retreat has occurred since 1920 (with the same provisos as with the estimate of cliff top movement discussed above), with the trackway descending to the beach being indicated on OS maps as late as the 1970s.

Further south than the burials, in the area where the track once descended to the beach and southwards towards the stream, the rate of erosion is harder to quantify. Historic mapping suggests the side of the terrace descended very gradually to beach level. The shingle may now extend 6-10m further east than it did a century ago and the present low cliffs are likely to be of relatively recent origin.

Overall, the survey and map regression study indicates that the erosion of the cliff has been substantially less than local anecdotal accounts might suggest. A maximum loss of 3.5 to 4m since 1920 seems indicated, with that loss concentrated in a small area near the burials and

possibly in the area just north of the stream.

**Plate 1. Cliff edge survey**

**Plate 2. Panoramic view of the cliff. View to the east.**

## 3.2 Geophysical Survey

The ground resistivity survey (Figures 7, 8 and 9) shows a prominent, but somewhat diffuse positive anomaly running ENE-WSW across the survey area (pale green tone on Figure 12). To the east, this anomaly lies immediately north of the line of the modern path (and previously the trackway marked on historic mapping), but has no topographic expression. To the west, the discontinuous section of the anomaly coincides with a topographic ridge, bounding the hollow through which the track passed down to the beach. This anomaly is interpreted as either produced by the buried remains of a bank along the northern side of the track, or by a free-draining 'shoulder' to the north of a slightly sunken trackway.

The line of the track is marked, to the east, by narrow linear negative resistivity anomalies (dark green lines on Figure 12), which may indicate damper conditions on the modern path (or its precursors) or along former vehicle ruts. Similar narrow negative anomalies are seen in the central northern part of the survey corresponding to a modern path and to the line of a track marked on the historic mapping, leading up the slope to the 'summerhouse' on the hill above.

To the south of the track in the eastern part of the area there are several small negative resistivity anomalies (dark green on Figure 12). These may be natural hollows, but local accounts suggest that there may also have been defensive 'foxholes' dug in this area during WWII.

Close to the coast there is a marked narrower positive anomaly running inland from the cliff, parallel to the line of the former track and about 10m to the north of it. To the east this anomaly swings south and ends close to the line of track. There is no significant topographic expression of this feature, except very close to the cliff, where it corresponds to a slight ridge. In the cliff section, the intersection of the line of this anomaly is marked by a series of large boulders below the turf. The anomaly is interpreted as indicating the line of a buried boundary, perhaps a field boundary, marked by large stones or boulders.

The magnetic gradiometer survey is dominated by a large number of very strong anomalies indicating ferrous materials. Although the edge of the cliff might develop a minor magnetic anomaly in its own right, these very strong anomalies can be taken as being indicative of a series of large ferrous objects close to the cliff edge. At one point, a few metres north of the southern burial a large iron girder is visible extending horizontally into the cliff at a lower level than the burial. Although some of these anomalies might be due to modern litter, the size of the anomalies and their location strongly suggests that they are associated with a former ferrous structure adjacent to the cliff. There are local anecdotal descriptions of the strength of the coastal defences here in WWII, and it seems likely that these anomalies represents surviving elements of those defences, particularly since the evidence presented above suggests that much less cliff-retreat has taken place since the 1940s than previously suspected.

Minor dipolar anomalies on the eastern parts of the site indicate further ferrous artefacts.

A minor positive magnetic anomaly is visible, but poorly imaged, running along a line corresponding to the northern edge of the possible stony boundary seen on the resistivity survey. It is unclear whether this merely indicates the northern side of that mound, or whether there is a separate cut-feature to its north.

The geophysical surveys provide no information as to the presence of any further gravecuts. The burials observed in the cliff were placed in very small grave-cuts that would be very difficult to image by geophysical means (the cut into the underlying tufa-like marly material is less than 300mm wide and 200mm deep in the more clearly seen northern grave). It may be significant that all three visible graves lie outside the area enclosed by the stony bank. A very subtle area of low, but variable resistivity, lies inland of the burials, perhaps extending 10m eastwards along the northern side of the boundary, but there is no clear indication that the characteristics of this area are due to it containing further graves.

**Plate 3. Day 1 - Volunteers undertaking resistivity survey**

**Plate 4. Day 3 - Volunteers undertaking geophysical survey**

**Plate 5. Day 3 - Volunteer undertaking magnetometer survey**

# 4 Discussion

The survey and the associated map regression have demonstrated that the steep, high, cliff above the beach at Cwm Nash may be a relatively recent topographic feature. Up until at least the time of the 2nd revision of the OS 1:2500 map, published in 1920, there appears to have been a more gentle slope down to the beach from the end of the terrace. The track down the western side of the valley from Blaen-y-cwm to the coast (now reduced to a footpath) originally passed along the terrace, descending to the beach by curving around this slope just to the south of the location of the burials. Coastal erosion since 1920 appears to have steepened the slope into a cliff, truncated the track and probably also eroded the area immediately north of the mouth of the stream.

Three burials were excavated from the site in 1993 (Locock, 1993a). Unfortunately, the location of the approximately 3.8m x 1.6m trench dug to cover the surviving parts of the three graves (see Locock 1993a, Figure 3, but note the scale is erroneously labelled 4m not 2m) was recorded only on a sketch map (Locock 1993a, Figure 2). Establishing a 'best-fit' between this sketch map and the current survey data suggests that the trench lay immediately to the north of the northern burial recorded in the cliff in the present study (see Figure 12). This 'best fit' location would suggest that the northern presently-exposed burial may also have also lain within the excavated area, but was not recognised. If the 1993 excavated area lay further south, then one of the exposed burials dug by Dunning and Bowen (2012) must have lain, unnoticed, within the excavated area. The three articulated burials found in 1993 were accompanied by disarticulated bones and further bones were recovered from the beach. A total of fourteen individuals was possible, but it is possible the beach finds included material from the other burials now known, which must have been eroding at that time.

One of the three articulated burials (012) was radiocarbon dated (CAR-1477; 170 +/- 60 BP). A calibrated date was quoted by Locock (1993a, p. 22) as AD 1510-1530 or AD1620-1850. Applying the current OXCAL calibration to this date gives a calibrated age of Cal. AD 1648-1953. Locock's (1993) interpretation was that the site might have been an 'unofficial' burial ground for the inhabitants of Monknash between 1542-1607 (the Parish Church of St Mary did not gain burial rights until 1607), despite the evidence that the dated grave was rather younger. The present evidence seems insufficient to pronounce on the status of the cemetery, but the fact that all sexed burials were male may suggest that the cemetery was something other than a regular burial ground and the possibility that it was for ship wreck victims cannot be excluded.

The three burials excavated in 1993 were orientated ENE-WSW, with heads to the west, as are the two exposed burials and the single one excavated in 2011 (Dunning and Bowen, 2012). The eastern ends of the three graves excavated in 1993, that of the grave excavated in 2011 and the likely position of the southern presently-exposed burial are in an approximately straight alignment, almost parallel to the cliff top. The northern of the currently exposed burials appears to lie a little further seawards.

Locock (1993a, Figure 2) mapped various topographic features on the adjacent terrace, one of which he tentatively identified as a house. This feature is identifiable on the present geophysical results as a localised feature, possibly a hole with upcast to the NE, that cuts the linear enclosure boundary. The geophysical results in this area do not support an interpretation as a house and an origin as part of the WWII defences is possible.

The burials still present in cliff are represented by bones of the lower legs; with the skeleton's orientation with head to the west, this demonstrates that at least 1.5m must have been eroded from the cliff since the time of burial. Within the constraints of the rather crude graphical representation of the slope on the historical mapping, it would appear that top of the slope was approximately 1.5m west of its present position near the northern burial and 4m west of its present position near the southern burial, between 1880 and 1920. Thus the available evidence is compatible with there being appropriate space for the burials at any time prior to 1920. Also, prior to 1920 direct access to the location of the burials from the beach might have been significantly easier than it would now be.

The cliff top has moved only a short distance since the 1940s and the cliff-top defences, perhaps horizontal ferrous beams to support barbed wire to prevent access up the cliff, are the most likely explanation for the strong magnetic anomalies. These same anomalies prevent the magnetic survey providing any data pertinent to the search for graves in the immediate cliff top area. The ground resistivity data provide a slight hint of disturbed ground in the area, but no definite indication of grave cuts. This area extends inland, narrowing eastwards, with a suggestion of a somewhat rectilinear termination at about the mid-length of the enclosure to the south.

The most significant feature imaged by the geophysical survey is a small enclosure, bounded perhaps by a bank incorporating large rocks, adjoining the track and enclosing the area immediately above its descent to the beach. This does not lie on the break of slope in the obvious place for a boundary to the track itself, so its nature and age remain unclear. The known burials all lie outside this enclosure to the north.

# 5 Conclusion

The geophysical survey was unable to provide detailed information as to the presence of any grave cuts in the survey area. Even the known grave cuts as seen from the cliff face were not imaged. This is most likely due to the very shallow nature of the cuts. These shallow cuts do not penetrate the underlying tufa by significant depths or widths to vary the conditions of the ground in suitable manner to be detected by the geophysical techniques.

It can be deduced that the area of the burials was close to the edge of the terrace, where it sloped down to the beach, just outside a small enclosure of unknown origin. The area of the burials does not appear, itself, to have been enclosed.

The base line survey of the cliff edge has provided a start point from which future surveys can compare and an erosion rate calculated.

The initial stage of any proposed management plan would be to excavate the two burials visible at the cliff face at present time. At both locations the bones visible are the proximal ends of the tibia and fibula. This leaves the lower leg and feet (if complete) to be excavated. Following this excavation it would be recommended that a consultation between Cadw, NRW, GGAT, Mr Robert Hubbard (Landowner) and other interested parties to develop a management plan for the site.

The site would benefit from additional research to further identify the features revealed by the geophysical survey. As the stone boundary imaged by the geophysics is of unknown date and function it would be significantly informative to excavate an evaluation trench across this feature to ascertain dating and function evidence. To discover how this feature relates to the cemetery would be important in further understanding the site. If the feature is earlier than the burials then a rationale for selecting this as a cemetery area may be illuminated. Contrastingly the enclosure may date to the WWII activity at the site and provide a platform for further evaluation trenches targeted over the other WWII features to find out the exact nature of the defences so that they can be added to the local and national record of WWII sites. This further work would lend itself to a community project with volunteers being offered training and experience in archaeological excavation and research.

## Bibliography

Bowden, R, 2013, *GGAT 103: Arfordir Coastal Heritage 2012-13*. GGAT Report No. **2013/022**

CCW, 2008, *Monknash Coast Site of Special Scientific Interest*.

Dunning, R and F, Bowen, 2012, *GGAT 115: Cwm Nash, Monknash, Vale of Glamorgan.*

English Heritage, 2008, *Geophysical Survey in Archaeological Field Evaluation.*

Evans, J G, French, C and Leighton, D, 1978, "Habitat change in two Late-glacial and Post-glacial sites in southern Britain: the molluscan evidence" in Limbrey, S and Evan J G (eds.) *The Effect of Man on the Landscape: the Lowland Zone, Council for British Archaeology Research Report* **21**, 63-74.

GCH, 1980, *Glamorgan County History 3: The Middle Ages*, Glamorgan County History Trust.

Gittings, C, 1984, *Death, Burial and the Individual in Early Modern England*, Routledge.

Green, C A H, 1906, *Notes on Churches in the Diocese of Llandaff*, T.E. Smith.

Institute for Archaeology, 2011, *Standard and Guidance for Archaeological Geophysical Survey.*

Lewis, S, 1833, *A Topographical Dictionary of Wales*.

Locock, M, 1993a, *Excavations at Cwm Nash, Monknash, South Glamorgan*, GGAT report No. **93/068**.

Locock, M, 1993b, Cwn Nash, Monknash (SS 905 701), Archaeological notes, *Morgannwg* Vol. **37**, 107.

RCAHMW, 1982, Royal *Commission on Ancient and Historical Monuments in Wales: An Inventory of the Ancient Monuments in Glamorgan 3ii (Medieval Secular Monuments: Non-defensive)*, HMSO.

Wardle, P, 1991, "Cwm Nash, Monknash", *GGAT Annual Report 1990-1991*, **20**.

Williams, D H, 1984, *The Welsh Cistercians*, Cyhoeddiadau Sistersiadd.

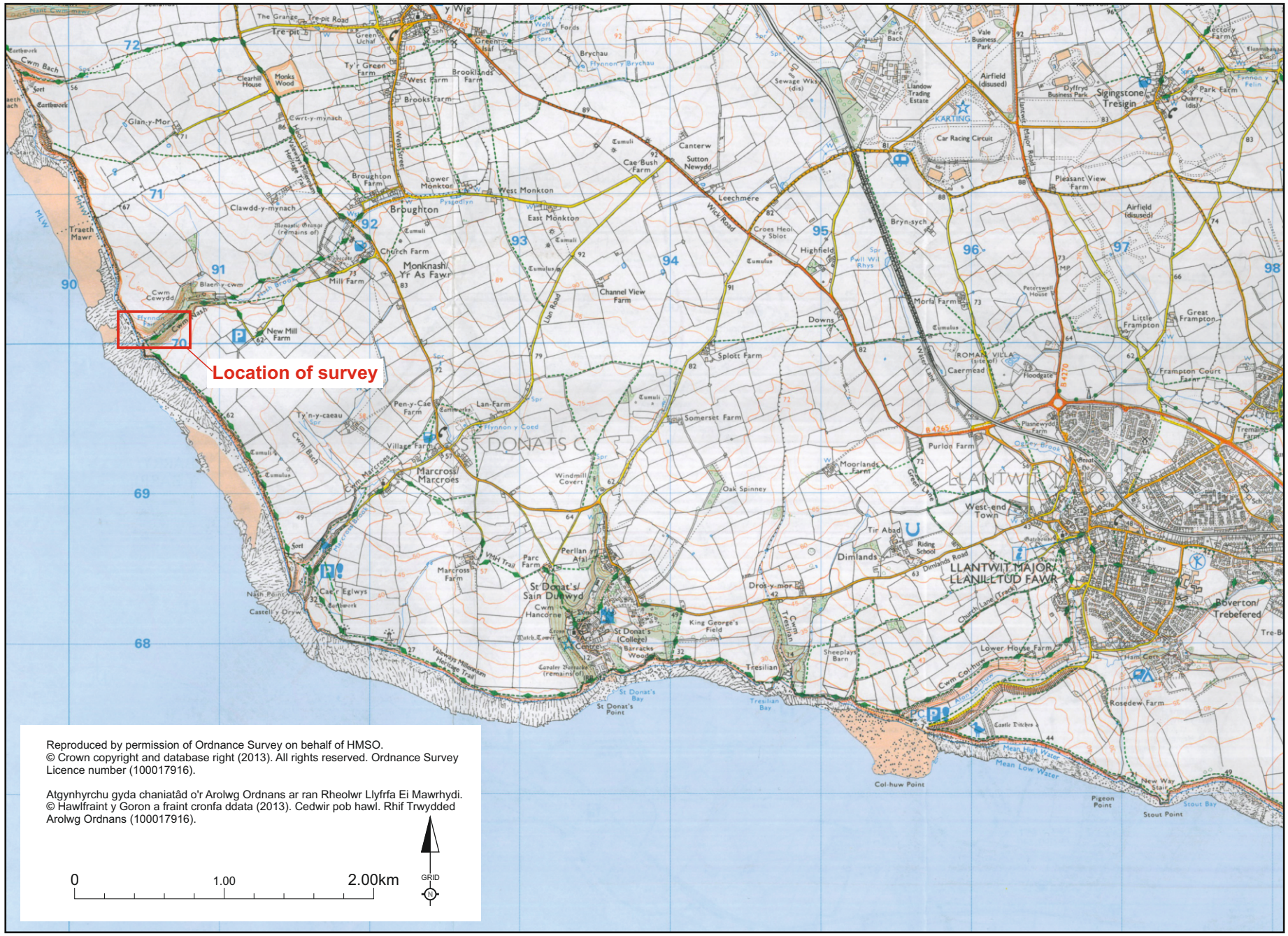


**Figure 1**. Site location.

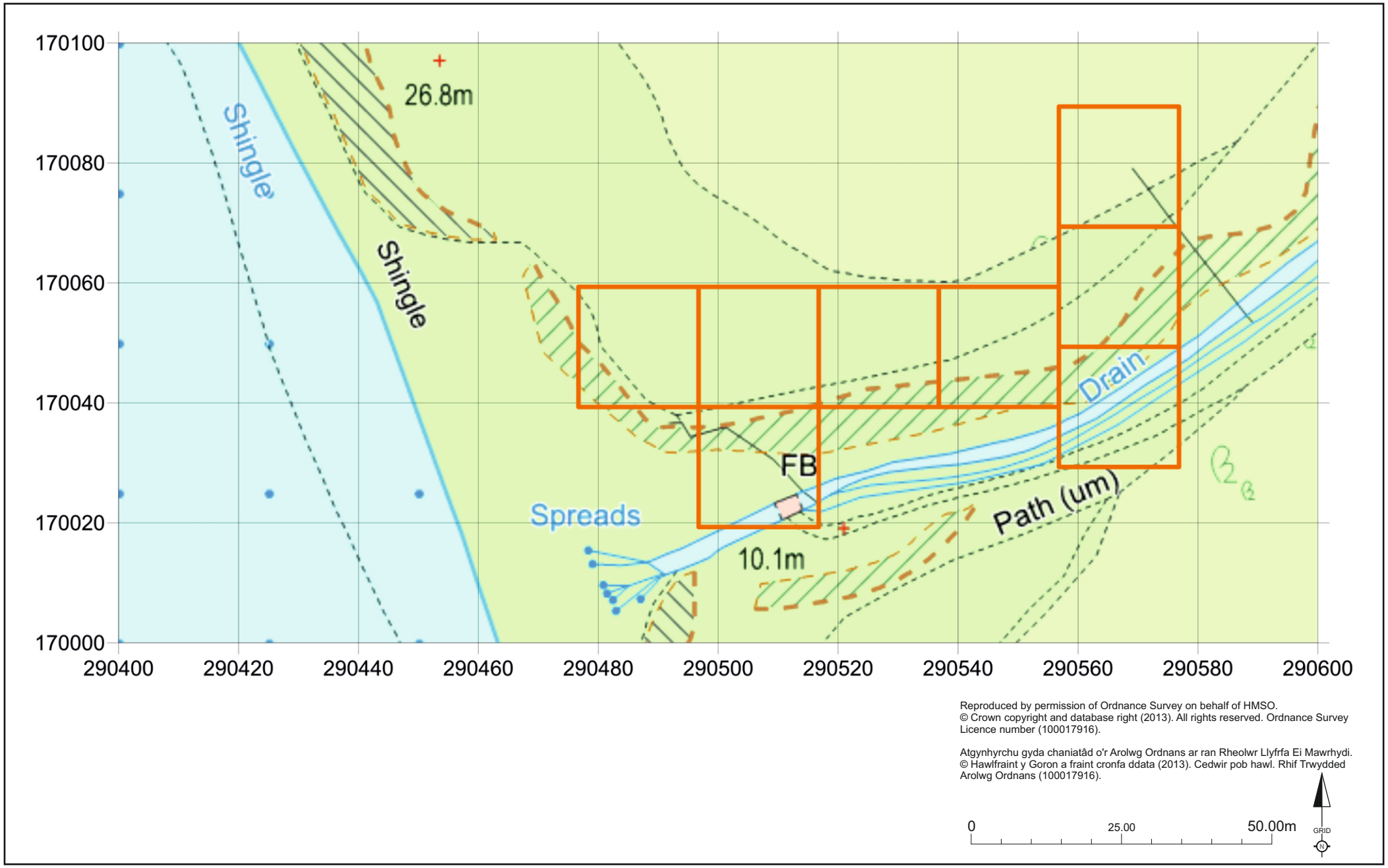


**Figure 2**. Geophysical grids, displayed against current OS Mastermap 1:1250 base mapping.

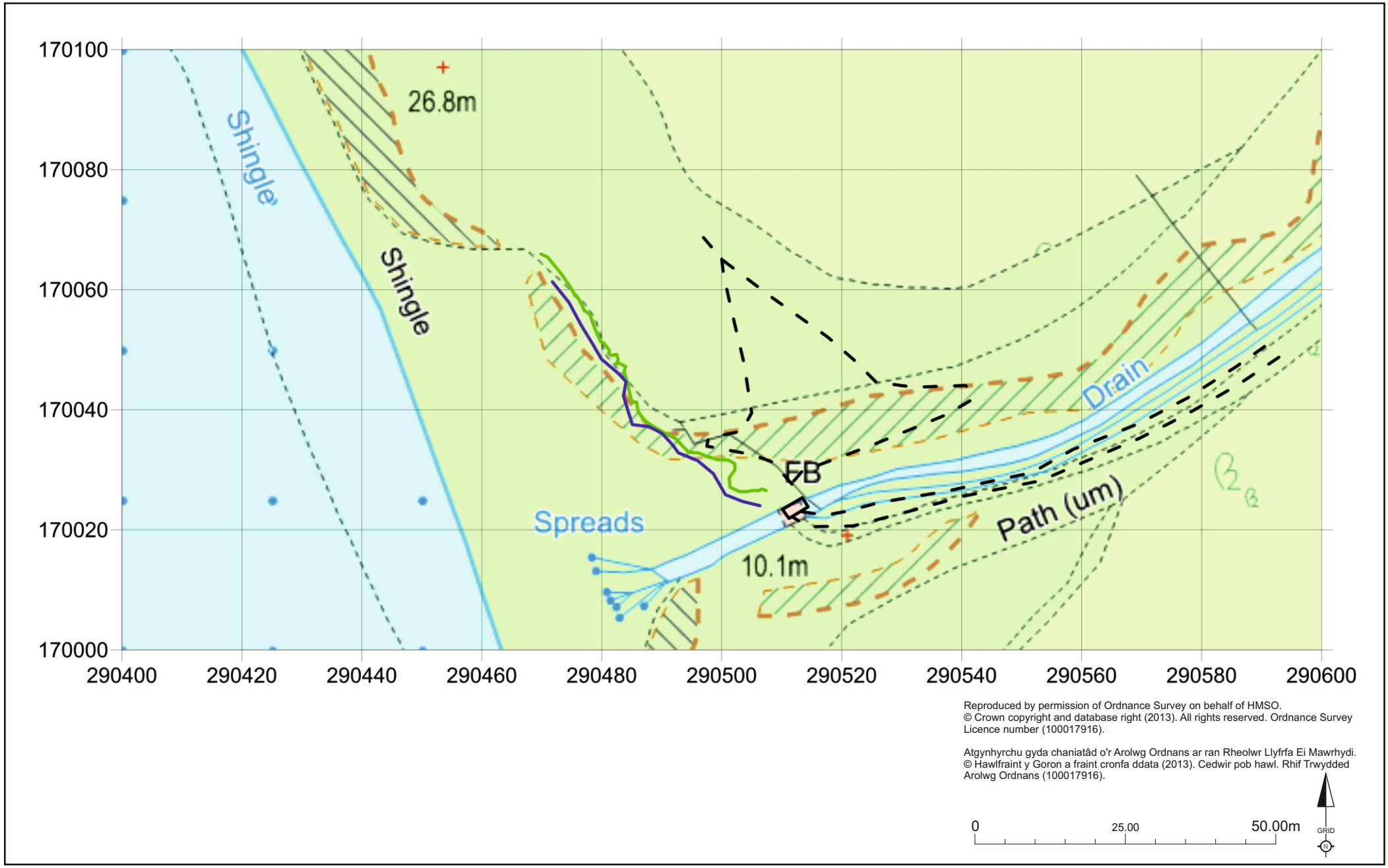


**Figure 3**. Surveyed features, displayed against current OS Mastermap 1:1250 base mapping. Black lines indicated tracks and paths, green line cliff top, blue line cliff base.

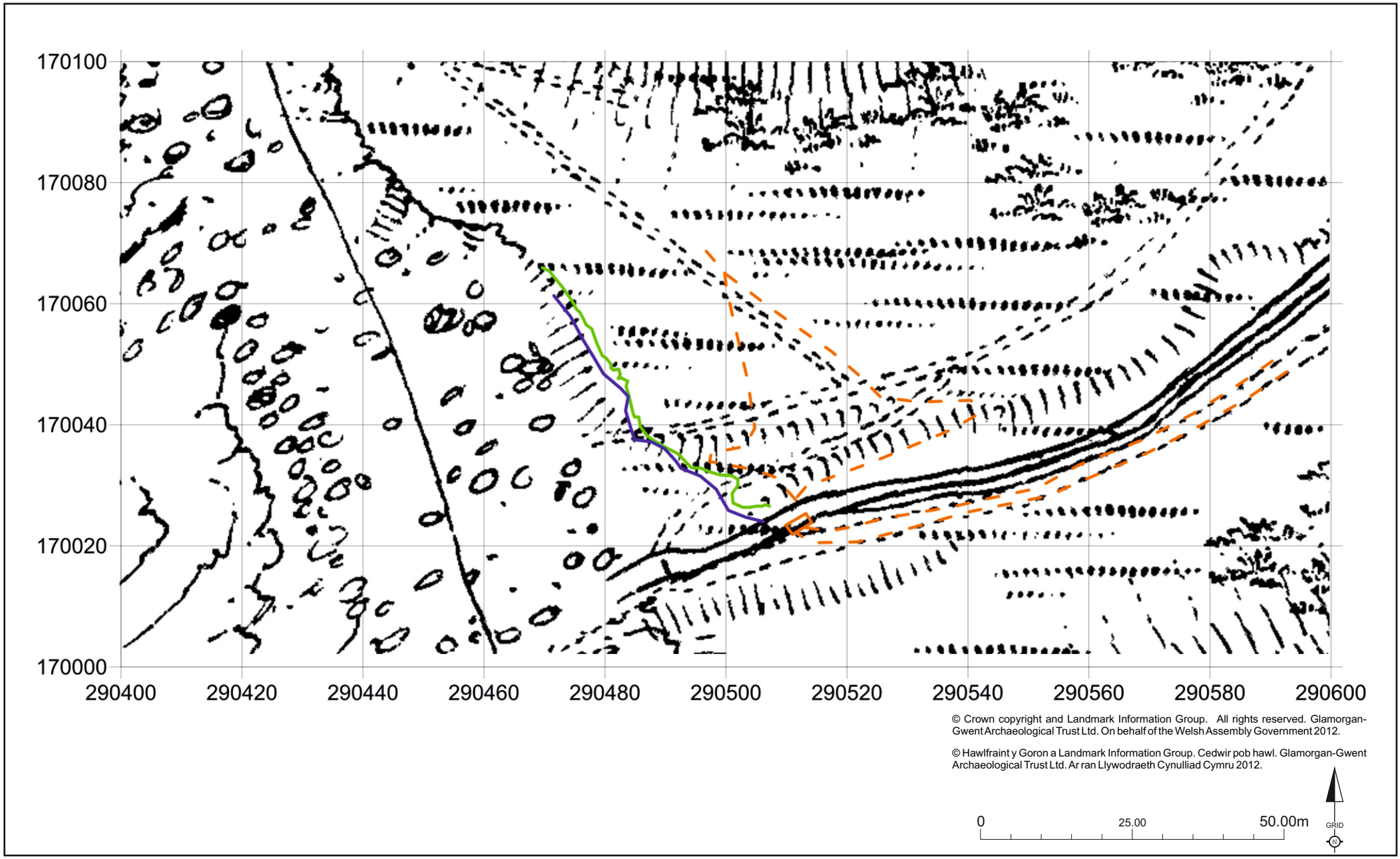


**Figure 4**. Surveyed features, displayed against 1st Edition County Series OS 1:2500 base mapping (published 1877-78). Orange lines indicated tracks and paths, green line cliff top, blue line cliff base, orange line modern path.

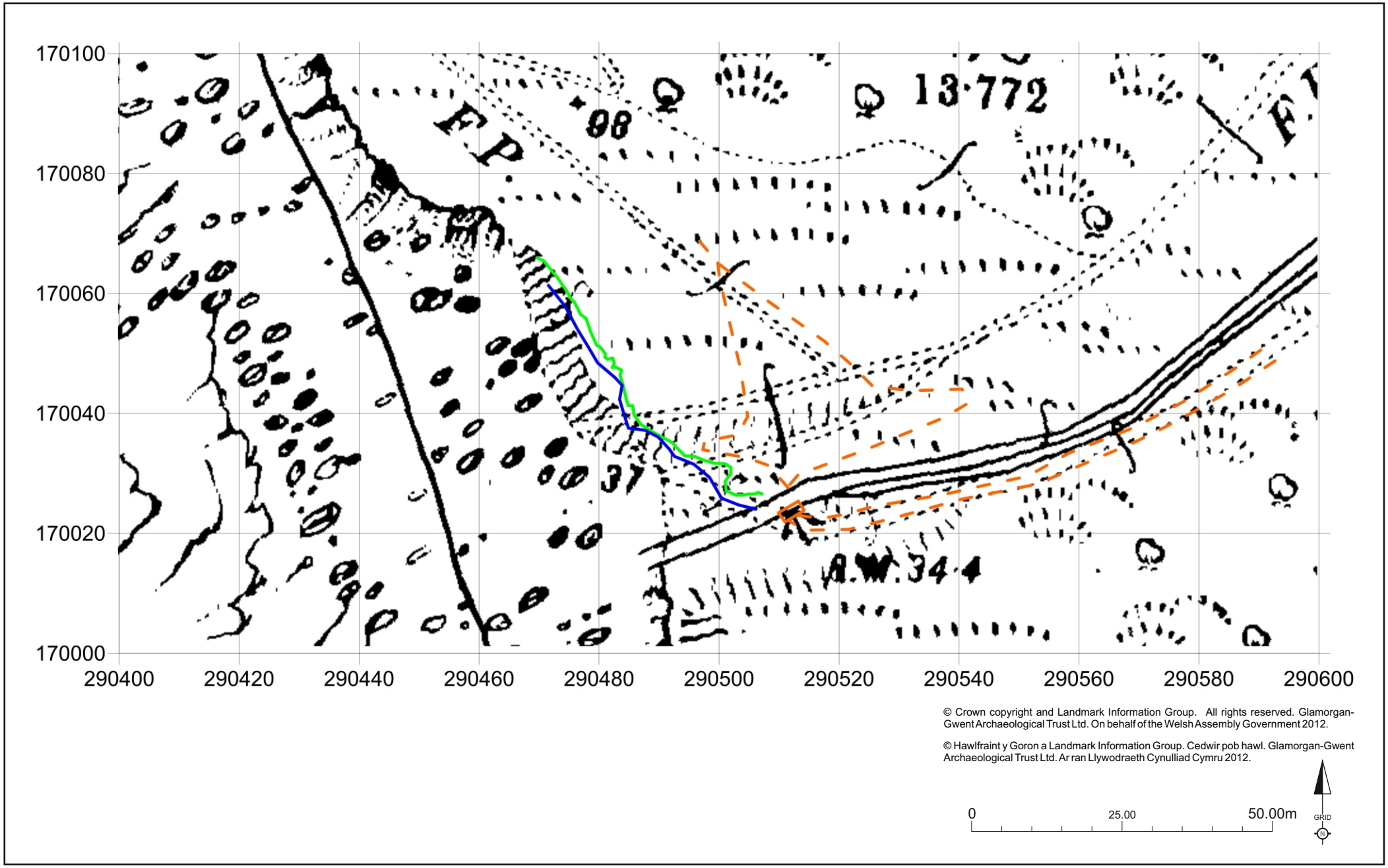


**Figure 5**. Surveyed features, displayed against 1st Revision County Series OS 1:2500 base mapping (published 1899). Orange lines indicated tracks and paths, green line cliff top, blue line cliff base.

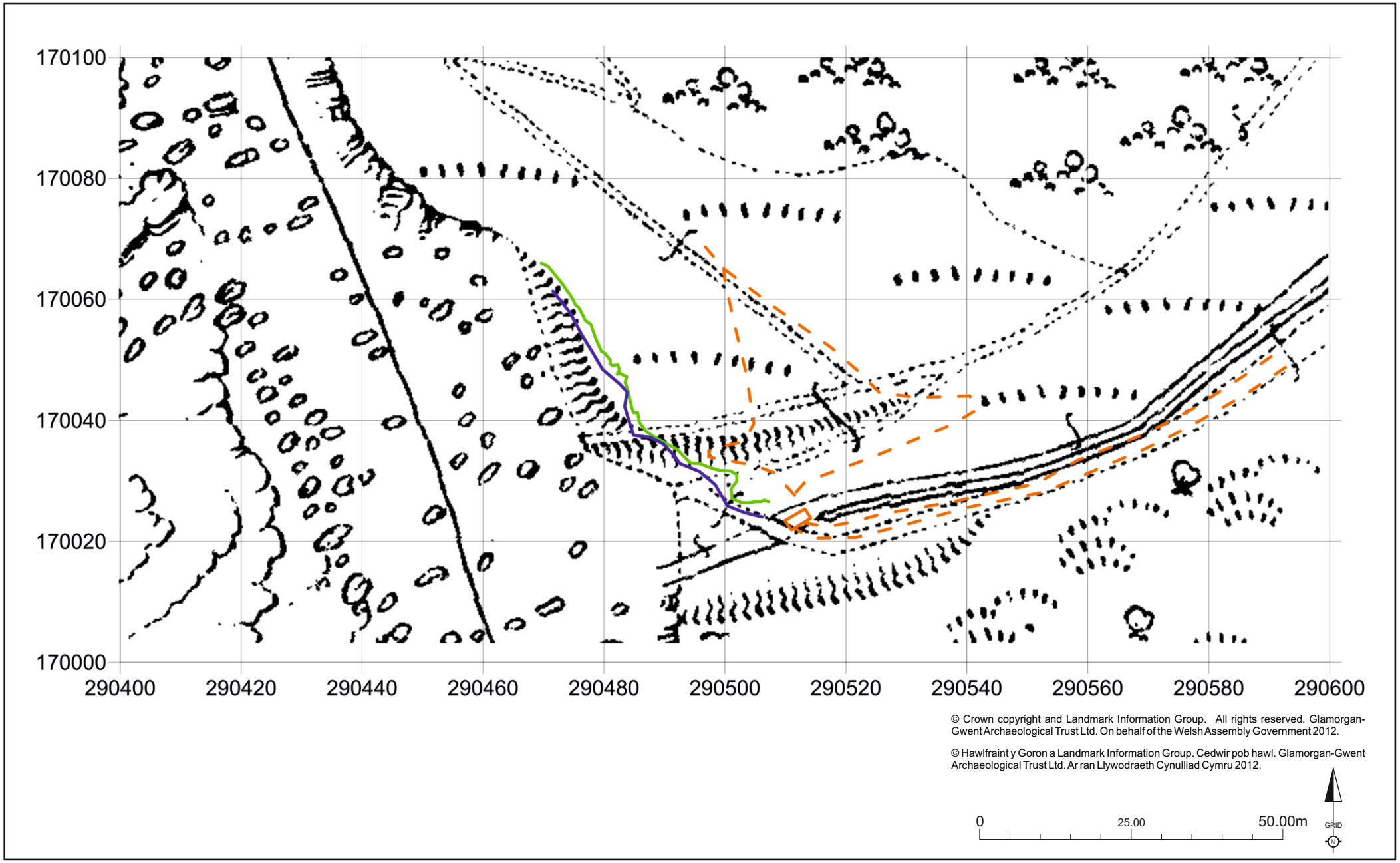


**Figure 6**. Surveyed features, displayed against 2nd Revision County Series OS 1:2500 base mapping (published 1918-1920). Orange lines indicated tracks and paths, green line cliff top, blue line cliff base.

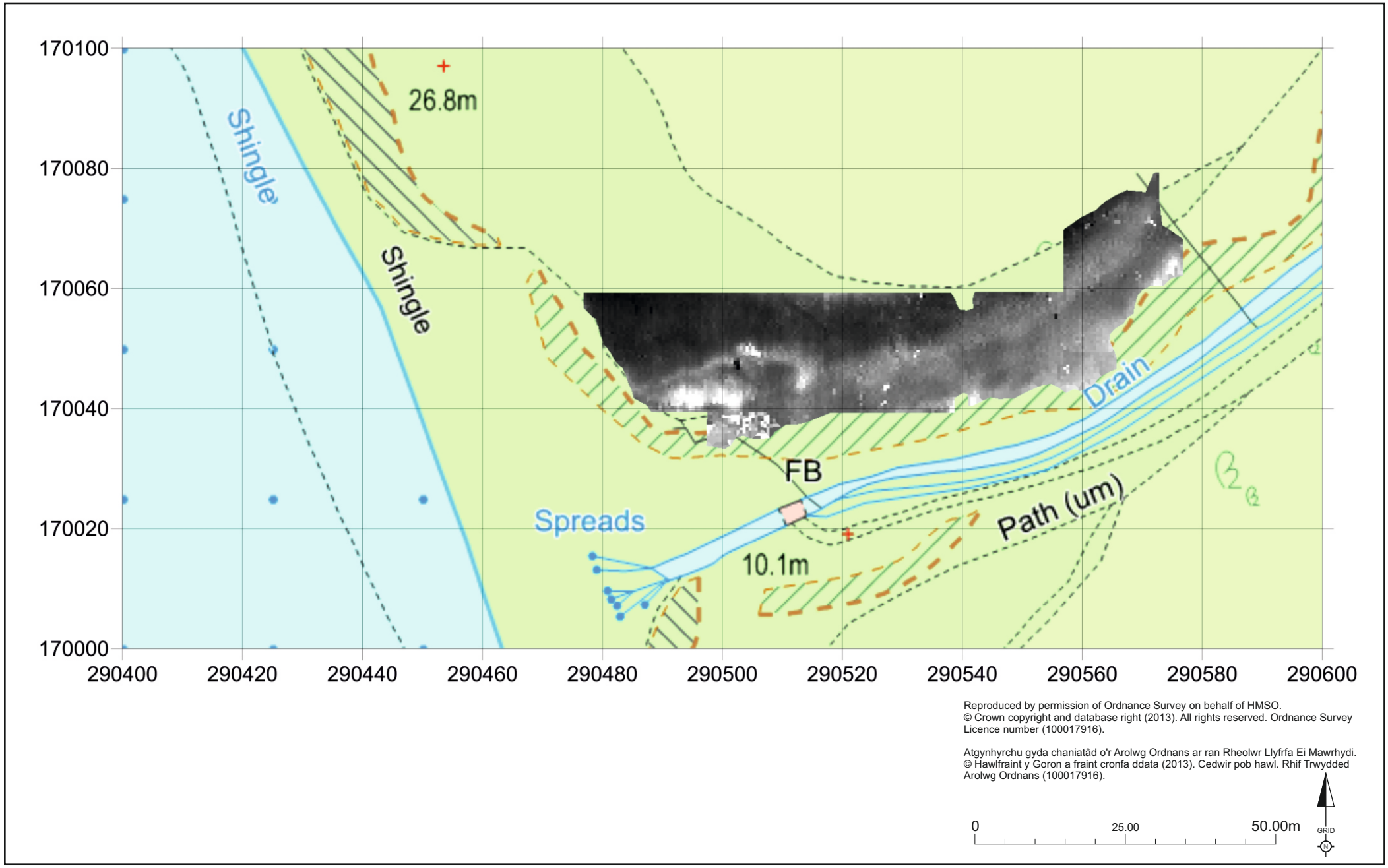


**Figure 7**. Ground resistivity survey, displayed against current OS Mastermap 1:1250 base mapping.
Greyscale: 25Ω measured resistance (black) to 40Ω measured resistance (white).

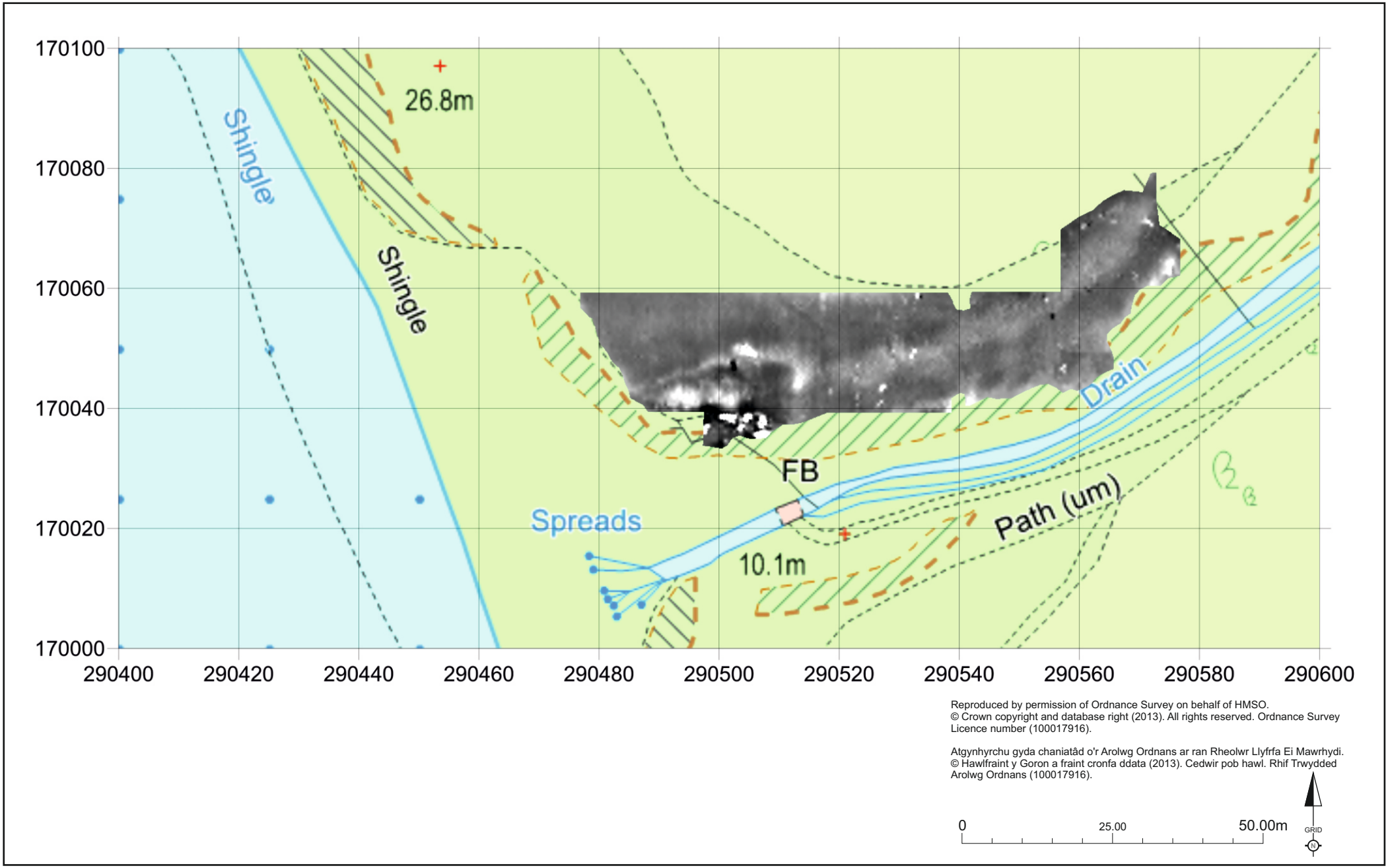


**Figure 8**. Ground resistivity survey after high-pass filtering, displayed against current OS Mastermap 1:1250 base mapping. Greyscale: -10Ω measured resistance (black) to +10Ω measured resistance (white).


**Figure 9.** Ground resistivity survey after high-pass filtering, displayed against 1st Edition County Series OS 1:2500 base mapping (published 1877-78). Greyscale: -10Ω measured resistance (black) to +10Ω measured resistance (white).

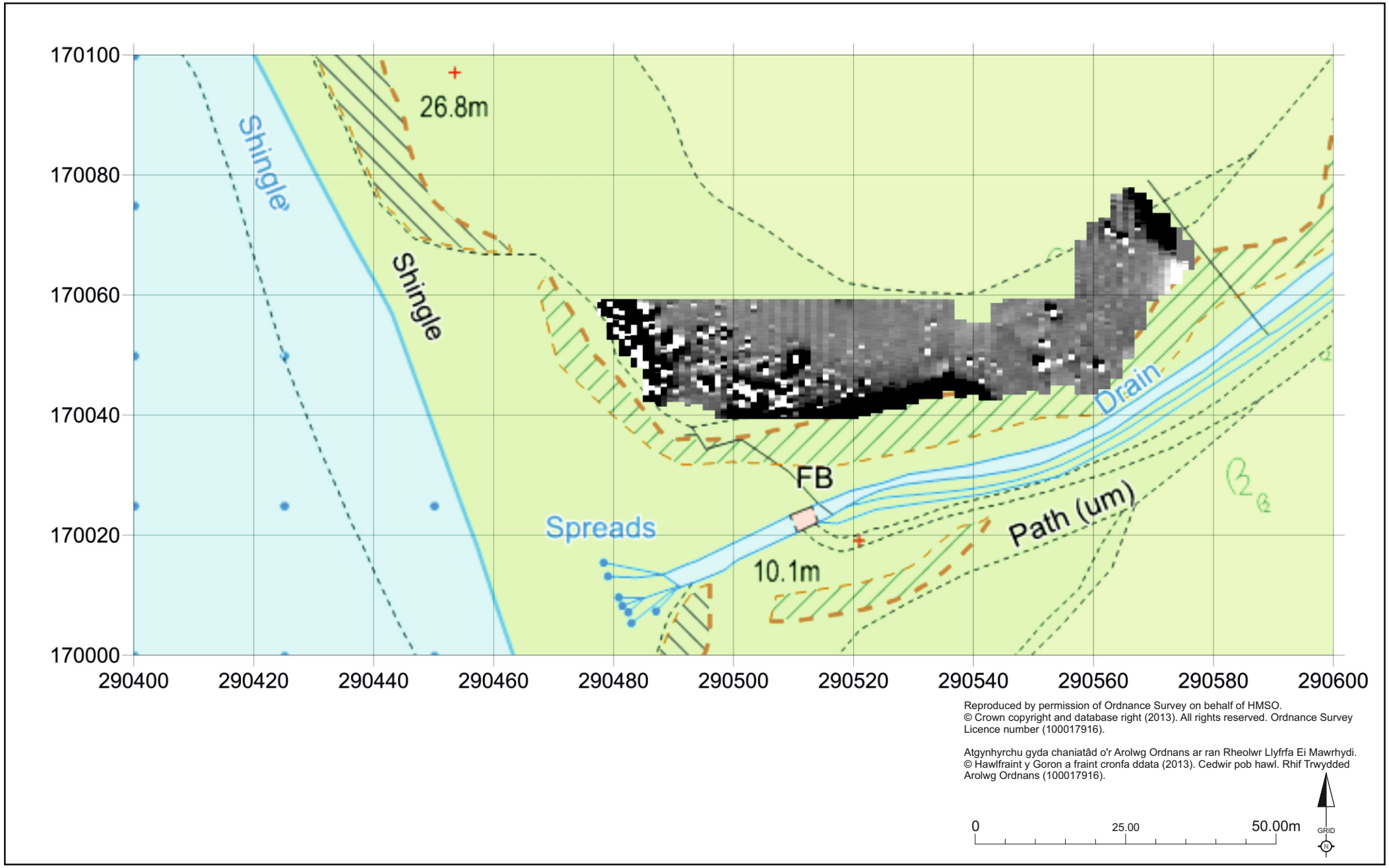


**Figure 10**. Magnetic gradiometer survey, displayed against current OS Mastermap 1:1250 base mapping.
Greyscale: -6nT (black) to +6nT (white).

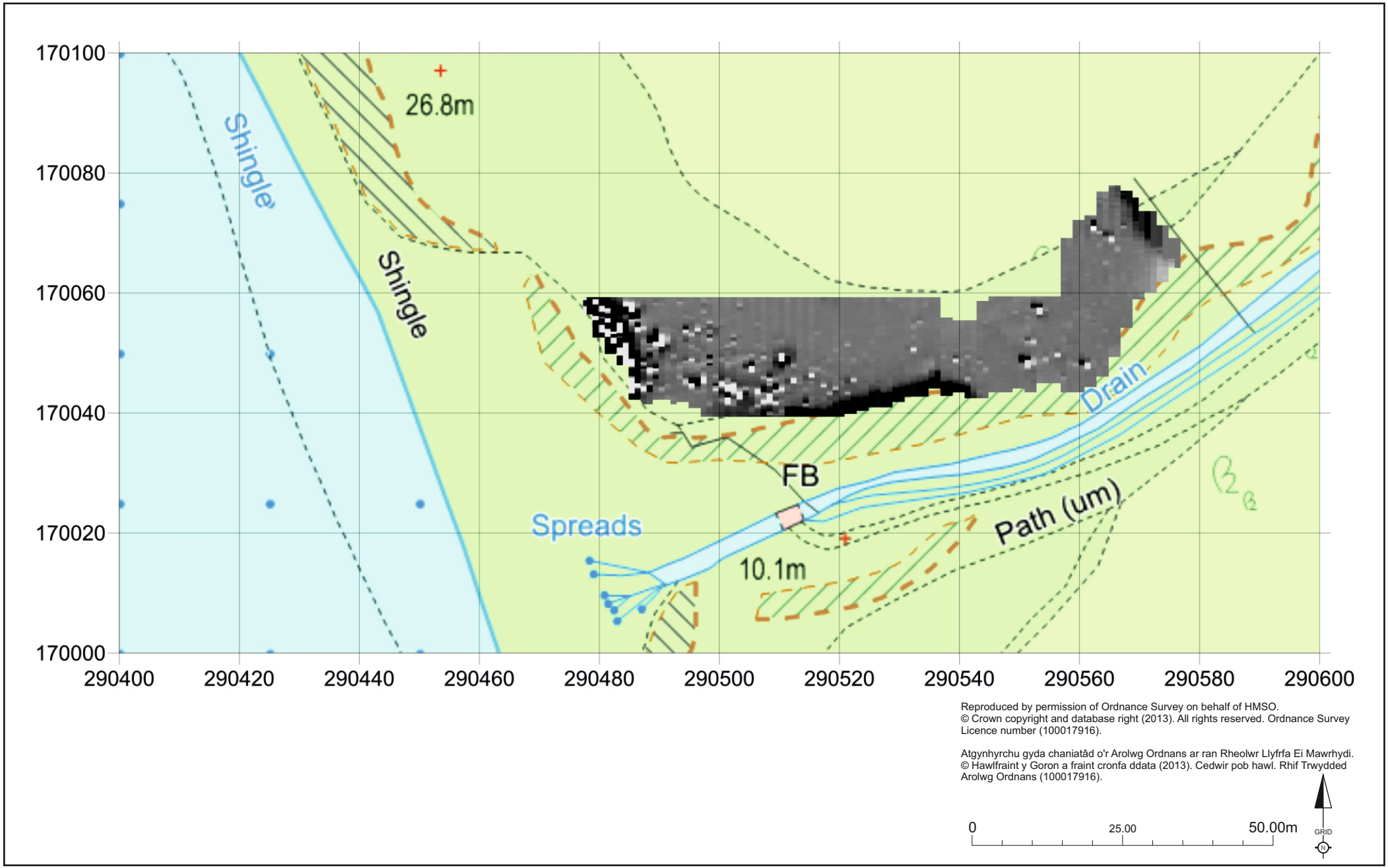


**Figure 11**. Magnetic gradiometer survey, displayed against current OS Mastermap 1:1250 base mapping.
Greyscale: -60nT (black) to +60nT (white).

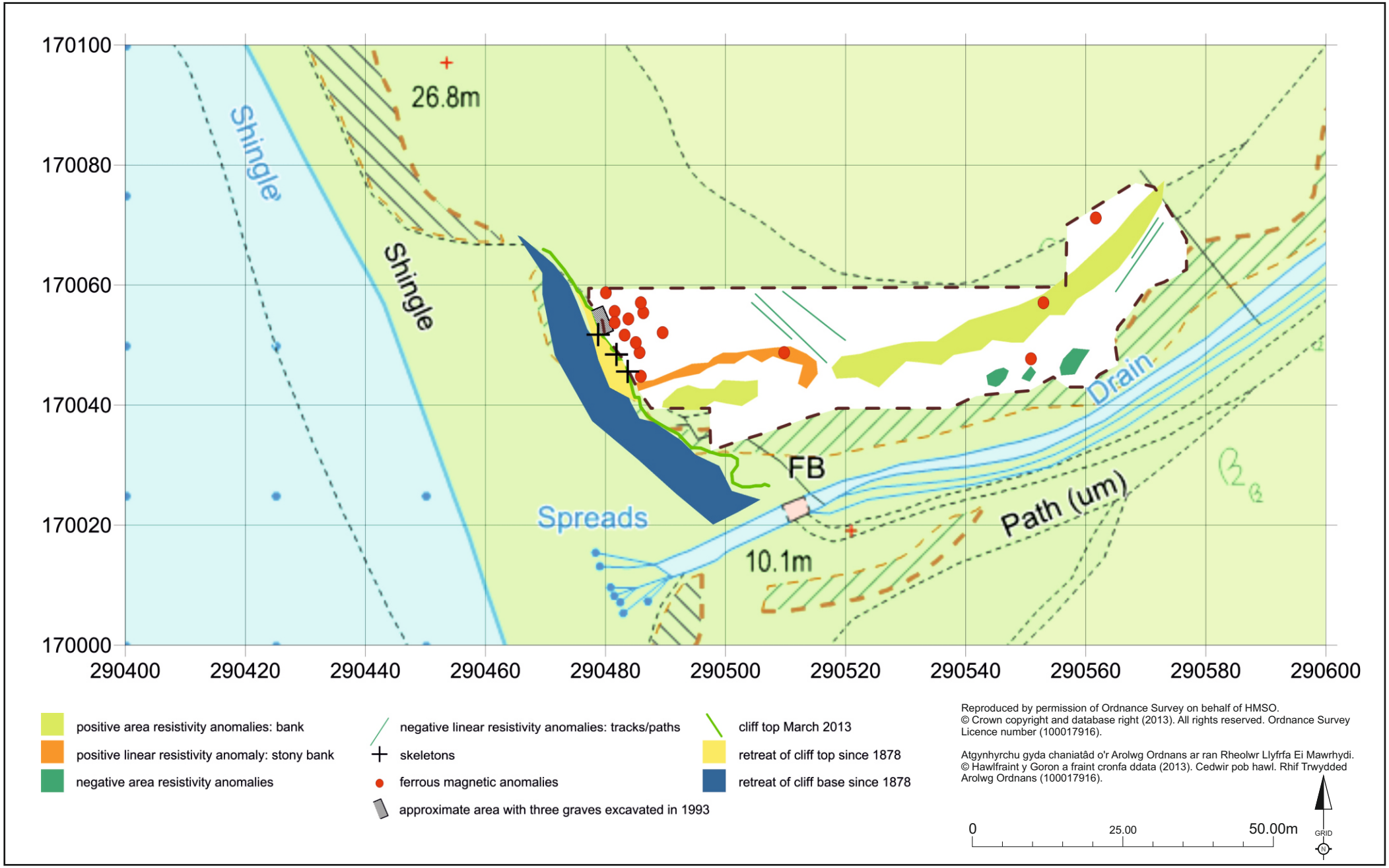


**Figure 12**. Interpretation of geophysical and topographical surveys, displayed against current OS Mastermap 1:1250 base mapping.

**Glamorgan-Gwent Archaeological Trust Ltd (Projects Division)**

# QUALITY CONTROL

**Report Title:** GGAT128: Cwm Nash, Monknash, Vale of Glamorgan: geophysical and topographic survey

**Report Date:** March 2013

**Report Number:** 2013/029

---

**Report prepared by:** Rowena Hart

**Position:** Project Officer

**Date:** 30/03/13

---

**Illustrations prepared by:** Tim Young Rowena Hart Paul Jones

**Position:** GeoArch Project Officer Senior Illustrator

**Date:** 30/03/13

---

**Illustrations checked and authorised by:** Paul Jones

**Position:** Senior Illustrator
**Date:** 30/03/13

---

**Report checked by:** Richard Lewis

**Position:** Head of Projects

**Date:** 30/03/13

---

**Report checked and authorised by:** Richard Lewis

**Position:** Head of Projects

**Date:** 30/03/2013

As part of our desire to provide a quality service we would welcome any comments you may wish to make on the content or presentation of this report.

Glamorgan-Gwent Archaeological Trust Ltd.
Heathfield House, Heathfield, Swansea, SA1 6LE
Tel. 01792 655208; Fax. 01792 474469
Registered Charity no. 505609
Web: www.ggat.org.uk
e-mail: projects@ggat.org.uk