

# BRYN CEFNI INDUSTRIAL PARK EXTENSION

## ARCHAEOLOGICAL ASSESSMENT & EVALUATION

Report No. 302

Ymddiriedolaeth Archaeolegol Gwynedd  
Gwynedd Archaeological Trust

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(G 1522)

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Report No. 302

Prepared for Symonds Travers Morgan  
on behalf of  
Welsh Development Agency

June 1998

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## **Bryn Cefni Industrial Park**

### **Archaeological Evaluation (G1522)**

#### **Introduction**

The Welsh Development Agency are proposing to extend the existing industrial park at Llangefni, by developing an additional 19 hectares of agricultural land on the east side of the present park.

Gwynedd Archaeological Trust have been asked by Symonds Group to undertake an archaeological assessment of the site. A methodology for carrying out the work was discussed and agreed with Gwynedd Archaeological Planning Service, who were acting on behalf of Ynys Môn Planning Department.

#### **Methodology**

The initial assessment consisted of a desk-top appraisal of available printed and manuscript sources and aerial photographs, followed by a field visit which involved walking the area and looking for archaeological features and finds.

The desktop assessment included examining relevant manuscripts and books within the Anglesey Record Office, the University of Wales Archives and Library, the Anglesey Library local collection, the National Library of Wales and the National Monuments Record. Aerial photographs were examined at the offices of the Countryside Council for Wales.

The five fields were walked and the surface examined along strips at 20m intervals looking for surface finds. No pre 19<sup>th</sup> century finds were noted, and even these were less than expected, which was probably the result of much of the top-soil having been removed prior to walking (see below).

The evaluation was carried out using a combination of geophysical survey and watching brief. Geophysical survey was carried out by scanning and detailed survey. A fluxgate gradiometer was used to scan the area for magnetic changes in the underlying sub-soil, which would indicate the presence of buried ditches or walls. This latter was carried out only in the vicinity of the immediate works, which involved the construction of the access road through the site, in addition to an area in Field 1, where a detailed survey was carried out. The scanning identified two areas of potential interest which were then examined by excavation, but no archaeological features were found.<sup>1</sup>

Scanning was not carried out over the remainder of the site for two reasons: the negative results from the two areas identified suggested that the technique was not entirely suitable in this instance, and the watching brief proved to cover a far more extensive area than had been envisaged, so that much of the site was eventually evaluated by this method. This included monitoring the full length of the access road, the creation of large storage areas and tracks in fields 2, 4 and 5, the excavation of parts of an existing sewer in fields 2 and 5, the creation of the compound for site offices in field 1, and the removal of the field boundaries.

A watching brief was carried out during the relevant earth moving phases. The areas concerned are shown on fig. 1.

#### **Location and archaeological background**

The site is situated in the parish of Llangefni, at SH467749 (centre). It is located on a low ridge of limestone which overlooks the eastern end of Malltraeth marsh. The land rises from 10 m OD on the south-east side to 25 m OD on the top of the ridge, and falls to 20 m OD on the west side. The limestone is generally covered with glacial clays and soils of the brown earth group, although at the highest point the limestone is seen to outcrop, and quarrying has taken place there.

At the south-east corner of the site lies the farm now called Llwyn Ednyfed, although formerly known as Tregarnedd. The name Tregarnedd is now applied to a house and farm north-east of Llwyn Ednyfed. Tregarnedd was a medieval township, which was granted to Ednyfed Fychan by Llywelyn ap Iorwerth in the

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<sup>1</sup> see Appendix 1 for technical details of magnetometer use.

early 13<sup>th</sup> century. At Llwyn Ednyfed (hereafter called Tregarnedd) is a moated enclosure of medieval date, the construction of which is traditionally associated with a descendant of Ednyfed Fychan, Gruffydd ap Rhys, in the 14<sup>th</sup> century, although a recent discussion suggests it may have been Gruffydd's father, Rhys, who was responsible for its construction (Carr 1992). Medieval moated sites are rare in North Wales, and no other is known from Anglesey.

The name Tregarnedd (Tre = township; carnedd = cairn) is derived from the former presence of a large chambered cairn within the township. Antiquarian sources suggest that it would have been one of the largest on Anglesey, but that it was demolished in the early 19<sup>th</sup> century. The exact site of the cairn is not known, but a possible site may be identified as a result of the desk-top study for this project (see below).

There are no known sites within the area proposed for development, although a number of finds of Prehistoric and Roman date have been recovered from the surrounding area (GAT Sites and Monuments Record).

The fields have been regularly ploughed, and therefore no earthworks are visible as upstanding features. This means the presence of any archaeological sites would only be discovered by archaeological investigation, either through geophysical survey, watching brief, or excavation.

### History of land ownership

The history of the township is complicated, but what is known has been brought together in a very comprehensive article by Carr (1992). In the late 15<sup>th</sup> century the land passed from the descendants of Ednyfed Fychan by marriage into the Gloddaith family, and from there it came to form part of the Mostyn Estate. It remained as part of that estate until 1750, when it was sold to Owen Williams of Castellior, from whom it passed to his son Thomas Williams (the Copper King) who lived at Tregarnedd for some years. Tregarnedd was sold again in 1887.

The five fields which lie within the study area are of late 19<sup>th</sup> century date: they are not shown on the tithe map of 1840, and this late date is confirmed by the style of construction of the boundaries.

The farmhouse of Bryn Cefni, which formerly lay west of the study area was built after 1888 and before 1901, as it is shown on the second edition, but not the first edition of the OS 1:2,500 map. There is a small stone building west of and adjacent to the study area, which is marked on the 1888 map, and which may be the original site of the farm of Penyrsedd (*pers comm* Thomas Roberts, UCNW archivist). The building is not, however, shown on the 1840 tithe map.

### Carnedd location

A large number of antiquarian works were examined, but only three included useful information concerning the possible location of the cairn. In date order, these were Pennant (1781), Lewis (1833) and Jones (1847). Pennant says "*The name of this place is taken from an immense Carnedd, or heap of stones, surrounded with great upright stones in an adjacent field. It seems to have beneath it passages formed on the sides and tops with flat stones, or flags*". Lewis informs us that "*The adjacent carnedd, which consisted of an extensive pile of stones, surrounded by a circle of upright stones about eighty-six yards in diameter, was wholly removed in 1822, for the purpose of building a wall to divide a field*". H L Jones describes the site on two occasions, the first (Jones 1847) says "*The immense Carnedd, spoken of by Pennant, and from which the place took its name, was situated in a field immediately adjoining the high road to Bangor, on the western side: but the stones of it were almost all removed a few years ago, by the present tenant of the land (1846). Its site is, however, visible in a small clump of trees, the roots of which are covered with stones, nearly in front of the farm-house of Tan y Graig*". The second reference says "*Tregarnedd – the name of an ancient house one mile and a half south-east of Llangefni. It was so called from an immense carnedd, now nearly all removed by the ignorant farmers. This carnedd is partially planted over, a circumstance which will tend to preserve traces of its lower portions; it may have been sixty feet in diameter*".

One additional reference needs to be taken into account, namely that in the *Inventory of Ancient Monuments of Anglesey* (RCAHMW 1937): "*The probable site of this cairn is to be found on the flat crest of a tongue of land projecting towards the Malldraeth Marsh about 330 yards N W of Tregarnedd, where stones and blackened soil have been revealed by ploughing*". Only one manuscript reference can be found which may be of use, and that is an estate survey of 1618, where the estate was said to comprise "*house, barn, byre, and fields called Cae'r Carnedd, Cae'r Fron Fawr, Cae'r Pant, Cae'r Gors, Cae'r Ysgubor Hen, Cae Pen y Lon, Cae'r Castell, Cae'r*

*Stable Hir, Cae'r Cwm and Cae Tyddyn Iolyn* (UCNW Mostyn 6478): it is probable that the field *Cae'r Carnedd* refers to the field which formerly contained the cairn, and its position first in the list implies it is a field adjacent to the house.

The references suggest the following: first the site was a chambered cairn of Neolithic date, possibly containing more than one chamber within the cairn. Second the site was partly demolished in the early 19<sup>th</sup> century for the construction of field walls. Third it was situated close to Tregarnedd, and probably in an adjoining field. Fourth following demolition the remaining mound was planted with trees.

The first description by H L Jones would appear to give the best description of the location, however it contains so many inconsistencies as to be of no real value. The high road to Bangor runs east-west, and therefore west of that road is meaningless. The farmhouse at Tan y Graig was situated north of the road, with the front of the house facing east, so in front of the house would suggest east of Tan y Graig and north of the road. In addition, Tan y Graig lies several fields and some 800 m north of Tregarnedd, further than the other descriptions would suggest, and close to Pencraig, where it would be referred to as situated at Pencraig, not Tregarnedd.

The most likely site would lie somewhere between Tan y Graig and Tregarnedd, and would be marked by a copse of trees. There is one good candidate, a low mound with five trees growing upon it lies in what was formerly a large triangular field 500 m north-west of Tregarnedd. The site now lies within the existing industrial estate, although it has been badly disturbed during the creation of the park. The tithe map of c. 1840 shows that the area immediately north of Tregarnedd was a single large field, with the exception of one boundary which forms the eastern edge of the triangular field. This is a very straight boundary, and from appearance is 19<sup>th</sup> century in date. This could therefore be the boundary referred as being built in 1822. The tree covered mound, prior to the construction of that boundary, would have lain in the field adjacent to Tregarnedd.

One piece of evidence not yet discussed is that given by the RCAHMW, concerning the area of blackened soil. A location 330 yds NW of Tregarnedd lies between the farm and the suggested site of the cairn, in the upper field which contains the quarry, and which is to be developed during the present scheme (field 1 below). A cairn is unlikely to show as an area of burning, and it is possible that they are referring to another site, perhaps a burnt mound, which lies on the fields to be developed.

Although the identification of the mound at Bryn Cefni as the site of the former cairn is by no means positive, sufficient evidence exists to make it a strong contender, and only excavation could hope to confirm the exact nature of the remains of the mound.

### **Fieldwork and magnetometer scanning**

The initial evaluation work was targeted towards the area to be occupied by the access road, because construction of the road was imminent. Therefore magnetometer scanning was carried out along the line of the proposed access track, which was to pass through four of the five fields. For the purposes of this study these will be identified as fields 1, 3, 4 and 5, where field 1 is on the south-west side, and fields 3, 4, and 5 form the three eastern fields to be developed: field 3 is the southernmost, and field 5 the northernmost.

Most of the fields had already been stripped of topsoil by the previous owner. Construction of the road involved removal of the remainder of the topsoil across a width of some 15 m, and to varying depths, although in places it was necessary to down to depth of nearly 2 m. The soil removed for the road was stored in specific areas, which were also scraped clean before storage. The length of the access road, the storage areas, and a number of service trenches were all observed as part of the watching brief.

### **Results**

#### *Field 1.*

This field is the highest of the four, and contains a small quarry at the topmost point. The quarry, which is shown on the OS map of 1887, had been partly in-filled. A farm track had already been created through the field, partly along the line of the proposed access road. The presence of the track prevented the magnetometer scanning from providing any meaningful readings. No sites of interest were noted during the watching brief. The field boundary between fields 1 and 3 was a mortared stone wall 1.5 m high, 0.75 m wide at the base, and 0.3 m wide at the top. It was constructed of limestone blocks and rubble. This wall was demolished, and the stone re-used to build the present wall along the south-east boundaries of fields 3 and 4.



A geophysical survey, using a fluxgate gradiometer, was conducted over a 60m by 40m area alongside the north field boundary, as this was the closest point to the location of the suggested site of the Prehistoric cairn. Three linear features (see fig. 2) were revealed, but the significance of these is not yet understood. "A" may be a drain, but "B" appears too wide to be a drain, and may be a ditch belonging to an earlier boundary, the feature at "C" is less definite than the other two, and may be natural in origin.

#### *Field 2*

A subsidiary road and service trench crossed the north side of this field. No archaeological features were noted during the watching brief. Another service trench was excavated from the north onto the perimeter of the field, but no features were visible.

#### *Field 3.*

This field slopes to the south-east. Slight remains of ridge and furrow, were visible running down the hill, and this was confirmed by a regular series of high readings during scanning. These ridges are probably the result of ploughing in post-medieval times; other studies have shown that many of them are 19<sup>th</sup> century in date, but they can also result from 20<sup>th</sup> century occasional deep ploughing.

During scanning, a section in the middle of the field, (at SH 46747482) gave irregular readings, which suggested an area of potential archaeological interest. This area spanned some 10 m in width, and was located between marker pegs 275 and 285. A trial trench 20m long by 2m wide was excavated to a depth of 0.4m. This revealed a succession of silty clays varying in colour from red/brown through olive/brown to a light brown underlying the topsoil. The only feature identified was a narrow drain 20 cm wide which crossed the road. Areas of darker staining were interpreted as animal burrows, or former tree roots.

The limestone bedrock lay close to the surface in the west part of the field, overlain by a thin layer of yellow clay.

No features or finds were noted within the field during the watching brief.

The boundary between fields 3 and 4 was a stone faced earth bank surmounted by a hedge. The material for the bank had been derived from ditches excavated on both sides of the bank. This boundary was removed during construction works. Map evidence suggests it is later in date than the stone wall between fields 1 and 3.

#### *Field 4.*

This field had not been stripped of top soil, and ploughing ridges were clearly visible running downhill. These showed up during scanning as regular high points. In addition, an area of high and low irregular readings lay 35m from the west field boundary, and continued for some 5 to 10 m. This area was considered to be of potential archaeological interest, and an evaluation trench 20m by 2m was excavated to a depth of 1m. No features of archaeological interest were revealed within the trench.

The boundary between fields 4 and 5 was an earth bank surmounted by a hedge containing some mature trees. The bank was constructed from the red/brown earth present in the fields, although no ditches were visible. It was faced with medium sized stones.

#### *Field 5.*

This field had been stripped of top soil, but appeared to have originally been divided into two parts: there were field indications in the west side of strips running north-south, as in the other two fields, whereas on the east side there were indications of strips running east-west. A ridge was visible prior to top-soil stripping, which was initially interpreted as a robbed field boundary dividing the two areas, but was, in fact, the sewer pipe. However, a line of medium sized boulders was also noted during the watching brief, along a similar line, which were interpreted as the line of a former boundary.

Two shallow clay filled ditches crossed the line of the main access road at SH 46847494, one 2m wide and one 1.2m wide. They were filled with a yellow stony clay. Their function or date is unknown.

A thin deposit of charcoal was noted at SH46887491, with no associated features. It was interpreted as the site of a modern bonfire.

## Summary and recommendations

The desktop study and field work has located a possible site for the former cairn, which lies outside the development area, but no features of archaeological interest were located within the development area, other than the linear features revealed in the magnetometer survey. The latter are of potential interest, however the lack of evidence from the watching brief during the construction of the compound further south in field 1, and from the works in field 2, would suggest that detailed examination of these features is not justifiable, but that the watching brief is continued during the next phase of construction works.

## Acknowledgements

Gwynedd Archaeological Trust would like to thank John Lister of Symonds Travers Morgan for his help and support. Thanks also to the contractors Mulcair for their co-operation, particularly Dominic Brooke.

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## **APPENDIX 1**

### **Geophysical Survey Methodology**

#### **Instrumentation**

##### **Geoscan FM36 Fluxgate Gradiometer.**

This instrument detects variations in the earth's magnetic field caused by the presence of iron in the soil. This is usually in the form of weakly magnetised iron oxides which tend to be concentrated in the topsoil. Features cut into the subsoil and backfilled or silted with topsoil therefore contain greater amounts of iron and can therefore be detected with the gradiometer. This is a simplified description as there are other processes and materials which can produce detectable anomalies. The most obvious is the presence of pieces of iron in the soil or immediate environs which usually produce very high readings and can mask the relatively weak readings produced by variations in the soil. Strong readings are also produced by archaeological features such as hearths or kilns as fired clay acquires a permanent magnetic field upon cooling. Not all surveys can produce good results as results can be masked by large magnetic variations in the bedrock or soil, and in some cases there may be little variation between the topsoil and subsoil resulting in undetectable features.

The Geoscan FM36 is a hand held instrument and readings can be taken automatically as the operator walks at a constant speed along a series of fixed length traverses. The sensor consists of two vertically aligned fluxgates set 500mm apart. Their Mumetal cores are driven in and out of magnetic saturation by a 1,000Hz alternating current passing through two opposing driver coils. As the cores come out of saturation the external magnetic field can enter them producing an electrical pulse proportional to the field strength in a sensor coil. The high frequency of the detection cycle produces what is in effect a continuous output (Clark 1990).

The gradiometer can detect anomalies down to a depth of approximately one metre. The magnetic variations are measured in nanoTeslas (nT). The earth's magnetic field strength is about 48,000 nT, typical archaeological features produce readings of below 15nT although burnt features and iron objects can result in changes of several hundred nT. The machine is capable of detecting changes as low as 0.1nT.

#### **Data Collection**

The gradiometer includes an on-board data-logger. Readings in the Bryn Cefni survey were taken along parallel traverses of one axis of a 20m x 20m grid. The traverse interval was one metre. Readings were logged at intervals of 0.5m along each traverse giving 800 readings per grid.

#### **Data presentation**

The data is transferred from the data-logger to a computer where it is compiled and processed using Geoplot software. The following two display options are used in this report along with an interpretation drawing.

##### **a) X-Y plot**

Each traverse is shown by a line trace. These are presented side by side allowing the full range of data and the shape of any anomalies to be seen.

##### **b) Grey-Scale**

Data values are represented by modulation of the intensity of a grey scale within a rectangular area corresponding to the data collection point within the grid. This produces a plan view of the survey and allows subtle changes in the data to be displayed.

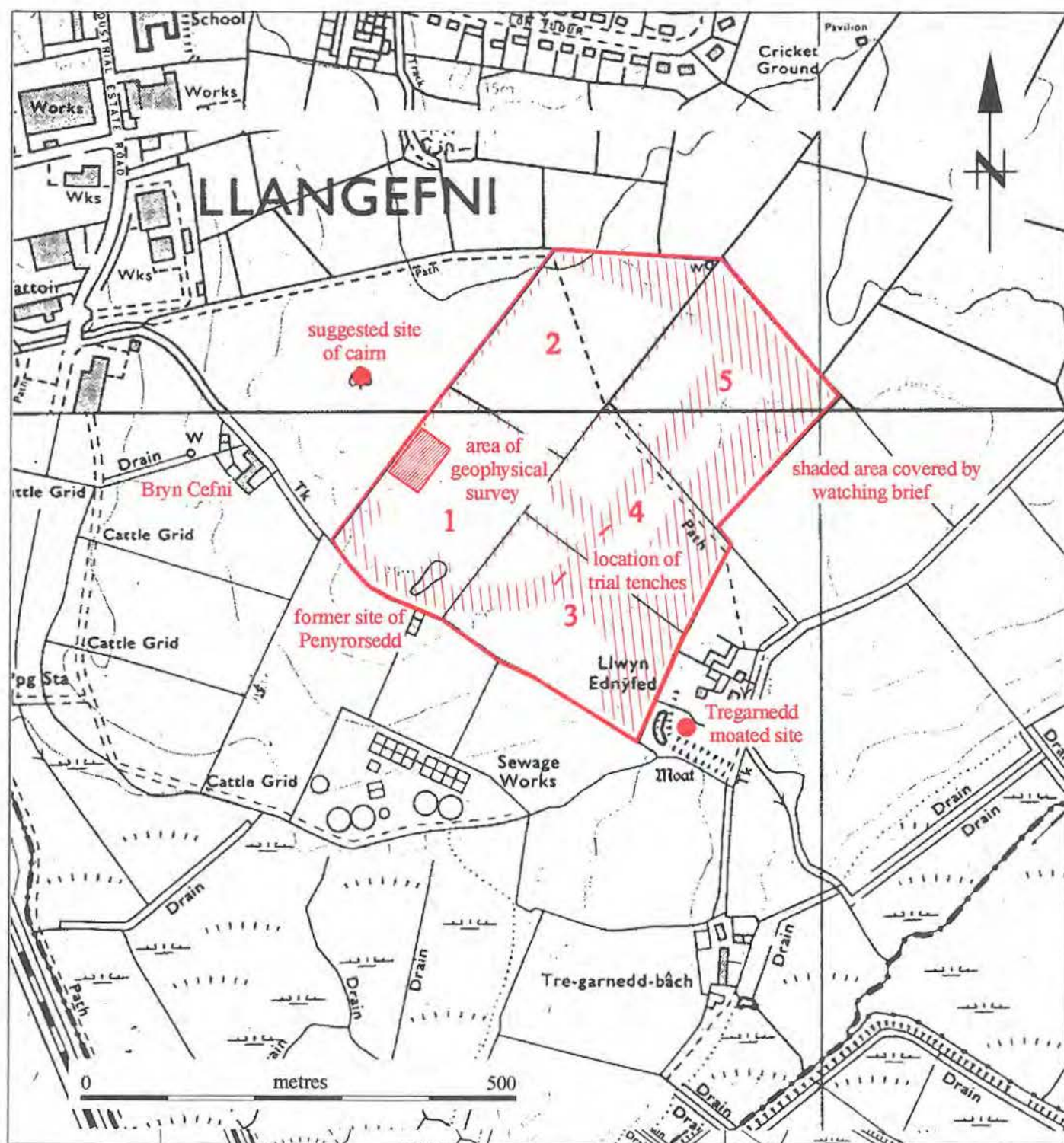
#### **Data Processing**

The data is presented with a minimum of processing. High readings caused by stray pieces of iron, fences, etc are usually modified on the grey scale plot as they have a tendency to compress the rest of the data. The data is however carefully examined before this procedure is carried out as kilns and other burnt features can produce

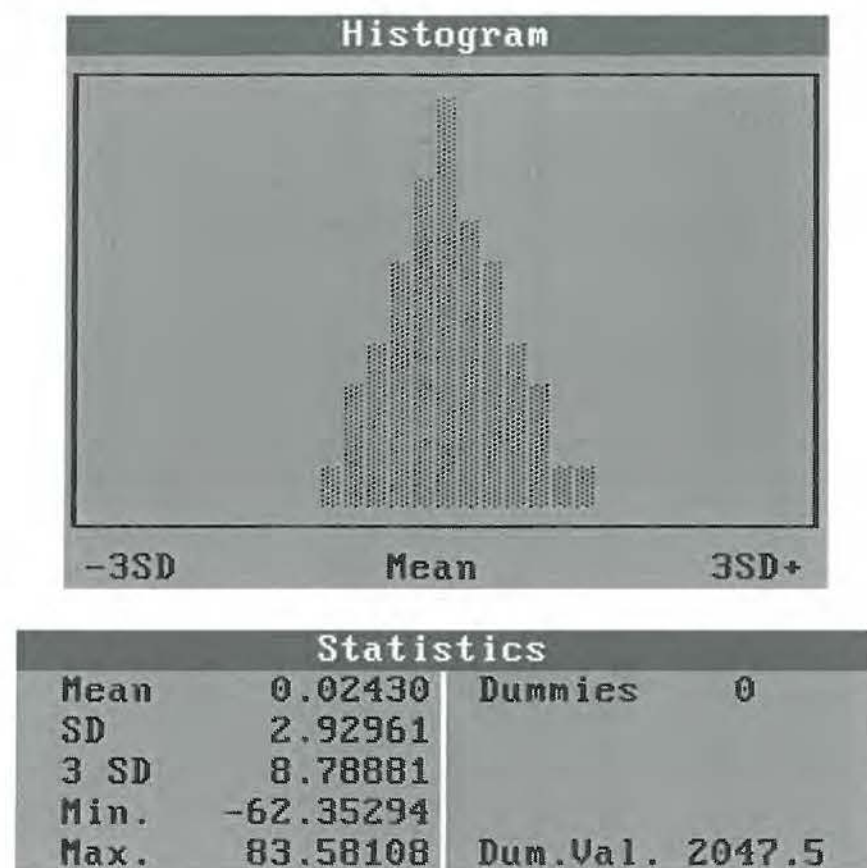


similar readings. Corrections are also made to compensate for instrument drift and other data collection inconsistencies. Any further processing is noted in relation to the individual plot.

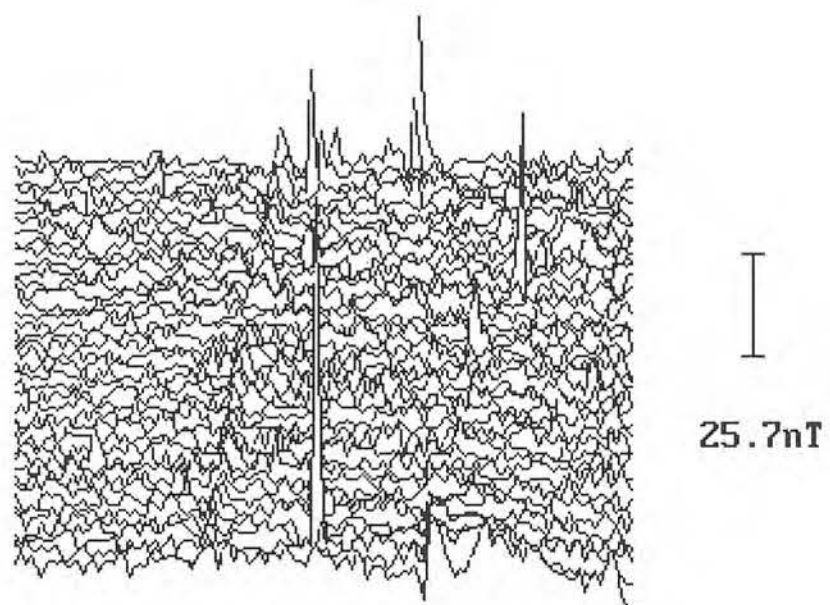
Fig 1 : Location of Bryn Cefni Industrial Park Extension



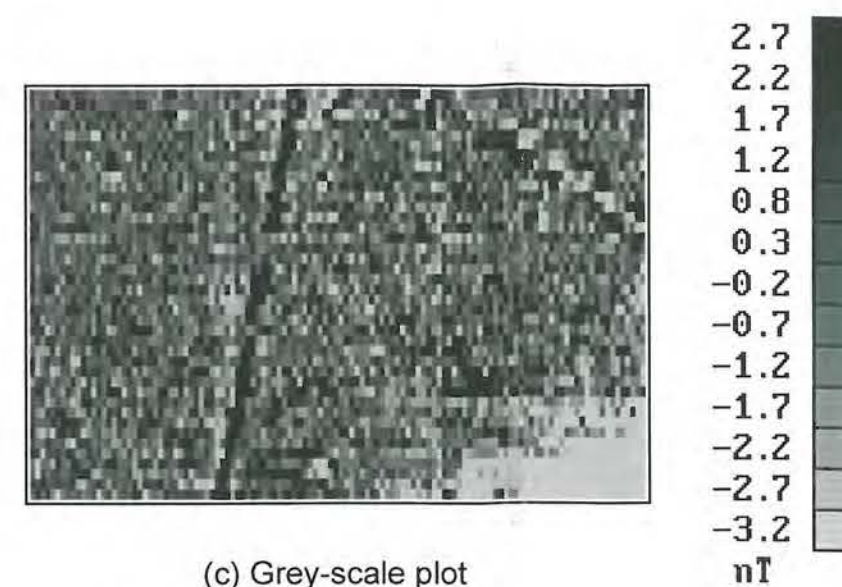
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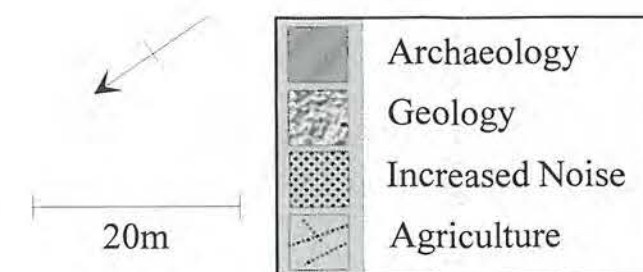
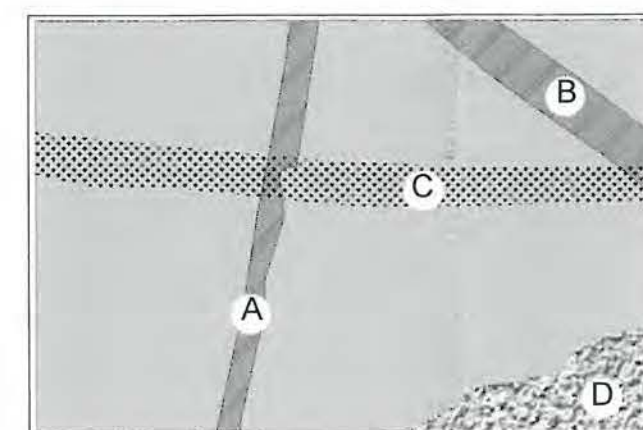
(a) statistical analysis



(b) X-Y plot



(c) Grey-scale plot



(d) Interpretation diagram and key

Fig. 2 Field 1: detailed geophysical survey results



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