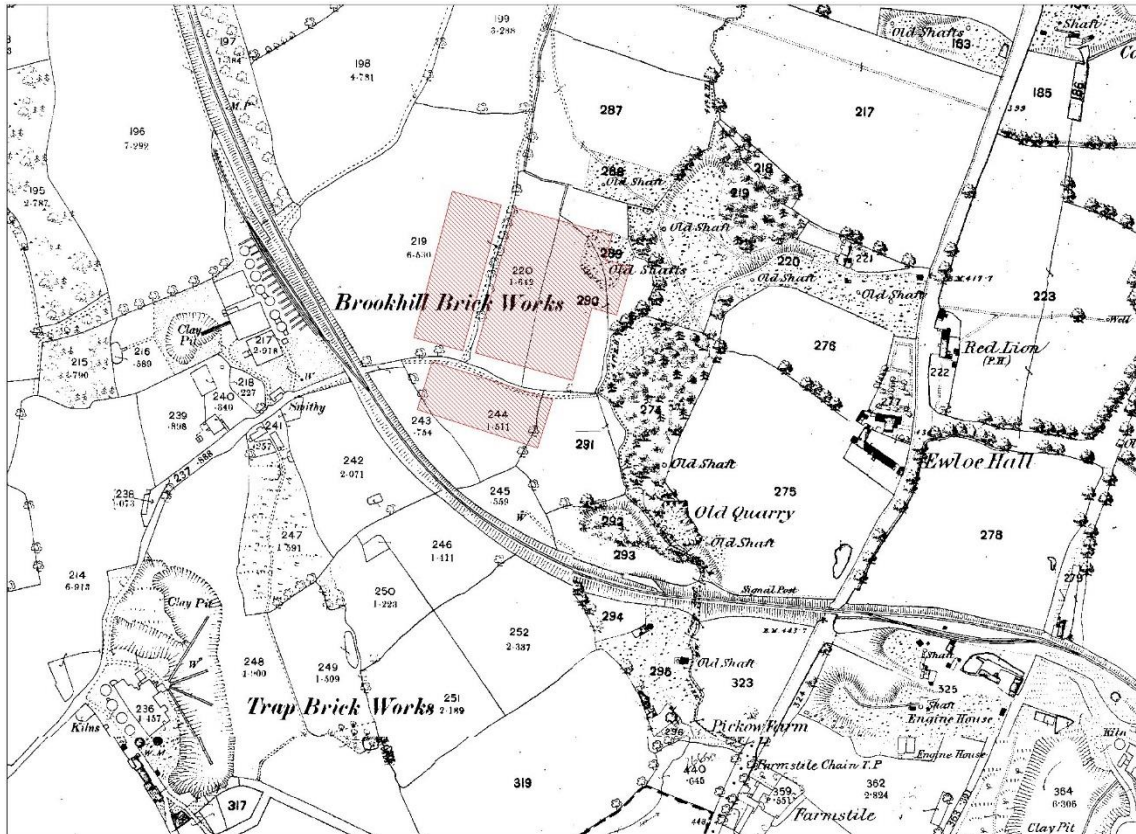


CPAT Report No 1321

Buckley Potteries, Site 18

GEOPHYSICAL SURVEY 2015



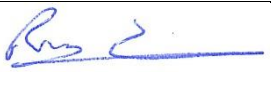

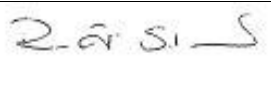
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Cover image: An extract from the 1:2500 Ordnance Survey mapping of 1869 and 1874, overlaid with the survey areas



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1 INTRODUCTION

- 1.1 In January 2015, the Clwyd-Powys Archaeological Trust (CPAT) carried out a programme of geophysical survey on a site believed to represent the location of a medieval pottery (PRN 44492; SJ 2812 6564) on the outskirts of Buckley in Flintshire (Fig. 1). The work formed part of the Cadw-funded assessment of Buckley pottery sites, where each site in the district has been given a sequential number; this is Site 18 in the list.



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Fig. 1: Location of Site 18, to the north of Buckley

- 1.2 Site 18 was identified from a finds scatter discovered in 1975 by H M Harrison (Davey and Longworth 2001, 63). Over 1000 sherds of medieval ceramics, including wasters, were discovered while fieldwalking an arable field, comprising 938 sherds of pottery and 161 ridge tile sherds. The main fabrics were gritty, highly fired white and grey wares with green and brown glazes. The major products were jugs, large storage vessels and roofing tiles, probably of 14/15th-century date (Davey 1976, 27). Being located in a pasture field away from the town, it has been thought that the site has perhaps the greatest potential of all the known Buckley potteries for it is one of the earliest known and is allegedly undisturbed.
- 1.3 A geophysical survey was carried out at the site in 1986, and this was followed by the excavation of three trenches, comprising one main trench, measuring 12m by 3m, and two smaller trenches, each measuring 3m by 3m (Fig. 2). The trenches were positioned to investigate anomalies detected by the geophysics, although these proved to relate to ferrous objects. No evidence was forthcoming for the kiln or any other pottery structures. The topsoil produced further quantities of pottery, including one sherd of 13th/14th-century pottery, 60 sherds of 14th/15th-century pottery, 146 sherds of 16th-century pottery and some 500 sherds of 18th/19th-century pottery (Weetman 1986).



Fig. 2: Site 18, showing the location of the 1986 geophysics and trial excavations

2 BACKGROUND TO THE BUCKLEY POTTERY INDUSTRY

- 2.1 The area surrounding Buckley in Flintshire, has been associated with the production of pottery for at least 600 years, from the medieval period to the mid-20th century. The scale and location of pottery manufacture during the Middle Ages and through the Tudor period is poorly known, but by the early 17th century a group of cottage potters had settled around Buckley Mountain where they exploited the suitable supplies of clay, coal and, on Halkyn Mountain, lead. Potteries were often established on encroachments on common land, many of which can be readily identified in 18th- and 19th-century cartographic sources (Jones 2014, 3).
- 2.2 Writing in the late 18th-century, Thomas Pennant referred to fourteen potteries, which made between three and four thousand pounds worth of ceramics, annually. Buckley was one of a number of areas producing traditional pottery based on Coal Measures Clays, typically black-glazed, red-bodied earthenwares. There are some characteristic products and styles from Buckley, but much of the material is not distinct from the products of other areas.

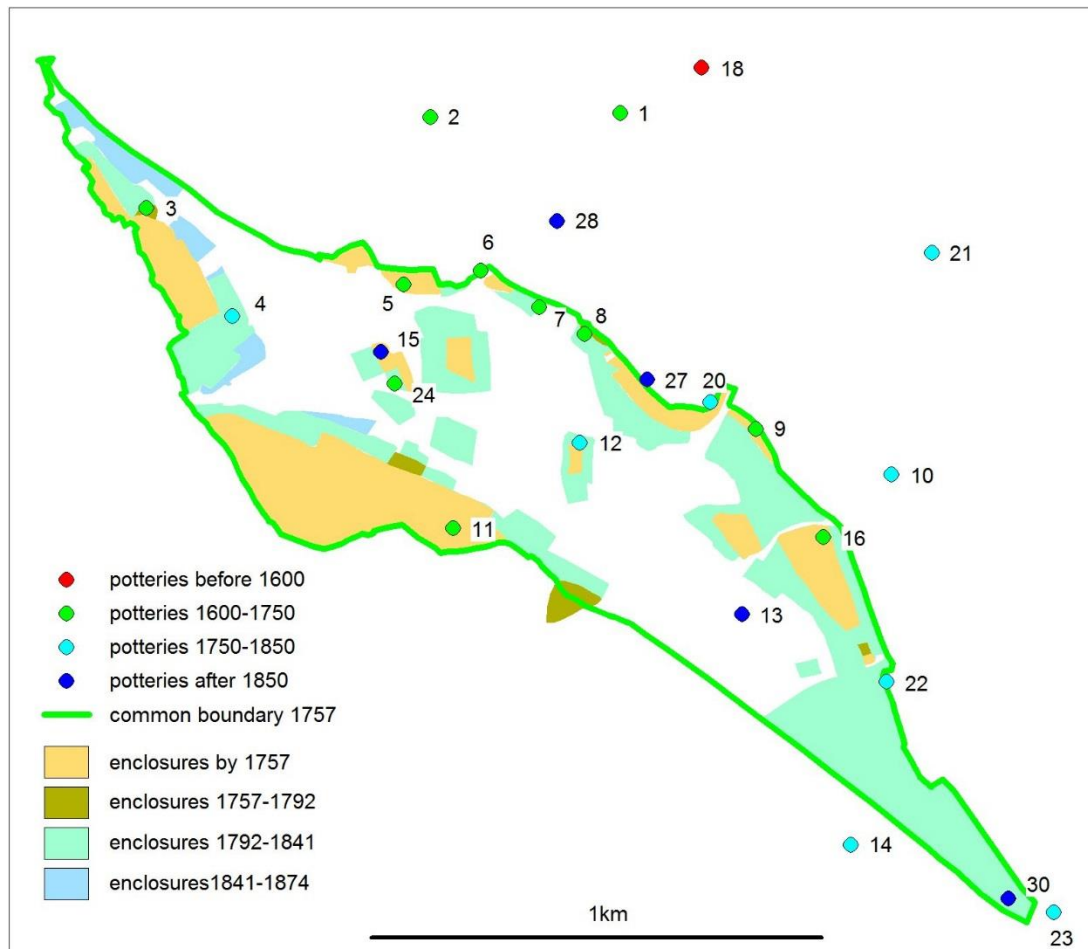
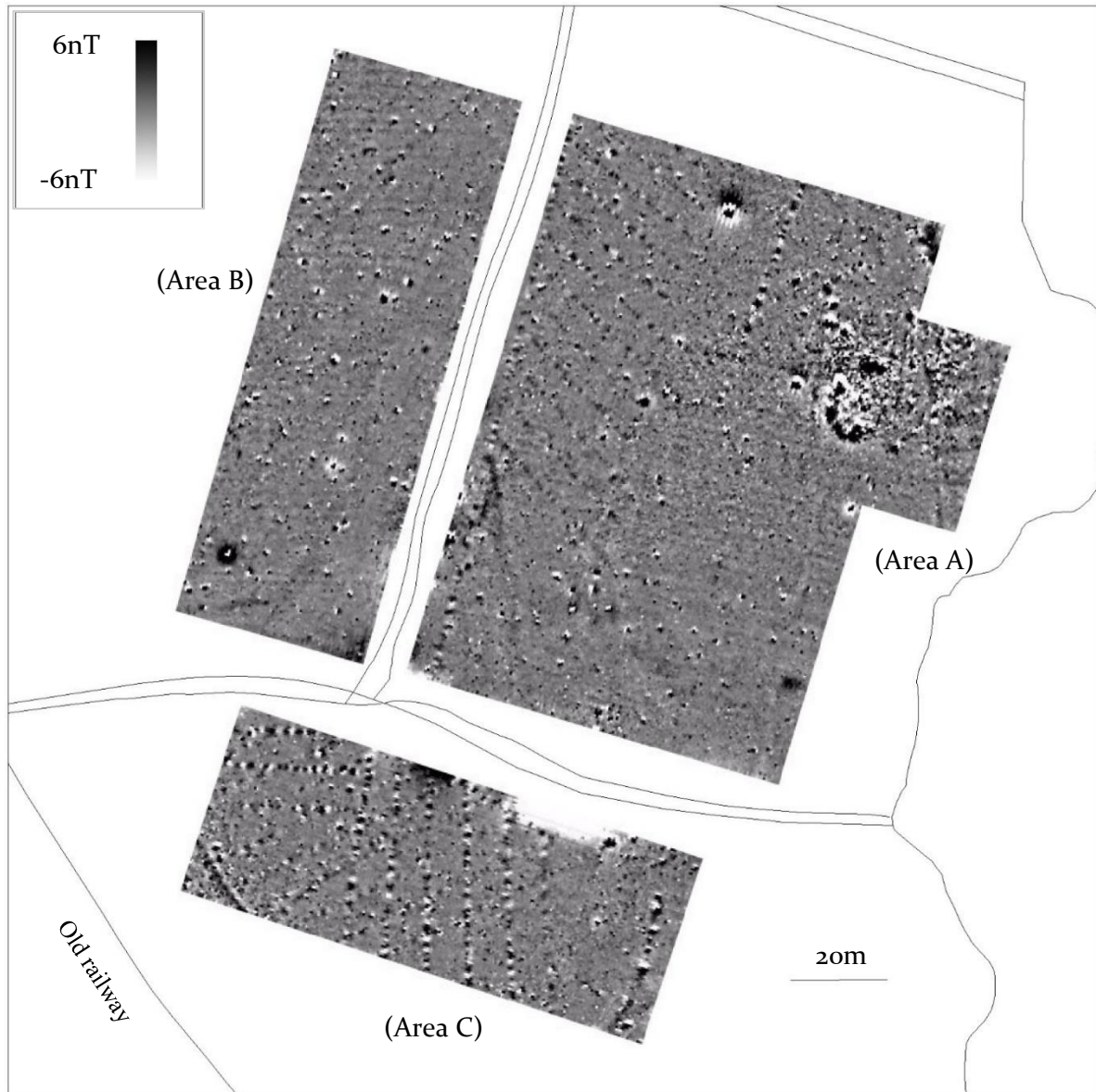


Fig. 3: The relationship between Buckley Mountain common, enclosures and the location of potteries. Each is classified according to its earliest known date.
(From Jones, 2014)

- 2.3 Research by the Buckley Society, the Buckley Clay Industries Research Committee and others from the mid-1970s onwards identified nineteen possible pottery sites. Further work by CPAT as part of the Cadw-funded programme of work on the Buckley potteries (Jones 2014) added significantly to the corpus and there are now believed to have been 31 individual potteries in the district (see Fig. 1), though these cover a wide range of dates in the medieval and post-medieval periods and would not all have been contemporary.
- 2.4 The Buckley pottery sites are a threatened and diminishing resource. Currently, only two sites are afforded statutory protection, Taylor's Pottery (SAM FL165) and Pinfold Lane Pottery (SAM FL166), although it is clear that there is significant potential for future scheduling enhancement and also the listing of standing structures (Jones 2014, 4).

3 GEOPHYSICS

- 3.1 The aims of the geophysics were straightforward, namely to see if there were any magnetic anomalies which could reveal the presence of the kiln thought to be the source of the pottery sherds recovered in the 1970s and 80s. It was considered that there would be sufficient thermo-remnant magnetism from the firing of the kiln to produce a characteristic anomaly.



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Fig. 4: The geophysics results from the area of the medieval pottery (Areas A-C).

- 3.2 Three separate survey areas were covered by geophysics and these are depicted on a composite greyscale plan (Fig. 4) which shows the survey areas in relation to the local field pattern. A number of additional plans are included, comprising an overall interpretation plan (Fig. 5), based on the composite greyscale image, and trace plots of the raw data for each area (Figs 6-8). The trace plots are each accompanied by a discussion of the results for the relevant area.

3.3 Each survey was based on a series of 20m by 20m grids and employed a Bartington 601 fluxgate gradiometer with two sensors. The readings in each grid were taken along traverses 0.5m apart and the speed of each traverse was carefully controlled such that readings were taken every 0.25m, giving a total of 3200 readings per 20m grid. The grids were laid out by taped measurement and then located in relation to local field boundaries by total station survey. The survey areas could then be related to modern Ordnance Survey mapping, thereby enabling the co-ordinates of any significant anomalies to be determined and the results compared to evidence obtained from previous work. The readings from each area were combined and processed using Archeosurveyor software to provide greyscale and trace images of the results. The only processing functions used on the greyscale images were *Destripe* to remove variations in the readings between opposing traverses and *Clip*, to remove the effects of very high and very low readings on the results, thereby allowing anomalies of potential archaeological interest to be observed.



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Fig. 5: Interpretation of the geophysics results.

3.4 *Area A* (Figs 5 and 6)

- 3.4.1 This area of survey covered the field examined by the earlier geophysics and excavations in 1986. This revealed a widespread field drainage system which, although not depicted on the interpretation plan (Fig. 5), is clearly visible as a series of parallel linear anomalies mainly aligned north-west/south-east. On the western side of the area, what appeared to be a curving linear ditch (1) showed as an anomaly some 18m long and 1.5m wide. The origin of this feature is unknown, but the response is too weak to be related to a kiln. Towards the northern end of the field there was a very strong circular anomaly (2), about 5m in diameter, but this was highly magnetic and is more likely to have been caused by an iron object in the soil than by any sub-surface archaeology. In the north-east corner of the field there was another fairly strong magnetic anomaly (3), but this coincided with an old coal mine spoil tip and the response was clearly from the traces of iron in the waste material. To the south of anomaly 3 there was a large area of magnetic noise, about 30m across, which has been characterised as anomaly 4. It is not impossible that this could be evidence of a kiln, but the first edition Ordnance Survey 1:2500 map (Flintshire 14.2) of 1869 shows that there was probably an 'old shaft' in this area, with an associated spoil tip. The tip has been levelled, but it seems most likely that the anomaly is due to iron minerals, originating from coal measures rocks in the mine spoil. A curving linear anomaly (5), at least 40m in length, corresponds with a watercourse depicted on the first edition Ordnance Survey map.

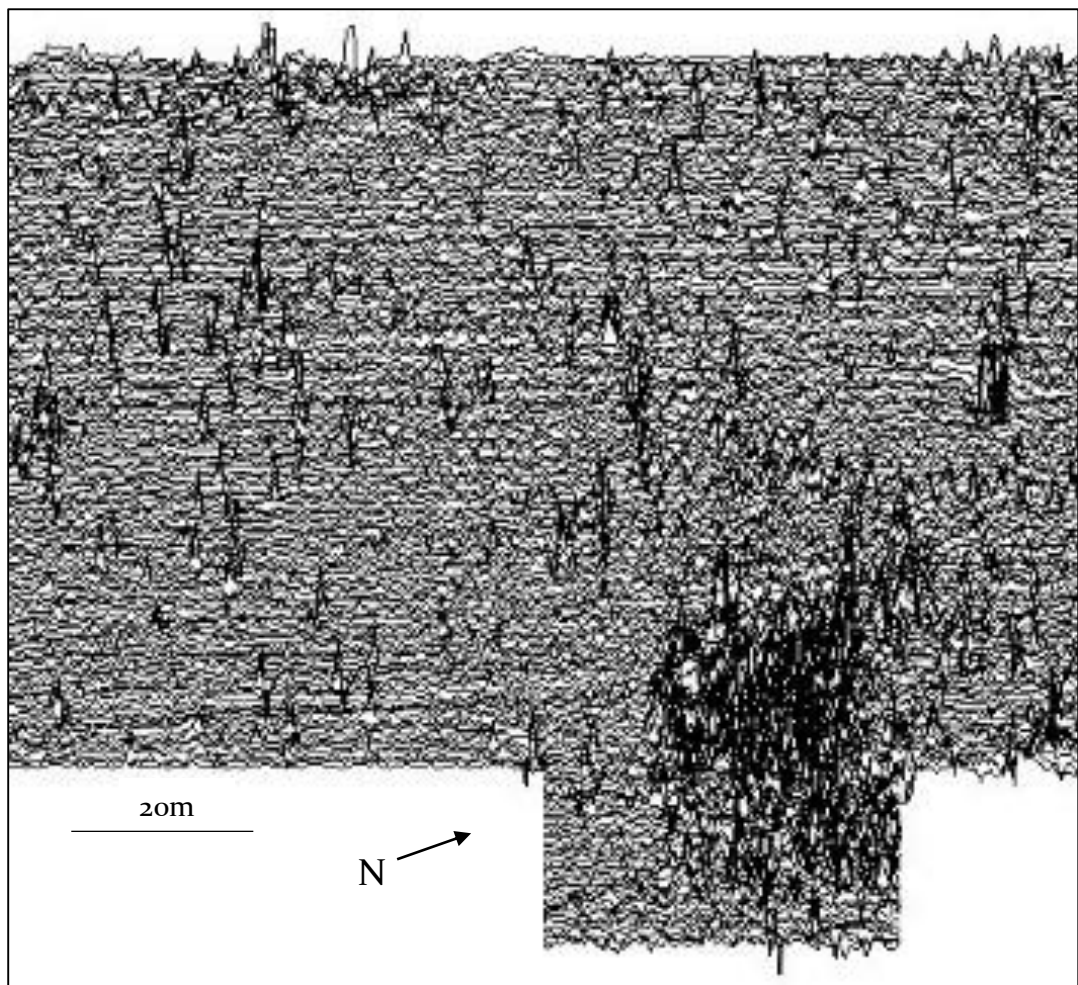


Fig. 6: Trace plot of the results in Area A (Scale 36nT/cm, clipped to ± 20 nT)

3.5 *Area B* (Figs 5 and 7)

- 3.5.1 As neither the 1986 work nor this programme of geophysics revealed conclusive evidence of the suggested kiln, it was decided to continue the survey into the field to the west of Area A. In the event, very little of interest was observed in the results, the single anomaly (6) of sufficient area being a strong magnetic anomaly probably produced by an iron object in the soil. As in Area A, there were also a number of parallel linear anomalies which represented land drains.

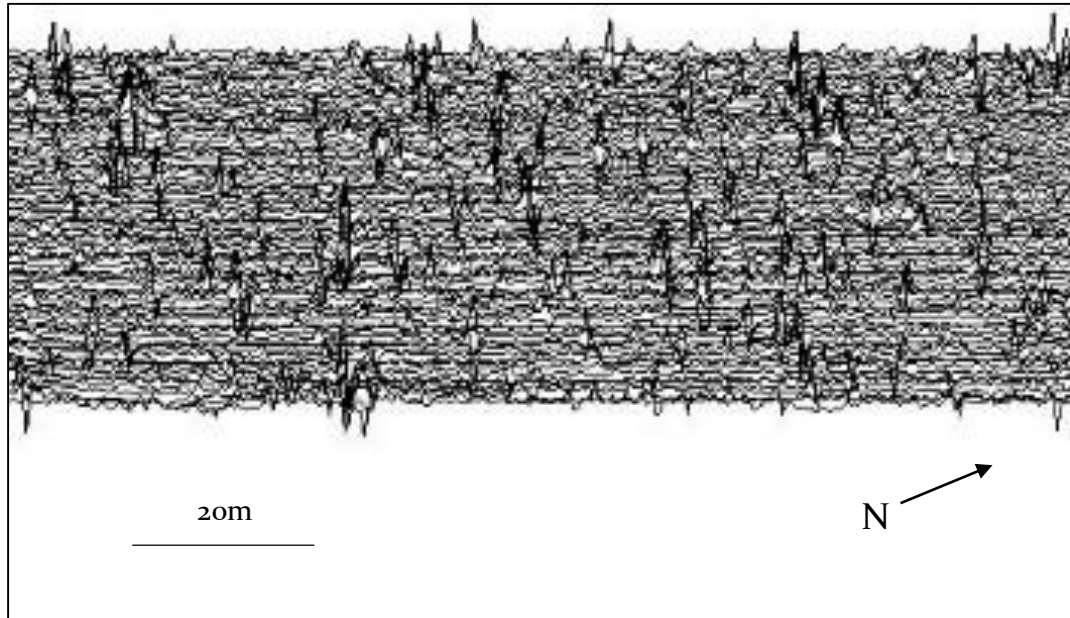


Fig. 7: Trace plot of the results in Area B (Scale 36nT/cm, clipped to ± 20 nT)

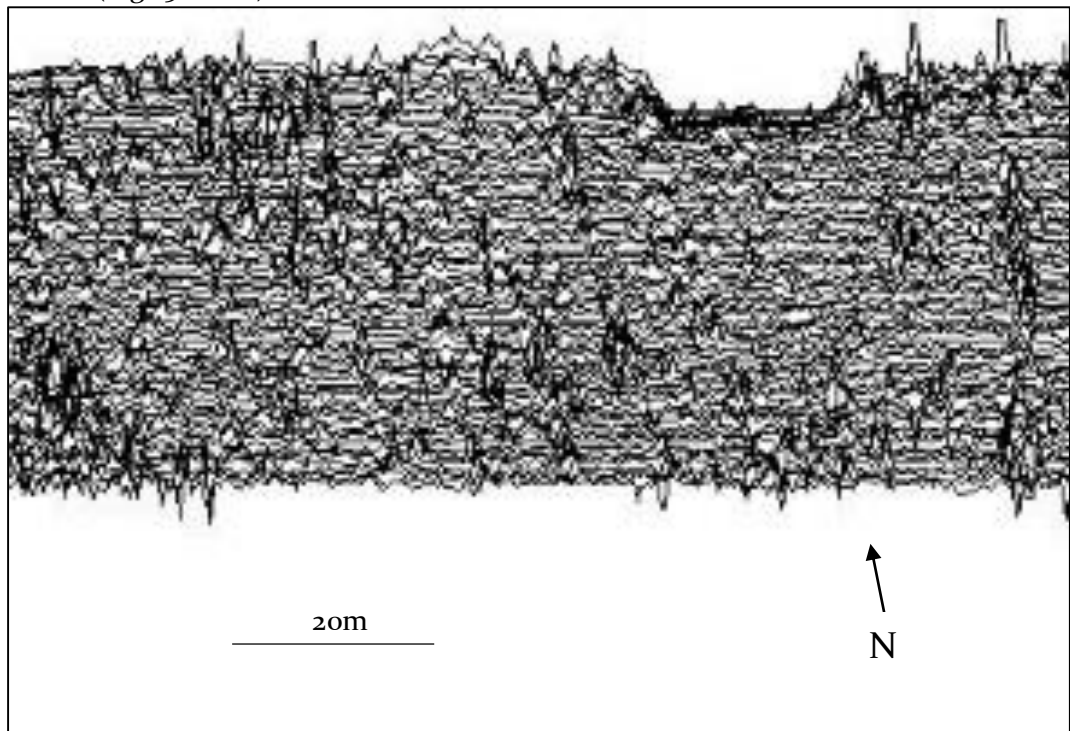
3.6 *Area C* (Figs 5 and 8)

Fig. 8: Trace plot of the results in Area C (Scale 36nT/cm, clipped to ± 20 nT)

- 3.6.1 The third area surveyed was in the field to the south of Areas A and B. Again, very little of archaeological significance was evident in the results. A curving linear anomaly (7), over 20m long and probably representing a ditch, was evident at the south-west corner of the survey area and a second linear anomaly (8), over 30m long, was present at its eastern end. These anomalies both correspond with field boundaries recorded on the 1st edition Ordnance Survey map of 1874 (see Fig. 9). As with the other two survey areas, a series of drains, in the form of a number of parallel linear anomalies, was clearly visible. The variations in the readings along the northern edge of the area, causing what seemed to be a positive and a negative anomaly, are most probably a result of the magnetic influence of the nearby fence.

4 CONCLUSIONS

- 4.1 The geophysics has failed to reveal conclusive evidence of the location of the medieval pottery kiln that is likely to have operated in this locality. A small number of anomalies were evident but of these only one (No 4) may be significant and even that lies in an area that was occupied by a spoil tip, subsequently levelled, which was associated with the coal mining activities depicted on the first edition Ordnance Survey mapping.

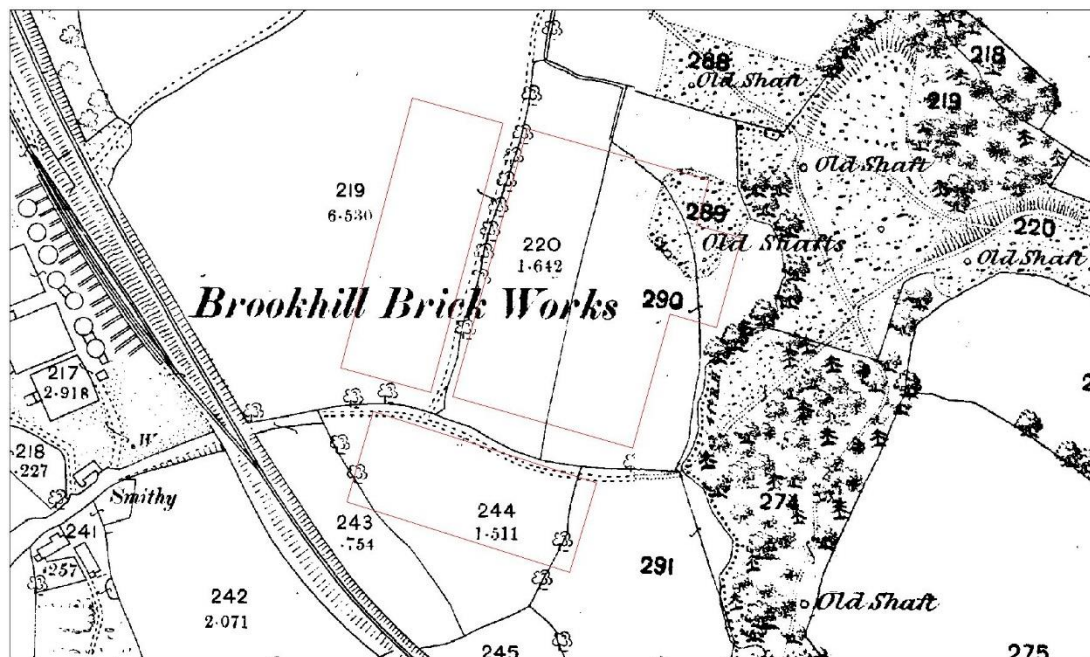


Fig. 9: The first edition Ordnance Survey mapping, overlaid with the geophysical survey areas (from the 1869 and 1874 Ordnance Survey maps)

- 4.2 Given that the kiln would probably have been of relatively restricted size, a further possibility could result from the need for magnetic gradiometer surveys to avoid the strong magnetic fields created by the wire fences found in modern field boundaries. In the case of this survey, it was necessary to leave a gap of around 15m between Area C and both A and B; there is still some potential for the kiln to lie on this boundary, perhaps too near to the fencing to be detected by this means.

5 ACKNOWLEDGEMENTS

- 5.1 The writer would like to thank Mr R Bletcher, the landowner, for permission to carry out the work. Thanks are also due to his colleague at CPAT, Viviana Culshaw, for her assistance with the survey.

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- 1874 Ordnance Survey 1st edition 25" map, Flintshire 14.1
- 1899 Ordnance Survey 2nd edition 25" map, Flintshire 14.1
- 1899 Ordnance Survey 2nd edition 25" map, Flintshire 14.2
- 1912 Ordnance Survey 3rd edition 25" map, Flintshire 14.1
- 1912 Ordnance Survey 3rd edition 25" map, Flintshire 14.2