



## **GEOPHYSICAL SURVEY REPORT**

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**LAND WEST OF FRONT STREET**

**TUDHOE**

**COUNTY DURHAM**

prepared for

Nathaniel Lichfield and Partners

on behalf of

Mr David Johnston

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## **TUDHOE, COUNTY DURHAM:**

### **GEOPHYSICAL SURVEY REPORT**

#### *Summary*

*Northern Archaeological Associates Ltd (NAA) was commissioned by Nathaniel Lichfield and Partners (NLP Planning) on behalf of Mr. David Johnston to undertake a geophysical survey of land at (NGR NZ 26542 35529). This assessment is in support of an outline planning application for the development of 1.75 hectares of farmland.*

*This report will be submitted to inform the Local Planning Authority in relation to the historic environment and facilitate a more informed understanding of the potential heritage implications of any development of this plot of land.*

*The works included a search of the County Durham Historic Environment Record in order to be able to put any survey results into their local context and identify possible historic features should they be present.*

*The survey was carried out on the 12th December 2016. The gradiometer survey was successful in giving clear results and demonstrating underlying features within the field. These features largely consisted of ridge and furrow and a modern earthwork which could be clearly seen running east to west across the northern end of the field. There were also large areas of increased magnetic response which may be due to modern magnetic rubbish within the plough soil.*

*The survey did not identify any underlying archaeological features of significance.*

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A4 scaled figures:

Minimally Processed data

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## **1.0 INTRODUCTION**

- 1.1 Northern Archaeological Associates Ltd (NAA) was commissioned by NLP Planning on behalf of Mr. David Johnston to undertake a geophysical survey of land at (NGR 426542 535529) (**Figure 1**). This survey is in support of an outline planning application for the development of 1.75 hectares of farmland. The survey was undertaken on the 12th December 2016 to evaluate the archaeological potential of the area.
- 1.2 The site is situated to the north-east of Spennymoor. The site is located west of Front Street and comprises a field to the rear of the Black Horse Inn. The survey area measured approximately 1.75 hectares. The survey area consisted of a pasture field with tussocks of grass in places, discreet but largely ephemeral traces of ridge and furrow and a large earthwork which can be seen running east-west at the northern end of the survey area. The site rises gently in the south. The northern extent of the site is defined by a large ditch. The eastern edges of the survey area were defined by encroaching vegetation of brambles and nettles. The western edge of the site was defined by a wooden fence interspersed with bushes and trees.
- 1.3 The solid geology of the area consists of Pennine Middle Coal Measures, Mudstone, Siltstone and Sandstone. These are overlain by Devensian and Diamicton Till (BGS online viewer). The soils are listed as Brickfield 3 association. These consist of loamy and clayey surface-water gley soils belonging to the Brickfield, Dunkeswick and Hallesworth series. This soil type is found throughout northern England and found on land below 250m OD and whose parent material is derived from Carboniferous and Palaeozoic sandstones and shales (Jarvis *et al* 1984:123-6).

## **2.0 ARCHAEOLOGICAL BACKGROUND**

- 2.1 NAA undertook a search of the County Durham Historic Environment Record (HER) as part of the requirement from County Durham Archaeology Team to provide context for the geophysical survey. The search comprised sites within a radius of 1km surrounding the proposed development site. The gazetteer of HER results can be found in Appendix B.
- 2.2 There are no World Heritage Sites, scheduled monuments, Registered Parks and Gardens or Registered Battlefields within 1km of the proposed development site at Tudhoe.

- 2.3 A total of 11 listed buildings are located within 1km although none are within the site boundary. Tudhoe conservation area is located c. 125m to the west and south of the development site.
- 2.4 There are no designated or non-designated heritage sites located within the site boundary. Traces of ridge and furrow cultivation has been recorded within the site as part of the Aggregates Levy Sustainability Fund (HA13) and is presumed to be of post-medieval date. A linear earthwork is extant within the northern portion of the site. It is not clear what purpose the earthwork serves. It is not depicted on the 1923 Ordnance Survey (OS) map. However, it does appear on an aerial photograph from 1945 (Google Earth Images). The earthwork bank is on an east-west alignment and passes into the field to the west.
- 2.5 Historically, the field proposed for the development does not appear to have been used for purposes other than agriculture. The 1839 Tithe Map (Durham University Library) labels the field as 'Easter Field' and was owned by William Thomas Salvin, whose family had a lengthy involvement with the settlement of Tudhoe. (NAA 2006:11) and the tenant was Michael Fenwick. The field name is likely to have derived from 'eastern piece of land or land by a sheepfold' (Field 1972:69) and the apportionment describes it as arable. There are no sheep folds shown on the Tithe Plan.
- 2.6 The later 19<sup>th</sup> and 20<sup>th</sup> century mapping shows the gradual encroachment of development along the main roads south and west of the proposed development area, with the terrace housing to the east appearing along with Tudhoe Colliery on the 1898 OS map. No development is shown within the site.
- 2.7 There are a number of sites located within the 1km study area with the listed buildings primarily to the west within the historic core of Tudhoe. Only one is within 100m of the site. Tudhoe Primitive Methodist Church (HA9), built around 1870 for the miners at the nearby colliery. The Church is Grade II listed. The building is constructed from sandstone and ashlar. It is now within the row of terraced houses along Front Street.
- 2.8 There is little recorded prehistoric material within the study area. Iron Age activity has been recorded c. 800m to the southeast of the site (HA 18 and HA20). This comprised a series of enclosures or small rural settlement whose earliest phase was during the Iron Age and activity continued into the second and third centuries AD. This

continuity into the Roman and Romano-British period is the only evidence of this date within the study area.

- 2.9 There is no physical evidence of early medieval activity within the study area and what evidence there is comprises mainly place name evidence. Tudhoe derives from the Old English *Tudhou* which meant 'hillpsur of a man called Tûda' (Mills 1991:470) Spennymoor, 1.7km to the south, derives from two Old English or Old Scandinavian elements, 'spenning' and 'mor', suggesting pre-Conquest activity within the area. The name translates literally to mean 'moor with a fence or enclosure' (*Op Cit*, 304). Similarly, within the surrounding area, the place-names of Whitworth, Hett, Kirk Merrington and Ferryhill all derive from Old English, or a combination of Old English and Old Scandinavian elements (*Op Cit* 335, 357, 170, 228 and 130).
- 2.10 Tudhoe (HA16) is not covered within the Domesday Survey, being north of the River Tees. The earliest documents to mention Tudhoe come from the reign of King John. In around 1200 Emma de Bulmer, daughter of the Lord of Brancepeth and widow of Geoffrey de Neville, granted the whole of Tudhoe to Robert fitz Meldred, Lord of Raby, who had married Emma's daughter Isabella. The manor passed through numerous hands following this (NAA 2006:10).
- 2.11 For most of its history, Tudhoe was within the parish of Brancepeth. However, Brancepeth lies across the River Wear from Tudhoe but there has never been a bridge connecting the two settlements, and the ford was often impassable in winter. As a result, Tudhoe baptisms, weddings and burials took place at Whitworth on such occasions and because of this, there was a tendency to view Tudhoe as an isolated outpost of Brancepeth. Tudhoe is a two-row green village of a type common in County Durham: other examples that still retain their original form are Hett, Shadforth, West Auckland and Staindrop (*Op Cit* 10-11).
- 2.12 The settlement appears to have grown during the later post-medieval period, linked to the expansion of nearby industrial works. The main core of the village was already in existence, c. 250m west of the proposed development site. Known post-medieval assets within proximity to the site consist of the terrace housing (HA14) and the 1870 Grade II listed Primitive Methodist Church (HA9) to the east. Beyond this was Tudhoe Colliery, which opened in 1864. Aside from the nearby colliery, there is no evidence for coal mining or other mineral extraction within the site.

2.13 The only modern site within the study area is a World War memorial (HA18), located c. 300m to the west of the site.

### 3.0 AIMS AND OBJECTIVES

3.1 Initial consultation with the County Durham Archaeology Team established a requirement for geophysical survey to ascertain if any potential archaeological features were present within the development boundary and allow the Archaeology Team to make an informed determination of the planning application.

3.2 Consequently, the aim of the survey was to:

- Identify any features within the development boundary;
- Characterise the nature of any remains within the project boundary;
- Identify possible concentrations of archaeological activity;
- Inform the requirement for any further archaeological works;
- To produce an interpretive report including XY trace plots and raw and processed greyscale images; and
- Provide a copy of the report to the local Historic Environment Record and OASIS.

### 4.0 METHODOLOGY

**Table 1: Survey summary**

|                           | Survey    |
|---------------------------|-----------|
| Grid size                 | 30m x 30m |
| Traverse interval         | 1m        |
| Reading interval          | 0.25m     |
| Direction of 1st traverse | North     |
| Number of Grids           | 23        |

4.1 The geophysical survey was undertaken as gradiometer survey using the Bartington 601-2 dual magnetic gradiometer system with data logger. The readings were recorded at a resolution of 0.1nT. All recorded survey data was collected with reference to a site survey grid, comprised of individual 30m x 30m squares, and was established using Real Time Kinematic (RTK) differential GPS equipment and marked out using non-



metallic survey markers. All grid nodes were set out with a positional accuracy of at least 0.1m as per existing guidelines (English Heritage 2008; ClfA 2014) and could be re-located on the ground by a third party. Further details are available in **Appendix A** Technical Information

4.2 The base line is shown on **Figure 2**

**Table 2: Grid co-ordinates**

| Grid point A                  | Grid point B                  |
|-------------------------------|-------------------------------|
| NGR 426548.0500 / 535594.5689 | NGR 426545.3807 / 535407.2481 |

4.3 The gradiometer survey was undertaken in accordance with current guidelines (English Heritage 2008 & ClfA 2014). In this report, the word anomaly is used to refer to any outstanding high or low readings forming a particular shape or covering a specific area.

4.4 The processing was undertaken using Geoplot 3.0 software and consisted of standard processing procedures (**Appendix A**). For this project the data was processed using:

**Table 3: Processing steps**

| Minimal Processing   | Increased Processing   |
|--|--|
| <ul style="list-style-type: none"> <li>• Zero Mean Traverse +5/-5</li> </ul> | <ul style="list-style-type: none"> <li>• Zero Mean Traverse +5/-5</li> <li>• Despike X=1 Y=1 Thr=3</li> <li>• Clip +20/-20</li> <li>• Destagger</li> <li>• Zero mean grid Thr .25</li> <li>• Low Pass Filter</li> <li>• Interpolate Y Expand=SinX/X, x2</li> </ul> |

4.5 On the greyscale plot (**Figure 3**), positive readings are shown as increasingly darker areas and negative readings are shown as increasingly lighter areas. The XY trace plot demonstrates the readings as offsets from a central line. The interpreted data uses colour coding to highlight specific readings in the survey area.

### **Surface Conditions and other Mitigating Factors**

- 4.6 The survey area consisted of a pasture field with tussocks of grass in places, discreet ridge and furrow and a large earthwork which can be seen running east-west at the northern end of the field. The site rises gently in the south.
- 4.7 The church hall for St. David's Church is surrounded by a metal fence which forms the boundary to the site in the south-western corner of the field. Large metal objects such as this can have an effect on the geophysical data causing effects which may mask archaeological responses in the data. Within the field there was an area of dumped burnt material, and in the north-eastern corner there was a telegraph pole and a group of three manhole covers set in a concrete base. It is likely that these objects have a high magnetic susceptibility and so may mask the more discreet responses of archaeological features in the data. With the exception of the spread of burnt material the potential for the other objects to cause issues was mitigated by halting the data collection two meters short of the objects and the boundary.
- 4.8 The results of geophysical survey may not reveal all archaeology and does not provide a comprehensive map of the sub surface only responses relative to the environment. Geological, agricultural and modern responses may mask other features and short lived features may not give strong responses. Only clear features have been interpreted and discussed within this report.

## **5.0 RESULTS**

- 5.1 The gradiometer survey was successful and created clear results demonstrating previous use of the site and geological features.
- 5.2 **Figure 3** shows the minimally data, the data having been through the processing listed in the methodology, the XY trace plot of the survey area, and the interpretation of the data. Specific features and anomalies referred to in the text are numbered.

### **Description and interpretation**

- 5.3 The clearest anomalies within the survey can be seen running east to west across the northern half of the site (**1a** & **1b**). The western half (**1a**) consists of a strong positive linear anomaly which is bordered by corresponding negative linear anomalies to the north and south. This part corresponds with a prominent earthwork which can be seen in the field. The earthwork is at its highest and broadest at the western edge of the

field. It then narrows and decreases in height towards the eastern edge of the field. The eastern half of the anomaly (**1b**) roughly corresponds with the area where the earthwork has significantly reduced in height and has become narrower. The eastern half of the anomaly consists of a weaker positive linear anomaly which is also bordered by corresponding negative linear anomalies to the north and south. The strength of the anomalies appears to correspond to how much of the earthwork survives above ground.

- 5.4 The survey area also consists of several more discreet positive linear anomalies (**2**) and trends (**3**). These may relate to in filled cut features such as small shallow ditches. It is possible that the trends may also have a natural origin.
- 5.5 The survey is also covered by long linear parallel positive and negative anomalies which are largely agricultural in nature. The most clearly defined of these are thought to be possible land drains (**4**). Between the drains are areas of ridge and furrow (**5**). Traces of ridge and furrow cultivation has been recorded within the site as part of the Aggregates Levy Sustainability Fund (HA13) and is presumed to be of post-medieval date.
- 5.6 The survey results show a spread of dipolar responses, which are typically due to the influence of modern material inclusions in the top soil (**6**).
- 5.7 The survey results are also dominated by areas of increased magnetic response (**7**). These are areas of clusters of numerous dipolar responses. These may be due to general ground disturbance where it has previously been churned up or it may be as a result of a spread of thermoremanent material such as bricks or ash.
- 5.8 Three large bipolar anomalies were seen across the survey area. One appears to have been caused by a spread of burnt material which could clearly be seen on the surface (**8**). The second of these anomalies (**9**) would appear to relate to an above ground feature on the eastern edge of the survey. This comprised three large manhole covers set in a concrete base.

### **Site Photographs**

- 5.9 Photographs of the site were taken during the course of the survey. These were taken to illustrate ground conditions and vegetation cover and any extant features which may have a bearing on the survey. have a bearing on the survey.



Plate 1: *View of site from southeast corner, looking north.*



Plate 2: *View of western part of survey area.*



Plate 3: *Embankment in northern part of field, looking northwest.*



Plate 4: *View of embankment and site, viewed from northern end looking south.*

## **6.0 CONCLUSIONS**

- 6.1 Clear results have been produced from the survey. The most prominent anomalies correspond to an earthwork which can be seen running from east to west across the site. The majority of the remaining anomalies appear to relate to agricultural practices and to the general disturbance of the ground. It is possible that the ridge and furrow responses and the areas of increased magnetic response may be masking potential archaeology beneath. However, given the lack of previously recorded heritage assets within the immediate proximity of the site, this is considered unlikely. The ridge and furrow would indicate a lack of truncation through mineral extraction, which, given the frequency of this within the wider area, was a possibility.

## **7.0 STORAGE AND CURATION**

- 7.1 The records are currently held by NAA. It is intended that the site archive will be transferred to the appropriate repositories. All material would be appropriately packaged for long-term storage in accordance with both national guidelines and to the requirements of the appropriate museum.

### **References**

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- Chartered Institute for Archaeology (2014) *Standard and guidance for archaeological geophysical survey*. ClfA, Reading
- English Heritage (2008) *Geophysical Survey in Archaeological Field Evaluation*. English Heritage, Portsmouth
- Field, J., (1972) *English Field Names: A Dictionary*. David and Charles Publishers Ltd, Newton Abbott
- Jarvis, R.A., Bendelow, V.C., Bradley, R.I., Carroll, D.M., Furness, R.R., Kilgour, I.N.L. and King, S.J. (1984) *Soils and their use in Northern England*. Harpenden
- Mills, A.D.,(1991) *Oxford Dictionary of British Place Names*. Oxford University Press, Oxford
- NAA (2006) *Land at Merrington Lane and Green Lane Industrial Estates, Spennymoor, County Durham: Archaeological Desk-Based Assessment*. Unpublished Client Report Ref. **06/91**
- Soil Survey of England and Wales (1983) *Soils of England and Wales Sheet 1: Northern England*. Ordnance Survey, Southampton

**Online Resources**

British Geological Survey (2017) *Geology of Britain viewer*

<https://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html> [Accessed 22nd December 2016]

Durham University Library (20156) Special Collections Catalogue Tithe apportionments and plans

[http://reed.dur.ac.uk/xtf/view?docId=ark/32150\\_s1gf06g2666.xml#DDR-EA-TTH-t](http://reed.dur.ac.uk/xtf/view?docId=ark/32150_s1gf06g2666.xml#DDR-EA-TTH-t) [Accessed 22nd December 2016]

Google Earth: (2016) Satellite imagery copyright Getmapping [Accessed 22nd December 2016]

National Library of Scotland Maps <http://maps.nls.uk/> [Accessed 22nd December 2016]

## **APPENDIX A TECHNICAL INFORMATION**

### **Instrumentation**

The Bartington 601-2 is a single axis, vertical component fluxgate gradiometer comprising a data logger battery cassette and two sensors. The sensors are Grad-01-1000L cylindrical gradiometer sensors mounted on a rigid carrying frame, each sensor contains two fluxgate magnetometers with 1m vertical separation.

The Magnetometer records two lines of data on each traverse, the grids are walked in a zig-zag pattern amounting to 15 traverses. The gradiometers are calibrated at the start of every day and recalibrated whenever necessary.

The difference in the magnetic field between the two fluxgates in each sensor is measured in nanoTesla (nT) and for this investigation the readings are measured at 0.1nT. The units' sensors can measure down to 1m from the ground level depending on the ground conditions.

Readings reach between +/-100nT and lower readings are created by upstanding or harder remains such as walls or areas of stone, higher readings are created by softer or cut features, such as ditches and pits (see below).

### **Magnetic anomalies and terminology**

The different magnetic anomalies can represent different features created by soil and geology, human activity, modern services etc.

Positive linear anomalies are dark lines often caused by archaeological features, such as ditches and field boundaries but can also be natural.

Positive points represent cut features which can be archaeological or natural.

Positive linear anomalies with associated negative responses with strong readings are often modern services such as cables; however weaker responses can be archaeological features such as earthworks.

Negative linear anomalies represent earthworks, walls and other upstanding or compacted remains. Negative points can represent archaeological or natural features.

Bipolar readings are composed of negative and positive readings often created by linear features such as pipelines.

Dipolar readings are single positive responses with a surrounding negative response. Strong responses tend to be caused by ferrous objects.

Areas of heating/burning or heated objects produce thermoremanent responses as this creates a magnetic field. These can appear as bipolar responses or as magnetic debris depending on whether it is in situ, or moved into place.

Magnetic debris is noticeable as areas of positive and negative responses, which can relate to general ground disturbance, spreads of ferrous debris or areas of rubble.



High amplitude magnetic disturbance is caused by standing metal structures such as fencing and buildings. This can cause interference extending out from the structure, across the area and is often found at the edges of the survey area.

Variable weak magnetic responses can demonstrate natural features or changes in geology or soil type.

### **Limitations**

Poor results can be due to several factors including short lived archaeological occupation/use or sites with minimal cut or built features. Results can also be limited in areas with soils naturally deficient in iron compounds or in areas with soils overlying naturally magnetic geology, which will produce strong responses masking archaeological features.

Overlying layers such as demolition rubble or layers of made ground can hide any earlier archaeological features. The presence of above ground structures and underground services containing ferrous material can distort or mask nearby features.

Particularly uneven or steep ground can distort results beyond the capabilities of processing to even out. Over processing of data can also obscure features.

### **Processing and figures**

The processing is undertaken using Geoplot 3.0 software, and the following processing techniques:

- Zero Mean Traverse - to remove directional effects inherent in the survey,
- Destagger - to shift the traverses back or forward to correct for user error,
- Clipping - to enhance the weaker features, by reducing the readings above a set value,
- Despike - removing data points that are above an appropriate mean to reduce the appearance of dominant readings, created by modern ferrous objects distorting the results,
- Multiply – this function multiplies the data by a positive or negative value. This normalises data between different operators,
- High pass filter - reduces geological effects from the data.
- Low pass filter - Decreases the correlation between neighbouring cells effectively smoothing the data
- Interpolation – reduces the blocky effect of the survey smoothing the appearance of the data.

The data is used to produce a series of images to demonstrate the results of surveys these are detailed below:

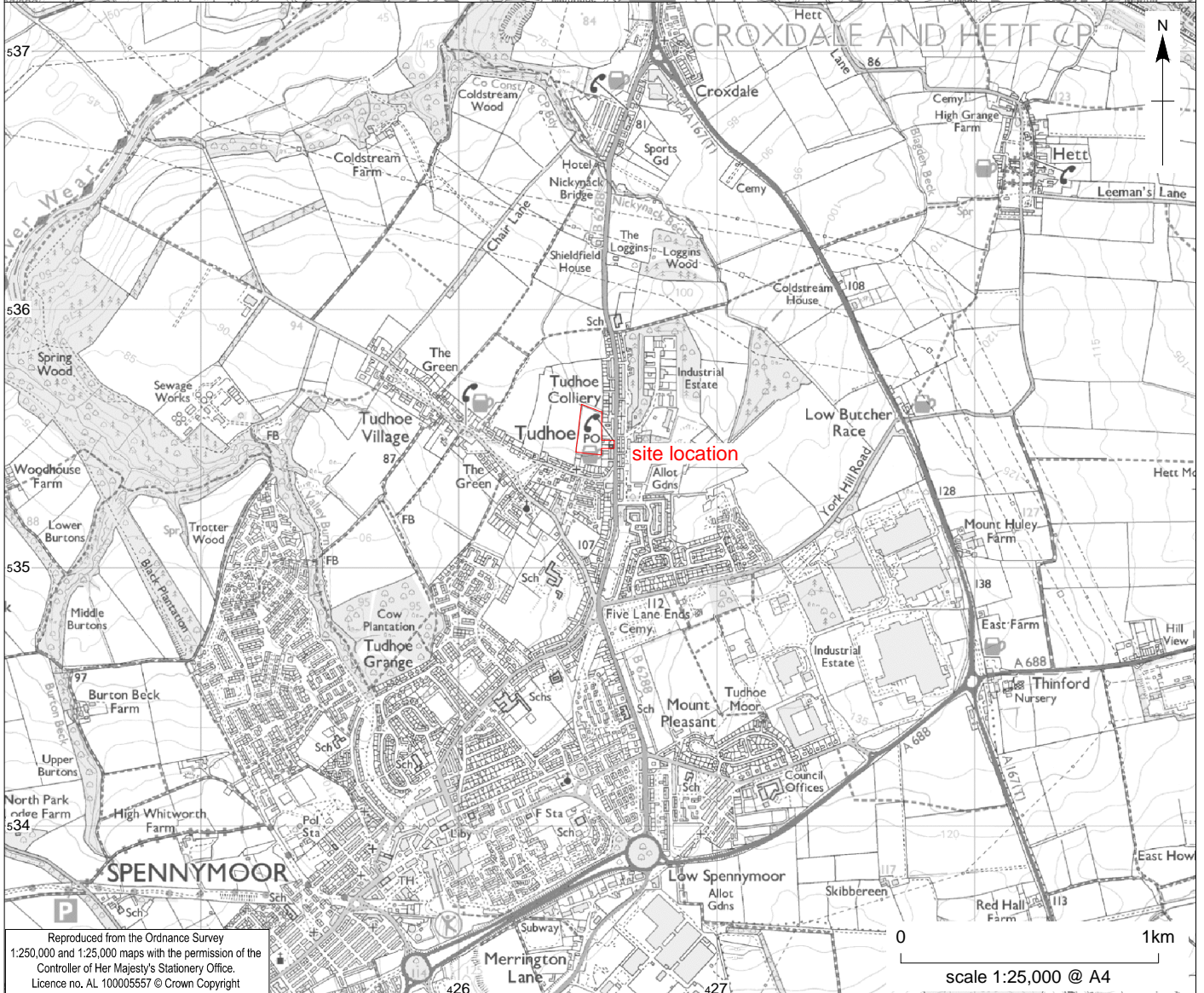
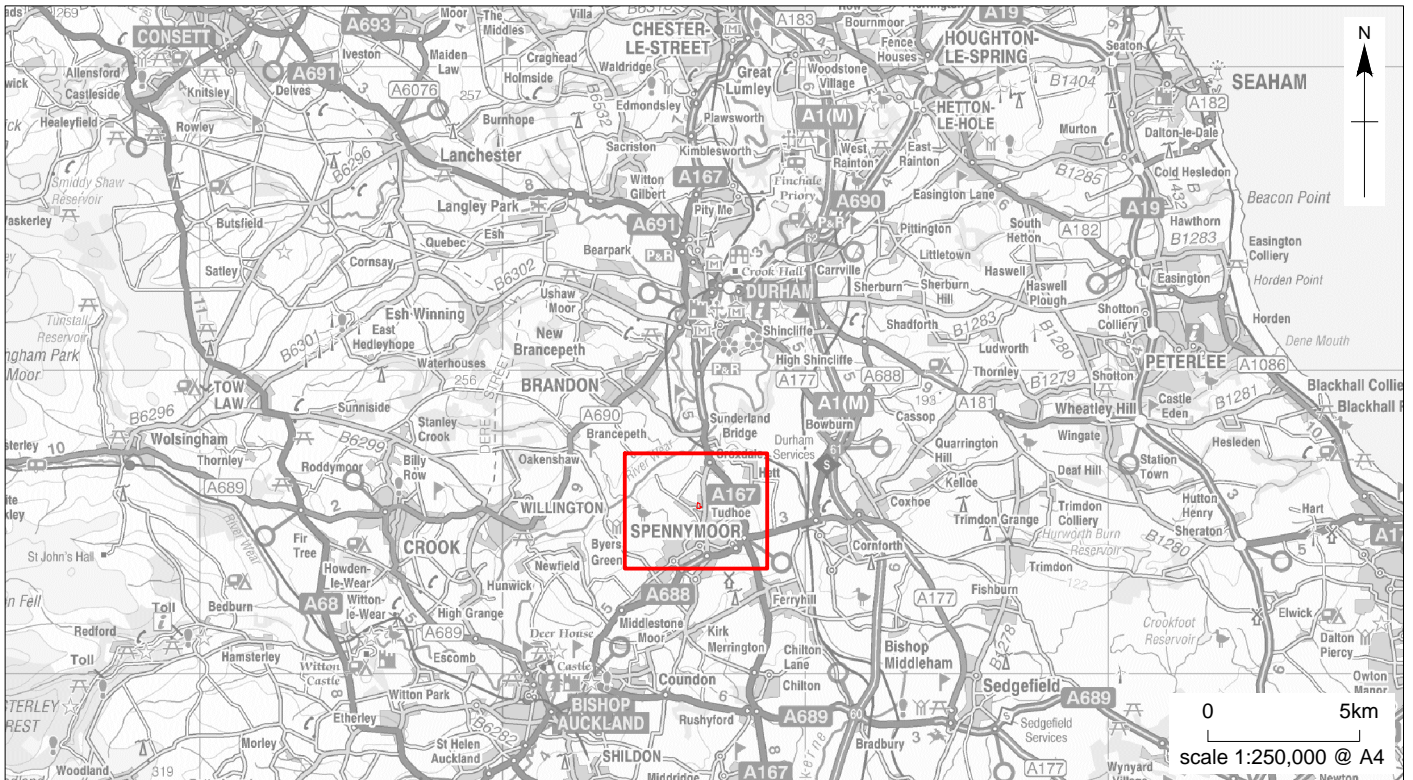
- Greyscale/Colourscale Plot – This demonstrates the results as a shaded drawing with highest readings showing as black, running through different shades to lowest showing

as white. This can also be created using a colour pallet to demonstrate the different values.

- XY Trace Plot – This creates a line drawing showing the peaks and troughs of the readings as vertical offset from a centreline.
- Interpreted data – This is created to show features and particular high or low readings to re enforce and clarify the written interpretation of the data. This is based on the Greyscale plot but with different colours representing the various readings.

APPENDIX B GAZETTEER OF HISTORIC ENVIRONMENT RECORD SITES

| HA NO. | HER OR LIST ENTRY | DESCRIPTION   | STATUTORY DESIGNATION     | PERIOD                         |
|--------|-------------------|---|---------------------------|--------------------------------|
| 1      | 1121440           | TUDHOE HALL FARM AND TUDHOE HALL.   | GRADE II* LISTED BUILDING | 17 <sup>TH</sup> CENTURY       |
| 2      | 1121441           | NORTH FARM.   | GRADE II LISTED BUILDING  | LATE 18 <sup>TH</sup> CENTURY  |
| 3      | 1121442           | NO.41 (THE GREEN TREE PUBLIC HOUSE) AND NO.43   | GRADE II LISTED BUILDING  | 18 <sup>TH</sup> CENTURY       |
| 4      | 1121443           | 87 (FERNLEA) THE GREEN, TUDHOE VILLAGE  | GRADE II LISTED BUILDING  | LATE 18 <sup>TH</sup> CENTURY  |
| 5      | 1121446           | GATE PIERS AND PIERS NORTH OF CHURCH OF ST.CHARLES  | GRADE II LISTED BUILDING  | LATER 19 <sup>TH</sup> CENTURY |
| 6      | 1121479           | WAR MEMORIAL STATUE, INSIDE NORTH ROAD ENTRANCE TOTUDHOE CEMETERY.  | GRADE II LISTED BUILDING  | MODERN                         |
| 7      | 1160007           | ST. CHARLES' R.C. CHURCH & PRESBYTERY, TUDHOE VILLAGE   | GRADE II LISTED BUILDING  | LATER 19 <sup>TH</sup> CENTURY |
| 8      | 1322832           | COLLIERY DISASTER MEMORIAL IN YORK HILL CEMETERY, CIRCA 70 METRES EAST OF ENTRANCE  | GRADE II LISTED BUILDING  | LATE 19 <sup>TH</sup> CENTURY  |
| 9      | 1322853           | TUDHOE METHODIST CHURCH   | GRADE II LISTED BUILDING  | LATER 19 <sup>TH</sup> CENTURY |
| 10     | 1322854           | OUTBUILDING TO SOUTH EAST OF NO.22 (TUDHOE HALL FARM)   | GRADE II LISTED BUILDING  | EARLY 17 <sup>TH</sup> CENTURY |
| 11     | 1322855           | TUDHOE HOUSE AND LABURNUM COTTAGE AND WALLS ATTACHED  | GRADE II LISTED BUILDING  | EARLY 19 <sup>TH</sup> CENTURY |
| 12     | R41235            | TUDHOE CONSERVATION AREA  | CONSERVATION AREA         |                                |
| 13     | E34273            | ALSF SURVEY: ARCHAEOLOGICAL ASSESSMENT OF COUNTY DURHAM THE AGGREGATE-PRODUCING AREAS – TUDHOE FIELD 6396 POST-MEDIEVAL RIDGE AND FURROW  | POST-MEDIEVAL-            | POST-MEDIEVAL                  |
| 14     | H878              | SEVERAL LONG TERRACES OF MID-C19 HOUSING RUN ALONG THE ROAD, WITH A CHAPEL IN THE CENTRE AP AT SPENNYMOOR. A SEPARATE SOURCE (3) HAS IDENTIFIED A FAINT RECTANGULAR ENCLOSURE WITH A CROPMARK OF UNCERTAIN CHARACTER TO THE SOUTH. IT IS TOO SMALL TO BE A HOMESTEAD ENCLOSURE  |                           | 19 <sup>TH</sup> CENTURY       |
| 15     | H2881             | TUDHOE VILLAGE. POSSIBLE MEDIEVAL VILLAGE, SUGGESTED BY STRIP NATURE OF VILLAGE WITH GREEN, AND ALSO BY STRIP FIELDS SURROUNDING VILLAGE SHOWN ON FIRST EDITION OS, NOW APPARENTLY DESTROYED BY OPENCASTING   |                           | UNKNOWN                        |
| 16     | H5703             | BUTCHERS RACE, SPENNYMOOR. A LATE IRON AGE TO ROMANO-BRITISH SETTLEMENT WAS NOTED IN ADVANCE OF A DEVELOPMENT AT BUTCHER'S RACE, SPENNYMOOR IN 2008. EVALUATION REVEALED A COMPLEX OF FEATURES CONSISTING OF BOUNDARY DITCHES, GULLIES AND PITS DATED BY CERAMICS FROM THE IRON AGE TO THE MID THIRD CENTURY AD.  |                           | IRON AGE AND ROMAN             |
| 17     | H47718            | WAR MEMORIAL COLUMN, THE GREEN, TUDHOE VILLAGE. SANDSTONE COLUMN SURMOUNTED BY A GRANITE CAPITAL AND POINTED BLOCK CAP  |                           | MODERN                         |
| 18     | H49768            | ST. DAVID'S CHURCH, TUDHOE LANE, TUDHOE VILLAGE. A CHURCH FIRST APPEARS HERE ON THE SECOND EDITION ORDNANCE SURVEY MAPS OF 1894-1899 (1), LABELLED AS HOLY INNOCENTS' MISS. CH. THE THIRD EDITION OS MAP (2) THEN HAS THE BUILDING LABELLED AS ST. DAVID'S CHURCH. IT IS DOCUMENTED THAT THE ORIGINAL PARISH CHURCH OF HOLY INNOCENTS WAS BUILT IN 1880 BUT THAT WAS DEMOLISHED.  |                           | 19 <sup>TH</sup> CENTURY       |
| 19     | H49770            | SMALL RURAL ROMAN SETTLEMENT / AGRICULTURAL ENCLOSURES AT BUTCHER'S RACE, SPENNYMOOR. IRON AGE AND ROMAN POTTERY WERE RECOVERED FROM AN OPEN-AREA EXCAVATION AT BUTCHER'S RACE, SPENNYMOOR. THE REMAINS ARE THOUGHT TO REPRESENT A SERIES OF AGRICULTURAL ENCLOSURES OR PERHAPS A SMALL RURAL SETTLEMENT THAT WAS OCCUPIED DURING THE SECOND AND THIRD CENTURIES AD. AN EARLIER IRON AGE PHASE TO THE SITE WAS ALSO SUGGESTED |                           | IRON AGE AND ROMAN             |
| 20     | H59705            |   |                           |                                |

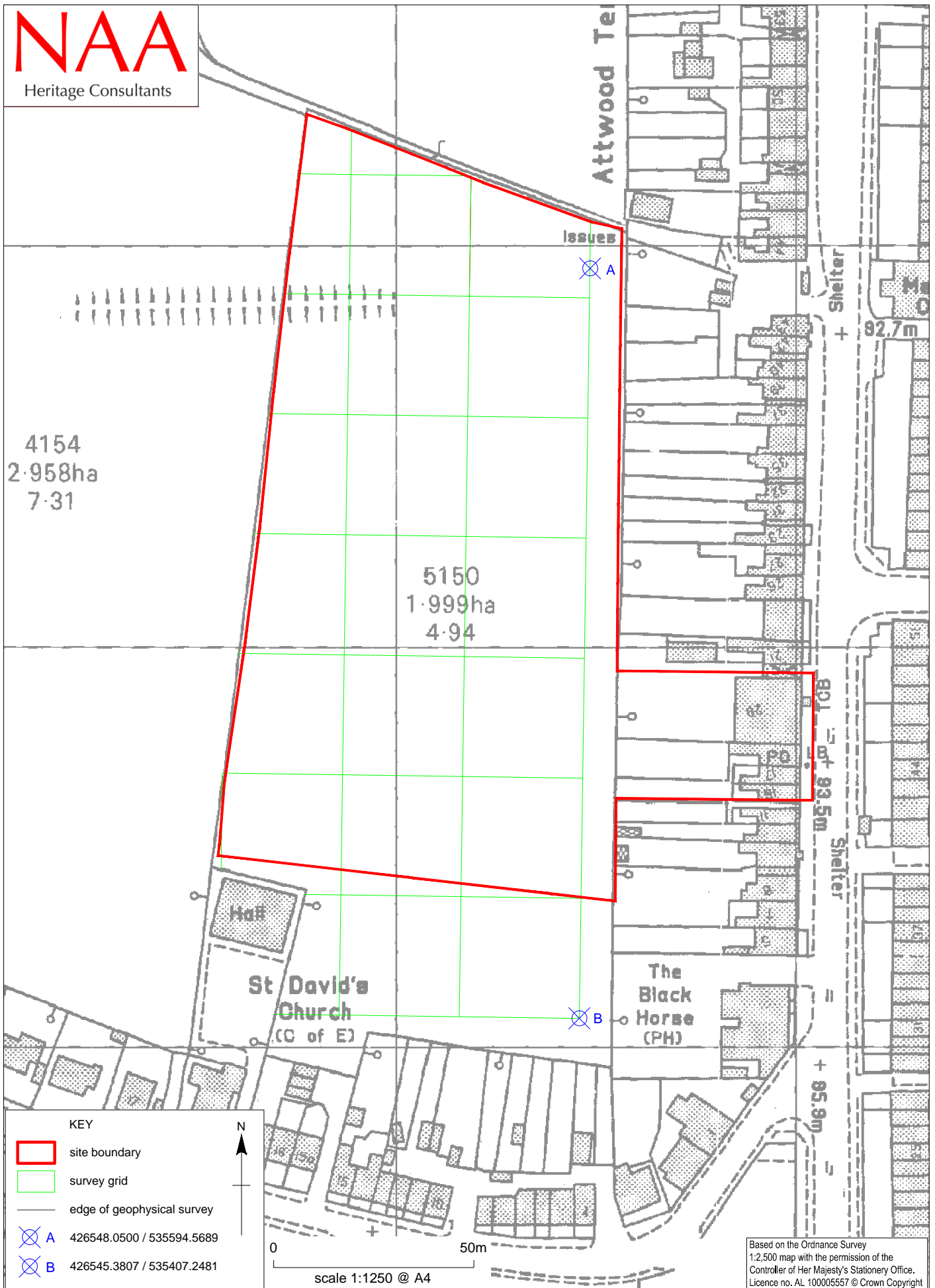


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Tudhoe, County Durham: site location

Figure 1



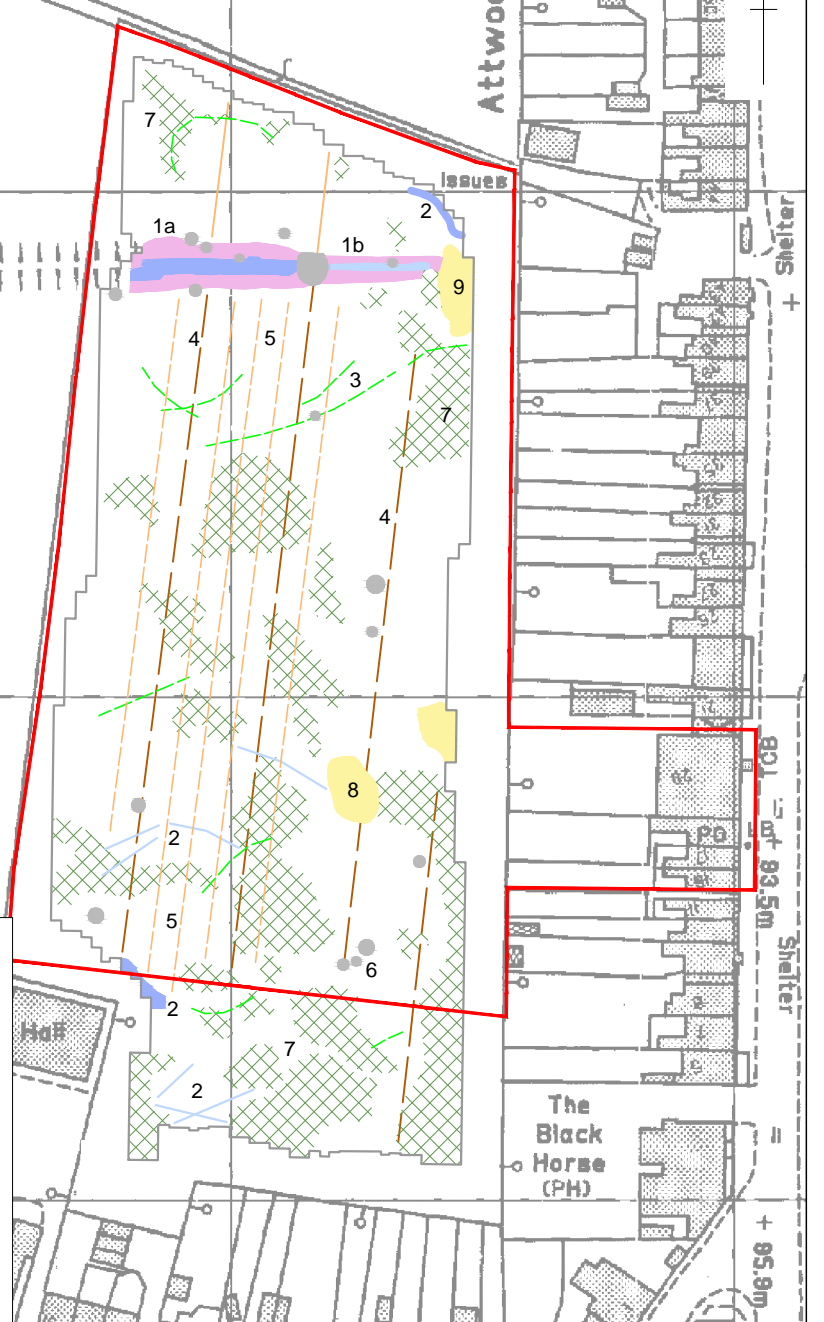
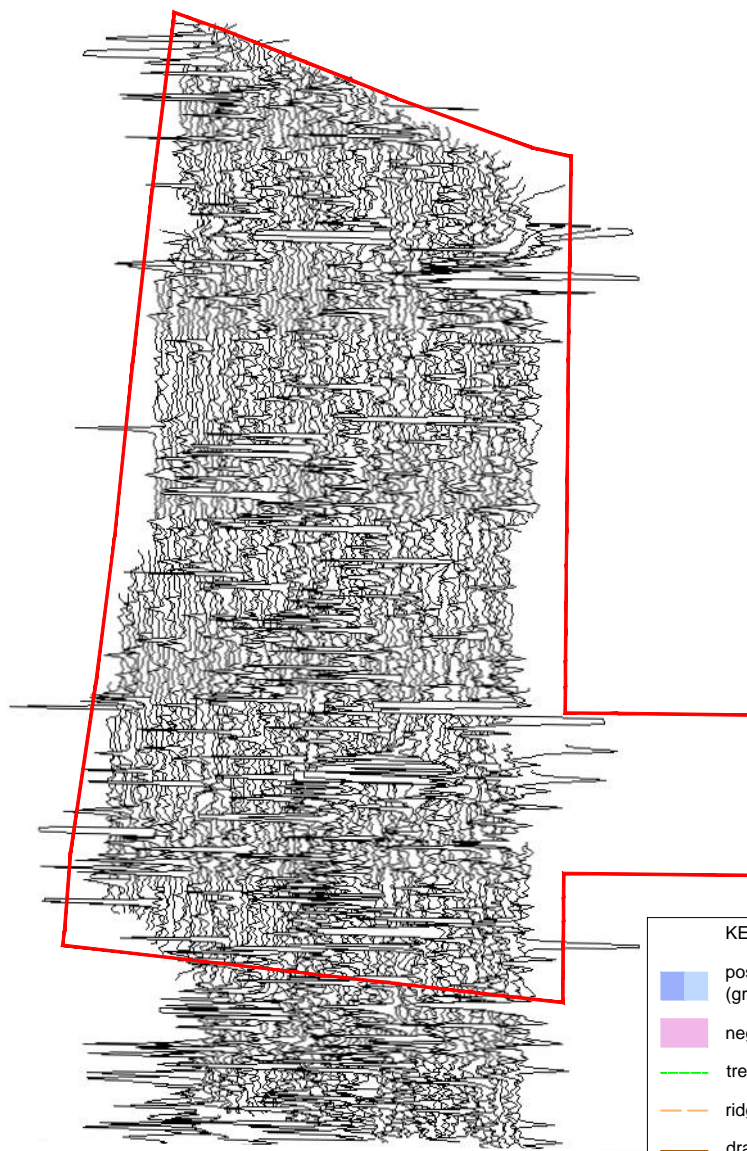
minimally processed data

processed data



XY plot

interpretation



- KEY
- positive response (probable archaeology) (greater / lesser)
  - negative response (probable archaeology)
  - trends
  - ridge and furrow / ploughing
  - drains
  - increased magnetic response / debris
  - dipolar response (ferrous objects)
  - bipolar response (modern)
  - edge of geophysical survey

XY scale  
46.51 nT