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BURNETTS

LAND AT HALL BANK FARM,
STAINTON,
CUMBRIA

DESK BASED ASSESSMENT AND GEOPHYSICAL SURVEY REPORT

MAY 2017

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BURNETTS

Land at Hall Bank Farm, Stainton, Cumbria

Desk Based Assessment and Geophysical Survey Report

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SUMMARY

Wardell Armstrong (WA) was commissioned by the client, Burnetts, to undertake a desk-based assessment and geophysical survey of land at Hall Bank Farm, Stainton, Cumbria, CA11 0EE, (NGR: centred NY 48739 28390). The survey was required to inform a proposed planning application for a new housing development at the site. The survey was undertaken in accordance with a written scheme of investigation (WSI) produced in response to advice given by Jeremy Parsons, Historic Environment Officer, acting as the archaeological planning advisor on behalf of Cumbria County Council.

The geophysical survey was undertaken within fields associated with Hall Bank Farm at the north-eastern edge of the medieval settlement of Stainton. The farmhouse is grade II listed, and originates in the 17th century. Cartographic evidence and a site visit identified a former field boundary and an extant field boundary, known from a 1775 map, within the survey area. Other field boundaries, known from later maps, as well as a hollow way to the immediate east of the survey area also lie in the study area, though only three probable 19th century field boundaries will be directly impacted upon by the development proposals.

The geophysical survey covered approximately 4ha of pasture fields. Several sections contained modern agricultural equipment which caused magnetic disturbance and resulted in some areas being omitted from the survey area. Due to the steep angle of the hill and heavy rainfall, some sections could not be surveyed safely and were omitted from the geophysical survey.

Areas 1 and 6 contain geophysical anomalies of unknown origin which are possibly archaeological in origin. The close proximity of known sites relating to the prehistoric, as well as medieval to modern periods, may account for these, as well as indicating the potential for further features, not encountered during the geophysical survey, to survive in the area of the survey. Areas 1, 5, 6, 7, and 8, contain evidence of historical agriculture in the form of ridge and furrow and former field boundaries, which were identified during the historical research. A well is known to have existed on the eastern edge of Area 7, though both the site visit and geophysical survey failed to find any trace of this well. A further well is still marked on modern mapping and was noted as a spring during the geophysical survey.

The proposed development is likely to have a direct impact on three field boundaries of probable 19th century origin, and on an area of ridge and furrow identified by the geophysical survey results. These are of local significance only, but may require mitigation.

ACKNOWLEDGEMENTS

Wardell Armstrong (WA) thanks Daniel Addis, Senior Planning Consultant at Burnetts, for commissioning the project, and for all assistance throughout the work. Also, WA thank Jeremy Parsons, Historic Environment Officer, at Cumbria County Council Historic Environment Service for his assistance during this project.

The desk-based research was undertaken by Ariane Buschmann and Cat Peters, and the geophysical survey was undertaken by Steven Chetwynd, Adam Mager and Rachel Frame. The report was written by Ariane Buschmann, Cat Peters and Steven Chetwynd. The figures were produced by Helen Phillips and Steven Chetwynd. The project was managed by Frank Giecco and David Jackson who also edited the report.

1 INTRODUCTION

1.1 Project Circumstances and Planning Background

1.1.1 In March 2017, Wardell Armstrong (WA) undertook a desk based assessment and geophysical survey of land at Hall Bank Farm, Stainton, Cumbria, CA11 0EE, (NGR: centred NY 48739 28390). It was commissioned by the client to provide information to support a proposed planning application for a housing development at the site.

1.1.2 Jeremy Parsons, Historic Environment Officer at Cumbria County Council advised that a desk-based assessment and geophysical survey should accompany any planning application for a development at the site, based on the size of the proposed development site and its location at the edge of the medieval village at Stanton, and the fact that prehistoric remains have been recovered in the vicinity.

1.1.3 The geophysical survey of the site was therefore commissioned in order to help determine the presence or absence of archaeological remains within the proposed development site. This is in line with government advice as set out in Section 12 of the National Planning Policy Framework (NPPF 2012).

1.2 Project Documentation

1.2.1 This project conforms to advice provided by Jeremy Parsons, Historic Environment Officer at Cumbria County Council (email dated 27th September 2016). This is in line with government advice as set out in Section 12 of the National Planning Policy Framework (NPPF 2012).

1.2.2 This report outlines the results of the geophysical survey undertaken, and includes an interpretation of the geophysical survey results, in light of the historical and archaeological background of the site provided by the desk based research.

2 METHODOLOGY

2.1 Standards and guidance

2.1.1 The geophysical survey was undertaken following the Chartered Institute for Archaeologists *Standard and Guidance for an archaeological geophysical survey* (2014), and Historic England guidelines.

2.2 Documentary Research

2.2.1 Part of the remit of this work was for an archaeological desk-based assessment, and this has been incorporated within this report. This sets out the archaeological and historical background of the site, and provides an assessment of the significance of all known and potential heritage assets up to 1km from the area of investigation, and an assessment of impact on designated sites in the vicinity and upon any features within the site boundary.

2.2.2 The assessment of the impact of development proposals is undertaken using a series of heritage impact tables (Appendix 2). These tables use standard assessment methods as used by Government agencies, as for example those used in the Highway Agency's *Design Manual for Roads and Bridges* (2007). These tables first establish the significance of the heritage asset against set criteria, and secondly, they estimate the magnitude of impact and, taking the results of these two together, allow a calculation of impact on overall heritage significance.

2.3 The Geophysical Survey

2.3.1 ***Technique Selection:*** geomagnetic survey was selected as the most appropriate technique, given the non-igneous environment, and the expected presence of cut archaeological features at depths of no more than 1.5m. This technique involves the use of hand-held gradiometers, which measure variations in the vertical component of the earth's magnetic field. These variations can be due to the presence of sub-surface archaeological features***.***

2.3.2 Data were recorded by the instruments and downloaded into a laptop computer for initial data processing in the field using specialist software.

2.3.3 ***Field Methods:*** geomagnetic measurements were determined using a Bartington Grad601-2 dual gradiometer system, with twin sensors set 1m apart. It was expected that significant archaeological features at a depth of up to 1.5m would be detected using this arrangement.

2.3.4 The survey was undertaken using a zig-zag traverse scheme, with data being logged in 30m grid units. A sample interval of 0.25m was used, with a traverse interval of 1m, providing 3600 sample measurements per grid unit, with measurements being recorded at the centre of each grid cell.

2.3.5 ***Data Processing:*** the data was downloaded on site into a laptop computer for processing and storage.

2.3.6 The geophysical survey data was processed using TerraSurveyor software, which was used to produce 'grey-scale' images of the raw data. Positive magnetic anomalies are displayed as dark grey, and negative magnetic anomalies are displayed as light grey. A palette bar shows the relationship between the grey shades and geomagnetic values in nT for each area.

2.3.7 Raw data was processed in order to further define and highlight the archaeological features detected. The following basic data processing functions were used:

- Despike: to locate and suppress random iron spikes in the gradiometer data (despike was performed on all survey grids using a window of 11x3 and threshold of 2.0).
- Destripe: to reduce the effect of striping in the gradiometer data, sometimes caused by misalignment of the twin sensors (zero mean traverse was performed on all survey grids using a threshold of -5nT and 5nT).
- Destagger: to reduce location inaccuracies in the gradiometer data, sometimes caused by operator error (destagger applied in both x directions by -3 readings).
- Clip: to clip data to specified maximum and minimum values, in order to limit large noise spikes in the geophysical data (clipped from -3nT to 3nT).
- Interpolate: to match the resolution of the sample intervals in the x and y directions (increased in the y direction).

2.3.8 ***Interpretation:*** four types of geophysical anomaly were detected in the gradiometer data:

- *Positive magnetic*: regions of anomalously high or positive magnetic data, which may be associated with the presence of high magnetic susceptibility soil-filled features, such as pits or ditches.
- Negative magnetic: regions of anomalously low or negative magnetic data, which may be associated with features of low magnetic susceptibility, such as stone-built features, geological features, land-drains or sub-surface voids.
- *Dipolar magnetic*: regions of paired positive and negative magnetic

anomalies, which typically reflect ferrous or fired materials, including fired/ferrous debris in the topsoil, or fired structures, such as kilns or hearths.

- *Magnetic disturbance*: areas of high amplitude magnetic disturbance or interference, which may be associated with the presence of modern structures, such as services, fences or buildings.

2.3.9 ***Presentation:*** the grey-scale images were combined with site survey data and Ordnance Survey data to produce the geophysical survey figures used in the report. Colour-coded geophysical interpretation diagrams are provided for each area in the report, showing the locations and extent of magnetic anomalies. Archaeological interpretation diagrams are also provided, which are based on the interpretation of the geophysical survey results in light of the archaeological and historical context of the site.

2.4 Archive

2.4.1 A full professional archive has been compiled in accordance with the project specification, and the Archaeological Data Service (ADS 2013). The archive will be deposited with ADS, and a copy of the archive held at the Carlisle office. The archive comprises a compressed (zipped) file folder, containing the geophysics data, documentation (metadata), and other project material (report and field notes). With copies of the report sent to Cumbria County Council's HER, held at County Hall, Kendal, available upon request.

2.4.2 Wardell Armstrong Ltd supports the Online AccesS to the Index of Archaeological InvestigationS (OASIS) project. This project aims to provide an on-line index and access to the extensive and expanding body of grey literature, created as a result of developer-funded archaeological work. As a result, details of the results of this project will be made available by WA as a part of this national project. The OASIS reference for the project is: **wardella2-281302.**

3 BACKGROUND

3.1 Location and Geological Context

3.1.1 The site is centred on National Grid Reference NY 48739 28390. The site lies within agricultural hinterland land to the north-east of the centre of the village of Stainton. Stainton is a village located to the south of the A66, *c*. 3km to the south-west of Penrith, *c*. 2.2 km to the west of the M6, *c*. 22km east of Keswick and *c*. 4.7km north-east of Ullswater. The site itself comprises an area of agricultural land, in use as pasture at the time of the survey, located between the A66 Penrith to Keswick road to the north, a farm track leading under the main road to the east, buildings fronting Haw Bank to the south and buildings fronting The Pavillion road to the west. The area of investigation lies at a height of *c* 160m aOD (above Ordnance Datum) towards the south of the site, though the ground slopes steeply from the north-east and the A66, making some areas too steep to survey.

3.1.2 The site is approximately 6 hectares in size and is pasture within six fields associated with Hall Bank Farm. The areas where buildings were present were not subjected to geophysical survey and some areas had to be omitted due to steepness, but these have been included within the desk-based research.

3.1.3 The underlying solid geology within the area of investigation is mapped as mudstone, siltstone and sandstone of the Alston Formation deposited during the Carboniferous Period approximately 322 to 335 million years ago. This is overlain by superficial deposits of Diamicton of the Devensian till deposited up to 2 million years ago during the Quaternary Period (BGS 2017).

3.2 Historical and Archaeological Background

3.2.1 This desk-based assessment was produced to summarise the known historical and archaeological background of the site and the surrounding landscape to a distance of 1km (the study area). This historical background is compiled mostly from secondary sources, particularly earlier desk-based assessments undertaken in the vicinity (e.g. Wooler and Clark 2013 and Wooler and Moore 2014), and internet sources, and is intended only as a brief summary of historical developments specific to the study area. References to the Cumbria Historic Environment Record (HER) and the National Heritage List (NHL) are included where known, and have been taken from online databases.

3.2.2 ***Place Name Evidence:*** the place name 'Stainton' derives from the Old Norse words, stein and tun, meaning 'stony hamlet' (Lee 1998).

3.2.3 ***Prehistoric:*** the earliest recorded sites within the study area date to the Bronze Age (*c*. 2500 to 700BC). To the south-east of Stainton, on the south side of the River Eamont, lies 'Dacre Cairn', the remains of a round cairn on the slope of a hill, although no trace of this site could be found in 1966 (HER 1162). Also to the south-east of Stainton, but on the north side of the River Eamont, is the recorded location of 'Stainton Cist', believed to have been found in the 19th century, although the exact site and character is not known (HER 2933).

3.2.4 The possible remains of a prehistoric stone circle, referred to as the 'Dacre Stone Circle', is recorded to the east of Stainton, on the north side of the River Eamont. This site was recorded as being situated on top of a hill in 1883, although it could not be found in the 20th century (HER 2960). Located to the south of the suggested location of the 'Dacre Stone Circle' is 'Little Stainton Settlement', which is recorded simply as being of prehistoric date. This HER entry notes that the site consisted of 'excavated lines possibly of habitations known as Little Stainton along the side of the hill towards the river'. The exact location of this site could not be identified when the site was visited in 1997 (HER 3786).

3.2.5 ***Romano-British (c. 43 - 410AD)***: no archaeological sites are noted in the study area from the Romano-British period, although interestingly Kelly's Directory for Cumberland 1929 describes Stainton as 'the site of a Roman settlement'. There is, however, presently no archaeological evidence to substantiate this. In the wider landscape, there is some evidence for activity as indicated by the find spot of a Roman coin hoard to the west of Newbiggin. The hoard is recorded as having been found 'several hundred years ago', and contained coins ranging from Vespasian to Marcus Aurelius (HER 1158).

3.2.6 ***Early Medieval (c. 410-1066AD)***: as with the Romano-British period, the consultation of the HER database did not reveal any sites within an approximate 1km radius which relate to this period, although it is possible that the medieval settlement at Stainton may have earlier origins. It has already been noted above that the place name Stainton derives from Old English words, to mean 'stony hamlet', with Old English being the language that was spoken in the north of England during this period.

3.2.7 ***Medieval (c. 1066-1540AD)***: although the modern village of Stainton has a core of mainly 18th and 19th century houses, the HER records the possible extent of the

medieval settlement, which includes a wide area, the present study site at Hall Bank Farm being within the north-eastern part (HER 6774). Few earthworks relating to the medieval settlement survive, and those that do are fairly slight (HER 5224).

3.2.8 Located within the study area, to the west of the present survey area, is the suggested site of St John's Chapel. The HER entry for this site refers to the chapel having been 'extinct before 1571' (HER 1146), and writing in 1840, Samuel Jefferson noted that "*nothing appears to be known respecting it, not even its site, as the Dean and Chapter stated in answer to an Inquisition in 1571*" (Jefferson 1840, 199). It has been suggested that the original St John's Chapel was a 'chapel of ease', a tributary church to the mother church in Barton, whose extensive medieval parish reached to Kirkstone Pass, the summit of Helvellyn and parts of Greystoke and Dacre: 'this site is borne out of the fact that adjoining fields are called "*Kirksyke, Kirkrigg etc*" (Clementson nd, 6). When the site was visited in the late 20th century, a rectangular earthwork was still evident, suggested to be the chapel site, and broad ridge and furrow was noted to run over the earthwork and around it (HER 1146). Wall foundations and human remains from the medieval period were found in the field to the west of Greystoke House in 2014, seemingly corroborating the presence of the medieval Chapel of St John at this location (Stoakley 2014, 6).

3.2.9 Previous geophysical surveys covering land to the south of the present survey area detected an area of ridge and furrow, the distance between the furrows being *c.* 5m, suggesting a medieval origin (Wooler and Clark 2013, 23). Other anomalies included a curvilinear soil-filled feature which may be a ditch or gully (*ibid*). The previous geophysical survey was undertaken on land to the south of Haw Bank, *c*. 50m to the south of the present survey site. Furthermore, Google Earth Imagery covering the site in March 2014, seems to indicate possible north-east south-west orientated ridge and furrow in the central field covered by the present survey, Areas 7 and 8 (Plate 1) and this was confirmed by the geophysical survey (Figure 12-17).

Plate 1: Google Earth Imagery, 11th March 2014

3.2.10 ***Post Medieval (c.1540-present)*:** listed building information provides some indication of the ages of the older properties which still exist in the village of Stainton. Of 18th century date are properties such as Greystone House, Waltons Place, Ash View, Ash Cottage, Sycamore House, Stainton Hill and Hopland House. These properties are generally located along the main street through the village which is orientated roughly north to south, with the survey area located to the north-east. Writing at the end of the 18th century, Hutchinson noted that 'Stainton is a pleasant village', with the houses generally constructed of stone and covered in 'blue slate' (Hutchinson 1794-97, 472 and 476).

3.2.11 Hodskinson and Donald's map of Cumberland 1774 shows Stainton as a linear roadside village straddling the road heading south from the crossroads linking the Turnpike road from Penrith to the east, westwards to Penruddock, and a road heading northwards to 'Newbiggen'(Figure 3). No buildings are shown in the vicinity of the survey site. The Enclosure Map of 1775, however, was produced at a larger scale and provides clearer information on the character of the site as it was in the late 18th century (Figure 4). The present lane to the immediate east of the eastern boundary of the survey area is shown, and this is likely to be a hollow way. The 1775 plan shows the survey area as part of three fields, the western one was particularly large, and presumably had already been subjected to enclosure. The fact that two of the three have an 'F' labelled within the plots, may indicate they were owned by the same person, and interestingly, the plot occupied by Greystoke House, to the west of The Pavillion, is also marked 'F', so it could be that this land was associated with that house by this date. Greystoke Farmhouse and the adjoining barn is listed grade II (NHL

1319060) and includes a datestone over the entrance, inscribed 'Robert Dawson 1752'. Hall Bank itself, with adjoining barn is also a grade II listed building (NHL 1221221), dated and inscribed with 'W. and A.D. 1769', over the entrance, so although neither Greystoke House nor Hall Bank are shown on the Enclosure Map of 1775, both would have been built by this date, and the land was likely linked to one or the other, or the western part to one, and the eastern to the other. Two buildings are shown on the west side of The Pavillion on Clarke's Map of 1787 (Figure 5), the southern one must be Greystoke House, and the northern one probably what later became known as Church House. Hall Bank is not shown, though again, is likely to have been built by this date. Trade Directory evidence does not list Greystoke House as a farm.

3.2.12 The 1829 trade directory lists farms in Stainton, and includes "*Megg Bank*" and "*Bottoms*", Bottoms being occupied by Thomas Dawson at this date (Parson and White 1829, 471). Perhaps the Dawson family were associated with both Greystoke House and Bottoms, in the 18th and early 19th centuries. The earliest will lodged at the archives for a Dawson at Stainton is for Agnes Dawson in 1616 (CACC PROB/1616/WINVX45). A will for a Robert Dawson, yeoman, dating to 1791, may be the same Robert Dawson who built Greystoke House (CACC PROB/1791/WI378), and one for a William Dawson, yeoman, in 1820, may be the same 'W', who built Bottoms with 'A.D.' in 1769 (CACC PROB/1820/W285(B)).

3.2.13 Thomas Dawson is listed at Bottoms in 1852 (CACC PROB/1852/WCOD82). In 1897, Isaac Burne is listed as a farmer (and landowner) at Stainton Bottoms (Kelly's Directories Ltd 1897), and there are probate records dating to 1899 for an "*Isaac Burne, yeoman, of Stainton Bottoms*" (CACC PROB/1899/W606A408). In 1901 a Charles Woof is listed as the farmer at Stainton Bottoms (Bulmer & Co, 1901). A Charles Woof is also listed as a farmer in a 1921 Directory, though no farm name is given (Kelly's Directories Ltd 1921).

3.2.14 By the middle of the 19th century, farming still appears to have been the dominant occupation for the residents of Stainton Township, though there were small individual businesses and 'Gill and Leach, lime burners' (Mannix and Whellan 1847, 254). In 1860 it was noted that 'in the neighbourhood of Stainton are extensive deposits of limestone, containing large quantities of fossil remains. In some instances, the formation of the limestone is very remarkable, being deposited just beneath the surface of the earth as if it were in moulds, that is, in beds of soil, and the stones when dug are of the most curious shapes resembling, in some cases, the trunks of animals, trees etc'. There is no evidence for such extraction occurring within the survey site

itself, although a steep bank is depicted to the north-east of the present buildings associated with Hall Bank farm on the First Edition Ordnance Survey map of 1864 (Figure 6). This may be natural.

3.2.15 The First Edition Ordnance Survey map of 1864 shows the present Hall Bank Farm, as Bottoms, comprising two large buildings, with further outbuildings, enclosures and a trough (Figure 6). Megbank is also shown, to the east, occupying a similar plan as presently. The survey area itself in 1864 comprised parts of seven fields, Area 1 being '159', Area 2 being '161' with a bit of '158', Areas 3 and 4 being with '165', Areas 5 and 6 being within '170', and Areas 7 and 8 being within '162' '164' and '168', though on modern mapping this is one field. In 1864, 162 was a small irregular-shaped enclosed area containing trees and had a trough and well to the west. A further well lay within '170', survey Area 5, as well as a small square outbuilding at the northern extent of that plot. In the wider area, a railway line is depicted to the north-east.

3.2.16 At some time after 1864 (Figure 6) and before 1900 (Figure 7) the field boundaries were straightened and more formalised. The small enclosed area containing trees had been removed and the westernmost field boundary straightened to become the present westernmost field boundary and a former north-east south-west orientated field boundary had been removed to form the large central field (Areas 7 and 8). The two wells are still shown on the Second Edition Ordnance Survey map of 1900 (Figure 7). A Methodist Chapel (Wesleyan) is shown to the south-west of the proposed development site that was not shown on the First Edition Ordnance Survey map of 1864 (Figure 6). The Third Edition Ordnance Survey map of 1925 (Figure 8) shows the same layout of the survey area as the earlier 1900 map (Figure 7.)

3.2.17 At some time between 1925 (Figure 8) and 1969 (Figure 9), housing had extended along the south side of Haw Bank, to the south of the survey area. A house, 'Avonholme', had also been constructed, between the Methodist Chapel and the farm formerly Bottoms, but by 1969, Hallbank. It is first documented as Hallbank, rather than Bottoms, in building control plans for a tractor shed in 1966 (CACC SRDP/3/PLANS/4634), and this was for T.M. Dawson, indicating that the Dawson ownership continued. The western most of the two wells is still present on the 1969 map (Figure 9). Between 1969 (Figure 9) and 1971 (Figure 10), the A66 road had been established to the north of the survey area, the railway still existing to the north of that. Otherwise the area remains much the same, and a new boundary been inserted close to the southern edge of Area 5.

3.2.18 Modern mapping (Figure 2) still shows the westernmost well and the small square outbuilding within the survey area, first shown on the First Edition Ordnance Survey map of 1864 (Figure 6). Large buildings had been constructed to the rear of Hallbank Farm in the late 20th/ early 21st century and new housing had been constructed on the north side of Haw Bank, between Hallbank Farm and Megbank.

3.3 Site Visit

3.3.1 The site was visited on Thursday 23rd March. As the area was subjected to geophysical survey as part of this project (*confer* Section 4), a full walkover survey of the area was not necessary, but the area was viewed from the perimeter, and entered from the track to the east of the survey area, to allow a general assessment of the land due to be affected by the development proposals. The results of the site visit are illustrated in Figure 11.

3.3.2 The survey area was found to be in use as pasture, and existing field boundaries were dry stone walls (Plate 2). The track to the immediate east of the survey area, first shown on the Enclosure Map of 1775 (Figure 4) has steep banks and a low wall on either side, and is likely to be a hollow way (Plate 3).

Plate 2: Western part of survey area, facing north-east

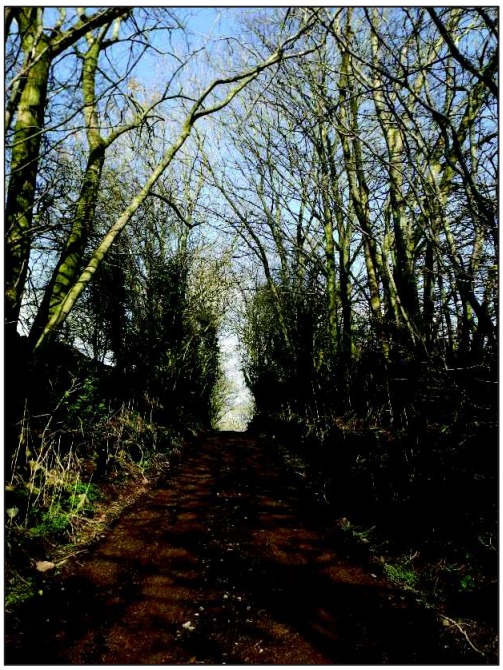

Plate 3: Possible hollow way to immediate east of survey area, facing north-east

3.3.3 Within the survey area itself, the easternmost north-east south-west orientated field boundary, separating areas 5 and 7, was found to comprise a partially extant dry stone wall with modern post and wire fencing. This boundary was first shown on the 1775 Enclosure map (Figure 4). To the west of this, between survey areas 7 and 8, the raised remains of a former field boundary were visible (Plate 5), matching with one shown on the Enclosure map (Figure 4) and shown on the First Edition Ordnance Survey map of 1864 (Figure 6), but gone by 1900 (Figure 7).

Plate 4: Easternmost field boundary within survey area, facing south

Plate 5: Former field boundary within survey area, facing south

3.3.4 The area of possible ridge and furrow identified from the Google Earth imagery in areas 7 and 8 (Plate 1), was also visible on the ground (Plates 6 and 7).

Plate 6: Area of ridge and furrow in northern part of Area 7, facing west

Plate 7: Area of ridge and furrow in northern part of Area 8, facing west

4 GEOPHYSICAL SURVEY RESULTS

4.1 Introduction

4.1.1 The geophysical survey was undertaken between the 21st and 23rd March 2017. The geophysical survey covered the majority of the area associated with a proposed planning application for a new housing development, though areas which were particular steep and had existing buildings or farm machinery were omitted.

4.1.2 Small discrete dipolar magnetic anomalies were detected which were dispersed across the whole of the study area. These are almost certainly caused by fired or ferrous litter in the topsoil, which is typical for modern agricultural land. These anomalies are indicated on the geophysical interpretation drawings, but not referred to again in the subsequent interpretations.

4.1.3 Areas of strong magnetic disturbance have been detected in all areas, caused by modern features, for example agricultural equipment, structures, metal fences or gates. These areas of magnetic disturbance could mask weaker anomalies of archaeological origin.

4.1.4 The results of the geophysical surveys are depicted in Figures 13-17, with geophysical anomalies classified by type. Potential archaeological features are discussed below.

4.2 Area 1 (Figures 12-14)

4.2.1 Area 1 is a sub-rectangular field located at the north-west extent of the survey area, the south-east corner of this area was too steep to survey and has been left out of the surveyed area.

4.2.2 Three curvilinear anomalies were detected on the south of the survey; these are probably soil filled ditches of possible archaeological origin.

4.2.3 Evenly spaced linear positive and negative anomalies were detected on the northwest of the survey area running north to south, these were probably caused by ridge and furrow agriculture.

4.3 Area 2 (Figures 12-14)

4.3.1 Area 2 is a sub-rectangular field located on the west of the survey area, immediately south of area 1. The south-eastern corner and southern edge of this field is used to store agricultural equipment and it was necessary to omit this corner from the survey, the north-western corner of the field is fenced off creating an area too small to survey. No geophysical anomalies were revealed in Area 2.

4.4 **Area 3 (Figure 12-14)**

4.4.1 Area 3 is located immediately south of Area 2, adjacent to Stainton Methodist Church, and surrounding the north, east, and west of the house 'Avonholme' on St John's Road. The south-eastern corner is used to store construction equipment and materials and has been omitted from the survey.

4.4.2 Evenly spaced linear positive and negative anomalies were detected aligned northwest to southeast, these are probably the result of ridge and furrow agriculture.

4.5 **Area 4 (Figure 12-14)**

4.5.1 Area 4 is located to the east of the farm buildings; this area is used to store agricultural equipment which prevented the surveying of parts of this area and caused magnetic disturbance in the surrounding area. Buildings located close to the survey area to the south and east have caused magnetic disturbance. No geophysical anomalies were recorded in Area 4.

4.6 **Area 5 (Figure 15-17)**

4.6.1 Area 5 is the field located at the north-east extent of the survey area. A small structure is located on the north of this area.

4.6.2 A linear positive anomaly aligned north-east to south-west is located towards the east of the survey area which is possibly a soil filled ditch of archaeological origin. This potential feature was not identified during the desk based research and was not recorded on any known cartographic sources.

4.6.3 Three linear positive anomalies were detected aligned south-west to southeast on the south and south-west corner of the area. These are typical of soil filled ditches and are of possible archaeological origin. One of these features, running along the southern edge of Area 5, clearly relates to a former field boundary identified during the research dating to the mid 20thcentury and illustrated on the Ordnance Survey plan of 1969 (3.2.16 and Figure 9). A weak magnetic trend running across Area 5 from north to south corresponds to a former field boundary illustrated on the enclosure award of 1775 (3.2.11 and Figure 4).

4.6.4 Two linear positive anomalies were detected in the north of the area one aligned north north-west to south south-east, the other aligned northeast to south-west. These are possible soil filled ditches of archaeological origin.

4.6.5 A linear dipolar anomaly which turns into a linear positive anomaly was detected aligned north-east to south-west. This is possibly the result of a service or field drain.

4.6.6 A strong discrete area of dipolar anomalies was detected in the north-east corner of the area which is typical of made ground probably a result of the construction of the A66.

4.7 **Area 6 (Figure 15-17)**

4.7.1 Area 6 is located immediately south of area 5, and is within the same field as areas 7 and 8. This field has been split up for this survey due to steep banks and stone piles, which are the surviving traces of former field boundaries.

4.7.2 Two linear positive anomalies and a single linear negative anomaly was detected aligned north-east to south-west, and are probably evidence of ridge and furrow agriculture.

4.8 **Area 7 (Figure 15-17)**

4.8.1 Area 7 is located immediately west of area 5. A section at the south of this area has been omitted from the survey because the angle of the hill was too steep and waterlogged to safely survey.

4.8.2 Evenly spaced linear positive and negative anomalies were detected aligned north-east to south-west, and these are probably the result of ridge and furrow agriculture (3.2.9).

4.8.3 A single north-south aligned anomaly on the western edge of Area 7 represents a former field boundary recorded on the 1775 enclosure award (3.2.11 and Figure 4). Two additional linear positive anomalies and one negative anomaly were detected aligned north-west to south-east are located at a break in the slope, and are likely to be related to geological features.

4.9 **Area 8 (Figure 12-14)**

4.9.1 Area 8 is located immediately west of Area 7 and east of Area 1, and consists of a strip surveyed at the top of the hill. The section to the south of this area was omitted from the survey because the angle of the hill was too steep to safely survey.

4.9.2 Evenly spaced linear positive and negative anomalies were detected aligned north-east to south-west, these are probably the result of ridge and furrow agriculture (3.2.9).

5 DEVELOPMENT PROPOSALS

5.1.1 Plans for the potential development proposal, forwarded by Burnetts on 3rd May 2017, indicate the construction of 30 detached and semi-detached dwellings (Figure 18). Interestingly, the architect's plans have been made for Mr and Mrs Dawson, suggesting an unbroken Dawson family link with the land from at least 1769 when Hall Bank Farm, then Bottoms, was built, and perhaps the early 17th century when the earliest known Dawson is listed at Stainton.

5.1.2 The new housing will be accessed from a road running from between the Methodist Chapel and Avonholme, in the south-west corner of the survey area, which then heads northwards and then eastwards to end at proposed houses 15 and 16, west of Megbank Road. The main impact being in Areas 2, 3 and 4 of the land subjected to geophysical survey. The fields forming the northern and western part of the survey area (Areas 1, 8, 7, 5 and 6) would not be affected by these proposals for 30 houses.

5.1.3 Hall Bank farmhouse and adjoining barn is an 18th century grade II listed building (NHL 1221221), and although some trees are depicted on the proposal plan (Figure 18), there will be an impact on the setting of this listed building by the proposed development.

5.1.4 Most of the features identified by the research, site visit and geophysical surveys will not be affected by the development proposals, as they are restricted to the southern part of the survey area, although parts of the proposed development area have not been possible to survey due to the natural terrain, and it may be that further features as-yet unknown, may survive in these areas.

5.1.5 The farm buildings to the north of Hall Bank farm, within the survey area, would be demolished to make way for the new housing (Figure 18), though these are modern in date, post-dating 1971 (Figure 10).

5.1.6 The north-west south-east aligned field boundary separating Areas 2 and 3, dating to the late 19th century (confer Figure 11) and the field boundaries first shown on the First Edition Ordnance Survey map of 1864, which separate Areas 1 and 2, and form the northern boundary of Area 4, will all be directly impacted by the proposed development.

6 CONCLUSIONS

6.1 Summary of Heritage Asset Significance

6.1.1 The survey site has been found to have lain within agricultural land associated with the Dawson Family, yeoman, who were responsible for building the present grade II listed Hall Bank Farm, formerly Bottoms, and may have occupied the land far earlier. A former field boundary and an extant field boundary, known from a 1775 map exist within the survey site. Other field boundaries, known from later maps, also lie within the survey area, as well as a hollow way to the immediate east of the survey area.

6.1.2 Three 19th century field boundaries lie within the area of direct impact, and all would be considered of local significance (Appendix 1, Table 1). An area of ridge and furrow identified by the geophysical survey in Area 3 will also be impacted upon by the proposed development.

6.1.3 Hall Bank Farmhouse and adjoining barn are grade II, and therefore of district or county (higher) significance (Appendix 1, Table 1).

6.2 Magnitude of Impact on Heritage Assets

6.2.1 The plans for the proposed development show 30 dwellings in the survey area, with associated access route, and it is estimated that the impact on the three field boundaries would be direct, and that the magnitude of impact is likely to be substantial (Appendix 1, Table 2). This would also be the case for the former ridge and furrow identified in Area 3.

6.2.2 The magnitude of impact of the development proposals on Hall Bank Farmhouse, an asset of district or county significance would be 'less than substantial' (Appendix 1, Table 2) as its immediate setting would be changed from largely agricultural to largely residential, with housing to the immediate north, where there are currently agricultural buildings and pasture.

6.2.3 No other known heritage assets in the area would be affected by the development.

6.3 Heritage Statement

6.3.1 For the three field boundaries, a substantial magnitude of impact on a heritage asset of local significance will result in a limited impact on heritage significance, and this may require mitigation, perhaps through design (Appendix 1, Table 3).

6.3.2 A magnitude of impact of less than substantial, on heritage assets of district or county significance, as with Hall Bank Farm grade II listed building, would result in a limited

impact on heritage significance (Appendix 1, Table 3), which may require mitigation (Appendix 1, Table 3).

6.3.3 There remains the potential for further as-yet unknown remains to survive within the proposed development site boundary, that were not identifiable by geophysical survey. These could be of medieval origin, relating to the survey area being within the HER medieval village boundary.

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Second Edition Ordnance Survey Map, 1900, 25 inch to 1 mile scale, Cumberland Sheet LVIII.11

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1971 Ordnance Survey Map

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APPENDIX 1: HERITAGE IMPACT ASSESSMENT TABLES

Table 1 Measuring Significance

Significance	Designation	Asset types and justification	Preferred response to negative impact
International	Non-statutorily designated heritage assets	World Heritage Site (NPPF s132)	Avoid negative impact where asset contributes to the WHS's defined outstanding universal values (NPPF s138)
National	Statutorily designated heritage assets	Scheduled monuments, grade I and II* listed buildings (NPPF s132). Grade A Listed Buildings in Scotland	Avoid negative impact
National	Non-statutorily designated heritage assets	Registered battlefields, grade I and II* Registered Parks and Gardens (NPPF s132)	Avoid negative impact
National	Non-designated heritage assets of demonstrable equivalence to a scheduled monument (NPPF s138)	Assets where assessment for designation is pending, assets that have been assessed as being capable of designation but have not been designated at the SoS discretion, assets worthy of designation but which are outside the scope of the 1979 Act (NPPF s139)	Avoid negative impact
District or County (Higher)	Statutorily designated heritage assets	Grade II listed buildings (NPPF s132). Grade B Listed Buildings in Scotland	Limit negative impact (avoid substantial harm) and mitigate
District or County (Higher)	Non-statutorily designated heritage assets	Conservation area (NPPF s127), grade II registered park and garden (NPPF s132)	Limit negative impact (avoid substantial harm) and mitigate
District or County (Lesser)	Non-designated heritage assets within a national park or AONB	Any extant heritage assets (NPPF s115)	Limit negative impact and mitigate
District or County (Lesser)	Non-designated heritage assets	Heritage assets placed on a local planning authority list (NPPG). Grade C Listed Buildings in Scotland	Limit negative impact and mitigate
District or County (Lesser)	Non-designated heritage assets	Any area of potential listed in a local plan (NPPG)	Limit negative impact and mitigate
District or County (Lesser)	Non-designated heritage assets	Historic Hedgerow as defined under the Hedgerow Regulations 1997	Limit negative impact and mitigate
Local	Non-designated heritage assets	Any extant heritage assets outside of a national park or AONB.	Mitigate
Negligible	Non-designated heritage assets	Heritage assets recorded in the HER that are no longer extant, individual find spots or structures of no heritage value	No action

Table 2: Establishing the Magnitude of Impact

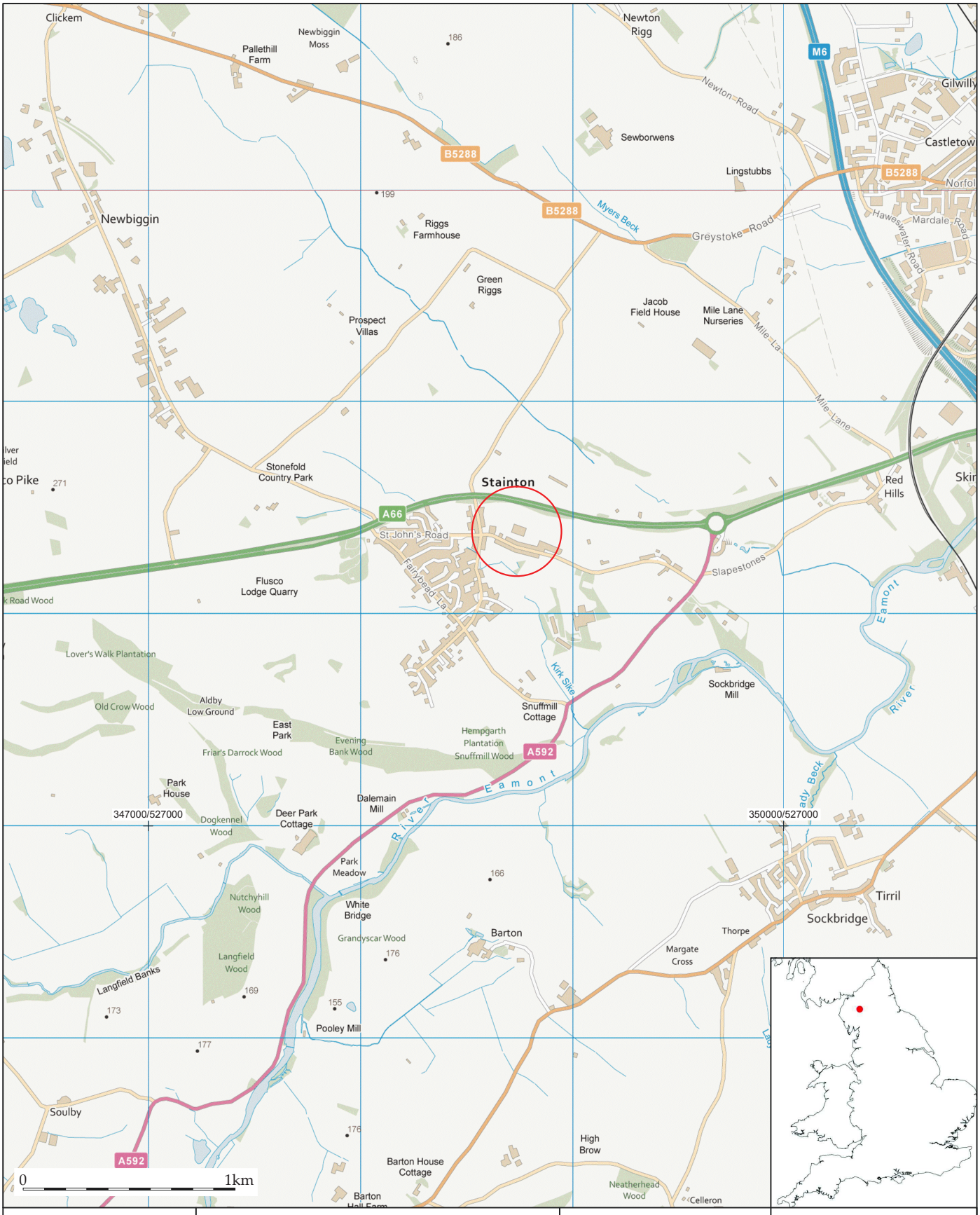
Magnitude of Impact	Heritage Asset		
	Archaeological Remains (Archaeological Interest)	**Historic Buildings (Architectural/Artistic Interest and/or Historic Interest)**	**Historic Landscapes (Historic Interest)**
Loss	• Change to most or all key archaeological materials, such that the resource is totally altered • Comprehensive changes to setting	• Change to key historic building elements, such that the resource is totally altered • Comprehensive changes to setting	Major change to historic landscape character resulting from: • Changes to most key historic landscape elements, parcels or components • Extreme visual effects • Major change to noise or change to sound quality • Major changes to use or access
Substantial	• Changes to many key archaeological materials, such that the resource is clearly modified • Considerable changes to setting that affect the character of the asset	• Changes to many key historic building elements, such that the resource is significantly modified • Changes to setting of an historic building such that it is significantly modified	Moderate change to historic landscape character resulting from: • Changes to many key historic landscape elements, parcels or components • Visual change to many key aspects of the historic landscape • Noticeable differences in noise or sound quality • Considerable changes to use or access
Less than substantial	• Changes to key archaeological materials, such that the asset is slightly altered • Slight changes to setting	• Change to key historic building elements, such that the asset is slightly different • Changes to setting of an historic building such that it is noticeably changed	Limited change to historic landscape character resulting from: • Changes to few key historic landscape elements, parcels or components • Slight visual changes to few key aspects of the historic landscape • Limited changes to noise levels or sound quality • Slight changes to use or access
Minor	• Very minor changes to archaeological materials	• Slight changes to historic buildings elements or setting that hardly affect it	Very small change to historic landscape character resulting from: • Very minor changes to key historic landscape elements, parcels or components • Virtually unchanged visual effects • Very slight changes to noise levels or sound quality • Very slight changes to use or access
No change	No change		

Table 3 Impact on Heritage Significance

Assessment Matrix to define the degree of impact on heritage asset significance		Magnitude of impact				
		No change	Minor alteration with no reduction in significance	Less than substantial	Substantial	Loss
Significance of Heritage Asset	National					
	District/County (Higher)					
	District/County (Lesser)					
	Local					
	Negligible					

Blue (no appreciable impact) = no mitigation necessary
Yellow (very limited impact) = low level mitigation eg photographic record/watching brief etc
Light green (limited impact) = may need evaluation to establish appropriate mitigation which may include site survey/excavation etc
Dark green (major impact) = may not be agreed and then only with significant justification, may require evaluation and will require significant mitigation such as excavation, detailed building survey, visual restoration, some in-situ preservation and on-site interpretation
Red (very major impact) = unlikely to be agreed except in exceptional circumstances and only with a high level of mitigation

APPENDIX 2: FIGURES



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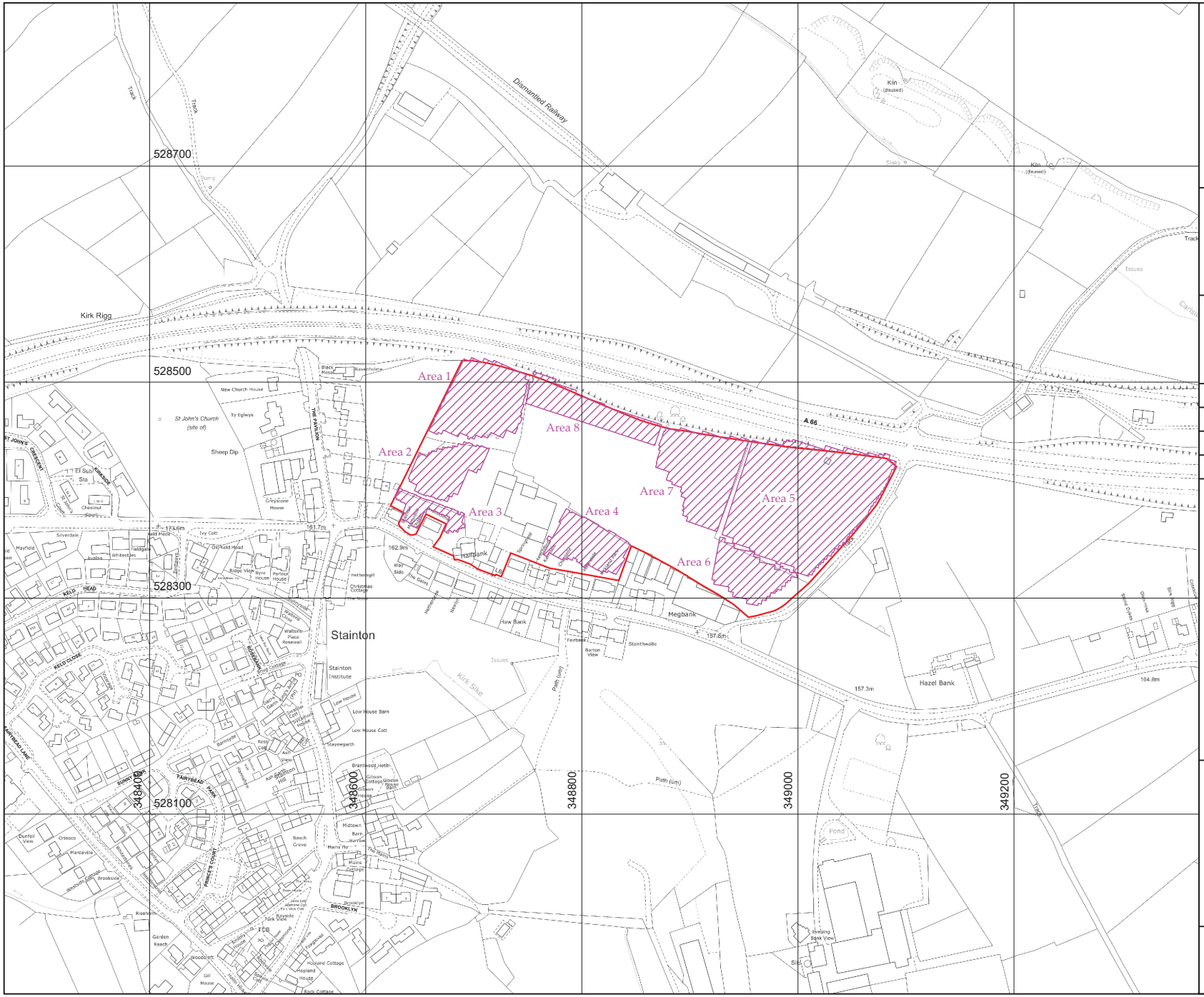
Wardell Armstrong 2017	CLIENT:	Burnetts
	SCALE:	1:25,000 at A4
	DRAWN BY:	HP
	CHECKED BY:	AB
	DATE:	April 2017
	REPORT No:	CL11891

KEY:

Site location

Figure 1: Site location.



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PROJECT:

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CLIENT:

Burnetts

SCALE:	1:5,000 at A4
DRAWN BY:	HP
CHECKED BY:	AB
DATE:	April 2017

KEY:

Site boundary

Outline of geophysical survey area

REPORT No:

CL118911

Figure 2: Location of survey areas.

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Figure 3: Hodskinson and Donald's Plan of Cumberland, 1774.

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Site Location

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Figure 4: Extract from Stainton, Newbiggin and Blencow Enclosure Award, 1775.

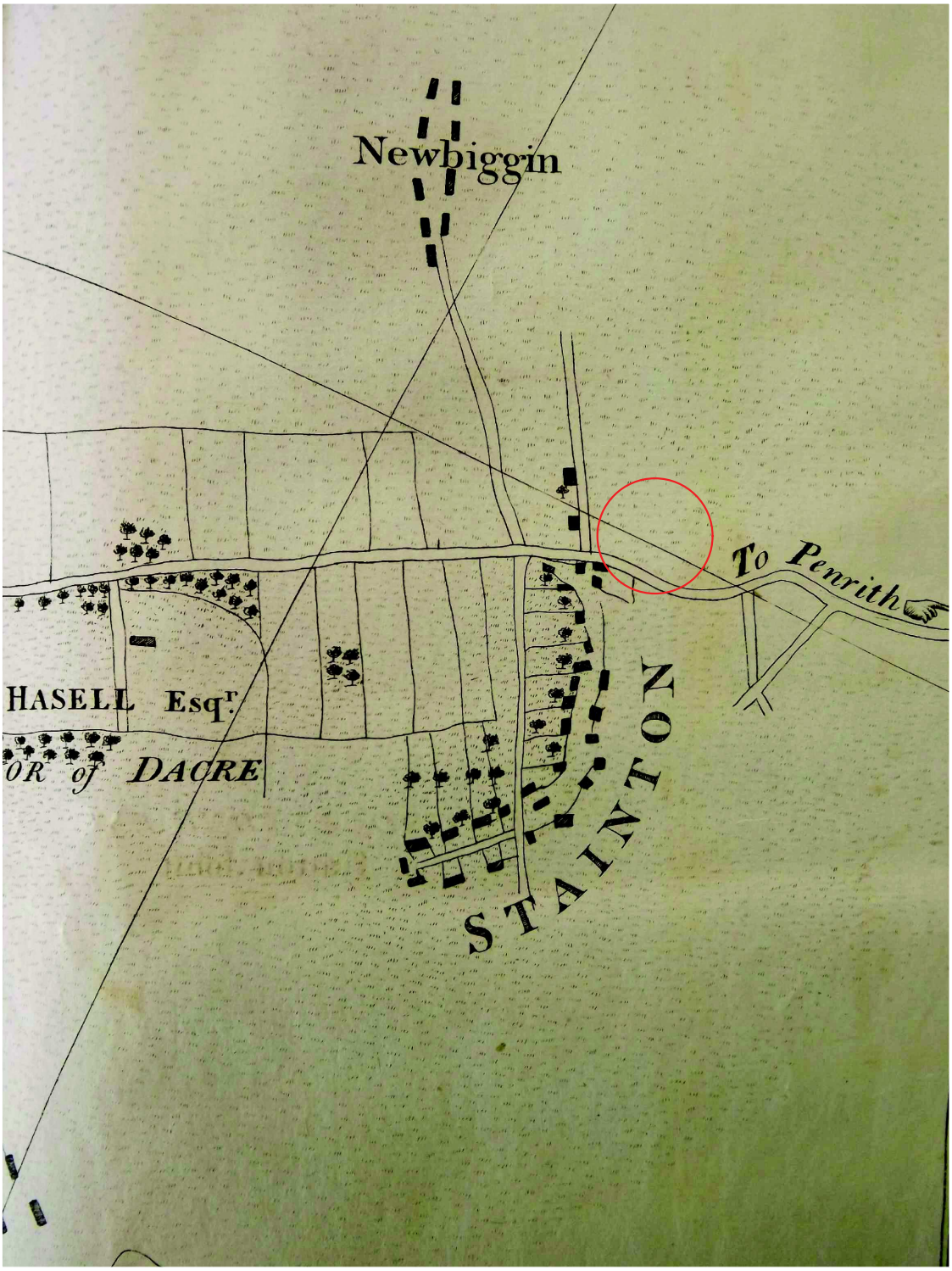

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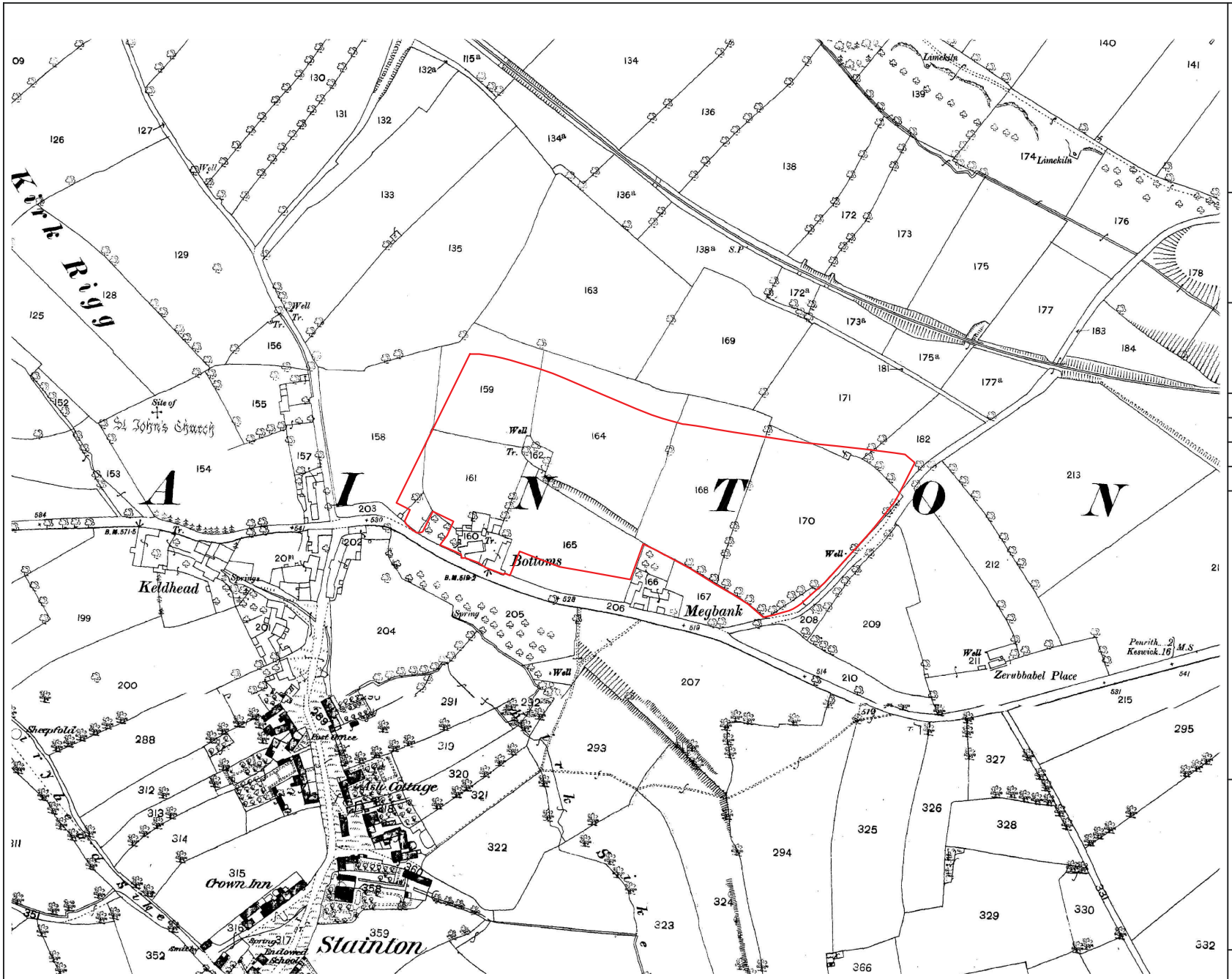
Figure 5: Extract from Clarke's Map of the roads between Penrith and Keswick, 1787.



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Site boundary

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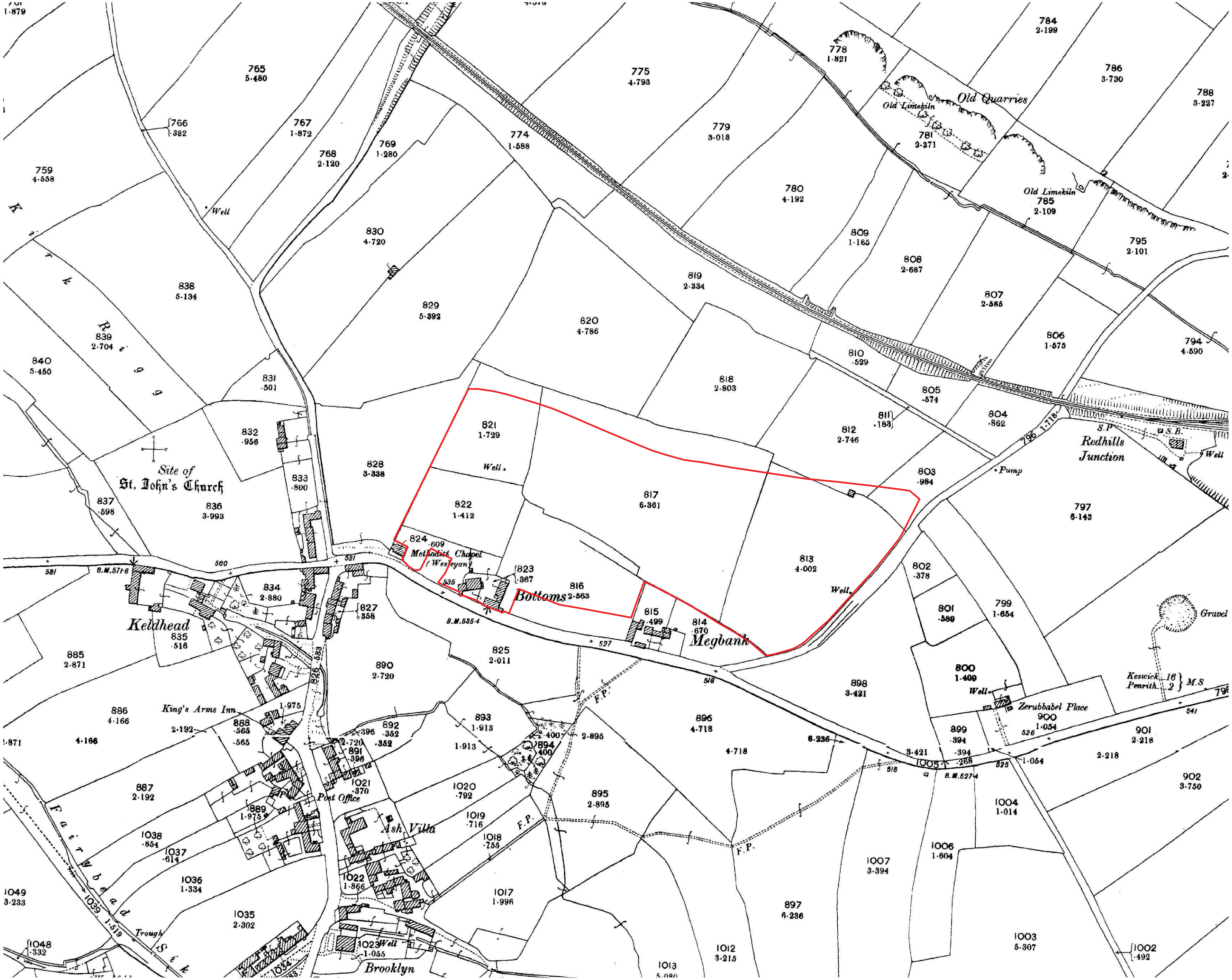
Figure 6: First Edition Ordnance Survey Map, 1864 *(25 inches to 1 mile scale)*.



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Site boundary

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Figure 7: Second Edition Ordnance Survey Map, 1900 *(25 inches to 1 mile scale)*.

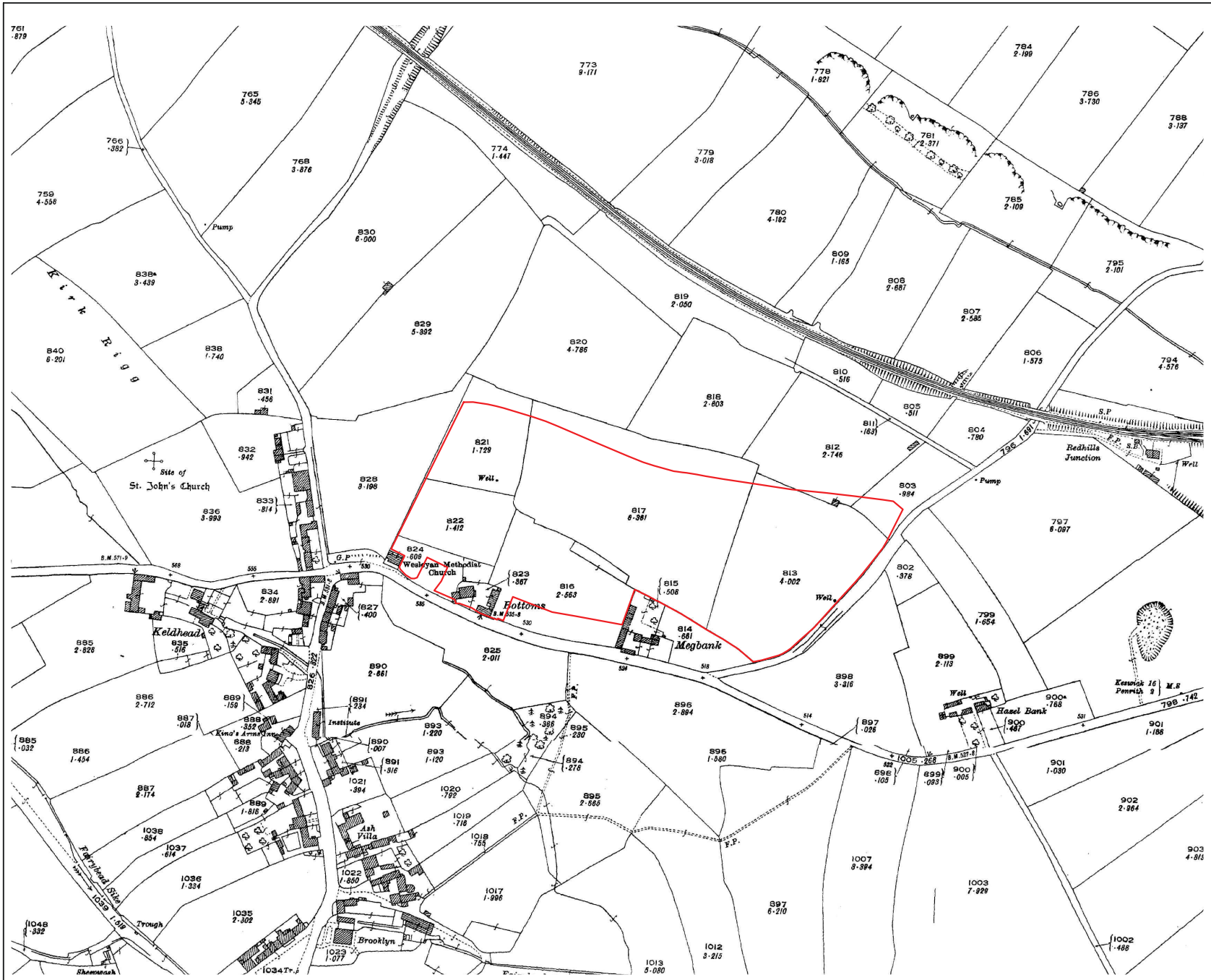

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Figure 8: Third Edition Ordnance Survey Map, 1925 *(25 inches to 1 mile scale)*.

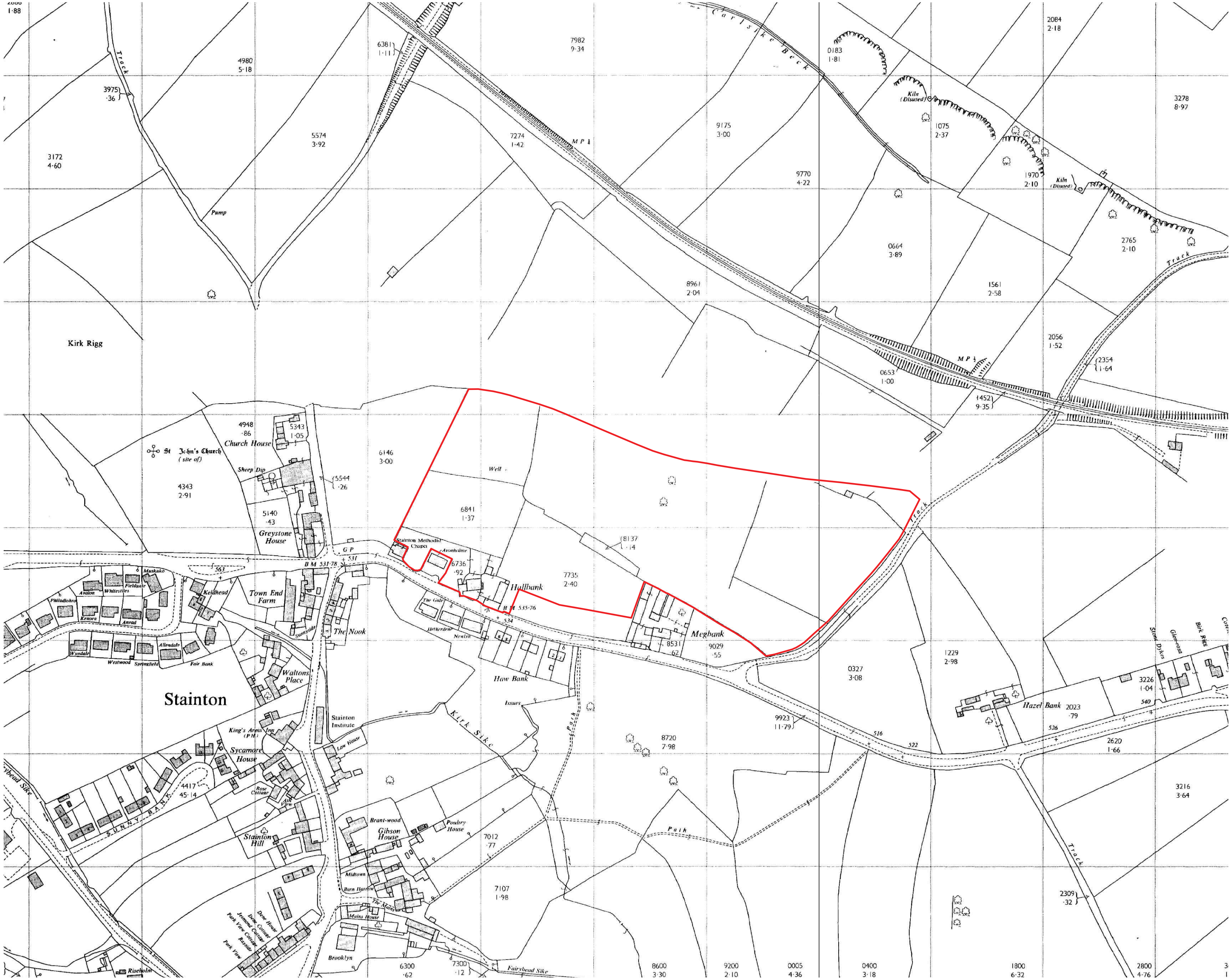

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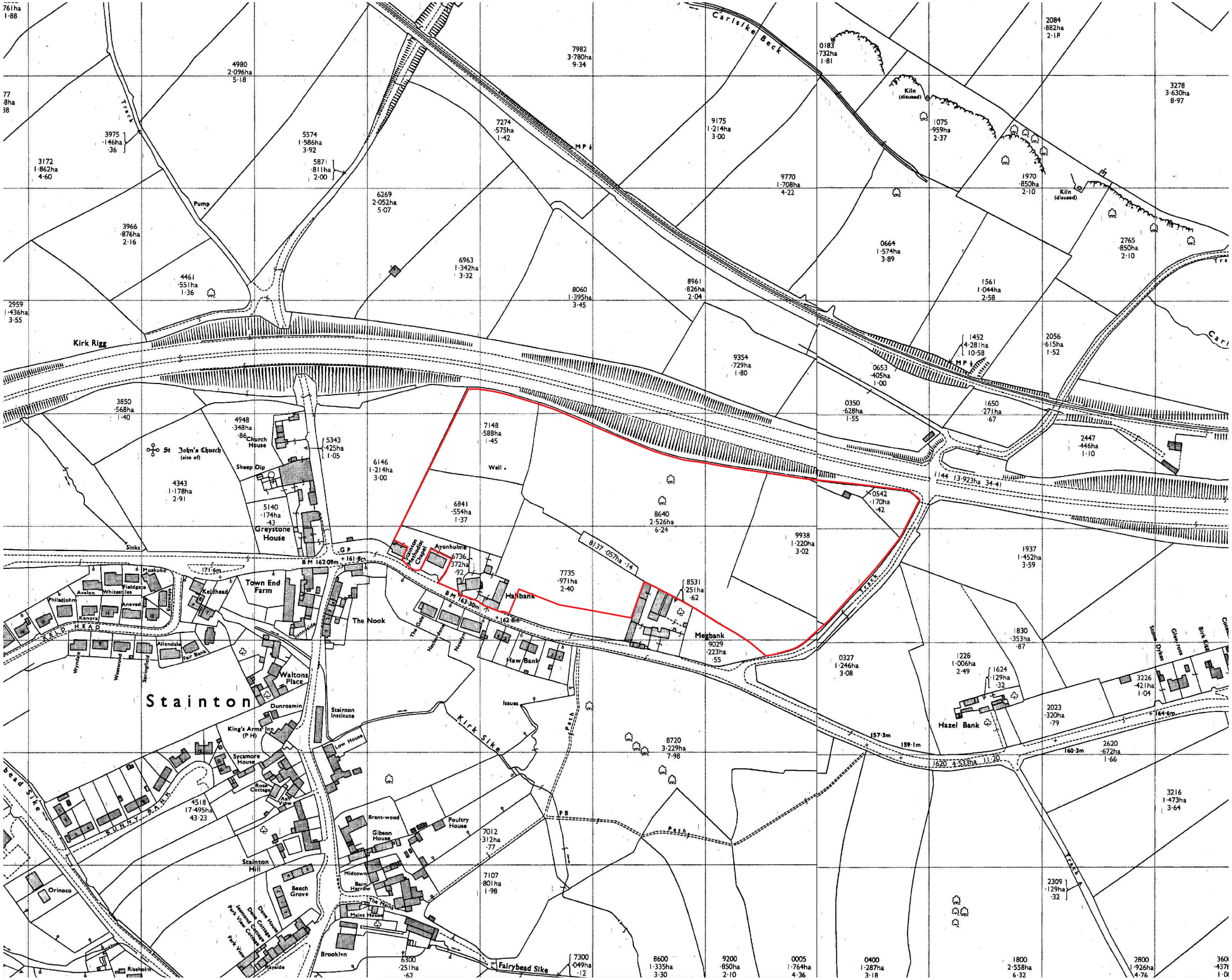
Figure 9: Ordnance Survey Map, 1969 *(25 inches to 1 mile scale).*



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KEY:

Site boundary

REPORT No:

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Figure 10: Ordnance Survey Map, 1971 *(1:2,500 scale)*.

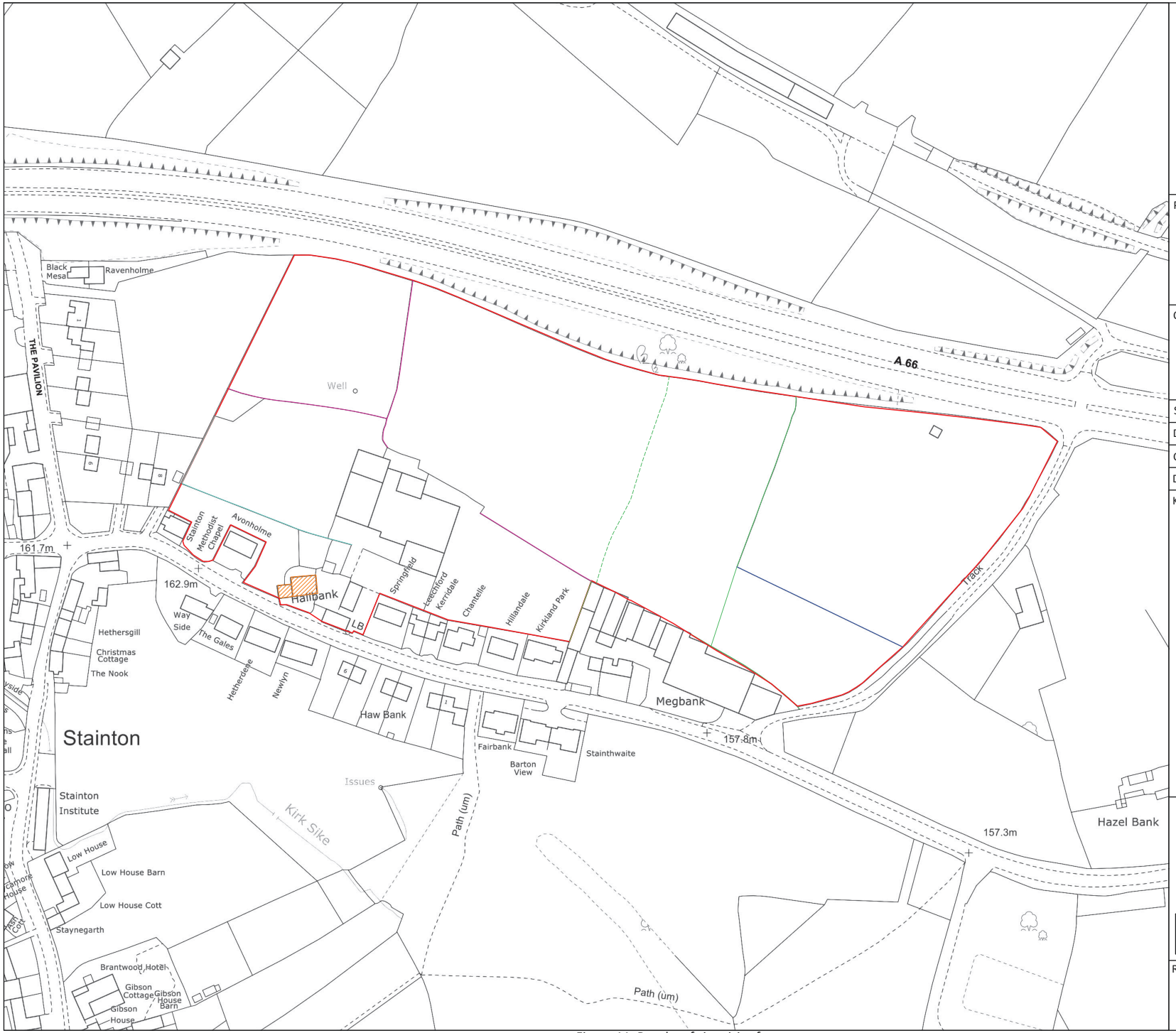

Figure 11: Results of site visit of survey area.

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CLIENT:

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DATE:	April 2017

KEY:

Site boundary

Listed building

1969

1900

1864

1775

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Figure 12: Geophysical survey of western side of site; Area 1-4 and Area 8.

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CLIENT:

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SCALE:	1:1,000 at A3
DRAWN BY:	SC/HP
CHECKED BY:	AB
DATE:	April 2017

KEY:

Site boundary

Outline of geophysical survey area

3 nT
2.4
1.8
1.2
0.6
0
-0.6
-1.2
-1.8
-2.4
-3 nT

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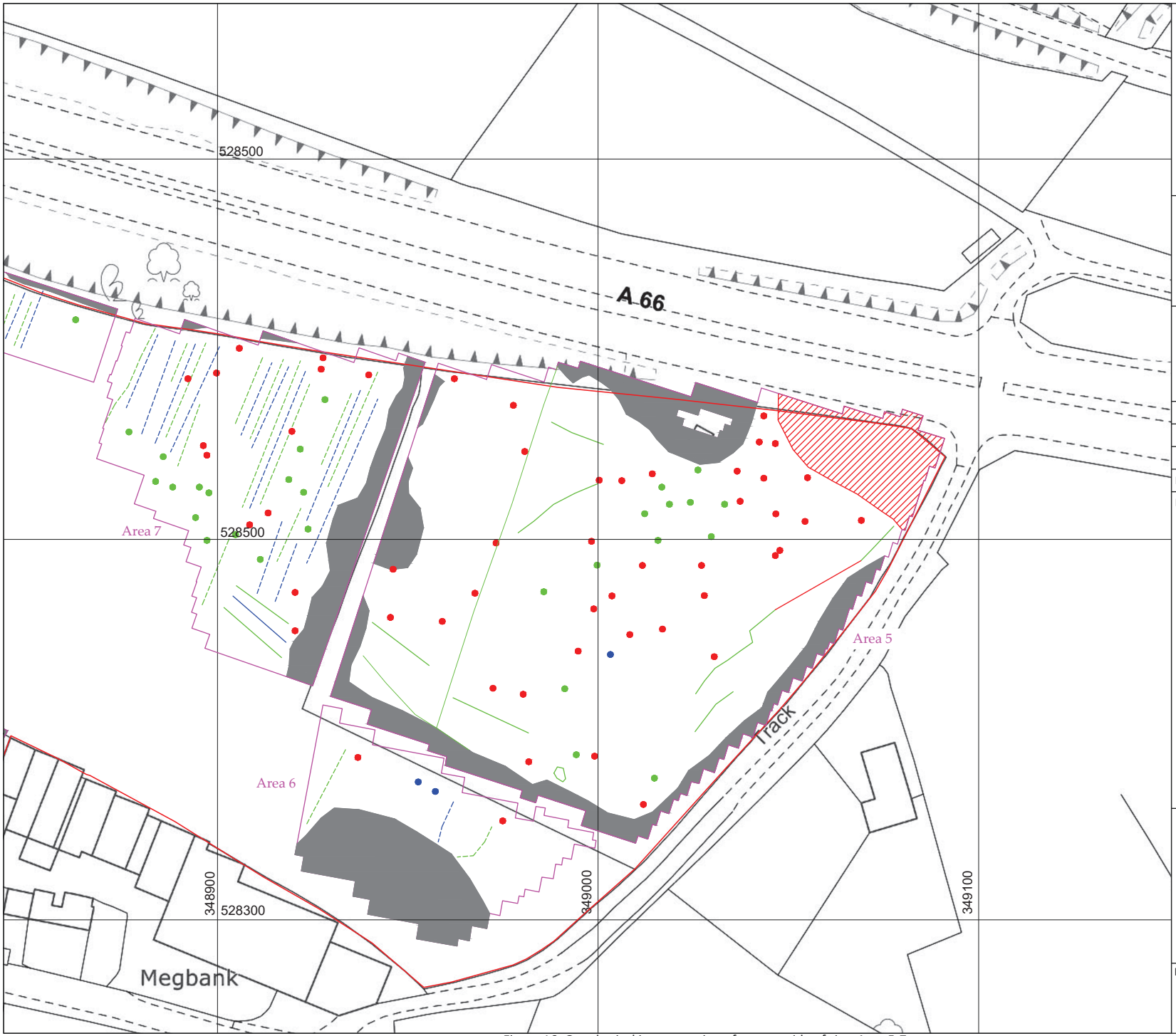
CL11891

Figure 15: Geophysical survey of eastern side of site; Area 5-7.

Figure 13: Geophysical interpretation of western side of site; Area 1-4 and Area 8.



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2017

PROJECT:

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Stainton, Cumbria

CLIENT:

Burnetts

SCALE:	1:1,000 at A3
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CHECKED BY:	Initials
DATE:	April 2017

KEY:

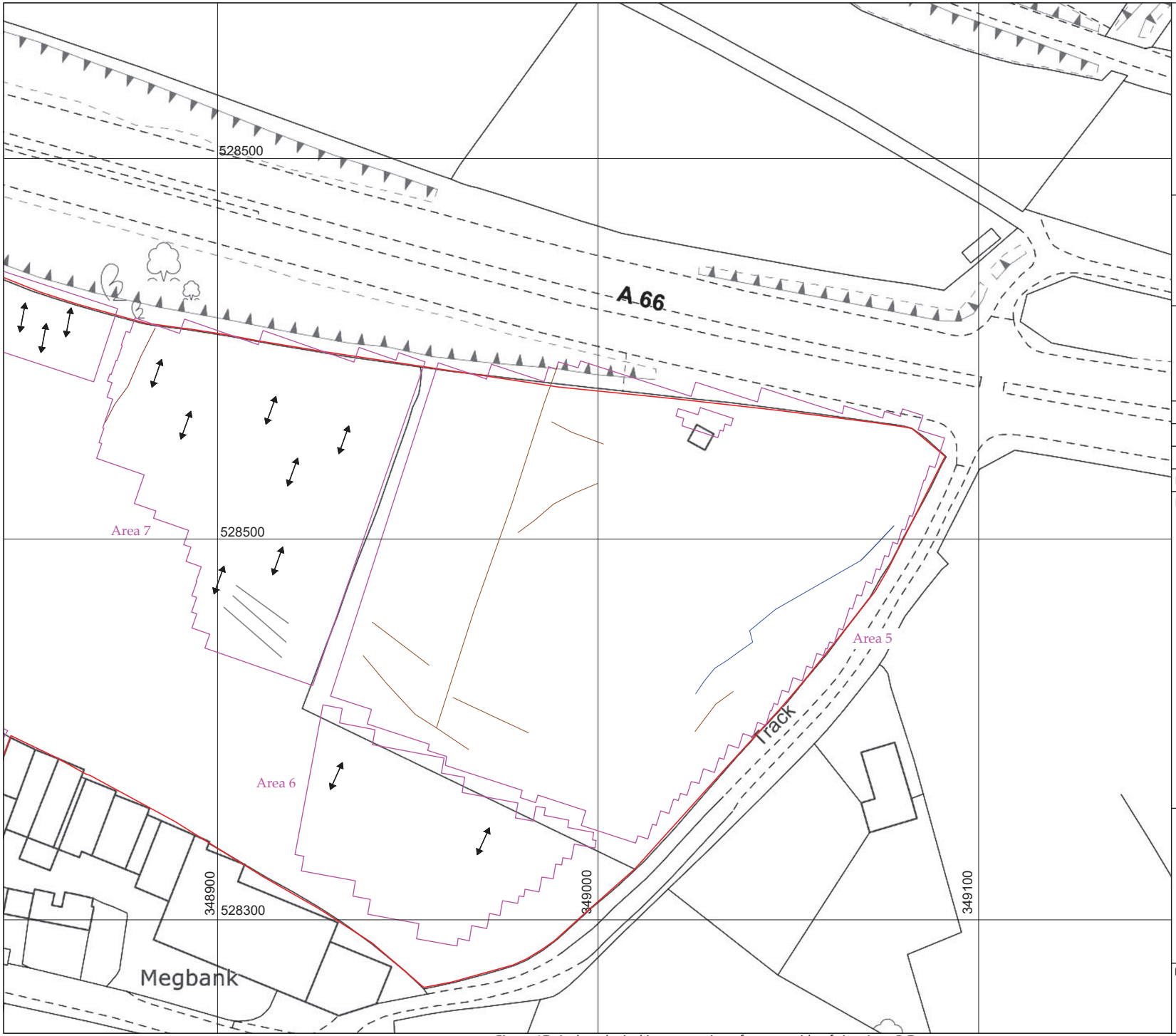
- Site boundary
- Outline of geophysical survey area
- Positive magnetic anomalies
- Dipolar magnetic anomalies
- Negative magnetic anomalies
- Magnetic disturbance

REPORT No:

CL11891

Figure 16: Geophysical interpretation of eastern side of site; Area 5-7.

Figure 14: Archaeological interpretation of western side of site; Area 1-4 and Area 8.



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Stainton, Cumbria

CLIENT:

Burnetts

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CHECKED BY:	AB
DATE:	April 2017

KEY:

- Site boundary
- Outline of geophysical survey area
- Possible soil-filled feature
- Possible plough trends
- Possible geological feature
- Land drain

REPORT No:

CL11891

Figure 17: Archaeological interpretation of eastern side of site; Area 5-7.

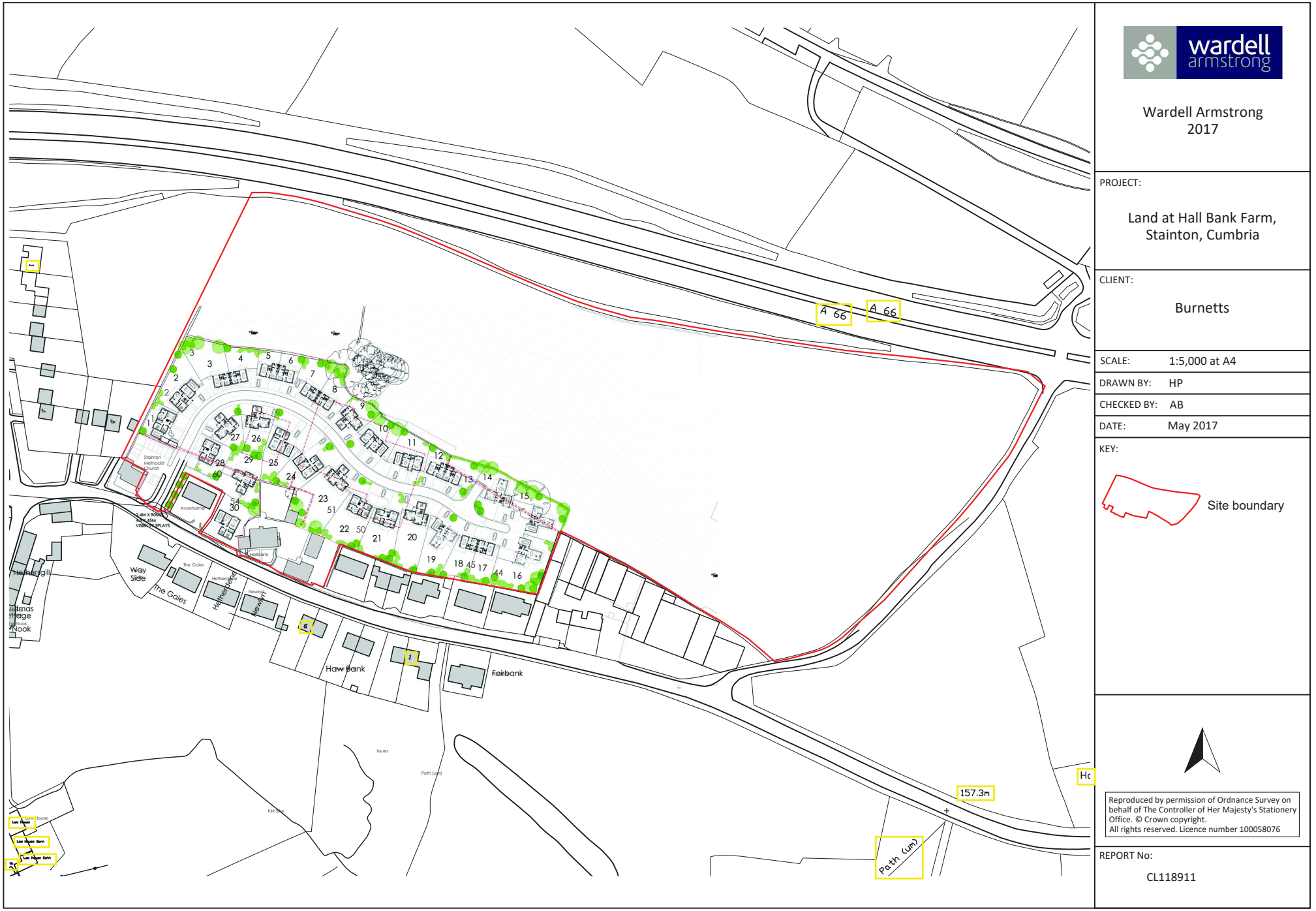

Figure 18: Proposed development plan.

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