



Northamptonshire
County Council

Northamptonshire Archaeology

Archaeological Geophysical Survey
Thorpe Mandeville to Greatworth Pipeline,
Northamptonshire
November 2007



Paul Clements

December 2007

Report 07/ 200

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NORTHAMPTONSHIRE COUNTY COUNCIL

NORTHAMPTONSHIRE ARCHAEOLOGY

DECEMBER 2007

ARCHAEOLOGICAL GEOPHYSICAL SURVEY

ANGLIAN WATER SERVICES

THORPE MANDEVILLE TO GREATWORTH PIPELINE

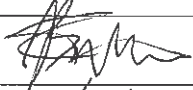

NORTHAMPTONSHIRE

NOVEMBER 2007

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QUALITY CONTROL

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OASIS REPORT FORM

PROJECT DETAILS		
Project name	Geophysical Survey Thorpe Mandeville to Greatworth Pipeline	
Short description (250 words maximum)	Northamptonshire Archaeology undertook a magnetometer survey for Anglian Water Services along the easement of a new pipeline between Thorpe Mandeville and Greatworth, Northamptonshire. The survey identified several areas of archaeological constraint, including two enclosure complexes of probable later prehistoric or Roman date, two isolated enclosures, and several linear ditches representing boundaries or trackways. Traces of medieval ridge and furrow were ubiquitous.	
Project type	Geophysical Survey	
Site status (none, NT, SAM etc)	None	
Previous work (SMR numbers etc)	None	
Current Land use		
Future work	Yes	
Monument type/ period		
Significant finds (artefact type and period)		
PROJECT LOCATION		
County	Northamptonshire	
Site address (including postcode)	Thorpe Mandeville and Greatworth, Northamptonshire	
Study area (sq.m or ha)		
OS Easting & Northing	SP521443 to SP568422	
Height OD		
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator		
Project Design originator	Northamptonshire Archaeology	
Director/Supervisor	Adrian Butler	
Project Manager	Adrian Butler	
Sponsor or funding body	Anglian Water Services	
PROJECT DATE		
Start date	November 2007	
End date	November 2007	
ARCHIVES	Location (Accession no.)	Content (eg pottery, animal bone etc)
Physical		
Paper	Northamptonshire Archaeology	Survey notes
Digital	Northamptonshire Archaeology	Geophysical data
BIBLIOGRAPHY		
Journal/monograph, published or forthcoming, or unpublished client report (NA report)		
Title	Archaeological Geophysical Survey, Anglian Water Services Thorpe Mandeville to Greatworth Pipeline, Northamptonshire	
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ARCHAEOLOGICAL GEOPHYSICAL SURVEY
ANGLIAN WATER SERVICES
THORPE MANDEVILLE TO GREATWORTH PIPELINE
NORTHAMPTONSHIRE
NOVEMBER 2007

ABSTRACT

Northamptonshire Archaeology undertook a magnetometer survey for Anglian Water Services along the proposed easement of a new pipeline between Thorpe Mandeville and Greatworth, Northamptonshire. The survey identified several areas of archaeological constraint, including two enclosure complexes of probable later prehistoric or Roman date, two isolated enclosures, and several linear ditches representing boundaries and trackways. Traces of medieval ridge and furrow cultivation were ubiquitous.

1 INTRODUCTION

Northamptonshire Archaeology was commissioned by Anglian Water Services to undertake a geophysical (magnetometer) survey along the route of a proposed new pipeline. The 25m-wide easement of the pipeline cut across 5.6km of arable and pasture land between reservoirs near Thorpe Mandeville and Greatworth (Northamptonshire; NGR SP 521443 to SP 568422; Fig 1).

The survey was to be the primary method of assessment for archaeological remains along the route corridor, which had not previously been the subject of archaeological survey (NA 2007, 1). The survey was carried out over two weeks in November 2007.

2 ARCHAEOLOGICAL BACKGROUND

A desk-based archaeological assessment of the route and the immediately surrounding area was undertaken by ARCUS in May 2007 (ARCUS 2007). The study found that the pipeline was to cut through several features of medieval and later date, chiefly the earthworks of ridge and furrow cultivation, but that no significant archaeological remains were known from the pipe easement corridor itself. There were, however, a number of known archaeological sites in the surrounding area.

The area to the north of the pipeline near Thorpe Mandeville contains an extensive area of probable prehistoric settlement known from cropmarks. To the south, Thenford Hill is an Iron Age hillfort. This area is also associated with Neolithic and Bronze Age worked and waste flints and Iron Age and Romano British ceramics (ARCUS 2007, 7).

A small Roman settlement is thought to have existed around the area of Stuchbury Manor Farm on the basis of finds of pottery from south of the farm and north of the pipeline route (ARCUS 2007, 7).

A possible medieval deer park may have lain to south-west of the pipeline near the Greatworth reservoir terminal. The modern track along the eastern edge of Field 19 (Figs 7 & 13) was present in the sixteenth century, but may have its origins in the medieval period. Other evidence of medieval activity comes from visible ridge and furrow cultivation remains (ARCUS 2007, 8).

3 TOPOGRAPHY AND GEOLOGY

The pipeline route crosses undulating topography of the Northamptonshire uplands at between about 168 and 181 m OD. The geology of the survey area is Boulder Clay in the east, changing to Northamptonshire Sand and Ironstone with Upper Lias Clay towards the west (Geological Survey of Great Britain (England and Wales) Solid and Drift Sheet 202).

The survey area lies mostly parallel to the B2545 (Welsh Lane). Eighteen arable and pasture fields were surveyed, representing almost all the route with few impediments (Figs 1; 2 - 7; 8 - 13). Field 1 contained an underground reservoir at the western terminal of the pipeline outside the survey area. One house is situated on the southern edge of Field 2. The western corner of Field 16 contained a large manure pile at the time of survey, while Field 17 has been cut by the disused Northampton and Banbury Junction railway line. East of the railway, in the same field, is a large barn and the small area north of this contains hardstanding. The survey area is split by several farm tracks and minor roads.

4 METHODOLOGY

Fieldwork

The pipeline easement was surveyed on a field by field basis, with each field being allocated a reference number. Each field was sub-divided into 30m x 30m grid squares forming a 30m wide corridor. The survey corridor was therefore slightly wider than the construction easement. The survey grids were stood 5m away from field boundaries to avoid interference from field edge debris. These were laid out manually, using tapes and an optical square.

The survey was conducted with Bartington Grad601-2, twin sensor array, vertical component fluxgate gradiometers. These instruments were carried at a brisk but steady pace through each grid, collecting data along 1m spaced traverse lines. Measurements were automatically triggered every 0.25m along the traverses, giving a total of 3600 measurements per grid.

All fieldwork was carried out in accordance with the guidelines issued by English Heritage and by the Institute of Field Archaeologists (EH 1995; Gaffney, Gater and Ovendon 2002)

Data processing

The data was displayed and processed using Geoplot 3.00s software. In accordance with Northamptonshire Archaeology's standard policy, minimal processing was carried out on the data to avoid introducing biases. The 'Zero Mean Traverse' function was applied as a standard in order to balance the data to centre at zero. Other functions were applied only where necessary to correct specific data flaws.

The processed data is presented in this report in the form of greyscale plots (scale +4nT to -4nT black ~ white; Figs 2 - 7). It was considered that other plotting regimes such as 'stacked trace' would be uninformative for the majority of this survey. Interpretative plots (Figs 8 to 13) have been overlaid on the greyscales to aid in the discussion.

5 SURVEY RESULTS

Field 1 (Figs 2 and 8)

This field lies next to the underground reservoir at Thorpe Mandeville. Survey of the field showed it to be highly disturbed probably by works associated with the present reservoir.

Three highly magnetic anomalies can be seen in the north-west of this field. These are caused by iron pipe covers on the ground. To the south-east a positive magnetic linear ditch-like feature runs parallel with the modern field boundary. This is likely to be a former field boundary feature.

Indications of ridge and furrow, which is visible on the surface aligned at ninety degrees to the corridor, are faint as they have been masked by data processing.

Field 2 (Figs 2 and 8)

A linear magnetic anomaly with a negative 'halo' can be seen in the western edge of the survey, running north-south. This is typical of a ferrous pipeline. A large, almost square, magnetic anomaly almost 20m wide, is located around an electricity pole. Just to the south of this a water tank has produced a negative magnetic 'halo' effect in the data.

A linear positive magnetic anomaly (Fig 8 A) is a ditch crossing the corridor on an east-south-east orientation. Further south-east a group of linear curving ditch-like features were detected. These probably indicate up to four ditched enclosures (B-E) with another ditch (F) to the east, all extending outside the surveyed area.

Three large (*c.*11m diameter) positive anomalies were located between enclosures D and E (Fig 8 G). Several possible interpretations of these anomalies are possible. They may constitute quarries for the local ironstone or agglomerations of several smaller pits close enough together to form single larger anomalies.

Medieval ridge and furrow was identified in the south-east of the field aligned west-north-west.

Fields 3 and 4 (Figs 2 and 8)

Ridge and furrow was detected, orientated in the same direction as that in Field 2. There were no other clear features.

Field 5 (Figs 2 and 8)

The field is full of multiple crossing linear and curving ditches representing several phases of boundaries, enclosures and trackways. Individual elements are difficult to disentangle but they appear to include a curving ditched trackway running approximately east-west. The features may be of a similar date to those in Field 2, although it appears likely that a wider date range is represented.

Field 6 (Figs 3 and 9)

On the western side of the field is the clear corner of a ditched enclosure with another probably adjoined on the north-east. Three other fainter possible ditches shadow these to the south and there may be other archaeologically significant anomalies here. These are all presumed to be part of the same feature-set extending from Field 5. In the centre of the field one linear ditch was located running south-west to north-east.

Ridge and furrow has been detected running north-north-east.

There are variations to the background tone in this field which is probably due to geological changes.

Field 7 (Figs 3 and 9)

This field was unsurveyable due to very high grass.

Field 8 (Figs 3 and 9)

There are no clear archaeological anomalies. There is ridge and furrow running north-south. Metalling from the track leading to a farm, can be seen as an area of positive then negative readings to the east.

Field 9 (Figs 4 and 10)

Two linear ditch features were located running parallel, 6-8m apart, in a north-west to south-east direction, possibly forming a trackway, although there are indications of a third ditch. In the extreme eastern part of the field is a semi-circular anomaly, possibly part of a ditched enclosure, and a south-west aligned ditch feature. Other anomalies here are less likely to be archaeological.

To the east a linear ditch follows the same north-south line as the field boundary. This appears to be respected by east-west ridge and furrow. Ridge and furrow oriented north-south is evident at the western side of the field.

Field 10 (Figs 5 and 11)

One section of a linear ditch feature was identified in the centre of the survey corridor aligned north-south. There are no other clear features.

Field 11 (Figs 5 and 11)

A line of ferrous, dipolar, anomalies, were detected in an east - west direction. This could be the result of a metal pipe.

Field 12 (Figs 5 and 11)

Several highly magnetic anomalies were identified in this field. These could be caused through buried iron objects.

Field 13 (Figs 6 and 12)

An extremely magnetic anomaly can be seen in the data from Field 13. This was caused by a large drain cover in the survey corridor. The data have also been affected in areas where iron fencing has resulted in extreme highs and lows, notably in the east next to the trackway. To the north there is evidence of disturbance, probably ferrous.

Field 14 (Figs 6 and 12)

A large magnetic halo is noticeable in the south-east, resulting from an electricity pole. There is also a second highly magnetic anomaly which is likely to be linked to the electricity pole.

Field 15 (Figs 6 and 12)

A curving ditch was identified in the south-east of the survey area. This appears to have been divided into at least four separate sections by the north-east orientated ridge and furrow. Other enhanced magnetic readings here are less likely to be archaeological. The western corner of the field contained slight interference from the gateway.

Field 16 (Figs 6 and 12)

Weakly magnetised ridge and furrow, orientated south-west - north-east, was identified among the

dipolar, ferrous litter spreading east from the road.

Field 17 (Figs 6 and 12)

Strong ridge and furrow anomalies, in a north-east – south-west direction, have been surveyed along with a linear ditch feature parallel to the field boundary against the B4525 road.

Field 18 (Figs 7 and 13)

An irregular sub-circular ditched enclosure, with a maximum dimension of *c* 12m, was found in the middle of the survey corridor. This appears to be archaeologically significant but is not associated with any other features within the survey corridor. Ridge and furrow has been detected again on a similar alignment to that in Field 17.

Field 19 (Figs 7 and 13)

A ditch aligned north-west, almost parallel to the hedge, may be linked to the track that runs from the B4525 down the eastern boundary of this field. This is thought to have originated as a droveway, possibly in the medieval period (ARCUS 2007, 8).

At the southern end of the field are faint traces of ridge and furrow running north-west – south-east. Considerable magnetic disturbance was detected to the north, likely to be an accumulation of ferrous litter.

6 CONCLUSIONS

The survey has identified and mapped magnetic anomalies along 5.15 km of the 5.60 km route of farmland between Thorpe Mandeville and Greatworth. A number of the features identified are likely to be archaeologically significant - mainly ditches forming enclosures and trackways, and a few possible pits. Other features are less likely to be significant although this cannot be proven on the basis of geophysical survey evidence alone.

Areas of archaeological constraint

There are two main complexes of features (Fields 2 and 5/6) which are likely to represent later prehistoric and/or Roman rural settlements, although the complexes may include earlier and later features as well. While features found by magnetometer are not directly datable, the patterns of enclosures and linear ditches are typical of the Iron Age/Roman periods. The desk-based assessment also indicated that prehistoric and Roman finds have previously come from this area. The precise forms and limits of these sites are not clear from the limited area covered in the survey corridor.

Field 15 contains a curving boundary ditch of unknown (but probably not recent) date. Its course appears interrupted, which may have been caused by later ploughing, although if this is an original characteristic the ditch is likely to be prehistoric. While a Roman site was expected south of Stuchbury Manor Farm on the basis of reported finds (ARCUS 2007, 7), the feature is not typically Roman in form.

There is a small semi-circular feature in Field 18. While its form is irregular, it would not be out of place as the site of a roundhouse of Iron Age or early Roman date. It appears isolated, although there may be minor features, such as pits, nearby which are not easy to see or interpret through geophysical survey.

In Field 9 are parallel ditches running for about 300m. It is suggested that they may define a

trackway. Such features are not uncommon in the Roman period, although in this case their course almost parallel to Welsh Lane suggests that they may be later. Welsh Lane is known to have followed the course of a drovers' road although it is not clear that a ditched trackway would have been a characteristic feature of this type of routeway.

Another long ditch was traced for about 200m in Field 19. This is also undated but may also be linked to the presence of a former droveway on the edge of this field (ARCUS 2007, 8).

Other possible archaeological features

There are a number of generally isolated features of possible archaeological significance in Fields 1, 9, 10 and 17. The ditches on the edges of Fields 1, 10 and 17 are likely to be former boundaries relating to those fields. If so they are likely to be medieval or later, but not necessarily modern. The ditch in the middle of Field 10 is likely to be a former subdivision of that field. The nature of the features at the eastern end of Field 9 is difficult to determine within the limits of the survey. The desk-based assessment suggests the presence of a sixth-century cemetery somewhere in this area (ARCUS 2007, 7 [Site 13]) although this would not be expected to leave a clear geophysical 'signature'.

Medieval ridge and furrow

There is evidence of ridge and furrow, relating to medieval cultivation, along most of the pipeline corridor. This gives an indication of the extent of cultivated land at this time, but is of little archaeological significance. Field 1 contained the only ridge and furrow surviving as earthworks. This was presumably not in its original state as a previous water pipe had been laid in this field. The earthworks must therefore have been re-instated.

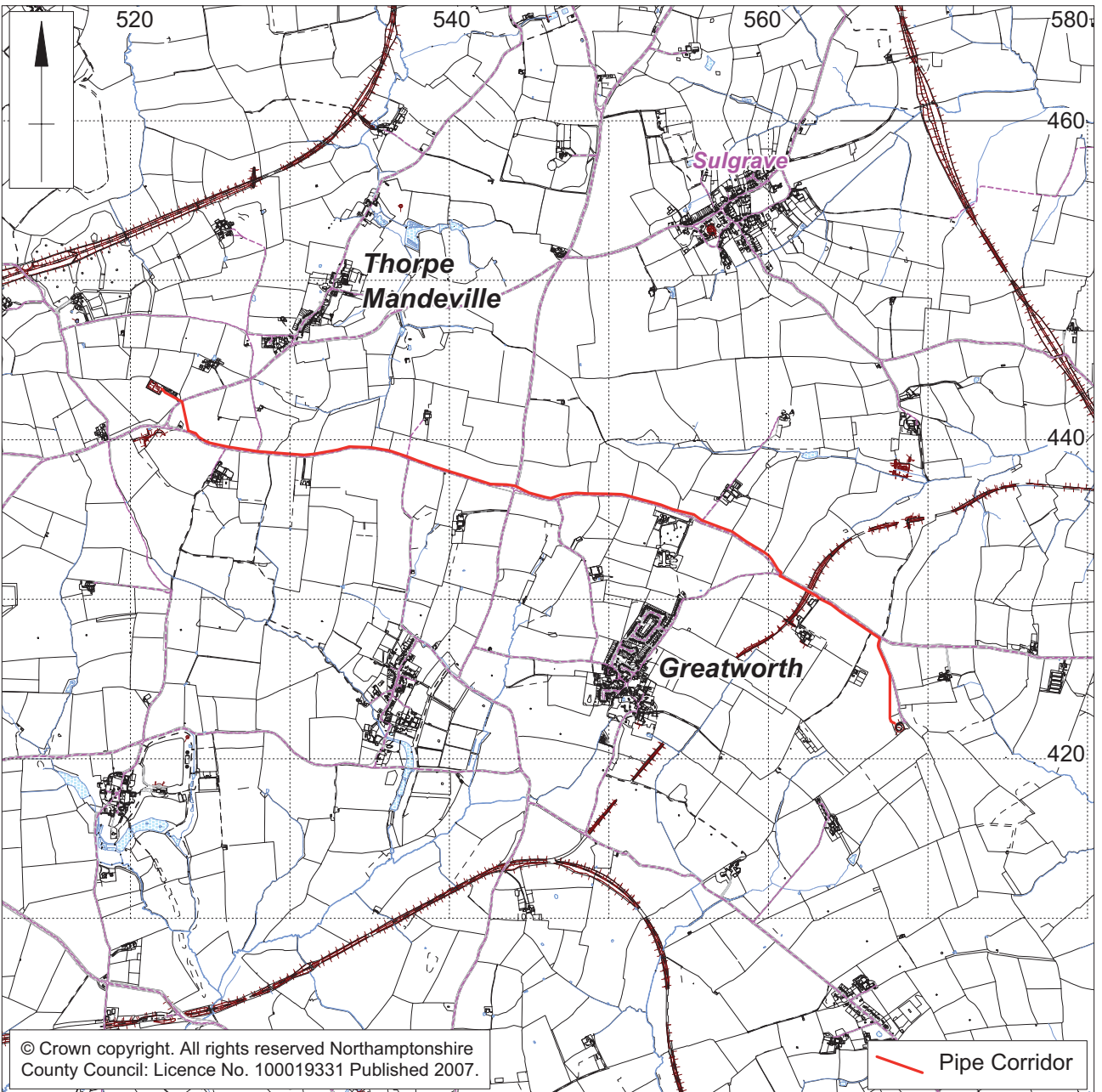
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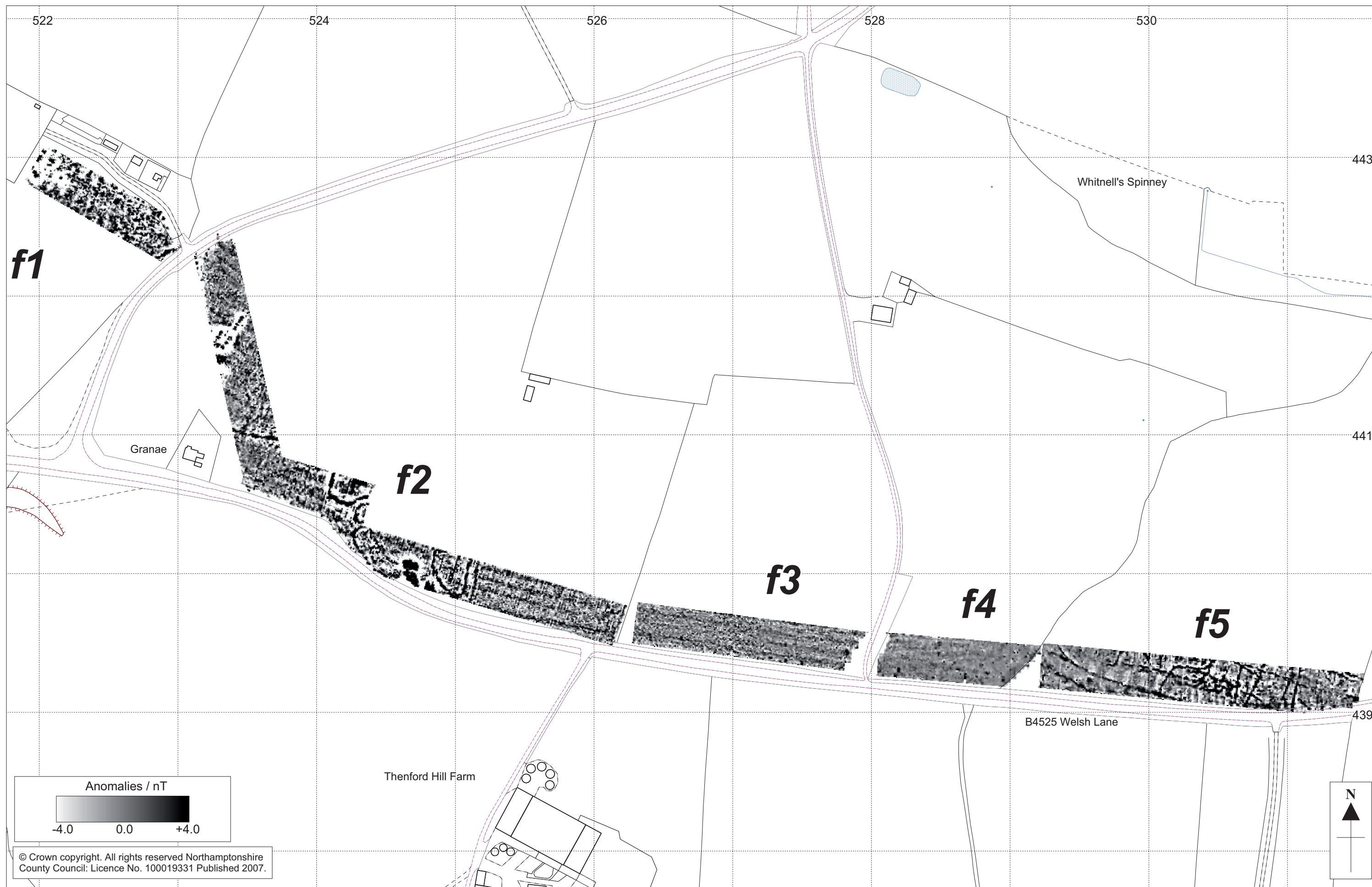
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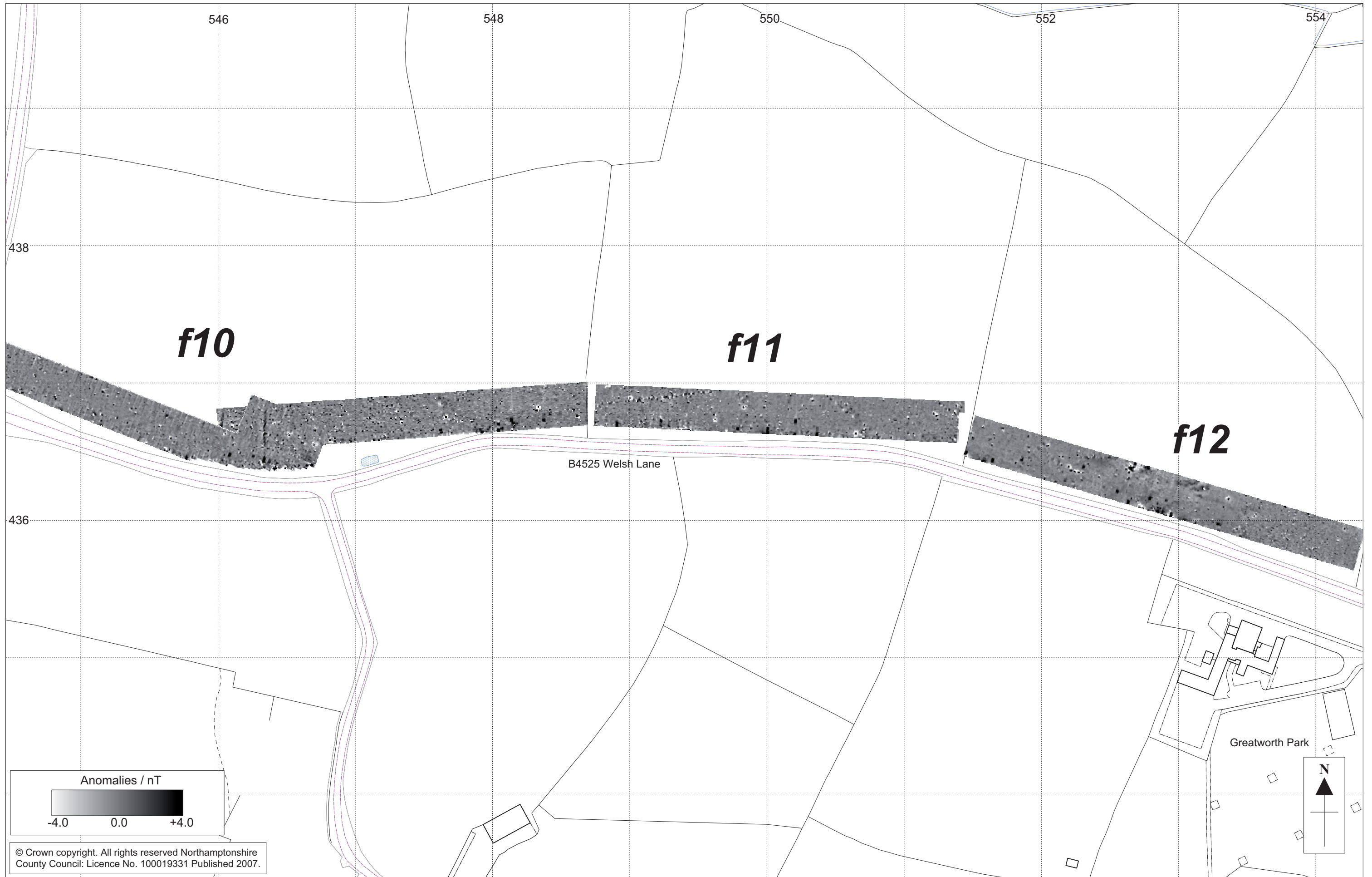
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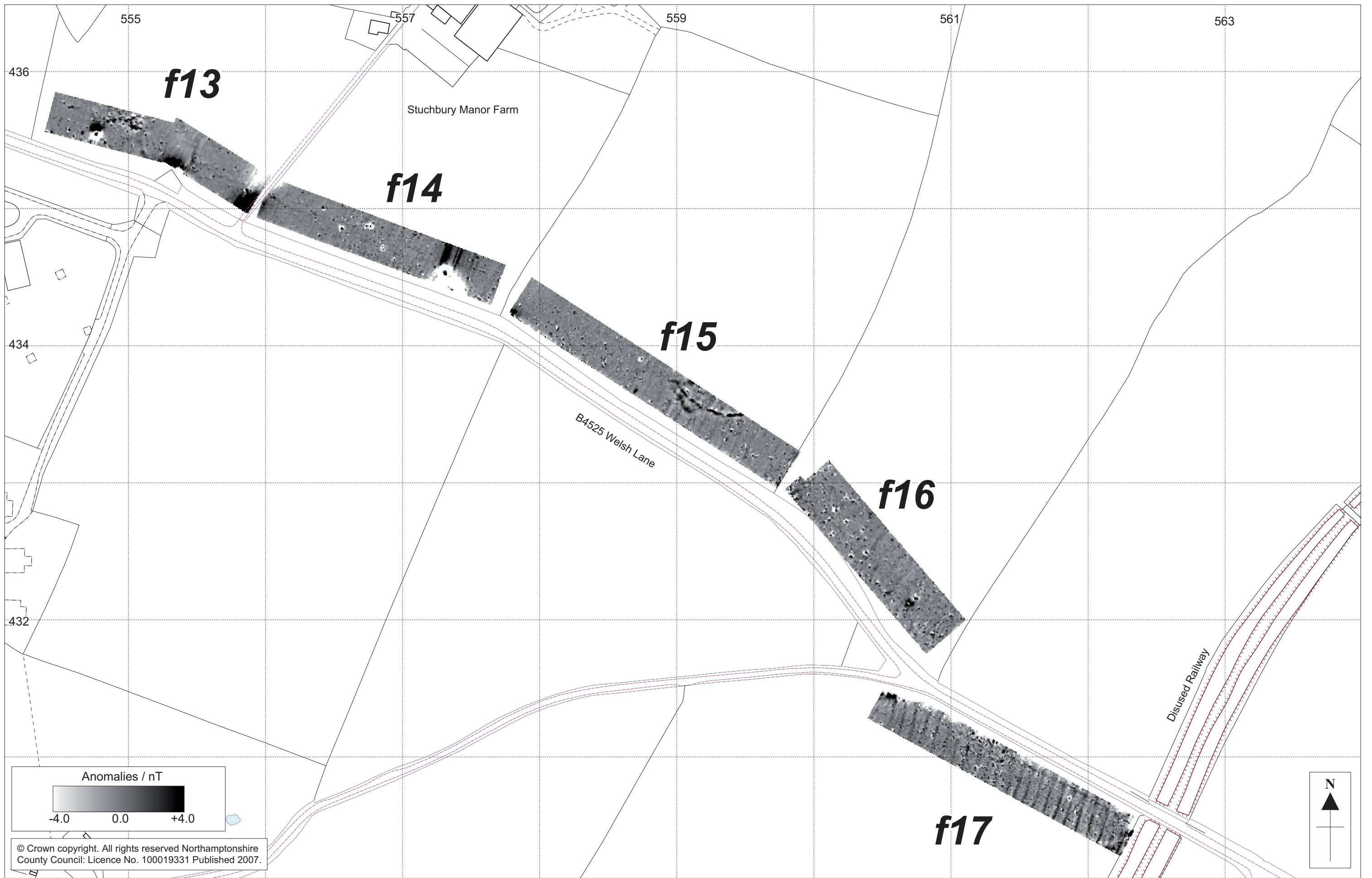
Site location Fig 1



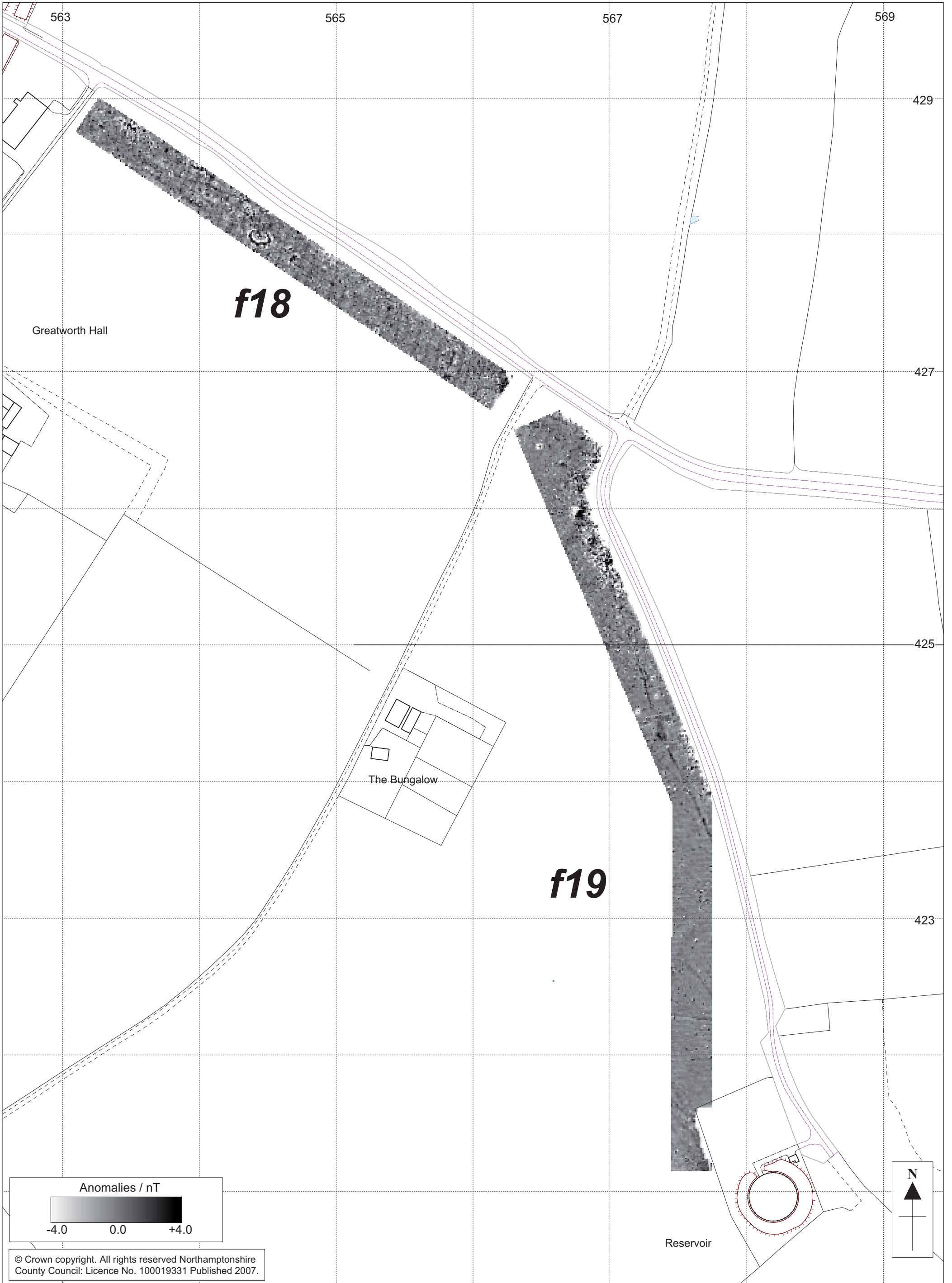




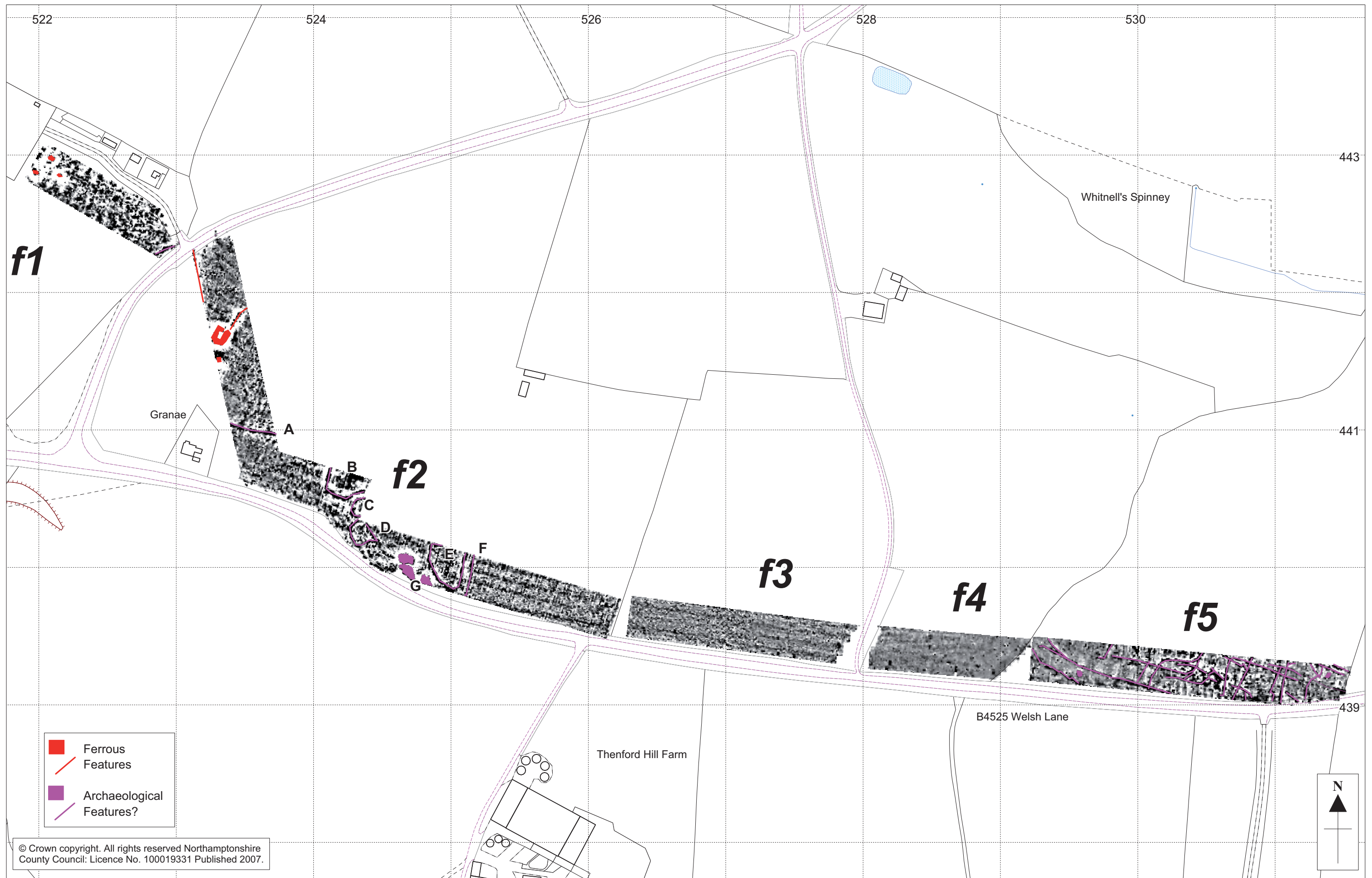




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