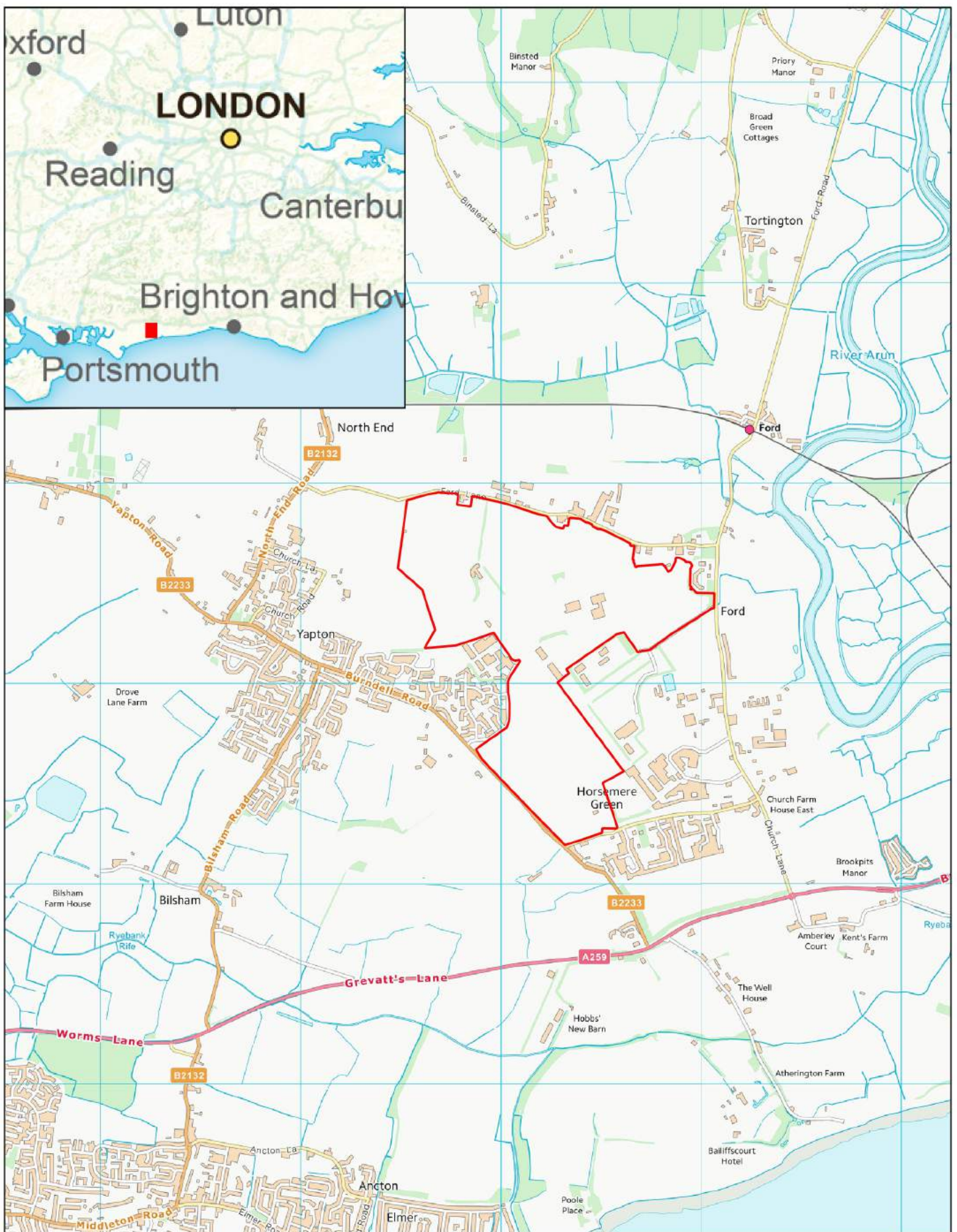




MSSU354 - Ford Airfield

Figure 1 - Site Location

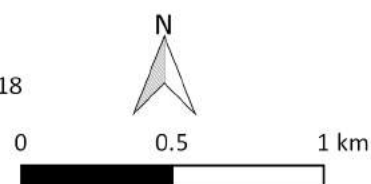
1:25,000 @ A4

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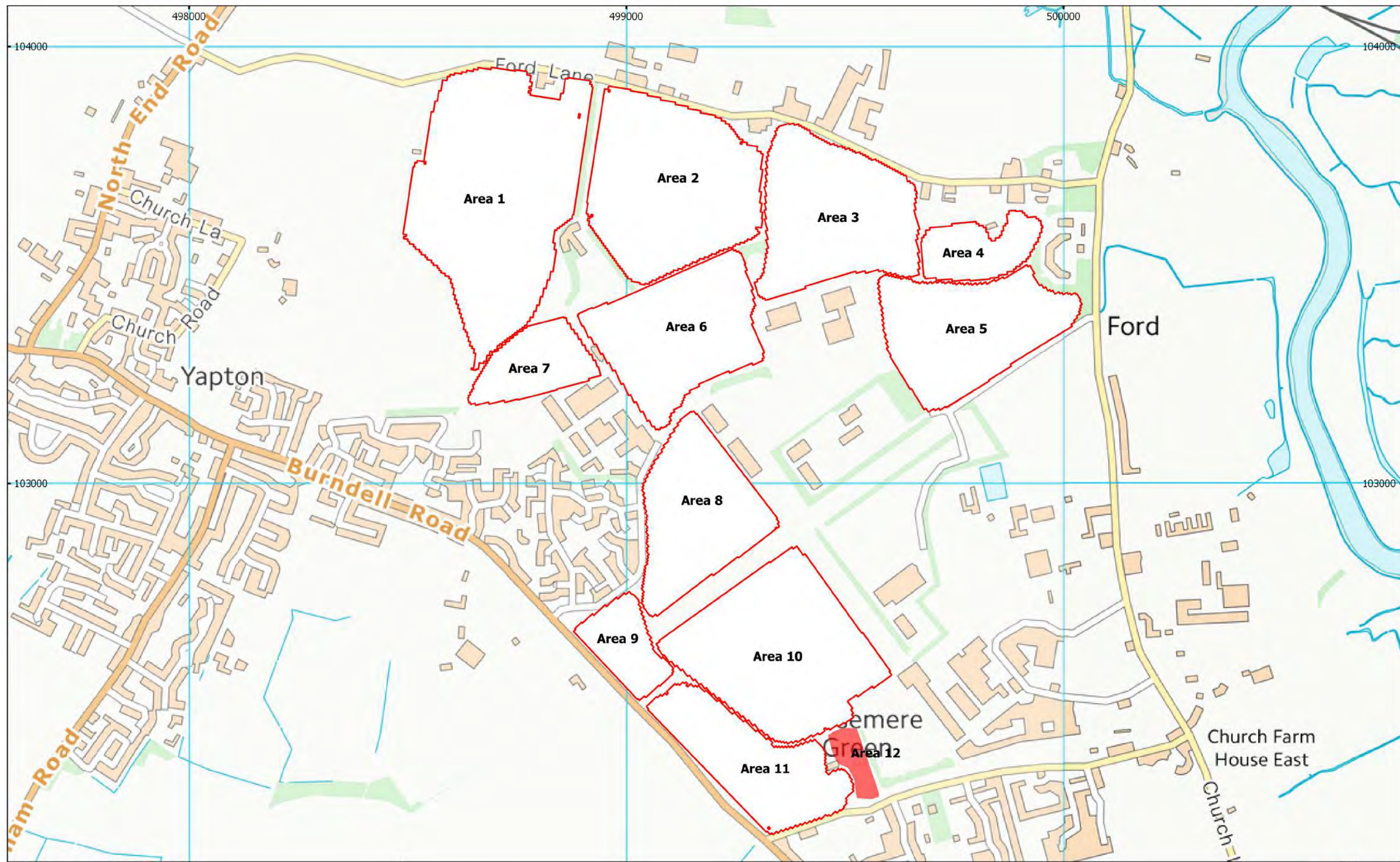
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 Site Boundary

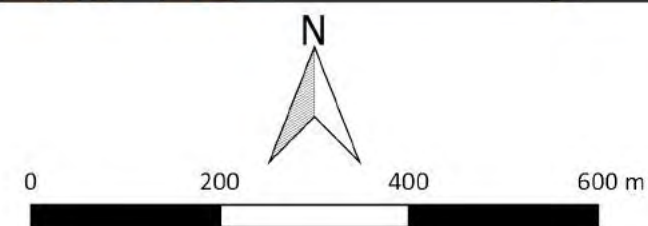


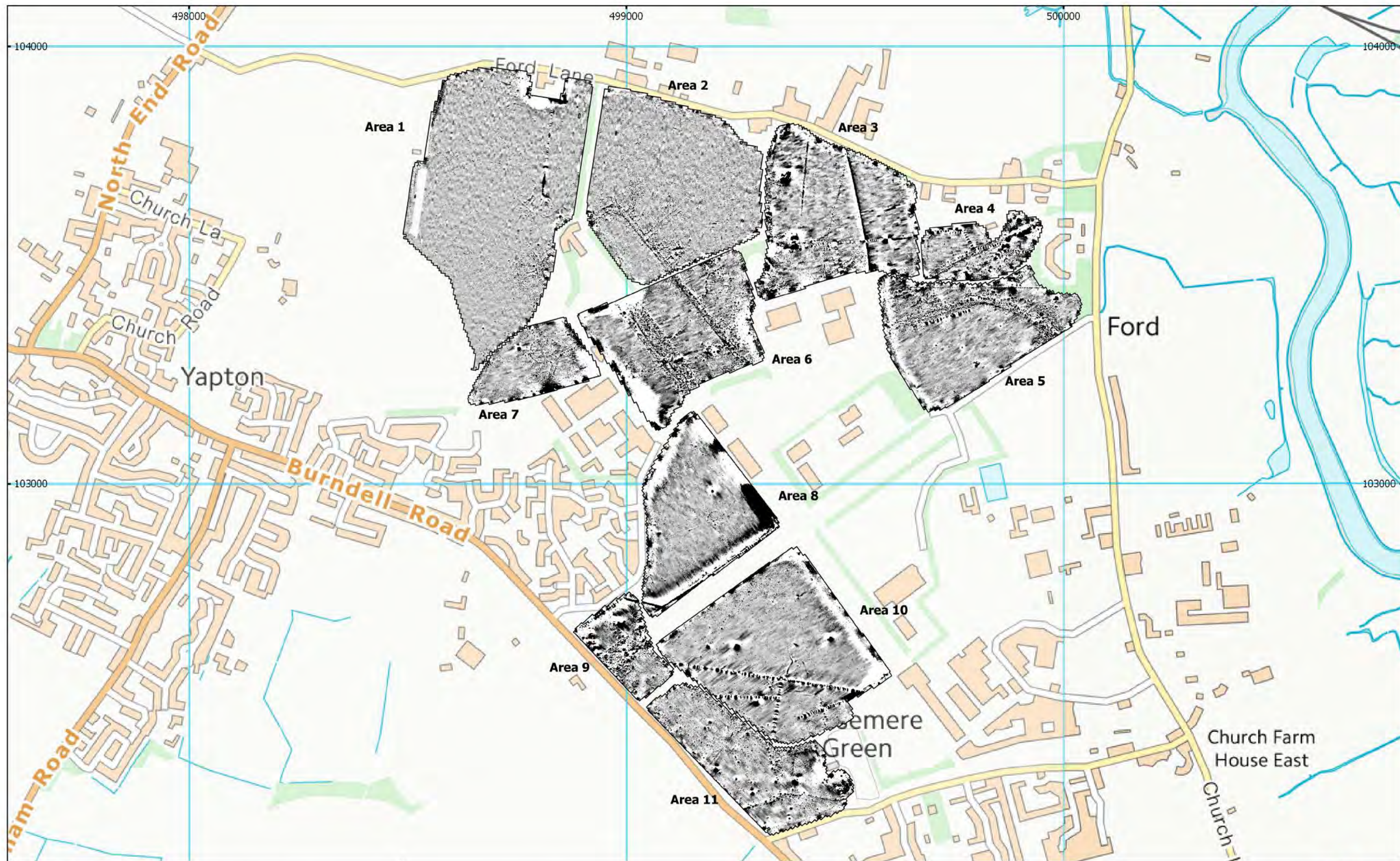
**magnitude  
surveys**



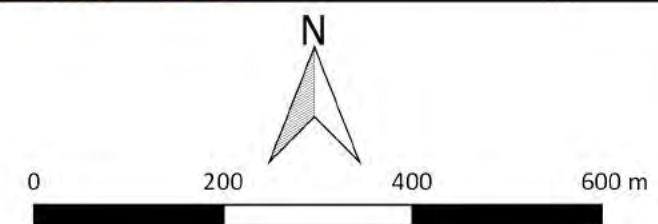
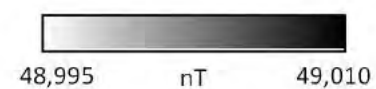
MSSU354 - Land at Ford, West Sussex  
 Figure 2 - Location of Survey Areas  
 1:8,000 @ A3  
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 Survey Extent  
 Unsurveyable



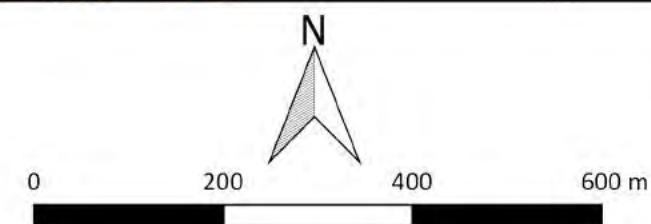


MSSU354 - Ford Airfield, West Sussex  
 Figure 3 - Magnetic Total Field (Lower Sensor) Overview  
 1:8,000 @ A3  
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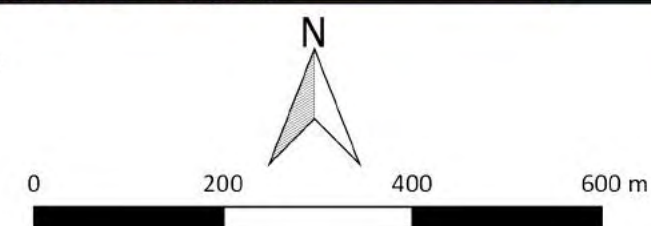
MSSU354 - Ford Airfield, West Sussex  
 Figure 4 - Magnetic Gradient Overview  
 1:8,000 @ A3  
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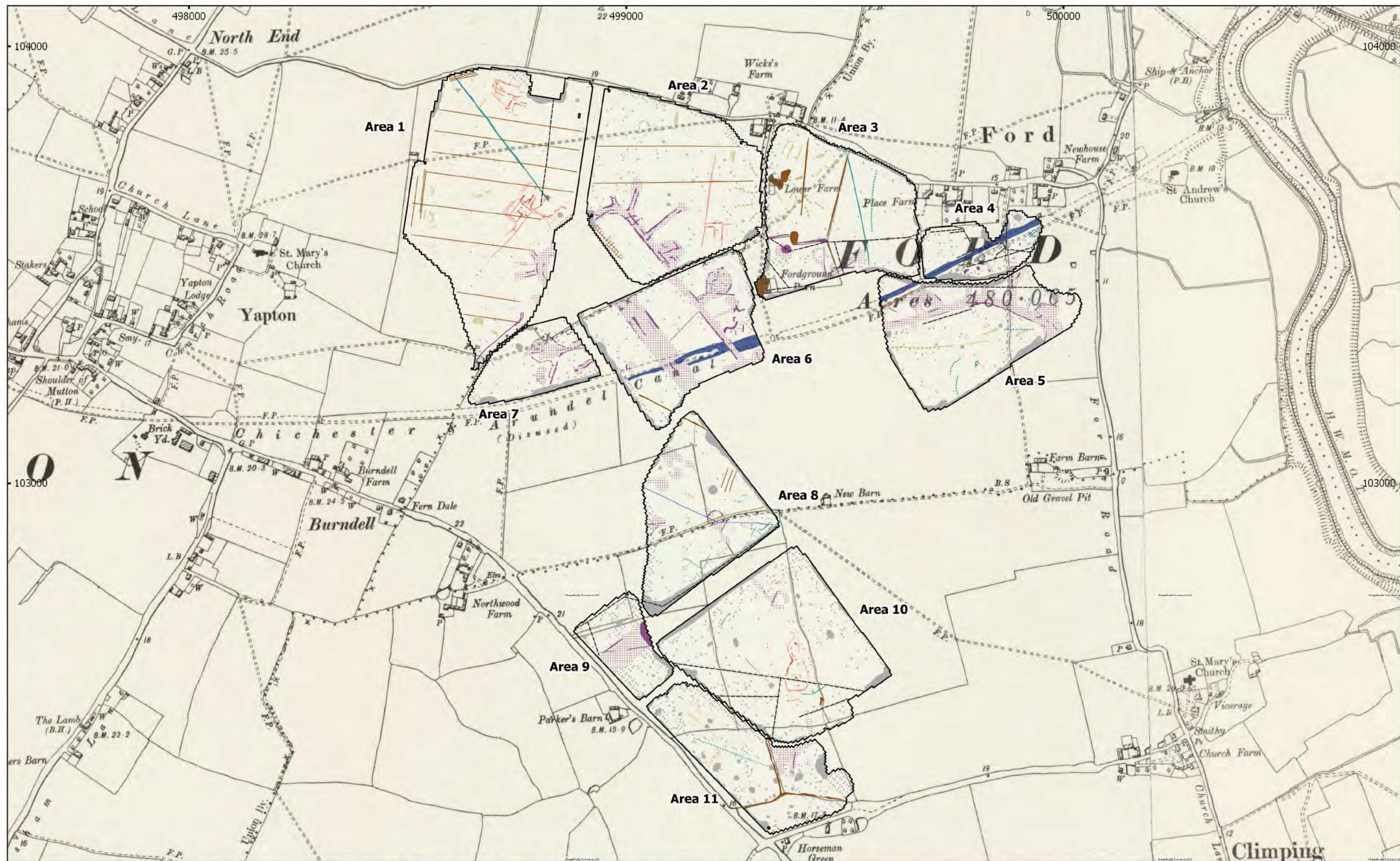




MSSU354 - Ford Airfield, West Sussex  
 Figure 5 - Magnetic Interpretation Over Satellite Imagery Overview  
 1:8,000 @ A3  
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 Contains Bing Satellite data 2018

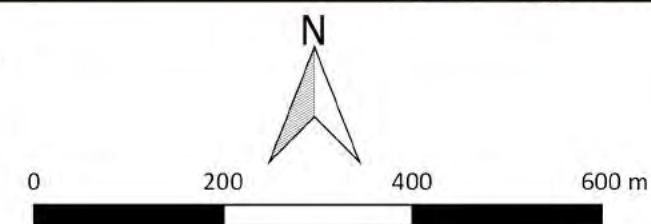
- |                               |                       |                                       |
|-------------------------------|-----------------------|---------------------------------------|
| Archaeology Probable (Strong) | Agricultural (Strong) | Ferrous (Dipolar)                     |
| Archaeology Probable (Weak)   | Agricultural (Weak)   | Ferrous (Spread)/Magnetic Disturbance |
| Archaeology Probable (Trend)  | Agricultural (Spread) | Undetermined (Strong)                 |
| Archaeology Possible (Strong) | Farm/Barn             | Undetermined (Weak)                   |
| Archaeology Possible (Weak)   | Agricultural (Trend)  | Undetermined (Spread)                 |
| Airfield (Strong)             | Natural (Strong)      | Undetermined (Trend)                  |
| Airfield (Spread)             | Natural (Weak)        | Service                               |
| Canal                         | Natural (Trend)       |                                       |





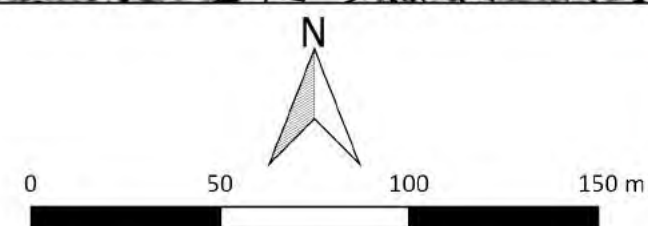
MSSU354 - Ford Airfield, West Sussex  
 Figure 6 - Magnetic Interpretation Over Historic Maps Overview  
 1:8,000 @ A3  
 Copyright Magnitude Surveys Ltd 2018  
 Contains historic maps: Ordnance Survey, 6" 2nd edition c. 1882-1913 ©  
 National Library of Scotland

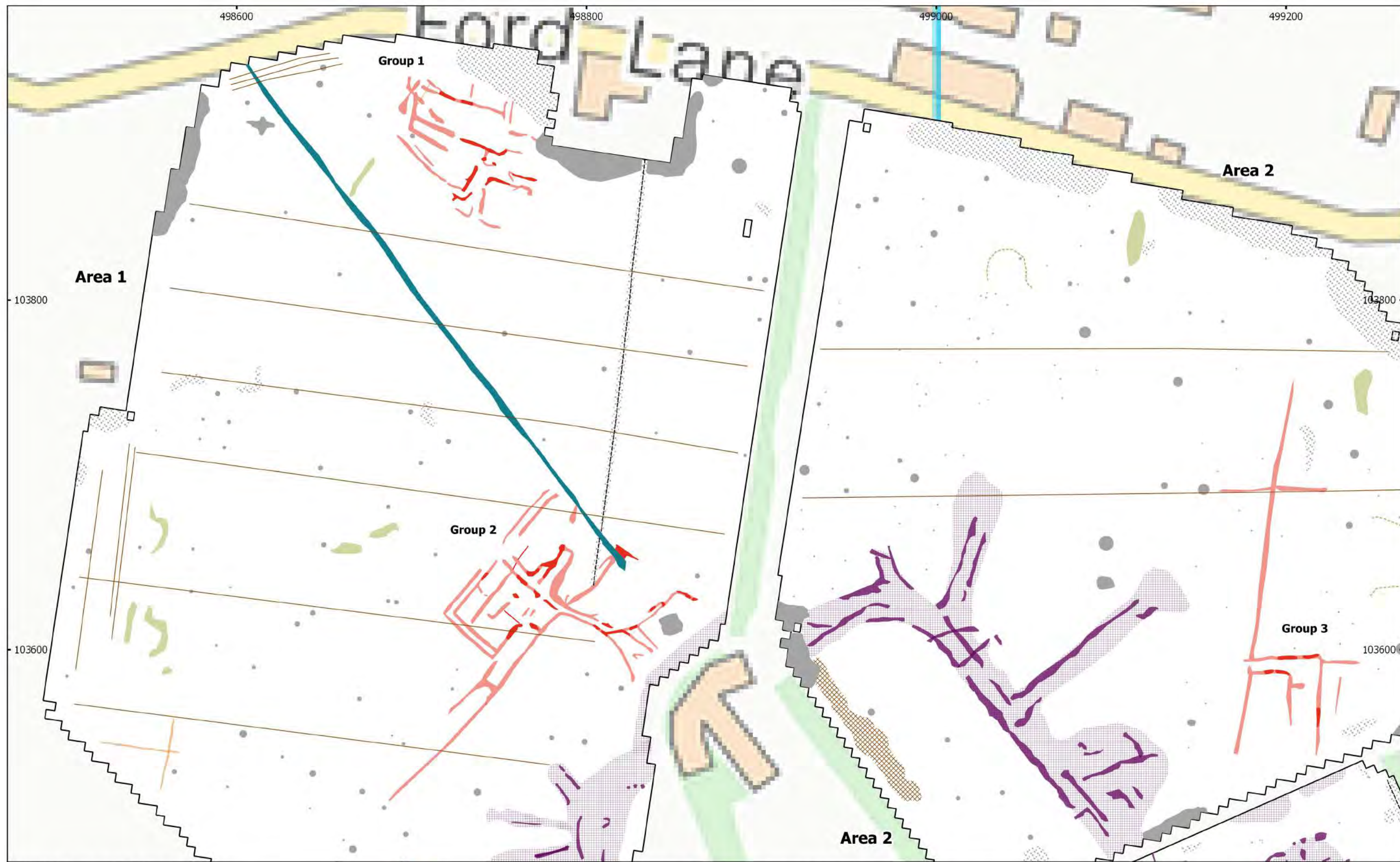
- |                               |                       |                                       |
|-------------------------------|-----------------------|---------------------------------------|
| Archaeology Probable (Strong) | Agricultural (Strong) | Ferrous (Dipolar)                     |
| Archaeology Probable (Weak)   | Agricultural (Weak)   | Ferrous (Spread)/Magnetic Disturbance |
| Archaeology Probable (Trend)  | Agricultural (Spread) | Undetermined (Strong)                 |
| Archaeology Possible (Strong) | Farm/Barn             | Undetermined (Weak)                   |
| Archaeology Possible (Weak)   | Agricultural (Trend)  | Undetermined (Spread)                 |
| Airfield (Strong)             | Natural (Strong)      | Undetermined (Trend)                  |
| Airfield (Spread)             | Natural (Weak)        | Service                               |
| Canal                         | Natural (Trend)       |                                       |





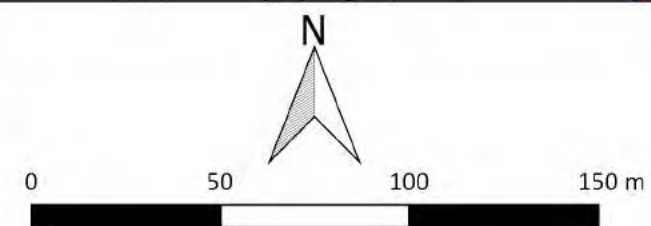
MSSU354 - Land at Ford, West Sussex  
 Figure 7 - Magnetic Greyscale (Areas 1 and 2)  
 1:2,000 @ A3  
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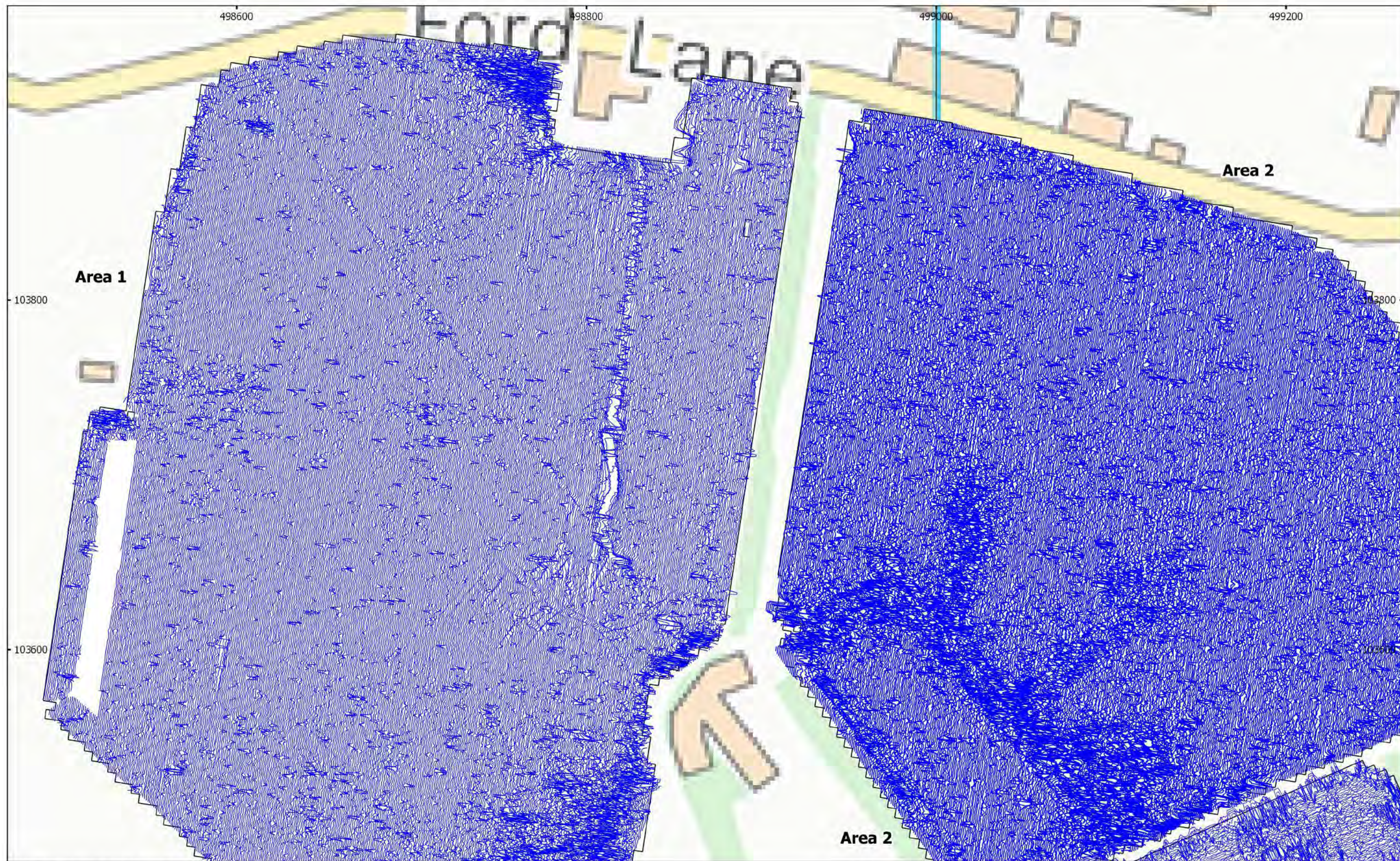




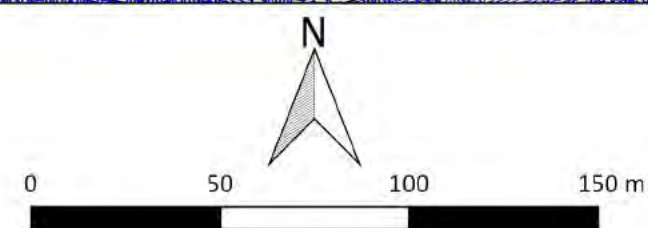
MSSU354 - Land at Ford, West Sussex  
 Figure 8 - Magnetic Interpretation (Areas 1 and 2)  
 1:2,000 @ A3  
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- |                                                                        |                                                            |                                                                                |
|------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------------------------|
| <span style="color: red;">■</span> Archaeology Probable (Strong)       | <span style="color: brown;">■</span> Agricultural (Strong) | <span style="color: grey;">■</span> Ferrous (Dipolar)                          |
| <span style="color: lightcoral;">■</span> Archaeology Probable (Weak)  | <span style="color: tan;">■</span> Agricultural (Weak)     | <span style="color: lightgrey;">■</span> Ferrous (Spread)/Magnetic Disturbance |
| <span style="color: red;">—</span> Archaeology Probable (Trend)        | <span style="color: brown;">—</span> Agricultural (Spread) | <span style="color: teal;">■</span> Undetermined (Strong)                      |
| <span style="color: orange;">■</span> Archaeology Possible (Strong)    | <span style="color: brown;">■</span> Farm/Barn             | <span style="color: lightteal;">■</span> Undetermined (Weak)                   |
| <span style="color: lightorange;">■</span> Archaeology Possible (Weak) | <span style="color: brown;">—</span> Agricultural (Trend)  | <span style="color: lightteal;">—</span> Undetermined (Spread)                 |
| <span style="color: purple;">■</span> Airfield (Strong)                | <span style="color: green;">■</span> Natural (Strong)      | <span style="color: lightteal;">—</span> Undetermined (Trend)                  |
| <span style="color: lightpurple;">■</span> Airfield (Spread)           | <span style="color: lightgreen;">■</span> Natural (Weak)   | <span style="color: black;">---</span> Service                                 |
| <span style="color: blue;">■</span> Canal                              | <span style="color: lightgreen;">—</span> Natural (Trend)  |                                                                                |



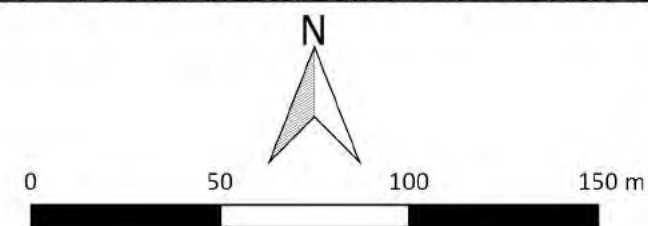


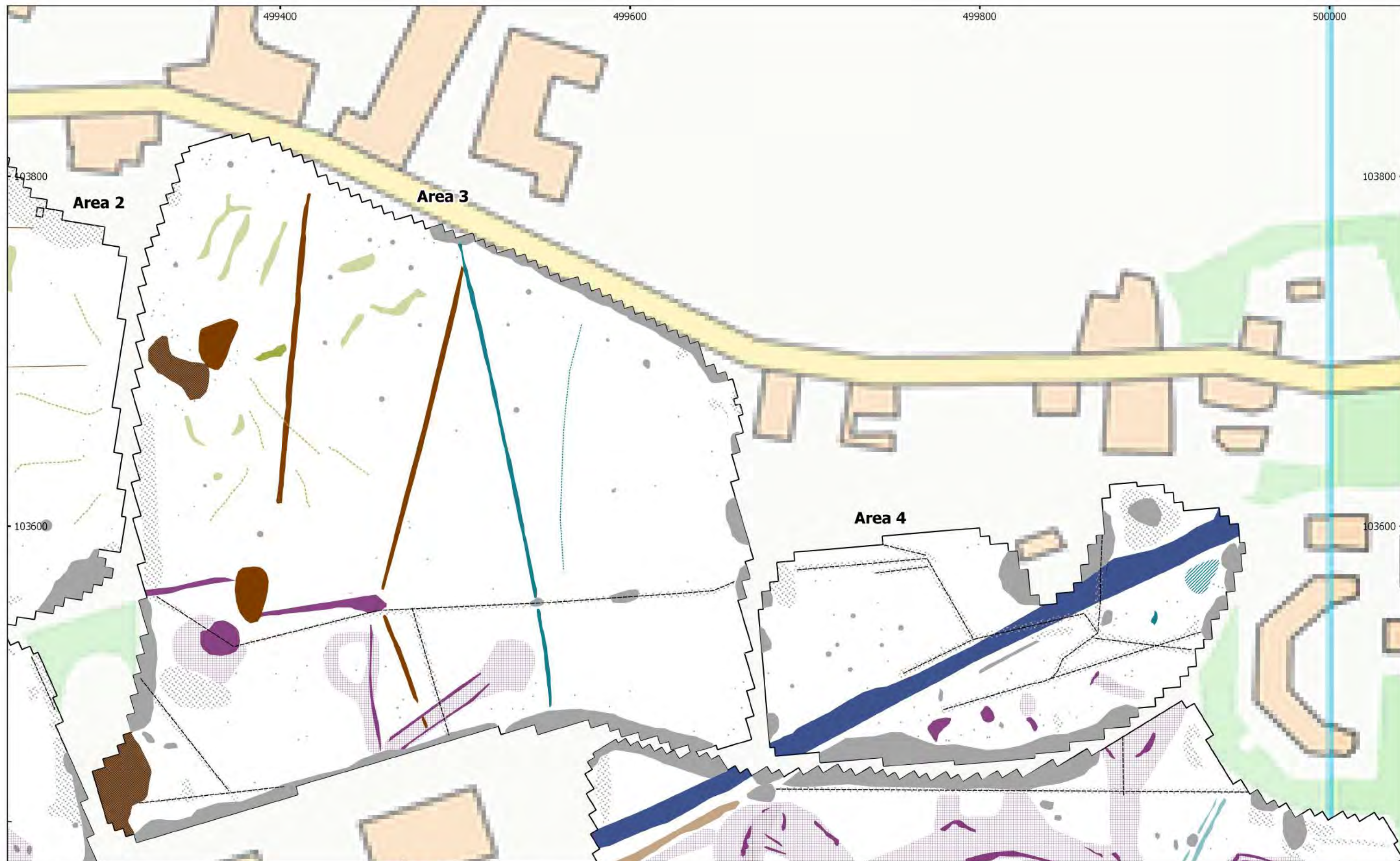
MSSU354 - Land at Ford, West Sussex  
Figure 9 - XY Trace Plot (Areas 1 and 2)  
40nT/cm @ 1:2,000 @ A3  
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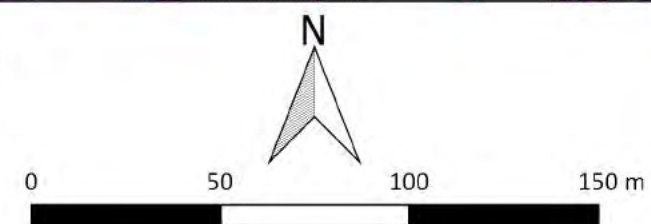
MSSU354 - Land at Ford, West Sussex  
 Figure 10 - Magnetic Greyscale (Areas 2, 3 and 4)  
 1:2,000 @ A3  
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 Contains Ordnance Survey data © Crown Copyright and database right 2018  
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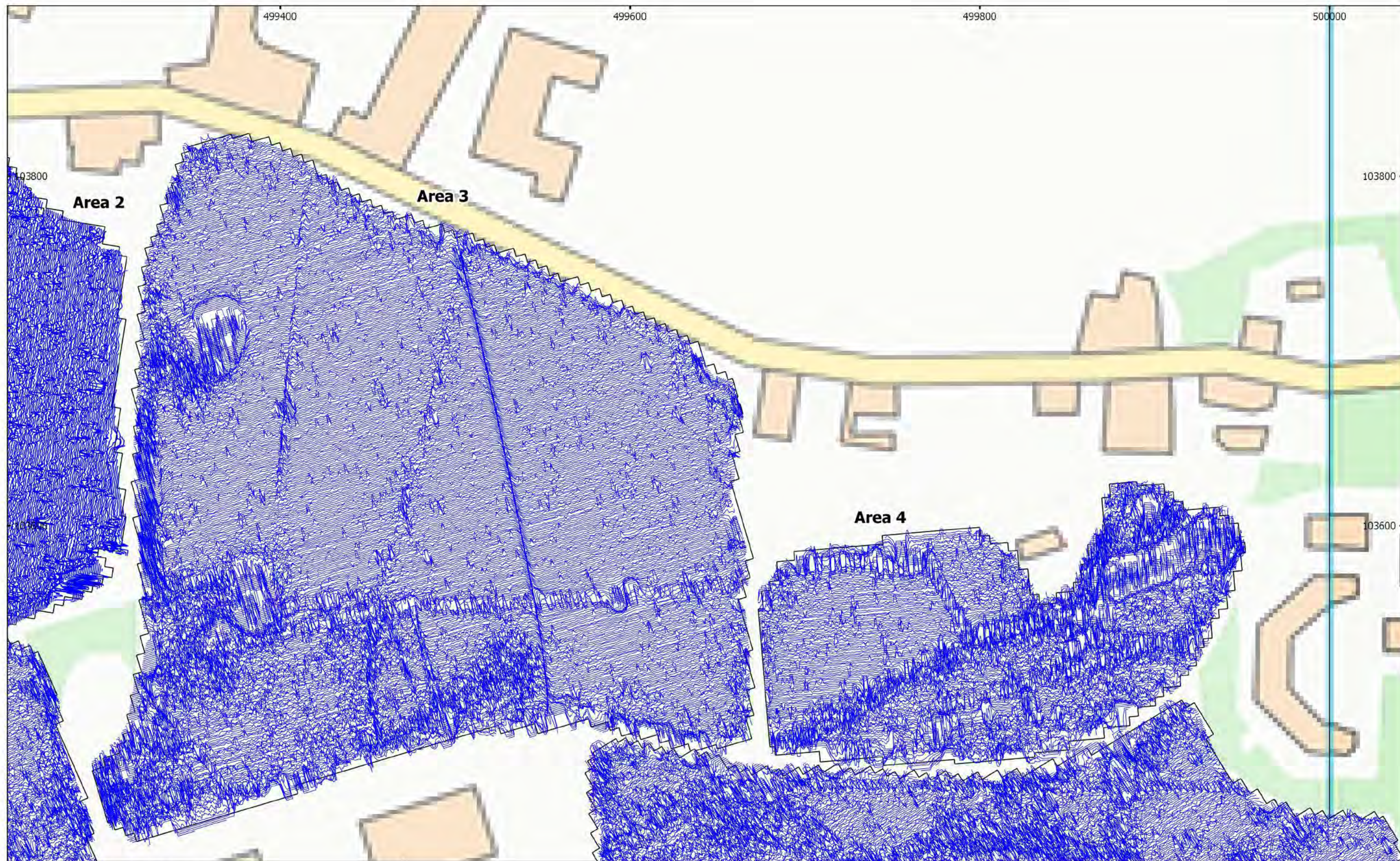




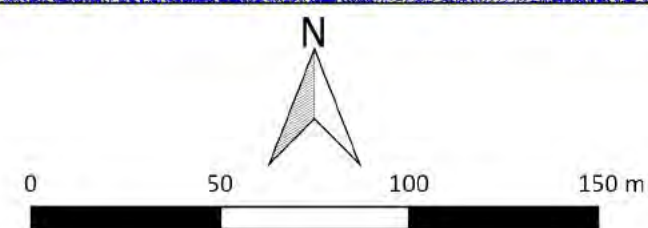
MSSU354 - Land at Ford, West Sussex  
 Figure 11 - Magnetic Interpretation (Areas 2, 3 and 4)  
 1:2,000 @ A3  
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- |                                                                        |                                                            |                                                                           |
|------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------------------|
| <span style="color: red;">■</span> Archaeology Probable (Strong)       | <span style="color: brown;">■</span> Agricultural (Strong) | <span style="color: grey;">■</span> Ferrous (Dipolar)                     |
| <span style="color: pink;">■</span> Archaeology Probable (Weak)        | <span style="color: tan;">■</span> Agricultural (Weak)     | <span style="color: grey;">■</span> Ferrous (Spread)/Magnetic Disturbance |
| <span style="color: red;">—</span> Archaeology Probable (Trend)        | <span style="color: brown;">■</span> Agricultural (Spread) | <span style="color: teal;">■</span> Undetermined (Strong)                 |
| <span style="color: orange;">■</span> Archaeology Possible (Strong)    | <span style="color: brown;">■</span> Farm/Barn             | <span style="color: teal;">■</span> Undetermined (Weak)                   |
| <span style="color: lightorange;">■</span> Archaeology Possible (Weak) | <span style="color: green;">—</span> Agricultural (Trend)  | <span style="color: teal;">■</span> Undetermined (Spread)                 |
| <span style="color: purple;">■</span> Airfield (Strong)                | <span style="color: green;">■</span> Natural (Strong)      | <span style="color: teal;">—</span> Undetermined (Trend)                  |
| <span style="color: lightpurple;">■</span> Airfield (Spread)           | <span style="color: lightgreen;">■</span> Natural (Weak)   | <span style="color: black;">---</span> Service                            |
| <span style="color: blue;">■</span> Canal                              | <span style="color: lightgreen;">—</span> Natural (Trend)  |                                                                           |





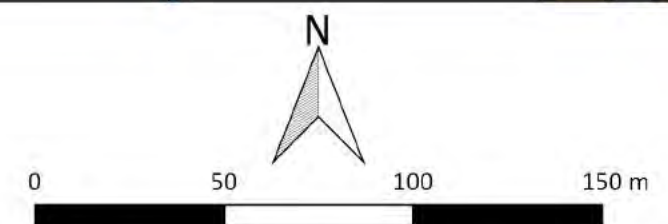
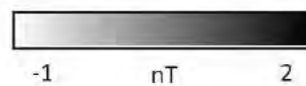
MSSU354 - Land at Ford, West Sussex  
 Figure 12 - XY Trace Plot (Areas 2, 3 and 4)  
 40nT/cm @ 1:2,000 @ A3  
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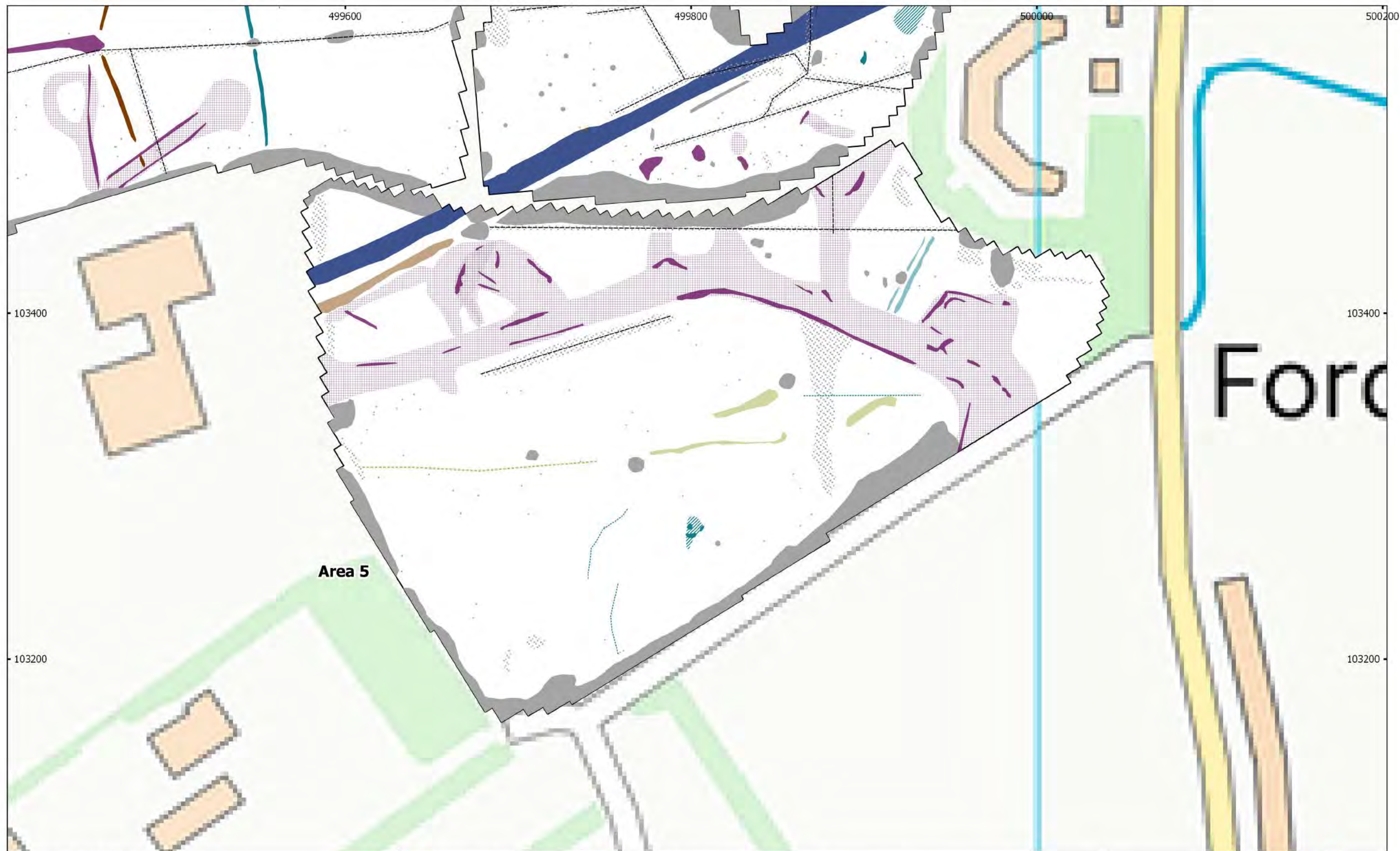


Area 5

MSSU354 - Land at Ford, West Sussex  
Figure 13 - Magnetic Greyscale (Area 5)  
1:2,000 @ A3  
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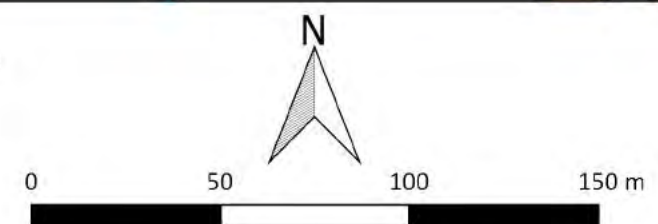
MSSU354 - Land at Ford, West Sussex  
Figure 14 - Magnetic Interpretation (Area 5)

1:2,000 @ A3

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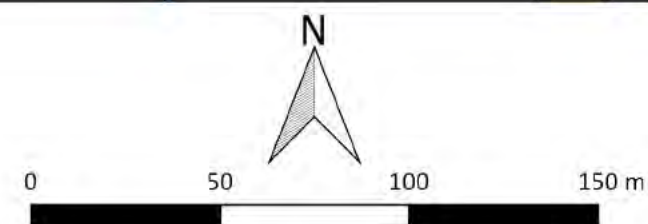
|                               |                       |                                       |
|-------------------------------|-----------------------|---------------------------------------|
| Archaeology Probable (Strong) | Agricultural (Strong) | Ferrous (Dipolar)                     |
| Archaeology Probable (Weak)   | Agricultural (Weak)   | Ferrous (Spread)/Magnetic Disturbance |
| Archaeology Probable (Trend)  | Agricultural (Spread) | Undetermined (Strong)                 |
| Archaeology Possible (Strong) | Farm/Barn             | Undetermined (Weak)                   |
| Archaeology Possible (Weak)   | Agricultural (Trend)  | Undetermined (Spread)                 |
| Airfield (Strong)             | Natural (Strong)      | Undetermined (Trend)                  |
| Airfield (Spread)             | Natural (Weak)        | Service                               |
| Canal                         | Natural (Trend)       |                                       |



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surveys

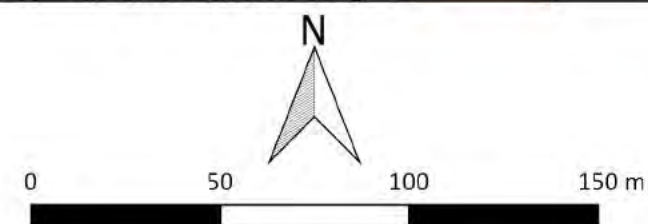


MSSU354 - Land at Ford, West Sussex  
Figure 15 - XY Trace Plot (Area 5)  
40nT/cm @ 1:2,000 @ A3  
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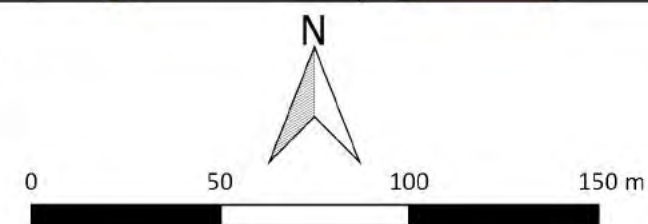
MSSU354 - Land at Ford, West Sussex  
 Figure 16 - Magnetic Greyscale (Areas 1, 2, 6 and 7)  
 1:2,000 @ A3  
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 Contains Ordnance Survey data © Crown Copyright and database right 2018  
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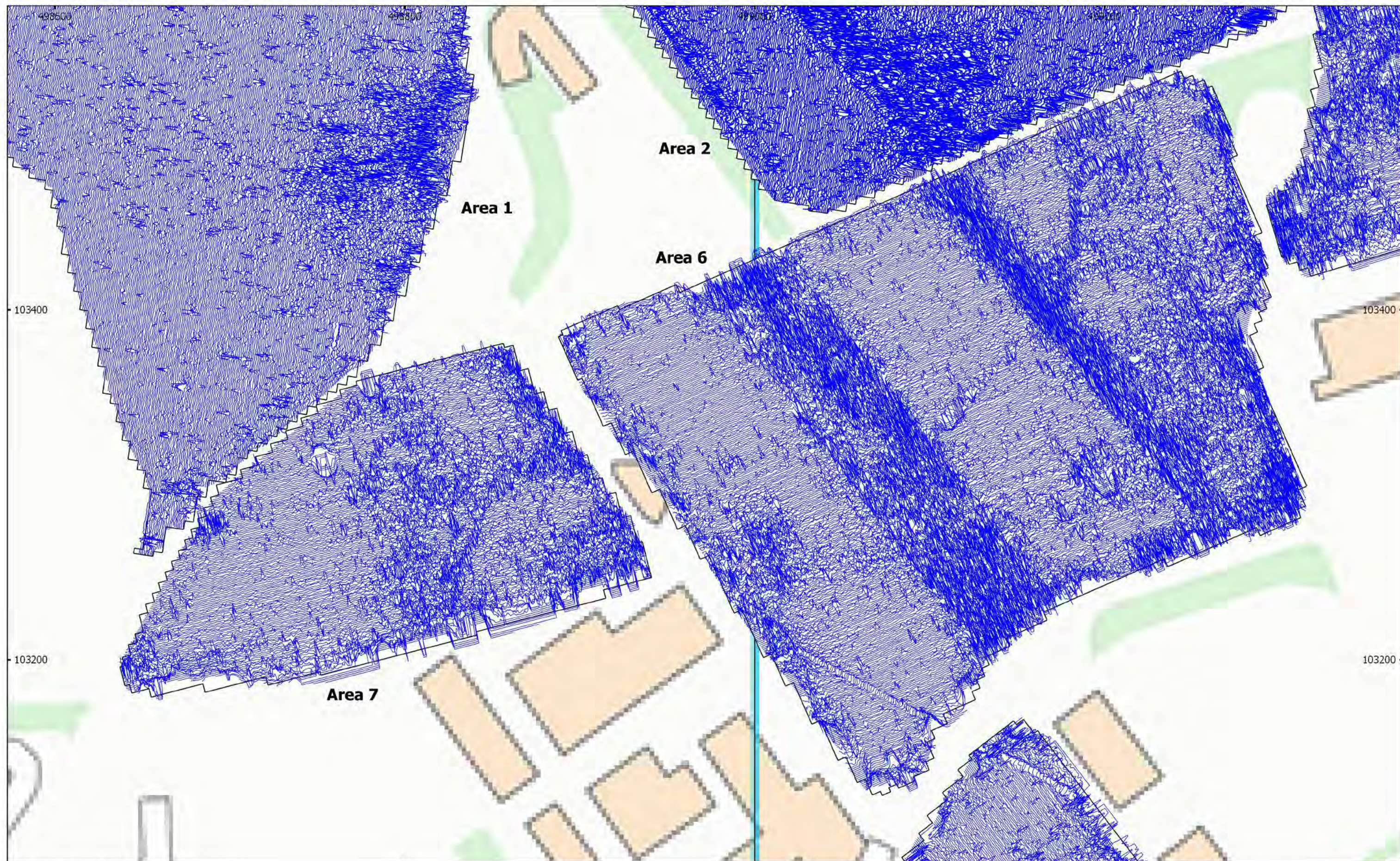




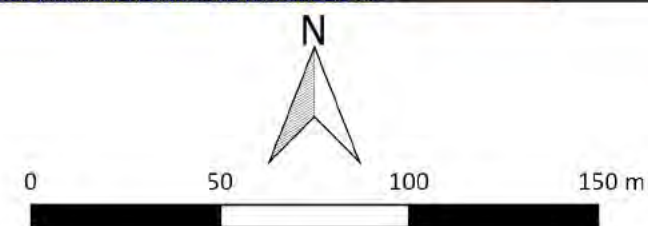
MSSU354 - Land at Ford, West Sussex  
 Figure 17 - Magnetic Interpretation (Areas 1, 2, 6 and 7)  
 1:2,000 @ A3  
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- |                                                                        |                                                            |                                                                                |
|------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------------------------|
| <span style="color: red;">■</span> Archaeology Probable (Strong)       | <span style="color: brown;">■</span> Agricultural (Strong) | <span style="color: grey;">■</span> Ferrous (Dipolar)                          |
| <span style="color: pink;">■</span> Archaeology Probable (Weak)        | <span style="color: tan;">■</span> Agricultural (Weak)     | <span style="color: lightgrey;">■</span> Ferrous (Spread)/Magnetic Disturbance |
| <span style="color: red;">—</span> Archaeology Probable (Trend)        | <span style="color: tan;">■</span> Agricultural (Spread)   | <span style="color: teal;">■</span> Undetermined (Strong)                      |
| <span style="color: orange;">■</span> Archaeology Possible (Strong)    | <span style="color: brown;">■</span> Farm/Barn             | <span style="color: lightteal;">■</span> Undetermined (Weak)                   |
| <span style="color: lightorange;">■</span> Archaeology Possible (Weak) | <span style="color: green;">—</span> Agricultural (Trend)  | <span style="color: lightblue;">■</span> Undetermined (Spread)                 |
| <span style="color: purple;">■</span> Airfield (Strong)                | <span style="color: green;">■</span> Natural (Strong)      | <span style="color: blue;">—</span> Undetermined (Trend)                       |
| <span style="color: lightpurple;">■</span> Airfield (Spread)           | <span style="color: lightgreen;">■</span> Natural (Weak)   | <span style="color: black;">---</span> Service                                 |
| <span style="color: blue;">■</span> Canal                              | <span style="color: lightgreen;">—</span> Natural (Trend)  |                                                                                |



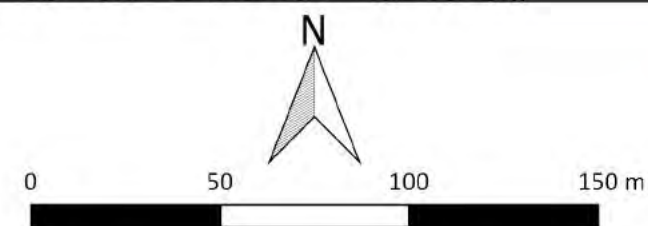


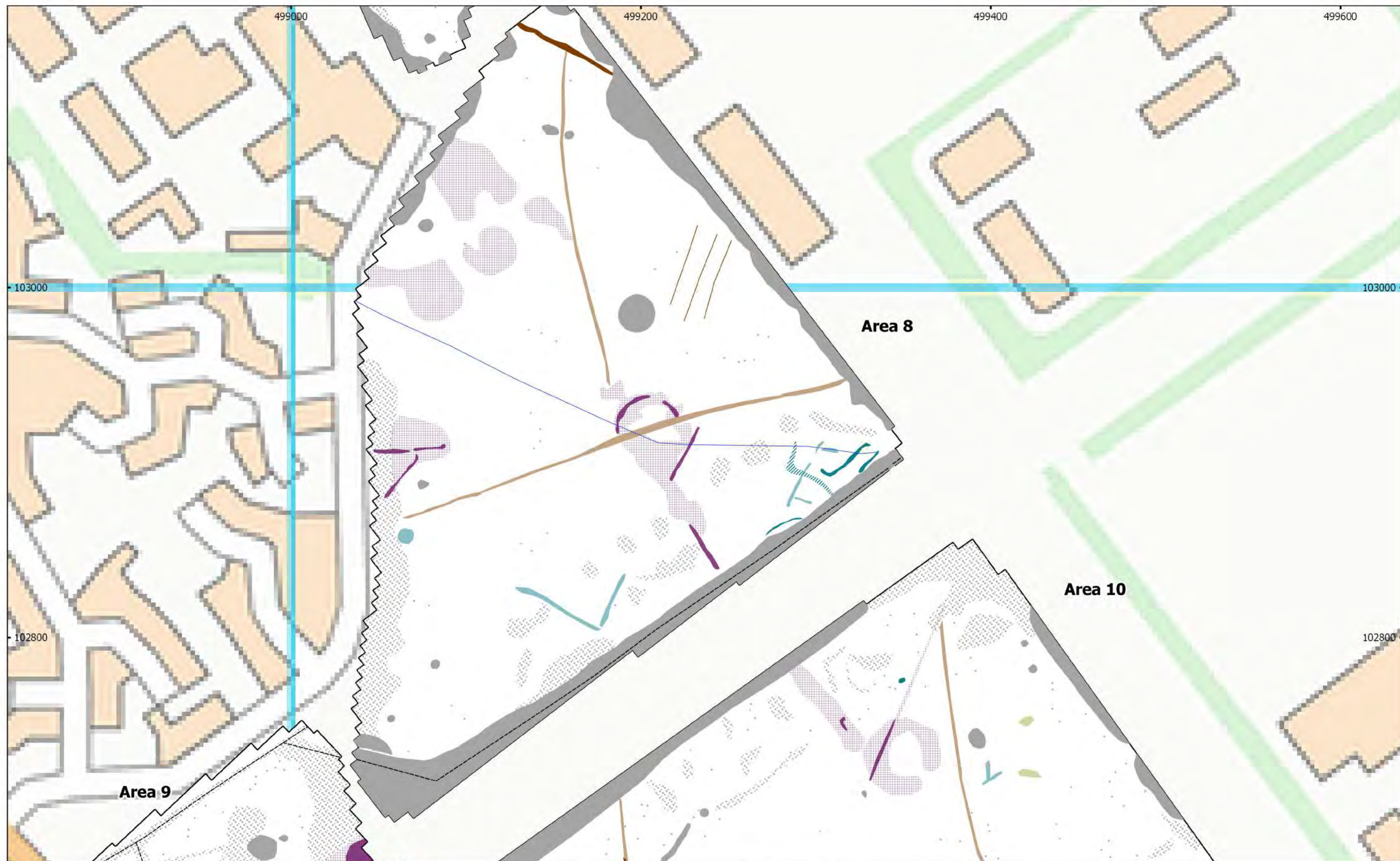
MSSU354 - Land at Ford, West Sussex  
 Figure 18 - XY Trace Plot (Areas 1, 2, 6 and 7)  
 40nT/cm @ 1:2,000 @ A3  
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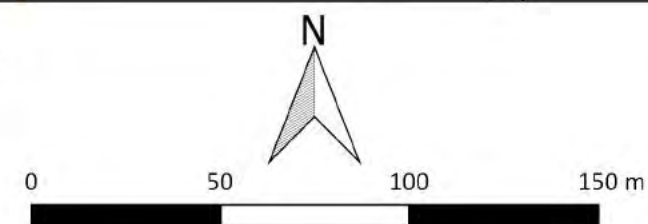
MSSU354 - Land at Ford, West Sussex  
Figure 19 - Magnetic Greyscale (Area 8, 9 and 10)  
1:2,000 @ A3  
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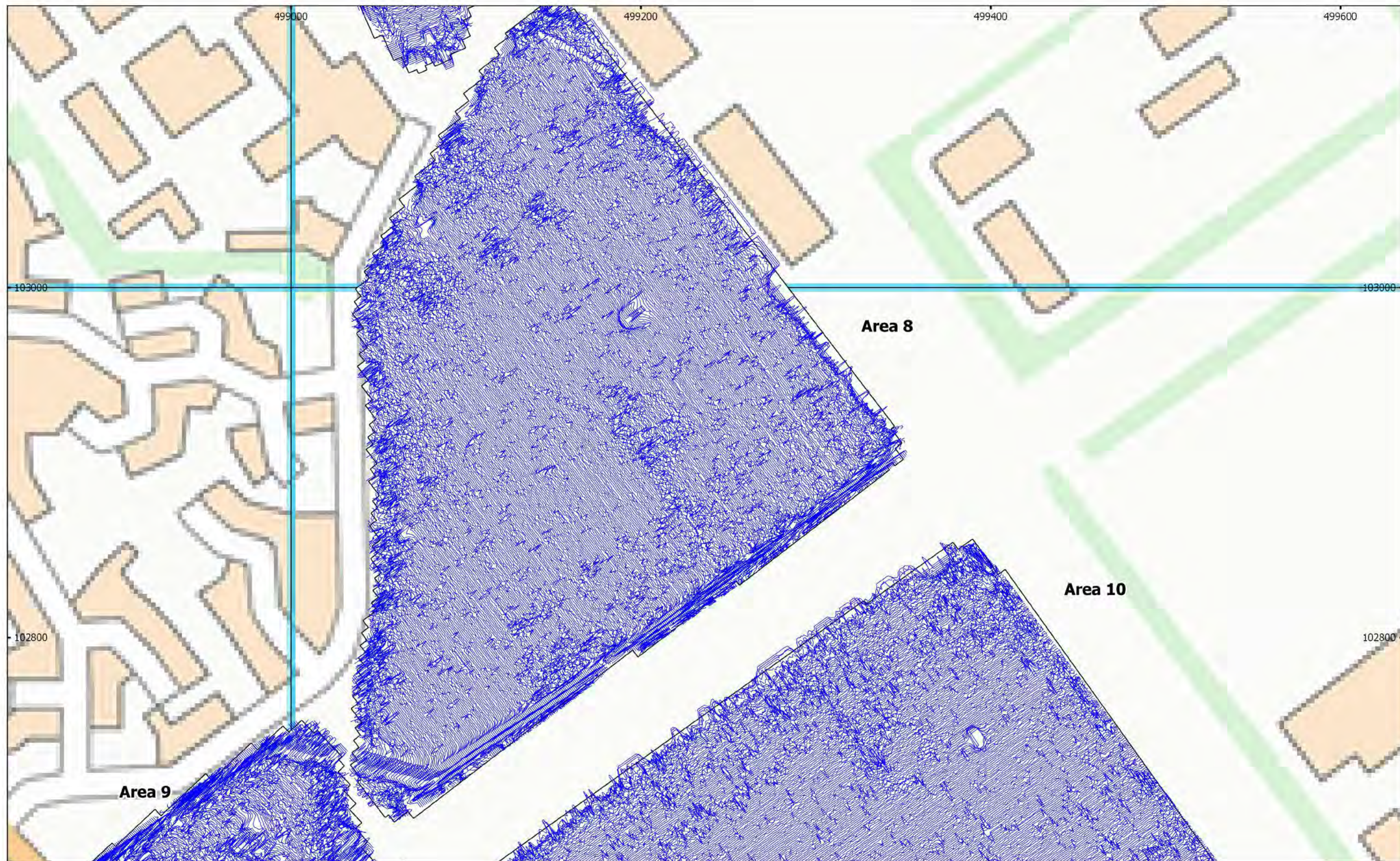




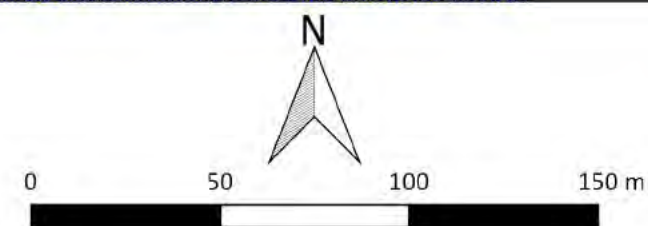
MSSU354 - Land at Ford, West Sussex  
 Figure 20 - Magnetic Interpretation (Area 8, 9 and 10)  
 1:2,000 @ A3  
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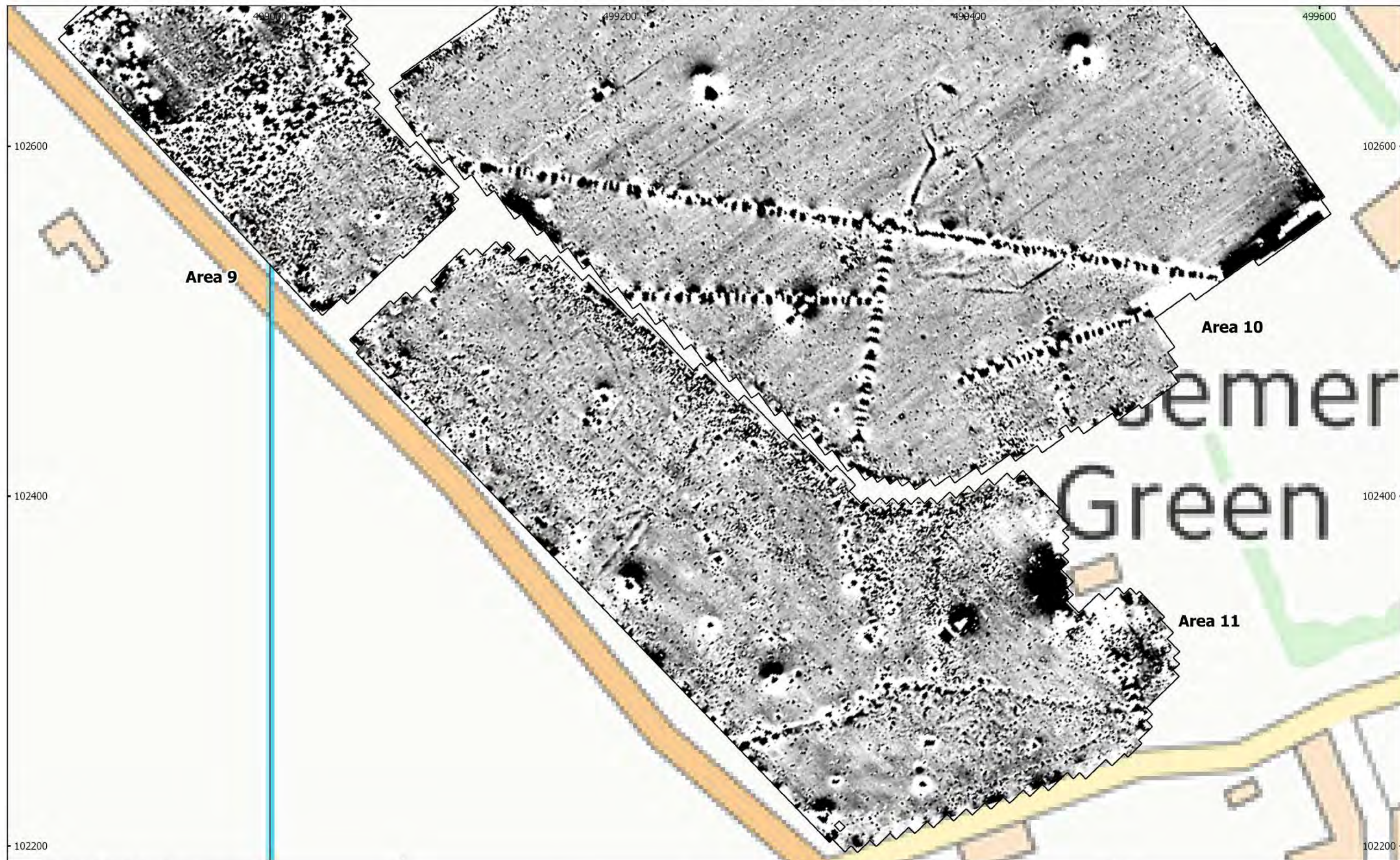
- |                                                                         |                                                                 |                                                                                |
|-------------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------|
| <span style="color: red;">■</span> Archaeology Probable (Strong)        | <span style="color: brown;">■</span> Agricultural (Strong)      | <span style="color: grey;">■</span> Ferrous (Dipolar)                          |
| <span style="color: pink;">■</span> Archaeology Probable (Weak)         | <span style="color: tan;">■</span> Agricultural (Weak)          | <span style="color: lightgrey;">■</span> Ferrous (Spread)/Magnetic Disturbance |
| <span style="color: orange;">■</span> Archaeology Probable (Trend)      | <span style="color: lightbrown;">■</span> Agricultural (Spread) | <span style="color: teal;">■</span> Undetermined (Strong)                      |
| <span style="color: darkorange;">■</span> Archaeology Possible (Strong) | <span style="color: brown;">■</span> Farm/Barn                  | <span style="color: lightteal;">■</span> Undetermined (Weak)                   |
| <span style="color: lightorange;">■</span> Archaeology Possible (Weak)  | <span style="color: tan;">■</span> Agricultural (Trend)         | <span style="color: lightblue;">■</span> Undetermined (Spread)                 |
| <span style="color: purple;">■</span> Airfield (Strong)                 | <span style="color: olive;">■</span> Natural (Strong)           | <span style="color: lightblue;">■</span> Undetermined (Trend)                  |
| <span style="color: lightpurple;">■</span> Airfield (Spread)            | <span style="color: lightolive;">■</span> Natural (Weak)        | <span style="color: black;">---</span> Service                                 |
| <span style="color: blue;">■</span> Canal                               | <span style="color: yellowgreen;">■</span> Natural (Trend)      |                                                                                |



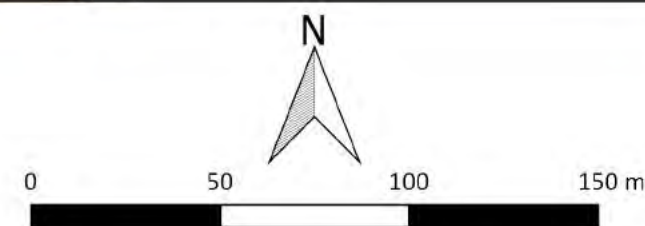


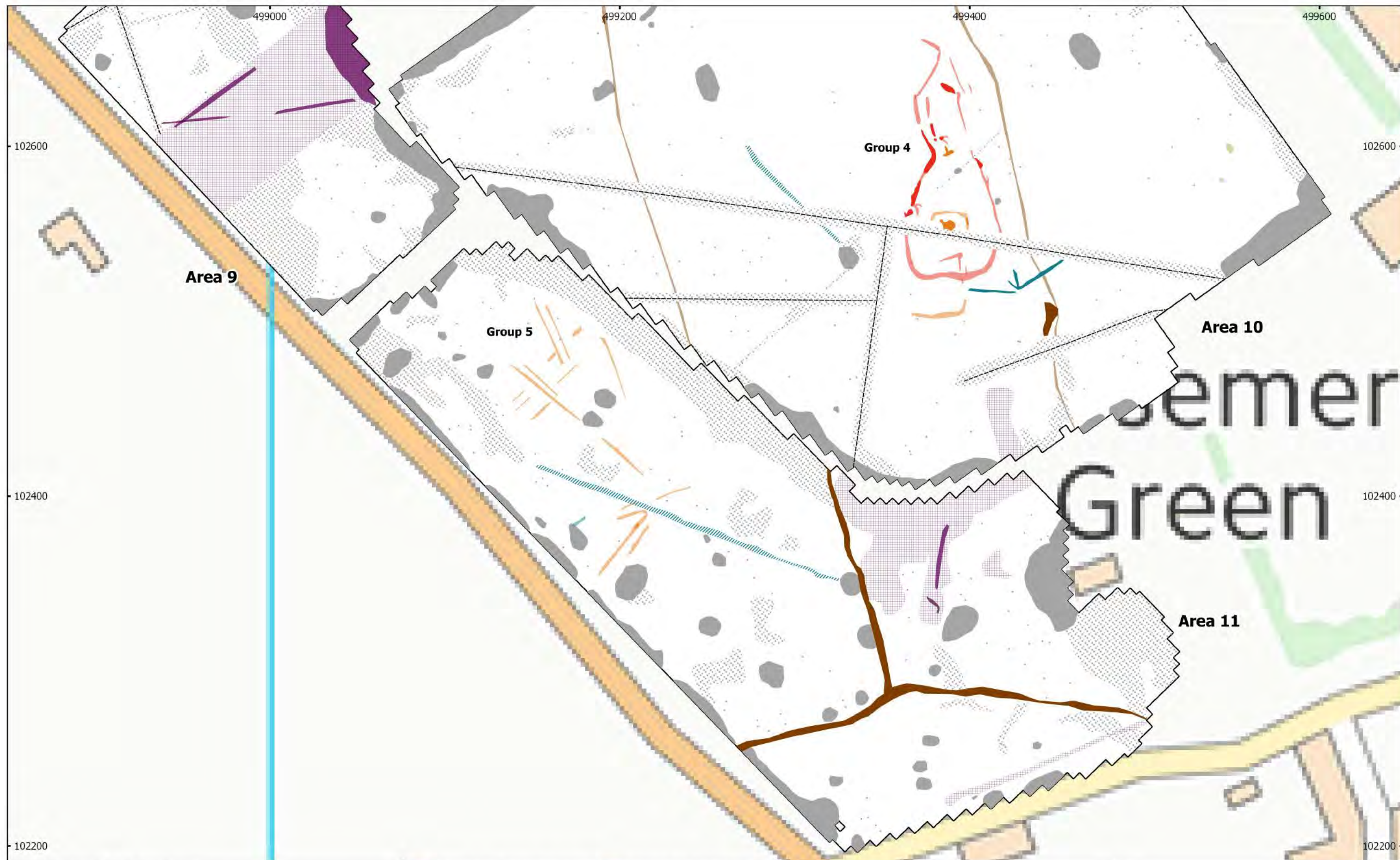
MSSU354 - Land at Ford, West Sussex  
 Figure 21 - XY Trace Plot (Area 8, 9 and 10)  
 40nT/cm @ 1:2,000 @ A3  
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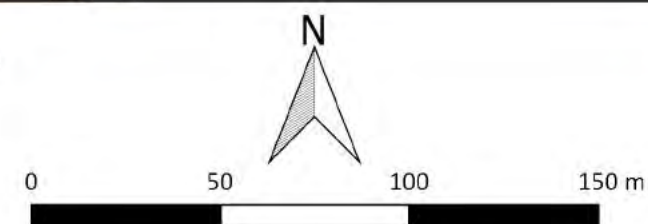
MSSU354 - Land at Ford, West Sussex  
 Figure 22 - Magnetic Greyscale (Areas 9, 10 and 11)  
 1:2,000 @ A3  
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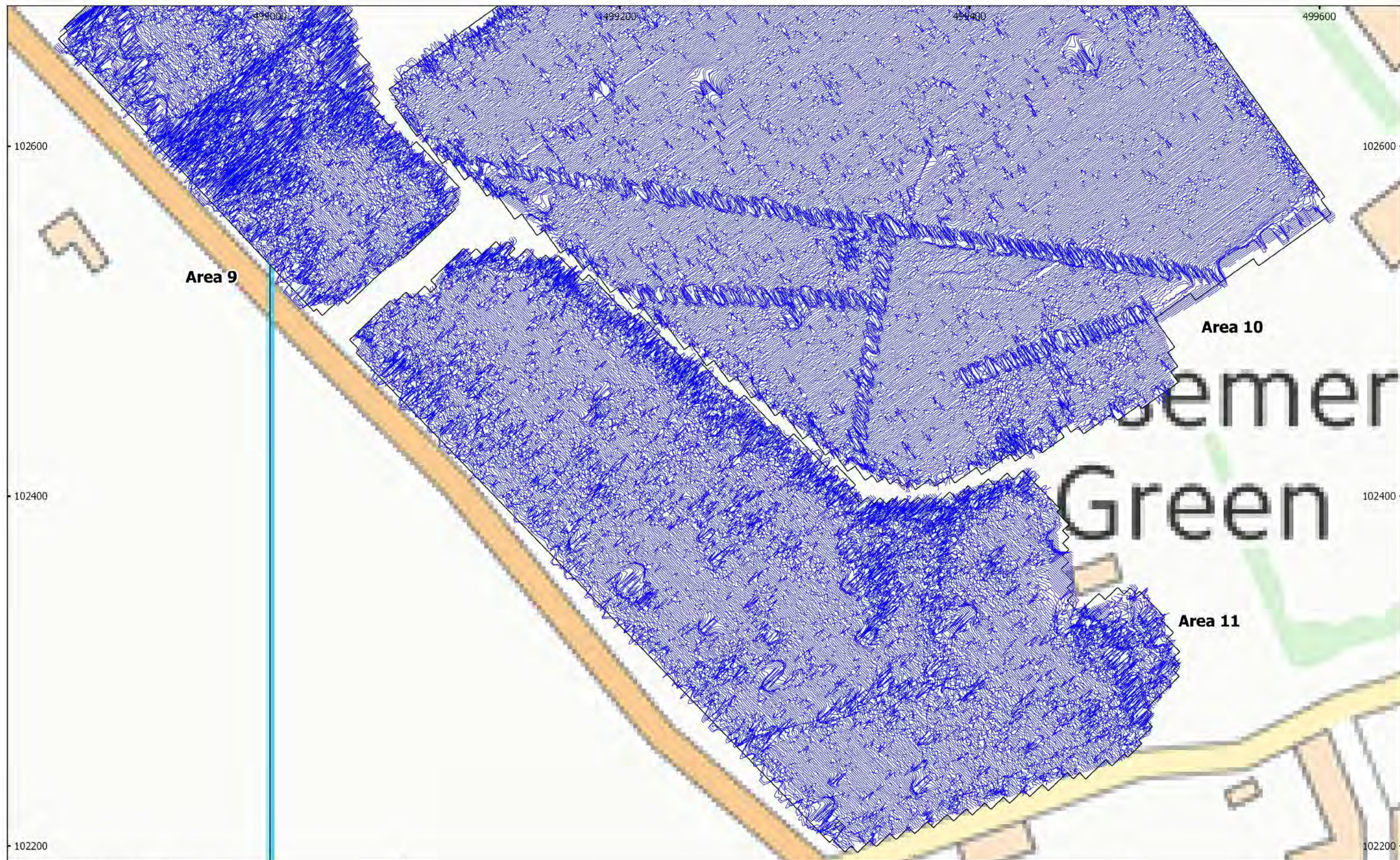




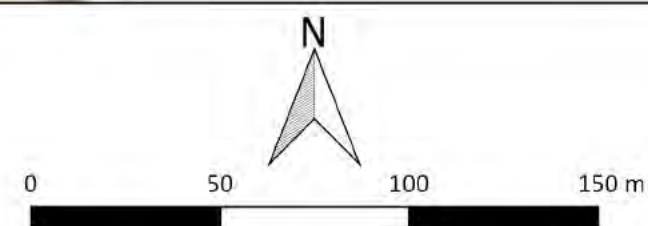
MSSU354 - Land at Ford, West Sussex  
 Figure 23 - Magnetic Interpretation (Areas 9, 10 and 11)  
 1:2,000 @ A3  
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- |                               |                       |                                       |
|-------------------------------|-----------------------|---------------------------------------|
| Archaeology Probable (Strong) | Agricultural (Strong) | Ferrous (Dipolar)                     |
| Archaeology Probable (Weak)   | Agricultural (Weak)   | Ferrous (Spread)/Magnetic Disturbance |
| Archaeology Probable (Trend)  | Agricultural (Spread) | Undetermined (Strong)                 |
| Archaeology Possible (Strong) | Farm/Barn             | Undetermined (Weak)                   |
| Archaeology Possible (Weak)   | Agricultural (Trend)  | Undetermined (Spread)                 |
| Airfield (Strong)             | Natural (Strong)      | Undetermined (Trend)                  |
| Airfield (Spread)             | Natural (Weak)        | Service                               |
| Canal                         | Natural (Trend)       |                                       |





MSSU354 - Land at Ford, West Sussex  
Figure 24 - XY Trace Plot (Areas 9, 10 and 11)  
40nT/cm @ 1:2,000 @ A3  
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## **APPENDIX 5**

### **PHASE 1 HABITAT SURVEY (ARTEMIS, NOV 2016)**



**PHASE 1 HABITAT SURVEY**

**LAND AT FORD, WEST SUSSEX**

**REDROW HOMES LIMITED AND WATES DEVELOPMENTS**

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## Executive summary

Artemis Ecological Consulting Limited was appointed by Redrow Homes Limited and Wates Developments to undertake a phase 1 habitat survey and desk-top evaluation of land at Ford, West Sussex.

The Phase 1 survey work was undertaken on 9<sup>th</sup> and 16<sup>th</sup> July and 28<sup>th</sup> August 2015. Further survey work was undertaken 26<sup>th</sup> August 2016 to cover additional land to the north. The phase 1 survey recorded the key habitat types across the site with a record made of the botanical interest in each area. An assessment was also made of the potential for habitats on site to be used by protected species.

A desktop assessment and records search was undertaken. Records of scarce and notable species within 2km of the site were provided by SBRC. The desktop research returned the following results:

- No SSSIs or SNClS within 2km of the site.
- Six species of bat have been recorded within the 2km area of the site.
- No records of water vole within the site boundary.
- Great crested newt has been recorded in Yapton over 1km from the site. Records of common lizard, grass snake and slow worm from Burndell Copse, close to the site.
- Records of breeding lapwing and grey partridge in the Yapton and Ford area.
- Recent records of kingfisher and barn owl within the local area.
- Records of stag beetle, white-lettered hairstreak, brown hairstreak and twenty-four species of moth from the area of search.
- Historic record of cornflower and divided sedge in the Ford area.

The majority of the survey area comprises arable fields and extensive areas of hard-standing associated with the former airfield. The arable fields have limited botanical interest. A single specimen of corn parsley was recorded from the corner of one field; no other notable flora was recorded during the survey.

Three stands of unmanaged grassland are present within the site, with a small field in the centre of the site currently cropped for hay. The unmanaged grassland provides the most floristically diverse habitats within the site. The grasslands show strong affinities to MG1 *Arrhenantherum elatius* grassland. The tree belts and scrub that occur alongside the grassland increases the ecological interest of these areas.

A mix of native and non-native hedgerows border the fields, runways and access tracks. The hedgerows are mainly species-poor, comprising either monocultures of introduced species or those where one or two native species dominate. The hedgerows on site would be considered as S41 habitat as they are over 20m long and contain at least 80% of one woody UK native species.

Narrow strips of woodland plantation are present within the survey area, along with several belts of mature deciduous trees. The woodland plantations would fall with the broadest description of the S41 habitat lowland mixed deciduous woodland, although the small size and isolated nature of the blocks on site does limit their ecological value.

A short length of drainage ditch borders the western boundary of the survey area. Eight buildings, including an old hanger, are present within the survey area. The drainage ditch is considered unsuitable habitat for water vole. Further survey of the buildings has been recommended.

Badger and wintering bird surveys have been and are available as separate reports.

It is recommended that the following surveys be commissioned to support any planning application for the site:

- Dormouse survey
- Phase 1 bat and barn owl survey of the four structures on site and an evaluation of mature trees.
- Bat activity surveys
- Reptile presence and absence survey
- Habitat suitability assessment of off-site ponds for great crested newt
- Breeding bird surveys

## **1.0 Introduction**

- 1.1 Artemis Ecological Consulting Limited was appointed by Redrow Homes Limited and Wates Developments to undertake a phase 1 habitat survey and desk-top evaluation of land at Ford, West Sussex. The developing Ford Neighbourhood Plan sets out the vision of the Neighbourhood Planning Group for the parish over the period of the Arun Local Plan. An illustrative master plan showing potential development within the survey area has been developed as part of this process (see Appendix 1).
- 1.2 Jeff Picksley MCIEEM conducted the survey work over three days in July and August 2015 (9<sup>th</sup> and 16<sup>th</sup> July and 28<sup>th</sup> August). Further survey work was undertaken 26<sup>th</sup> August 2016 to cover additional land to the north. The phase 1 survey recorded the key habitat types across the site with a record made of the botanical interest in each area. During the survey work an assessment was also made of the potential for habitats on site to be used by protected species.
- 1.3 It should be noted that no targeted protected species survey work was undertaken during the Phase 1 survey, the records of other faunal groups are from incidental observations. Badger and wintering bird surveys have been undertaken and these are available as separate reports.

## **2.0 Desk-top research**

- 2.1 The Sussex Biodiversity Records Centre (SBRC) were contacted and a request made for the following information within 2km of the site:
  - Designated sites (Sites of Special Scientific Interest (SSSI), locally designated Sites of Nature Conservation Interest (SNCI), notable road verge and local geological sites)
  - Habitat mapping
  - Land management
  - Protected species
  - Notable birds
  - BAP and notable species
- 2.2 A summary of the results of the records search is set out below. The results of the desk-top survey along with the results of the habitat mapping have been used to evaluate the potential of the site to support protected species and identify the further surveys required to support any subsequent planning application.
- 2.3 A copy of the SBRC data is included in Appendix 2.

### **Land uses**

- 2.4 There are no SSSIs or SNClS within the 2km search area. The only habitat of note recorded within the site on the habitat mapping held by SBRC is the small reservoir located within the sewage works. The ditch running along the northern boundary of Ford open prison, then turning north to run parallel with Church Road is also mapped as open water.
- 2.5 The arable land within the site is all currently entering into Entry Level Stewardship.

### **Mammal records**

- 2.6 There are no records of water vole (*Arvicola amphibious*) within the site boundary. The closest recent records are from an area south of the A259 and east of Climping Street.
- 2.7 Other notable mammal records within the area of search include a single record of brown hare (*Lepus europaeus*), a solitary harvest mouse (*Micromys minutus*) record from Burndell Copse and numerous records of European hedgehog (*Erinaceus europaeus*).
- 2.8 Six species of bat have been recorded within the 2km area of search: brown long-eared bat (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's bat (*Myotis daubentonii*), Natterer's bat (*Myotis nattereri*), noctule bat (*Nyctalus noctula*) and serotine (*Eptesicus serotinus*). There are also records of unidentified bats and records of pipistrelle and long-eared bats (*Plecotus* sp) not identified to species level. Bat roosts have been recorded in buildings in Ford and Yapton and records of foraging Natterer's bat, noctule and pipistrelle species have been made from Burndell Copse.
- 2.9 SBRC does not provide information on records of badger (*Meles meles*) or otter (*Lutra lutra*).

### **Reptile and amphibian records**

- 2.10 The closest record of great crested newt (*Triturus cristatus*) is over 1km from the site in Yapton. There are records of common lizard (*Zootoca vivipara*), grass snake (*Natrix natrix*) and slow worm (*Anguis fragilis*) from Burndell Copse, close to the old canal east of Yapton. Common toad (*Bufo bufo*) has also been recorded from Burndell Copse.

### **Bird records**

- 2.11 Notable bird records from the wider area include those of breeding lapwing (*Vanellus vanellus*) and grey partridge (*Perdix perdix*) in the Yapton and Ford area. There are also recent records of kingfisher (*Alcedo atthis*) and barn owl (*Tyto alba*) within the area of search. Scarce farmland passerines such as turtle dove (*Streptopelia turtur*)

and corn bunting (*Emberiza calandra*) have been recorded within the area of search in the past. In line with declines in breeding numbers across lowland England, recent records of these species with the area of search are rare.

### ***Invertebrate records***

- 2.12 Records of notable records of invertebrates from the area of search include a single record of stag beetle (*Lucanus cervus*) from Yapton, white-lettered hairstreak (*Satyrrium w-album*) and brown hairstreak (*Thecla betulae*) butterflies and twenty-four species of moth. The majority of moth species recorded are widespread and in some cases common in Sussex, although all are thought to be undergoing rapid population declines. White-lettered hairstreak requires elm (*Ulmus* sp.) to complete its lifecycle and brown hairstreak requires blackthorn (*Prunus spinosa*).

### ***Botanical records***

- 2.13 There are few notable plant records in the vicinity of the site, with a historic record of cornflower (*Centaurea cyanus*) and divided sedge (*Carex divisa*) in the Ford area.

## **3.0 Phase 1 habitat survey results**

- 3.1 A summary of the key habitats recorded during the phase 1 survey is provided below. The habitat descriptions should be read with reference to Figure 1 that shows the location of the target notes referred to in the text. A more detailed description of the habitats is provided as extended target notes in Appendix 3.
- 3.2 The survey area comprises arable fields and extensive areas of hard standing associated with the former airfield. A mix of native and non-native hedgerows border the fields, runways and access tracks, the majority of which are species-poor. A small field in the centre of the site is currently cropped for hay. Areas of unmanaged grassland are present around the periphery of the site; the largest of these is adjacent to the Rudford Industrial Estate outside the site boundary. The developing scrub and tree belts that occur alongside the grassland increase the ecological interest of this area. Much of the scrub in this area has been removed since the original fieldwork was undertaken in 2015.
- 3.3 Narrow strips of woodland plantation are present within the survey area, along with several belts of mature deciduous trees. A short length of drainage ditch borders the western boundary of the survey area. Six buildings, including an old hanger, are present within the survey area.

### **Arable fields**

- 3.4 Field 1 (F1) is an arable field bounded by species-poor hedgerows on two sides. A narrow uncultivated margin surrounds the field a range of common arable species are present within this margin including common mallow (*Malva sylvestris*), mugwort (*Artemisia vulgaris*), field bindweed (*Convolvulus arvensis*), stinging nettle (*Urtica dioica*), cleavers (*Galium aparine*), false oat-grass (*Arrhenatherum elatius*), wild oat (*Avena fatua*) and common couch (*Elytrigia repens*). Less frequently recorded were perforate St John's-wort (*Hypericum perforatum*), black knapweed (*Centaurea nigra*), bittersweet (*Solanum dulcamara*), black horehound (*Ballota nigra*) and hedge bedstraw (*Galium mollugo*).
- 3.5 Field 2 (F2) is an arable field bounded by hedges. The hedgerow running along Horsemere Green Lane contains a good range of native species. A narrow strip of uncultivated land borders the inner edges of the hedgerows. The field edges support a range of common species including common poppy (*Papaver rhoeas*), common field speedwell (*Veronica persica*), ribwort plantain (*Plantago lanceolata*), yarrow (*Achillea millefolium*), cow parsley (*Anthriscus sylvestris*), cleavers, stinging nettle, false oat-grass, black grass (*Alopecurus myosuroides*), wild oat and soft brome (*Bromus hordeaceus*). Less frequently recorded species along the field margins include red dead nettle (*Lamium purpureum*), groundsel (*Senecio vulgaris*), scentless mayweed (*Tripleurospermum inodorum*), prickly sow-thistle (*Sonchus asper*) and field madder (*Sherardia arvensis*).
- 3.6 Field 3 (F3) is an arable field bounded by a tall Leylandii hedge on one side. Species recorded along the field margins include bristly ox-tongue (*Picris echioides*), creeping thistle (*Cirsium arvense*), common mallow, hogweed (*Heracleum sphondylium*), cow parsley, perennial sow-thistle (*Sonchus arvensis*), soft brome, common couch and false oat-grass. Other species present along the field margins include scarlet pimpernel (*Anagallis arvensis*), knotgrass (*Polygonum aviculare*), common poppy, fumitory (*Fumaria sp.*), common fleabane (*Pulicaria dysenterica*), white campion (*Silene latifolia*), yarrow and annual meadow-grass (*Poa annua*).
- 3.7 Field 4 (F4) is an arable field bordered by hedgerows. A greater diversity of species is present within the margins of this field, particularly along the inner edge of the hedgerow along Rollaston Park. This hedgerow is planted on an earth bank and species present along the inner edge of the hedgerow include creeping cinquefoil (*Potentilla reptans*), wild carrot (*Daucus carota*), black knapweed, goat's beard (*Tragopogon pratensis*) and white campion. More widespread species within the field margins include bristly ox-tongue, common ragwort (*Senecio jacobaea*), hogweed, field bindweed, spear thistle (*Cirsium*

*vulgare*), common couch, false-oat grass, black grass and barren brome (*Anisantha sterilis*).

- 3.8 There are a couple of small pockets of uncultivated land on the margins of field 4. These areas largely comprise the same species as the wider field margins, but other species noted include prickly lettuce (*Lactuca serriola*), nipplewort (*Lapsana communis*), American willowherb (*Epilobium ciliatum*), field horsetail (*Equisetum arvense*), great willowherb (*Epilobium hirsutum*) and stinging nettle. Corn parsley (*Petroselinum segetum*) was noted in one of the uncultivated corners.
- 3.9 At the time of survey field 5 (F5) had recently been cut for hay. The field appears to be a sown perennial rye-grass ley. The margins of the field include a range of species that indicate the grassland has not been subject to a significant level of agricultural improvement. Species recorded along the margins of the field include common centaury (*Centaureum capitatum*), black knapweed, yellow-wort (*Blackstonia perfoliata*), selfheal (*Prunella vulgaris*), smooth tare (*Vicia tetrasperma*) and hoary willowherb (*Epilobium parviflorum*).
- 3.10 A low earth bank runs along the northern edge of the hay field with abundant yarrow, bristly ox-tongue, common poppy, scentless mayweed, hogweed and soft brome recorded.
- 3.11 Field 6 (F6) is an arable field bounded by hedgerows on two sides. The inner margins of the field include common ragwort, greater burdock (*Arctium lappa*), hogweed, mugwort, cleavers, spear thistle, cow parsley, stinging nettle, wild oat, false oat-grass, black grass and cock's-foot (*Dactylis glomerata*). Less frequently noted species include red campion (*Silene dioica*), common fleabane, charlock (*Sinapis arvensis*), creeping cinquefoil, goat's beard and weld (*Reseda luteola*).
- 3.12 An earth bank is present on the eastern edge of field 6 adjacent to a unit on the industrial estate. The bank is dominated by creeping thistle, common poppy, stinging nettle and common couch. Other species present on the earth bank include swine-cress (*Coronopus squamatus*), scarlet pimpernel, field pansy (*Viola arvensis*), redshank (*Persicaria maculosa*), prickly lettuce, wall barley, (*Hordeum murinum*) and common vetch (*Vicia sativa*).
- 3.13 Field 7 (F7) forms part of a larger arable field, bordered on the western edge by a line of broad-leaved trees. Species recorded from within the field margins include creeping thistle, common poppy, common chickweed (*Stellaria media*), hedge mustard (*Sisymbrium officinale*), field bindweed, cleavers, wall barley, barren brome, wild oat and common couch. An unmown margin borders part of the access track on the southern edge of the field (see field 8).
- 3.14 The northern boundary of field 8 (F8) borders private residences with an access track along the southern edge of the field. An unmown

margin borders the access track. Species recorded from this margin include yarrow, creeping thistle, cow parsley, common mallow, ribwort plantain and false oat-grass.

- 3.15 Within the margins of the woodland strip on the western boundary of field 8 species including hogweed, spear thistle, stinging nettle, cleavers and bramble (*Rubus fruticosus* agg) dominate along with wild oat and false oat-grass. Less frequently recorded species include hedge woundwort (*Stachys sylvatica*), broad-leaved dock (*Rumex obtusifolius*), black horehound and white bryony (*Bryonia dioica*). Russian vine (*Fallopia baldschuanica*) is present on the boundaries of private residences on the northern boundary.
- 3.16 A mixed plantation, poplar hedge and areas of dense scrub border Field 9 (F9) on three sides. The inner margins of the field include a range of species typical of many of the other fields within the survey area. Species recorded include great willowherb, hogweed, common ragwort, stinging nettle, cow parsley, perennial sow-thistle, cleavers, false oat-grass, black grass, Yorkshire fog (*Holcus lanatus*) and cock's-foot.
- 3.17 A large drainage channel forms the southern and eastern boundary of field 10 (F10). A Leylandii hedge forms the western boundary and an access track the northern boundary. Field edge vegetation recorded includes field bindweed, field horsetail, cock's-foot, perennial rye-grass (*Lolium perenne*) and Yorkshire fog with prickly lettuce, ribwort plantain, yarrow, hogweed and curled dock (*Rumex crispus*) less frequently recorded.
- 3.18 Field 11 (F11) is arable and bounded by the access road to Ford MRF and blocks of broad-leaved plantation to the north and west of the field. Part of the eastern side of the site adjacent to the access road includes a strip of uncultivated land. Species recorded from this uncultivated strip include common ragwort, creeping thistle, ribwort plantain, common poppy, white clover (*Trifolium repens*), prickly ox-tongue, smooth tare, Yorkshire fog and wild oat. Other species present include black medick (*Medicago lupulina*), perforate St John's-wort, swine-cress, scented mayweed (*Matricaria recutita*), scarlet pimpernel and knot-grass.
- 3.19 Field 12 (F12) is arable, currently planted with maize. A conifer hedge borders the field to the north, hard standing to the east and an industrial estate and new housing to the south. The southern part of the field includes a recently cleared area. Species recorded around the field margins and on the bare earth include lesser swine-cress (*Coronopus didymus*), scented mayweed, bristly ox-tongue, wild oat, redshank, scentless mayweed, hemlock (*Conium maculatum*) and annual meadow grass.

- 3.20 Field 13 (F13) is arable; a conifer hedge marks the southern boundary, blocks of the native broad-leaves form the eastern boundary and Ford Lane the northern boundary.
- 3.21 Field 14 (F14) is arable, currently planted with maize. A species-poor hedge and blocks of native broad-leaved planting form the western boundary, the southern boundary is a species-poor hedgerow and the eastern boundary a line belt of hybrid black poplar (*Populus nigra x Canadensis*). A narrow grass verge running along Ford Lane forms the northern boundary. Species recorded around field margins include false oat-grass, ivy (*Hedera helix*), mugwort, hogweed, creeping thistle, broad-leaved dock, fat hen (*Chenopodium reticulatum*), smooth sow-thistle (*Sonchus oleraceus*), square stalked willowherb (*Epilobium tetragonum*), nipplewort, bristly ox-tongue, Yorkshire fog, wild oat, common field speedwell, herb Robert (*Geranium robertianum*), common ragwort, knot grass, black grass, cock's foot, common couch, redshank, greater burdock, sun spurge (*Euphorbia helioscopia*), black bindweed (*Fallopia convolvulus*), perennial sow-thistle and common fumitory (*Fumaria officinalis*).

#### **Drainage channel**

- 3.22 A large drainage channel forms the southern and eastern boundary of field 10. A small section at the western end of the southern drainage channel showed evidence of being recently cleared (TN23). Species present along the bottom of the channel include creeping buttercup (*Ranunculus repens*), scarlet pimpernel, common fleabane, stinging nettle, bramble, redshank and great willowherb. A matrix of scrub, ruderal vegetation and open grassland has developed on the banks. More notable species present in the areas of grassland include ox-eye daisy (*Leucanthemum vulgare*), common centaury, self-heal and common birds-foot trefoil (*Lotus corniculatus*).
- 3.23 The more open habitats give way to a stand of goat willow (*Salix caprea*) and dense bramble towards the eastern end of the southern channel (TN24). The stand is dominated by goat willow with occasional alder (*Alnus glutinosa*), guelder rose (*Viburnum opulus*), dogwood (*Cornus sanguinea*), hazel (*Corylus avellana*) and ash (*Fraxinus excelsior*).
- 3.24 A significant area of the eastern section of the drainage channel has been colonised by buddleja (*Buddleja davidii*) and bramble (TN25), with another dense stand of goat willow at the northern end towards the access track (TN26). The banks of the channel are a mix of scrub and open grassland. Species recorded in the grassland include selfheal, common centaury, rosebay willowherb (*Chamaenerion angustifolium*), red clover (*Trifolium pratense*), black knapweed, common mouse-ear (*Cerastium fontanum*) and common cat's ear (*Hypochaeris radicata*).

### **Grassland areas**

- 3.25 There is an extensive stand of unmanaged grassland lying between field 2 and the Rudford Industrial Estate outside the red line (TN10). The grassland contains a wide range of species including ribwort plantain, common ragwort, agrimony (*Agrimonia eupatoria*), smooth tare, teasel (*Dipsacus fullonum*), hoary willowherb, tufted vetch (*Vicia cracca*), ox-eye daisy, silverweed (*Potentilla anserine*), large-flowered evening primrose (*Oenothera glazioviana*), false oat-grass and Yorkshire fog. Patches of bramble are present across the site, becoming quite dense close to the boundary with the industrial estate. A stand of Japanese rose (*Rosa rugosa*) has become established close to the industrial estate (TN13).
- 3.26 To the south of a belt of broad-leaved trees (TN9), lies a rectangle of grassland that had been recently mown at the time of survey. The grassland area (TN8) runs parallel to Horsemere Green Lane. Species recorded from the grassland include silverweed, common centaury, yarrow, white clover, creeping buttercup, common mouse-ear, curled dock, Yorkshire fog and annual meadow-grass.
- 3.27 To the west of the line of broad-leaved trees bordering the grassland adjacent to the industrial estate (TN11) is another stand of unmanaged grassland (TN5). Species recorded from this area include black medick, silverweed, ribwort plantain, selfheal, common ragwort, field bindweed, creeping thistle, broad-leaved dock, field horsetail, black grass, creeping bent (*Agrostis stolonifera*), Yorkshire fog, tufted hair grass and false oat-grass.
- 3.28 A small area of unmanaged grassland is present adjacent to the access track for Ford MRF (TN20). This grassland area is similar to those by the Rudford Industrial Estate. Species recorded include ribwort plantain, creeping thistle, white clover, bush vetch (*Vicia sepium*), hedge bedstraw, black knapweed, black medick, Yorkshire fog, false oat-grass and soft brome.
- 3.29 There is a small stand of grassland on an earth bank located behind the airfield memorial adjacent to Rollastone Drive (TN56). Species recorded from this bank include yarrow, creeping buttercup, hogweed, black knapweed, goats beard, field bindweed, common bird's-foot trefoil, ribwort plantain, wild carrot, Yorkshire fog and perennial rye-grass.

### **Woodland and plantation**

- 3.30 There is one small block of woodland in the north of the site (TN41). The range of species present suggest that it is derived from past planting with canopy species including common lime (*Tilia vulgaris*), horse-chestnut (*Aesculus hippocastanum*), ash, sycamore (*Acer pseudoplatanus*), hornbeam (*Carpinus betulus*), pedunculate oak

(*Quercus robur*), crack willow (*Salix fragilis*) and hybrid black-poplar. The shrub layer comprises hawthorn (*Crataegus monogyna*), blackthorn, elder (*Sambucus nigra*) and common privet (*Ligustrum ovalifolium*).

- 3.31 The ground flora within the woodland is impoverished and dominated by ivy, with stands of stinging nettle and occasional lord's-and-ladies (*Arum maculatum*). Large areas of bare ground are also a feature of the woodland floor.
- 3.32 An area of native broad-leaved planting has been established around the compound in the north of the site and along the access track (TN63 and TN69). A wide range of native species are present within these blocks of planting including cherry, field maple (*Acer campestre*), pedunculate oak, beech (*Fagus sylvatica*), privet, apple (*Malus sylvestris*), alder, sycamore, ash, hawthorn, blackthorn, lime, hazel, holly (*Ilex aquifolium*), silver birch (*Betula pendula*), holm oak (*Quercus ilex*), sweet chestnut (*Castanea sativa*), elder, dogwood, grey/goat willow (*Salix cinerea/caprea*), buddleja and bramble.
- 3.33 Away from the field edges the ground flora within these plantations is very sparse and restricted to more open areas. Species recorded including stinging nettle, bramble, hogweed, Yorkshire fog, traveller's joy (*Clematis vitalba*), bristly ox-tongue, mugwort, false oat-grass, ivy, wild carrot, common fleabane (*Pulicaria dysenterica*), creeping bent, hemp agrimony (*Eupatorium cannabinum*), rosebay willowherb (*Epilobium angustifolium*), cock's-foot, common ragwort and cow parsley.
- 3.34 A small strip of mixed plantation borders Rodney Crescent. This block is a mix of alder, silver birch (*Betula pendula*), Leylandii or Lawson cypress (*Chamaecyparis lawsoniana*) and aspen (*Populus tremula*) with occasional ash, hazel, hawthorn, blackthorn and cherry (*Prunus avium*) recorded. Aspen dominates the woodland where it borders Ford Road (TN28), with a more diverse mix of species adjacent to Rodney Crescent (TN29).
- 3.35 The ground flora in the plantation is dominated by species such as hogweed, cleavers, cow parsley and occasional wood dock (*Rumex sanguineus*).
- 3.36 A short length of plantation woodland separates fields 5 and 6 (TN37). Aspen dominates this strip, with ash and occasional pedunculate oak, silver birch, hawthorn, blackthorn and bird cherry (*Prunus padus*). Hazel is prominent in the understorey. The ground flora is undistinguished due to heavy shading with creeping buttercup and hogweed recorded.
- 3.37 Two narrow strips of plantation border field 11 (TN15 and TN17). The northern plantation (TN17) borders the runway and is dominated by

field maple, with silver birch and hybrid black-poplar also frequent. Ash, rowan (*Sorbus aucuparia*) and alder are also present. The ground flora is dominated by false oat grass, cow parsley and stinging nettle.

- 3.38 The western plantation (TN15) also borders the runway and comprises field maple, elder, hornbeam, rowan, cherry, ash and stands of dense bramble.
- 3.39 A narrow belt of broad-leaved planting borders the grassland area by the access track to Ford MRF (TN21). Species in the woodland belt include hybrid black poplar, field maple, hornbeam, rowan, ash, alder and silver birch.
- 3.40 A tree belt runs along the boundary of the site with Ford open prison (TN19). This belt of broad-leaved trees contains hornbeam, alder, field maple, sycamore, ash, Italian alder (*Alnus cordata*), elder, rowan and whitebeam (*Sorbus aria*).

### **Hedgerows and tree belts**

- 3.41 The hedgerows bordering field 1 (TN52 and TN53) are largely dominated by hawthorn with occasional hazel, elder, ash, bramble, ivy and hedge bindweed (*Calystegia sepium*) recorded.
- 3.42 The hedgerow bordering field 2 along Yapton Road (TN1) is species-poor comprising largely hawthorn and ivy. There are three horse chestnut and two common lime present within the hedge line. The hedgerow running along Horsemere Green Lane (TN2) is one of the most species-rich within the survey area containing blackthorn, honeysuckle (*Lonicera periclymenum*), common privet, spindle (*Euonymus europaeus*), elder, hawthorn, dogwood, ash and elm.
- 3.43 Further along Horsemere Green Lane (TN7) the hedgerow is reduced to a line of mature sycamore and pedunculate oak with a broken understorey of blackthorn, ash, elder, dogwood and bramble. Other species noted in this section include red campion, white bryony and hedge woundwort.
- 3.44 Leylandii<sup>1</sup> hedgerows are present on the boundaries of sections of field 3 (TN14), field 4 (TN49 and TN50), field 7 (TN39), field 6 (TN44), field 10 (TN22) and field 12 (TN61).
- 3.45 A species-poor hedgerow borders field 4 along Rollastone Drive (TN51). This hedgerow is dominated by hawthorn with occasional dogwood and bramble noted. The section bordering the industrial estate (TN47) is slightly more diverse with species recorded here including hawthorn, field maple, spindle, blackthorn and hazel.

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<sup>1</sup> Due to the difficulty of distinguishing between cultivars of Lawson cypress and Leylandii, identification of these species should be confirmed by reference to the tree survey

- 3.46 The hedgerow running along the western edge of field 6 (TN46) is relatively diverse containing spindle, blackthorn, field maple, hawthorn and dogwood, with occasional ash and hazel. The northern section of this hedgerow is *Leylandii* (TN44).
- 3.47 The northern border of field 6 contains a wide range of species, some of which overhang the fenced boundary (TN42 and TN43). Species recorded along this edge include hazel, ash, beech, laurel (*Prunus laurocerasus*), sycamore, horse chestnut and poplar on the edge of the compound. The hedge line separating the arable field is a mix of beech, sycamore, laurel, whitebeam and occasional mature willows.
- 3.48 A well-maintained hedge line of hybrid black poplar borders the southern edge of field 9 (TN27). The western edge of the field is bordered by large bund (TN33 and TN34) covered with scattered scrub including hawthorn, bramble, elder and buddleja. The rest of the bund is covered with ruderal vegetation including stinging nettle, spear thistle, hogweed, greater burdock and bristly ox-tongue. To the south of the access into field 5 (TN35) the boundary is formed by native species within the compound including hawthorn, silver birch, hazel, ash and goat willow.
- 3.49 A line of mature trees and developing understory separates fields 7 and 8 (TN 32). The canopy is dominated by poplar and sycamore with holm oak at the northern end. The understorey comprises elm, sycamore regeneration and bramble with occasional elder.
- 3.50 To the west of Rudford Industrial Estate a mature tree belt runs parallel to Horsemere Green Lane (TN9). The canopy trees are predominantly white poplar (*Populus alba*) and aspen with common lime, sycamore, ash, pedunculate oak, whitebeam and silver birch also present. Blackthorn, hawthorn and bramble are the primary constituents of the understorey.
- 3.51 Another tree belt (TN11) runs north south from the western end of tree belt (TN9). This tree belt contains a wide range of species including holly, white poplar, ash, field maple, common lime, cherry, whitebeam, rowan, sycamore, aspen and cockspur thorn (*Crataegus crus-galli*).
- 3.52 A defunct hedge reverting to scrub borders the new development (TN60). Blackthorn, elder and bramble are the most frequent species with occasional white bryony and buddleja.
- 3.53 A species-poor hedgerow, dominated by hawthorn, runs south along the eastern side of the access track leading to the northern compound (TN68). Other species recorded include occasional blackthorn, field maple, sycamore, willow, holly and ash.

- 3.54 A tree belt of hybrid black poplar runs north south along a bank separating F7 and F14 (TN65). A number of other species are present in the understorey including hawthorn, sycamore, ash, horse chestnut, English elm (*Ulmus procera*), narrow-leaved ash (*Fraxinus angustifolia* cf), hawthorn, field maple, hazel and holly. An impoverished ground flora is dominated by ivy and bramble.
- 3.55 Recent shrub planting has been established on a bund surrounding a compound on the north-eastern edge of F14 (TN66). Shrub species present include laurel, dogwood, hawthorn, hazel and dog rose (*Rosa canina*).

### ***Buildings***

- 3.56 A small number of buildings are present on site including a former hanger (TN3), two small brick buildings on the runway and five large industrial sheds. A small underground shelter located at the end of one of the runway aprons (TN40) outside the red line. The relevance of these features for protected species is discussed in section 4.

## **4.0 Protected species assessment**

### ***Badgers***

- 4.1 The information provided by SBRC does not include records of badgers. No evidence of badgers was recorded on site during the phase 1 survey. The site provides few suitable sites for badgers to construct setts with areas such as the woodland block (TN41) in the north of the site and the scrub along the earth bund (TN33) considered areas of potential habitat.
- 4.2 Mid-summer is not the ideal time to survey for evidence of badger activity. Field signs may also be sparse if there are no other badger groups in the immediate vicinity. The absence of field signs during the phase 1 survey would suggest that the site is not regularly used by badgers, however, their absence from the site cannot be conclusively demonstrated at this stage.

### ***Water vole***

- 4.3 The records from the SBRC showed that water vole are still present in this part of Sussex. The most recent records come from lower lying land south of the A259 or further east towards the River Arun. There are no records of water vole from the survey area.
- 4.4 The survey area contains one short length of ditch that borders field 10 (TN23 to TN26). The ditch held no water at the time of survey and the plant communities recorded would indicate that this ditch is dry for much of the year. Given the isolated nature of the ditch, and the

unsuitability of the habitats present along the ditch, it is not thought likely that water vole are present on site.

### ***Dormice***

- 4.5 The site contains numerous hedgerows and small blocks of native broad-leaved trees. These are fragmented in the landscape and do not connect to other more extensive woodland, scrub and hedgerow habitats beyond the survey area.
- 4.6 Research into dormice (*Muscardinus avellanarius*) has demonstrated that this species occurs in a wide range of habitats including conifer plantations, coastal scrub, heathland and reedbeds. Although the habitats on site appear sub-optimal for dormice their absence from the survey area cannot be conclusively demonstrated at this stage.

### ***Bats***

- 4.7 The records provided by SBRC confirm the presence of a number of commoner bat species within the wider area. The habitats on site provide a range of foraging opportunities for bats with the areas of semi-improved grassland, plantation woodland and hedgerows likely to prove attractive to both foraging and commuting bats.
- 4.8 There are a number of mature trees within the site that could offer roosting opportunities for bats. Trees with ivy or other creepers on the tree or those with cracks, splits and holes can provide roosting sites. Species known to roost in trees such as noctule and Natterer's bat have been recorded locally.
- 4.9 The underground structure (TN40) could provide a roost location for bats, although the open frontage may mean it is only suitable as a temporary roost site. The two buildings situated on the former runway are currently in good condition and opportunities for bats to access these through broken tiles, loose fascia's or holes in soffits appears limited. The former aircraft hanger (TN3) has plenty of access points into the structure through holes in the exterior sheeting. It is not known if the interior of the hanger would provide suitable roosting locations for bats.
- 4.10 Access to the two industrial units to the north of the site was not possible as they sit within a secure compound. These units are unlikely to offer significant roosting opportunities for bats.

### ***Common reptiles and great crested newts***

- 4.11 There are a number of features within the site that provide suitable habitat for common reptiles (grass snake, common lizard and slow worm). The areas of unmanaged grassland offer the best quality habitat, but all three species will also use uncultivated field margins,

woodland edges and earth banks. Studies in Dorset have shown that the annual range of grass snake varies between 1.29 to 3.56ha. These ranges can shift both seasonally and annually. In the Dorset study, grass snake showed a strong preference for habitat interfaces (e.g. woodland and fields) and most hibernation sites were located within banks in woodland.

- 4.12 The information from the SBRC has shown that all three species occur in suitable habitat in the wider areas with records coming from Blundell Copse close to the site. The presence of common lizard on site was confirmed by a sighting of an adult animal in the area of rough grassland by the access track to Ford MRF (TN20).
- 4.13 The SBRC data confirmed the presence of great crested newt in the wider area. The closest records were more than 1km from the site. Great crested newt are thought to spend the majority of the terrestrial phase of their lifecycle in suitable habitats within 250m of breeding ponds, although for assessment purposes a 500m buffer is used. Dispersal over distances greater than 1km has been recorded. Suitable terrestrial habitat includes woodland, scrub and rough grassland. Hedgerows in arable habitat provide both foraging and dispersal habitat.
- 4.14 The OS base shows two ponds on the banks of the River Arun east of Ford Road and two in the housing on Horsemere Green Lane that could potentially support breeding great crested newt. These ponds are within 500m of the survey area boundary. A large water body, probably an irrigation reservoir, is located in the grounds of Ford open prison.

### ***Birds***

- 4.15 The aircraft hanger may offer a potential breeding or roosting site for barn owl (TN3). The arable fields and rough grassland offers good hunting habitat for this species, which is also known to breed in hollow trees. The drainage channel (TN23 and TN25) is not considered suitable breeding habitat for kingfisher.

### ***Invertebrates***

- 4.16 The SBRC database holds a single record of stag beetle for the wider area. This species requires decaying wood to complete its lifecycle. It is unlikely that the site will support breeding stag beetles, although some of the plantations and woodland belts may have sufficient dead wood to provide breeding sites for this species.

## **5.0 Other species**

- 5.1 During the phase 1 survey casual records were made of birds and butterflies encountered on site. Forty-one different bird species were

recorded and fourteen species of butterfly. Although neither set of records represent a comprehensive survey, they do give an indication of the range of species present on site.

- 5.2 Eight species of bird recorded are on the Birds of Conservation Concern (BoCC) red list and fourteen are on the BoCC amber list. Red list species considered likely to be breeding on site include skylark (*Alauda arvensis*), song thrush (*Turdus philomelos*) and yellowhammer (*Emberiza citrinella*). A grey partridge with young was flushed from field 2 confirming breeding on site. Amber list species considered likely to breed on site include whitethroat (*Sylvia communis*) and dunnock (*Prunella modularis*). The site attracts small numbers of gulls including herring gull (*Larus argentatus argenteus*), Mediterranean gull (*Larus melanocephalus*) and common gull (*Larus canus*) (all of these are amber list species). A full list of bird species recorded is included in Appendix 4.
- 5.3 The SBRC database includes records of scarce farmland birds such as lapwing, corn bunting and turtle dove. The site contains habitat for all three species, with the suitability of the arable fields for nesting lapwing likely to vary depending on the cropping regime.
- 5.4 The butterfly species recorded on site are all widespread and common in the wider countryside. The majority of species (skippers and browns) recorded use common grasses for larval food plants. Comma (*Polygonia c-album*), red admiral (*Vanessa atalanta*) and peacock (*Aglais io*) all use stinging nettle as a larval food plant. A full list of butterfly species recorded is included in Appendix 5.

## **6.0 Evaluation of Phase 1 survey results**

- 6.1 The majority of the survey area comprises arable fields with limited botanical interest. A single specimen of corn parsley was recorded from the corner of field 4. This species features on the Sussex rare species inventory and has been recorded a number of times in the local area. No other notable flora was recorded during the survey.
- 6.2 A single orchid spike (*Dactylorhiza sp*) was recorded in the grassland immediately adjacent to the aircraft hanger by field 2 (TN3). The flowering head was desiccated making identification difficult. It is considered likely that it is a common spotted orchid.
- 6.3 The unmanaged grassland provides the most floristically diverse habitats within the site. The grasslands show strong affinities to MG1 *Arrhenatherum elatius* grassland. Across the site different stands show affinities to various sub-communities found within this habitat type; the differences in sub-communities are determined by the relative abundance of different species. MG1 grassland is one of the most widespread grassland habitats and ubiquitous throughout lowland

England (Rodwell, 1992). If left unmanaged, MG1 grassland is a temporary stage on the succession to scrub and ultimately woodland. Some of the stands within the survey area are already being colonised by scrub.

- 6.4 The botanical interest of the recently cut hay field (F5) is difficult to determine, but the margins contain species that indicate the field has not been subject to intensive management.
- 6.5 The blocks of woodland plantation and tree belts have limited botanical interest, although the majority of them contain mostly native species. The restricted width of the blocks of planting means the ground flora is heavily influenced by the surrounding land use, most areas have been colonised by grasses and arable weeds.
- 6.6 The drainage ditch bordering field 10 supports areas of semi-improved grassland. The ditch banks are subject to encroachment by scrub, although at the present time grazing pressure from rabbits is keeping the sward short, helping to maintain areas of greater floral diversity along the ditch banks.
- 6.7 The hedgerows within the site are mainly species-poor, comprising either monocultures of introduced species or those where one or two native species dominate. Very few hedgerows on site contain mature trees. The most species-rich hedgerow borders field 2 along Horsemere Green Lane (TN2). The hedgerows bordering the industrial park off Rollastone Drive (TN46 and TN47) are more diverse than many of the hedgerows across the site. It is thought these are the result of new planting associated with the industrial estate.
- 6.8 Section 41 of the Natural Environment and Rural Communities (NERC) Act, 2006 requires the publication of a list of habitats that are of principal importance for the conservation of biodiversity in England. The habitats recorded on site are considered to be of local value with the semi-improved grassland the most ecologically notable habitat within the survey area.
- 6.9 Arable field margins are a S41 habitat. The field margins surveyed are not sufficiently wide to be considered as the S41 habitat. The recommendation for identifying arable field margins is that herbaceous vegetation within 2m of a living boundary, such as a hedgerow, is considered as part of the boundary habitat. The field margins on site are mostly within 2m of the hedgerow or less than 2m wide, although many commoner species associated with this S41 habitat persist in the margins of the cropped area.
- 6.10 The hedgerows on site would be considered as S41 habitat as they are over 20m long and contain at least 80% of one woody UK native species. The woodland plantations would fall with the broadest description of the S41 habitat lowland mixed deciduous woodland,

although the small size and isolated nature of the blocks on site does limit their ecological value. It is not recommended that the woodland blocks be considered to be S41 habitat.

- 6.11 Japanese rose was recorded from developing scrub adjacent to the Rudford Industrial Estate outside of the red line (TN13). This species is included on schedule 9 of the Wildlife and Countryside Act (1981, as amended). It is an offence under Section 14 of the Act for any person to plant or otherwise cause to grow in the wild any plant which is included in Part II of Schedule 9. It should be noted that the Act does not impose an explicit obligation to manage Schedule 9 species not introduced onto land by the landowners own actions, however the scope of the phrase 'causes to grow' is not clearly defined.

## **7.0 Potential use of the site by protected and other notable species**

- 7.1 No evidence of badgers was recorded during either phase 1 survey, although mid-summer is a sub-optimal time to undertake badger surveys. Although suitable locations for setts appear to be limited the hedgerows, plantation woodland, arable fields and areas of unmanaged grassland all offer potential foraging habitat for badgers.
- 7.2 A badger activity survey was undertaken in November 2015 and no evidence of badger activity was recorded on the site.
- 7.3 The ditch running along the edge of field 10 is not considered to be suitable habitat for water vole. This is the only length of ditch within the survey area and is some distance from known water vole colonies in the wider area. It is not considered likely that this species is present on the site.
- 7.4 Although the hedgerows and woodland on site is limited in extent it is possible that the survey area could support dormice. Dormice will feed on flower buds, immature inflorescences and catkins in spring moving onto berries, nut and winged seeds in late summer and autumn. Within the site there is sufficient diversity of species known to be food sources for dormice, such as pedunculate oak, hazel, bramble, honeysuckle, hawthorn and blackthorn, to suggest the survey area could support dormice.
- 7.5 Foraging bats will exploit the matrix of hedgerows, woodland plantations, tree belts and rough grassland. The site also has the potential to support bat roosts. Bat roosts are considered most likely to occur in the mature trees present on site, although the buildings on site do offer limited potential. Favoured areas for foraging bats are likely to be along hedgerows, within and around the woodland blocks and tree belts and over areas of unmanaged grassland.

- 7.6 The Phase 1 survey confirmed the presence of common lizard within the survey area. The areas of unmanaged grassland offer the best quality reptile habitat on site although the margins of the arable fields may also be used, particularly where they run alongside hedgerows and woodland plantation. The apron of the former runway provides ideal basking sites for species such as common lizard.
- 7.7 Although there are no confirmed records of great crested newts within 1km of the site a desk-top assessment has identified a number of water bodies within 500m of the site boundary that could have the potential to support breeding great crested newt. If the presence of great crested newt were confirmed from these ponds it would increase the likelihood of this species utilising terrestrial habitat within the site.
- 7.8 The hedgerows and arable fields within the survey area provide suitable foraging and breeding habitat for a wide range of birds. There is potential for the aircraft hanger or any hollow trees on to support breeding barn owl. The arable fields will provide breeding habitat for skylark and possibly lapwing. Other species of conservation concern such as grey partridge and song thrush have been recorded on site. Given the occurrence of recent records of species such as corn bunting in the wider area consideration should be given to the possibility this species may occur on site.
- 7.9 The arable fields could potentially support wintering birds such as lapwing and golden plover (*Pluvialis apricaria*); both species utilise arable habitat for feeding and roosting during the winter. The proximity of the site to the Arun Valley increases the likelihood of these species occurring. Two ringed plover (*Charadrius hiaticula*) were recorded flying over the site during the final field visit. Field margins and stubbles would also provide a food source for wintering passerines such as skylark, yellowhammer and linnet (*Carduelis cannabina*).
- 7.10 A wintering bird survey was undertaken between November 2015 and February 2016. No wintering populations of waders were recorded using the site.
- 7.11 The survey area offers a range of potential habitats for invertebrates with the areas of unmanaged grassland supporting populations of commoner butterflies. Scarcer invertebrates recorded in the wider area include stag beetle, white-lettered hairstreak and brown hairstreak. The site provides potentially suitable habitat for all three species, albeit limited in extent.

## **8.0 Recommendations**

- 8.1 It is recommended that the following surveys be commissioned to support any planning application for the site:
- Dormouse survey
  - Phase 1 bat and barn owl survey of the four structures on site and an evaluation of mature trees
  - Bat activity surveys
  - Reptile presence and absence survey
  - Habitat suitability assessment of off-site ponds for great crested newt
  - Breeding bird surveys
- 8.2 Given the lack of badger activity it recommended that the current badger survey is up-dated every two years. Badger surveys are best conducted between October and March when vegetation on site has died back. As territorial activity tends to increase during the spring, February and March would be the optimal time to survey.
- 8.3 Dormouse surveys can be conducted between April and October. The survey involves the distribution of nest tubes every fifteen to twenty metres in suitable habitat (hedgerows, scrub and woodland) across the site. These tubes are then checked on a regular basis to determine if dormice are using them.
- 8.4 Phase 1 evaluation of buildings for bats involves an external and internal inspection of buildings to identify possibly features that could be used by roosting bats and to search for evidence of occupation. Buildings with potential roosting opportunities or where use is confirmed will require further survey. Phase 1 building surveys can be undertaken at any time of the year.
- 8.5 Tree assessments are generally best undertaken in late autumn or winter when deciduous trees have shed their leaves. Inspections are generally done from ground level in the first instance. Trees identified as having potential to support bat roosts will require further survey work. It is useful to have tree removal and retention plans prior to undertaking tree assessments to ensure the work is undertaken in a cost-effective manner.
- 8.6 Trees or buildings identified as having potential to support bats will require further survey if affected by the proposals. Dusk emergence and dawn re-entry surveys would generally be required with the level of survey needed determined by how suitable the building or tree is for roosting bats. The current guidelines indicate that those with the highest potential require three surveys (three dusk and/or pre-dawn re-entry surveys) with those with the low potential requiring a single dusk and /or pre-dawn re-entry survey. These surveys are undertaken between May and September.

- 8.7 Bat activity surveys will be required to establish both the species of bat using the site and current levels of use. These surveys are undertaken throughout the main activity period for bats running from April through to September. The current guidelines for surveying large sites of medium habitat quality transect surveys should be undertaken once a month between April and September, with static detectors deployed monthly (two per transect) over the same period to collect data for five consecutive nights.
- 8.8 Reptile surveys will be required to determine the range of reptiles present on site and to give an indication of the potential size of the population. Survey work can be undertaken between April and September. Surveys undertaken in April-May or August-September will coincide with the optimal survey periods. A minimum of seven visits is required to establish presence or absence of reptiles with further visits needed in order to estimate population size.
- 8.9 A habitat suitability index (HSI) assessment of ponds off-site will be required given the presence of great crested newt in the wider area. This assessment technique gives a measure of habitat suitability; in general ponds that score highly are more likely to support great crested newts than low scoring ponds. This assessment technique is used to identify where further survey effort should be targeted. Presence/absence surveys of breeding ponds can only be undertaken between mid-March and mid-June; HSI assessments should be done in advance of the presence/absence survey window as suitable ponds i.e. those with a high HSI score will require further survey (if accessible).
- 8.10 It is recommended that a bird surveys be undertaken to determine the level of use of the site by species of conservation concern. The breeding bird survey would be a scaled down version of the Common Bird Census methodology, with five visits being undertaken rather than ten. Survey visits would be undertaken at regular intervals between March and May.
- 8.11 Guidance produced by Natural England (formerly English Nature) states that there are “no hard and fast rules about when invertebrate surveys should be requested from a developer, but any site that may have ‘good’ invertebrate interest should be examined in some way”. The areas of unmanaged grassland originally identified as most likely to provide better quality invertebrate habitat are located outside of the red line area (TN10) and have been cleared since the original 2015 survey. It should be noted that the current master plan iteration does not show development on the most extensive area of unmanaged grassland within the survey area and no further work on invertebrates is recommended.

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