

Land off  
Worts' Causeway  
Cambridge  
Areas GB1 and GB2



**Archaeological  
Evaluation Report**



November 2015

**Client: Orion Heritage on behalf of  
CEG and Cambridgeshire  
County Council**

OA East Report No: 1828  
OASIS No: oxfordar3-222063  
NGR: 547446, 254976

## **Land off Worts' Causeway, Cambridge: Areas GB1 and GB2**

*Archaeological Evaluation*

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## Summary

*Between the 21st of September and the 2nd of October 2015 Oxford Archaeology East undertook an archaeological evaluation on land off of Worts' Causeway, Cambridge (TL 47446, 54976). The site consisted of two separate land parcels: GB1 (5.8 hectares) on the north side of the Worts' Causeway and GB2 (6.8 hectares) to the south.*

*A total of 44 trenches were excavated across the site and archaeological features were recorded in 30 of these. In Area GB1, ten of the 24 trenches contained archaeological features, whilst all 20 of the trenches in GB2 contained archaeological remains.*

*Trenching across Area GB1 identified the remnant of a cobbled trackway with an associated roadside ditch running broadly east-west. This is probably Late Bronze Age/Early Iron Age in date. There is a high potential for this trackway to link up with those identified during the Bell Language School and Papworth Trust excavations.*

*The majority of the features identified across Area GB2 were ditches belonging to a Middle Bronze Age field system. This field system consisted of large east-northeast to west-southwest aligned ditches spaced c.160m apart, with a number of smaller north-northeast to south-southwest aligned internal divisions.*

*Toward the southern end of Area GB2 there were indications for peripheral settlement activity. Up to eleven postholes were revealed in Trench 42, a number of which could potentially form part of a circular post-built structure. Collections of struck flint, unworked burnt flint and fire-cracked stone were also recovered from features in Trenches 33 and 44. Further domestic activity was identified in Trench 35, which had an area of intercutting pits containing assemblages of pottery, animal bone, struck flint and burnt stone.*

*Low levels of Neolithic activity in the form of pits containing Early Neolithic pottery and struck flint were also seen across the site.*

*The remains of the Second World War anti-tank defence, known as the GHQ Line, was also identified across both areas of the site. Dug in 1940, this ditch was part of the final guard against the threat of a German land invasion.*



## 1 INTRODUCTION

### 1.1 Location and scope of work

- 1.1.1 An archaeological evaluation was conducted on land off of Worts' Causeway, Cambridge. The site was divided into two land parcels - GB1 on the north side of Worts' Causeway and GB2 to the south (Fig. 1).
- 1.1.2 This archaeological trial trench evaluation was undertaken in accordance with a Brief issued by Kasia Gdaniec of Cambridgeshire County Council (CCC), supplemented by a Specification prepared by OA East (Wiseman & Mortimer 2015).
- 1.1.3 The work was designed to assist in defining the character and extent of any archaeological remains within the proposed development area, in accordance with the guidelines set out in *National Planning Policy Framework* (Department for Communities and Local Government March 2012). The results will enable decisions to be made by CCC, on behalf of the Local Planning Authority, with regard to the treatment of any archaeological remains found.
- 1.1.4 The site archive is currently held by OA East and will be deposited with the appropriate county stores in due course.

### 1.2 Geology and topography

- 1.2.1 The site lies on the southern periphery of Cambridge and is enclosed on its northern and western sides by housing. At present the site is arable farmland. Geology across the site consists of Zig Zag formation chalk (GBS 2015). Area GB1 is situated on a gentle north-west facing slope, being located at a maximum height of 20.9m OD (to the west) and dropping down to 16.6m OD (to the north-west). Area GB2 is located on a gradual south facing slope, with land to the north being situated at a height of 19.2m OD, dropping southward to 16.7m OD.

### 1.3 Archaeological background

- 1.3.1 The site is located in an area of extensive settlement and farmland dating from the Bronze Age through to the Roman period. The area around Addenbrooke's Hospital and further to the west across Hobson's Brook has been extensively excavated. Pertinent HER data is highlighted on Figure 1.

#### ***Neolithic***

- 1.3.2 A number of local sites have shown limited evidence of earlier prehistoric land use, either through the presence of small assemblages of Mesolithic and Neolithic flintwork or the occasional pit or hollow containing Neolithic finds. However, at the Babraham Road Park and Ride site (located immediately east of GB2), the earliest features (which were attributed to the Late Neolithic-Early Bronze Age) included three inhumations, a scatter of Grooved Ware pottery, associated pits and two deep, circular shafts or pits (CB 15253).
- 1.3.3 In 1945 during the cutting of an anti-tank ditch (which runs north-south through the site) a Neolithic pit was uncovered (HER 04452). Finds from the pit consisted of Late Neolithic Grooved Ware pottery, struck flint and bone. Further collections of struck flint have been recovered from the immediate vicinity around the site (including HER 05106, 05110 and 08710).

### ***Bronze Age***

- 1.3.4 The Addenbrooke's landscape contains extensive evidence for Bronze Age activity (particularly from the Middle Bronze Age). At the Babraham Road Park and Ride site, two aligned Middle Bronze Age ditches, interrupted with a 5m entrance, were possibly associated with timber beamslot features. Further to this, a post-built roundhouse attributed to the Middle Bronze Age was found at Granham's Farm (CB 15569), c.1km to the south-west of the current site.
- 1.3.5 At the Bell Language School site (ECB 3736), located 0.4km west, a number of post alignments were identified (totalling in excess of 400 postholes), along with an associated pit alignment and field system. The Clay Farm development (ECB 3686, 2km to the west) has also revealed an extensive field system constructed over large areas of the site.
- 1.3.6 A Middle Bronze Age triple-ditched enclosure has also been investigated on the Addenbrooke's 2020 Lands (HER 08339), 1.5km to the west of the current site. The evaluation, based on cropmark and geophysical plots, has shown that the ditches were substantial. This enclosure has since been fully excavated as the AstraZeneca South site, and the results have just become available.

### ***Iron Age***

- 1.3.7 Two of the most significant monuments in the immediate area are the Iron Age rings of Wandlebury and War Ditches. Wandlebury, located on the edge of the Gog Magog hills, 2.4km to the south-east (HER 04636), has evidence for Early Iron Age unenclosed settlement before the first defences were constructed in the 5th century BC. A second rampart and ditch were built on the interior of the first during the 1st century BC. War Ditches (HER 04963), located just 1km to the north-east of GB1, was first constructed during the latest Early Iron Age, around 400 BC, although evidence suggests that it was never completed (Pickstone & Mortimer 2012).
- 1.3.8 At the Babraham Road Park and Ride site, a series of shallow square-ended linear features were identified. These features appeared to have respected the earlier phases of prehistoric activity and, in particular, highlighted the position of the Bronze Age entranceway. The Bell Language School site uncovered an extensive cobbled trackway which extended across the site for c.120m and was up to 15m wide. The trackway appeared to respect the Bronze Age post alignments. Archaeological excavations at the Papworth Trust site (ECB 4376), just to the northwest of the Bell Language School, also identified the remnant of a cobble trackway, more extensive at up to 50m wide, but less well preserved.
- 1.3.9 During the 1970s a collection of Iron Age finds were recovered immediately to the west of the site (HER 04578). These consisted of pottery, stone and baked clay.

### ***Romano-British***

- 1.3.10 There is extensive evidence of Roman settlement and land use along the Cam Valley. Locally, Roman activity at the Hutchison site (CB 15770) 1.3km north-west focused on a large sub-rectangular enclosure which was sub-divided into smaller compounds. A possible north-west to south-east aligned road was also identified at the southern end of site. Archaeological works carried out on the Addenbrooke's southern perimeter road (ECB 3959), just 1km to the southwest, revealed two portions of an Early Roman field system, along with three phases of Roman enclosure ditches and a kiln containing pottery dated to the 1st century AD. The continuation of this field system was identified at the Bell Language School.

- 1.3.11 The site lies c.5km to the south-east of Roman Cambridge (*Duroliponte*), located on Castle Hill north of the river (HER 05239). A number of potential Roman roads have been identified across the Addenbrooke's area. The roadway unearthed during the Hutchinson excavation could cross Addenbrooke's Hospital to continue down the line of Worts' Causeway (MCB 17897). Worts' Causeway (named after the 17th century landowner, Sir William Worts) is part of *Worsted Street*, which links Cambridge to Haverhill. It is likely that *Worsted Street* actually followed the route of a pre-existing road, a prehistoric ridgeway, with its northern end running from the twin hill forts of War Ditches and Wandlebury.
- 1.3.12 During the laying of the gas main through GB2 in 1985, a single sherd of Roman pottery was recovered (HER 08709), along with a small collection of post-medieval pottery (HER 08708).

#### ***Anglo-Saxon***

- 1.3.13 Evidence for Anglo-Saxon occupation in the immediate area is limited. Excavations at the Laboratory for Molecular Biology (HER 3038), located 1.5m to the west, uncovered an SFB containing a rare near-complete 5th century vessel. Two wells were also excavated. Finds from these wells included a complete set of 5th to 6th century iron shears and several fragments of Niedermendig lava quern. An extensive Middle Saxon settlement area was excavated at the Addenbrooke's Hutchison site.

#### ***Medieval to modern***

- 1.3.14 Medieval and post-medieval activity recorded within the area is predominantly agricultural. Remnant headlands and traces of ridge and furrow are visible as cropmarks across much of the surrounding area. A headland has previously been plotted from aerial photographs running east-west across GB2. The 1886 OS County Series (not illustrated) shows the site as farmland along with Netherhall Farm. Newbury Farm (located to the south-east of GB2) does not appear on OS maps until 1960.
- 1.3.15 Cropmark evidence shows that the anti-tank ditch (known as the GHQ Line) runs through the site (MCB 19858). It was dug in the 1940s as a defensive stop line against the possibility of invading German forces. It runs roughly north-south through the centre of GB1 and down the eastern side of GB2. An evaluation at Granham's Farm (ECB 999) to the south of the site identified the continuation of the GHQ line. Here it measured 4.14m wide and 2.06m deep, with a sloping profile on the eastern (external) side and a vertical edge on its western (internal) side (Whittaker 2002). The ditch was also flanked on both sides by a bank. A further evaluation at Wulfstan Way (ECB 4120) to the north of site also identified the GHQ line, where it measured 5.5m wide and 2.4m deep (Timberlake 2014).

## **1.4 Previous archaeological works**

### ***Cambridge southern relief road evaluation (Kemp 1993)***

- 1.4.1 In 1993 CCC AFU carried out an archaeological evaluation on land between the Shelford Road (A1301) and Worts' Causeway. The evaluated route was divided up into four 'sites'. Site 4 was located to the south, west and north of Newbury Farm; and thus ran directly through GB2. A single trench (Trench C) was positioned across a headland deposit identified from aerial photography. The trench section identified a clear ridge which corresponded with the cropmark and this was interpreted as the remnant of a

medieval/post-medieval field boundary. A single north-south aligned ditch was also revealed within the trench. This ditch measured 0.5m wide and 0.19m deep. Animal bone was recovered from the ditch fill.

#### ***Worts' Causeway geophysical survey (Bartlett 2015)***

- 1.4.2 In August 2015 Bartlett-Clark Consultancy undertook a geophysical survey across the proposed development site. The main findings (apart from the Second World War anti-tank defence and modern water and gas mains) consisted of a number of clearly defined rectilinear ditched enclosures (Fig. 2) across Area GB2. Two further aligned ditches were identifiable at the southern end of Area GB1.
- 1.4.3 The remainder of Area GB1 only produced north-west to south-east aligned cultivation marks. No clear clusters or concentrations of magnetic anomalies could be identified within the field system enclosures in Area GB2.

### **1.5 Acknowledgements**

- 1.5.1 The author would like to extend thanks to Rob Bourn of Orion Heritage for commissioning the archaeological works. Fieldwork was undertaken by the author with the assistance of Emily Abrehart, Matt Brookes, Dave Browne, Toby Knight, Pat Moan, Ashley Pooley and Rob Wiseman. Machine excavation was carried out by Antill Plant. The project was managed by Richard Mortimer and the fieldwork monitored by Kasia Gdaniec. Many thanks also to Robin Standing for use of the aerial photograph of the GHQ line.

## 2 AIMS AND METHODOLOGY

### **Aims**

- 2.1.1 The objective of this trial trench evaluation was to determine as far as reasonably possible, the presence/absence, location, nature, extent, date, quality, condition and significance of any surviving archaeological deposits within the development area.

### **Methodology**

- 2.1.2 The Brief required a programme of trial trenching be undertaken, targeted on the results of the geophysical survey. A 3.5% sample was necessitated across the site. This equated to 1,800 linear metres of trenching (resulting in the excavation of 44 trenches of varying lengths between 20m and 75m). Bucket sampling (consisting of 90 litres) from each soil horizon across all trenches was also undertaken.
- 2.1.3 Machine excavation was carried out under constant archaeological supervision with a tracked 360° type excavator using a 2m wide toothless ditching bucket. Trenches on the land to the south and west of Netherhall Farm in GB1 and to the south of the gas main in GB2 were excavated using a wheeled 360° type excavator with a 1.8m wide toothless ditching bucket.
- 2.1.4 The site survey was carried out using a Leica GS08 GPS.
- 2.1.5 Spoil, exposed surfaces and features were scanned with a metal detector. All metal-detected and hand-collected finds were retained for inspection, other than those which were obviously modern.
- 2.1.6 All archaeological features and deposits were recorded using OA East's *pro-forma* sheets. Trench locations, plans and sections were recorded at appropriate scales. Digital photographs were taken of all relevant features and deposits.
- 2.1.7 A total of fourteen bulk environmental samples (equating to 180 litres of soil) were taken during the archaeological works in order to investigate the possible survival of micro- and macro- botanical remains.

### 3 RESULTS

#### 3.1 Introduction

- 3.1.1 The site consists of two land parcels - GB1 on the north side of Worts' Causeway and GB2 to the south. A total of 44 trenches were excavated across the entirety of the site, with 24 trenches located within Area GB1 and 20 trenches in Area GB2. Of the 44 trenches excavated, archaeological features were recorded in 30 of these. In Area GB1, a total of ten of the 24 trenches contained archaeological remains, whilst all 20 trenches in GB2 contained archaeological features (Fig. 3).
- 3.1.2 Topsoil (01) across the site consisted of a dark grey clay silt, averaging 0.3m in thickness, and contained very low levels of modern debris. A total of four struck flint flakes and a single blade-like flint flake were collected from the topsoil. A number of trenches were devoid of subsoil (02) but, where present, it was made up of a mid brown orange clay silt, varying in thickness from 0.05m to 0.6m.
- 3.1.3 The results of the trial trenching will be discussed numerically by trench. Unless otherwise stated, no datable finds were recovered from features. A list of trench depths, descriptions and related context data can be found in Appendix A.

#### 3.2 Bucket Sampling

- 3.2.1 A systematic exercise of bucket sampling was undertaken across the site. This consisted of up to 90 litres of soil from each horizon across the trenches being investigated for finds retrieval.
- 3.2.2 All of the finds were recovered from the topsoil, nothing was identified in the subsoil. Table 1 below summarises the assemblage. Once catalogued, the finds were discarded.
- 3.2.3 The finds all date to the post-medieval and modern periods, apart from two medieval sherds: an Ely ware sherd from Trench 12 and a sherd of Lyvendon-Stanion ware from Trench 29).
- 3.2.4 The dispersion of the finds across the site and the fact that most are post-medieval in date shows that little manuring had been undertaken. In addition, the lack of prehistoric and/or Romano-British finds, and the lack of finds from the subsoil shows that there has been limited truncation to the buried features.

<i>Trench</i>	<i>Artefact</i>	<i>Description</i>	<i>Weight (g)</i>	<i>Date</i>
1	Ceramic vessel	Staffordshire-type Slipware bowl body sherd	6	17th-end of 18th century
1	Ceramic vessel	Westerwald stoneware drinking vessel body sherd	3	17th-end of 19th century
7	Ceramic vessel	Post-medieval Redware bowl body sherd	6	Mid 15th-end of 18th century
8	Ceramic vessel	Post-medieval Redware bowl body sherd	9	Mid 15th-end of 18th century
9	Ceramic vessel	Post-medieval Black Glazed ware bowl body sherd	10	16th-end of 18th century
10	Clay tobacco pipe	Partial bowl and stem	6	c.17th century
11	Ceramic vessel	Staffordshire-type Slipware bowl body sherd	10	17th-end of 18th century
11	Ceramic vessel	White dipped stoneware jar base sherd	22	18th century
12	Ceramic vessel	Westerwald stoneware drinking vessel body sherd	14	17th-end of 19th century
12	Ceramic vessel	Ely ware jug body sherd	5	Mid 12th-mid 14th century

<i>Trench</i>	<i>Artefact</i>	<i>Description</i>	<i>Weight (g)</i>	<i>Date</i>
13	Ceramic vessel	English stoneware blacking bottle rim sherd	13	19th century
13	Ceramic vessel	Post-medieval Redware bowl body sherd	16	Mid 15th-end of 18th century
14	Ceramic vessel	Creamware	4	Mid 18th-early/mid 19th century
14	Ceramic vessel	?Plant pot rim sherd	3	19th century
15	Ceramic vessel	Post-medieval Redware bowl body sherd	10	Mid 15th-end of 18th century
16	Ceramic vessel	Post-medieval Redware bowl body sherd	5	Mid 15th-end of 18th century
18	Ceramic vessel	Stoneware body sherd	5	18th-end of 19th century
20	Ceramic vessel	Staffordshire white dipped stoneware plate rim sherd	13	18th century
26	Ceramic vessel	Post-medieval Redware bowl body sherd	9	Mid 15th-end of 18th century
29	Ceramic vessel	Medieval Lyvenden-Stanion body sherd	13	Mid 12th-end of 14th century
30	Ceramic vessel	Plant pot base sherd	17	19th century
31	Ceramic vessel	English Stoneware bottle body sherd	8	18th-end of 19th century
34	Ceramic vessel	Bone china base sherd	7	19th century
36	Ceramic vessel	Nottinghamshire Stoneware knob-handle	118	18th century
40	Ceramic vessel	Stoneware body sherd	23	18th-end of 19th century
41	Ceramic vessel	Transfer printed refined white earthenware plate body sherd	1	19th century

*Table 1: Bucket sampling finds (by Carole Fletcher)*

### 3.3 Area GB1

#### *Trench 1*

3.3.1 The trench was devoid of archaeological remains.

#### *Trench 2*

3.3.2 The trench was devoid of archaeological remains.

#### *Trench 3*

3.3.3 The trench was devoid of archaeological remains (Plate 1).

#### *Trench 4*

3.3.4 The trench was devoid of archaeological remains.

#### *Trench 5*

3.3.5 Trench 5 contained two small pits toward its eastern end. Pit **03** had a diameter of 0.6m and was 0.1m deep with gently sloping sides and a concave base. It was filled with a dark orange brown clay silt (04) which contained 39 sherds (99g) of Late Neolithic/Early Bronze Age (LN/EBA) Beaker pottery and a single struck flint flake. An environmental sample taken from the fill produced only sparse charcoal. To the immediate south, pit **05** had a diameter of 0.45m and was 0.05m deep with a bowl shaped profile. It was filled with a dark orange brown clay silt (06) which contained 17 sherds (30g) of Late Neolithic Grooved Ware pottery.

3.3.6 Cutting north-south across the centre of the trench was the backfilled Second World War anti-tank defence ditch. At this location it measured 7m in width. It was not excavated.

### **Trench 6**

- 3.3.7 A single elongated pit was identified in Trench 6. Orientated east-west, pit **07** measured 1.5m in length, 0.6m in width and was 0.2m in depth with steeply sloping sides and a flat base. It was filled with a mid orange brown clay silt (08) and no finds were recovered.

### **Trench 7**

- 3.3.8 The trench was devoid of archaeological remains.

### **Trench 8**

- 3.3.9 The trench was devoid of archaeological remains.

### **Trench 9**

- 3.3.10 The trench was devoid of archaeological remains.

### **Trench 10**

- 3.3.11 The continuation of the anti-tank defence ditch (**37**) was identified across the western end of Trench 10 and was excavated to a depth of 0.7m. This ditch was sealed by the topsoil (01) but was cut through the subsoil (02) and a buried soil (19) located beneath the subsoil. Layer 19 was located at the base of a natural hollow. At its greatest it, measured 0.6m in thickness (Fig. 6, S.6). Finds from this soil layer consisted of 68g of animal bone and single struck flint flake. An environmental sample from layer 19 did not produce anything apart from sparse levels of charcoal.

### **Trench 11**

- 3.3.12 The trench was devoid of archaeological remains.

### **Trench 12**

- 3.3.13 In Trench 12, the continuation of the Second World War anti-tank defence ditch was seen. A machine intervention was excavated through the ditch in order to establish its depth and profile. The ditch (**09**) was 5.65m wide and 2.05m deep with a gentle slope to the east and was near vertical on its western side. The ditch was flat based. A primary slump of mid brown grey clay silt (53) was seen coming in from the west. This was followed by the levelling of the bank back into the ditch. This secondary fill (10) was made up of the silty chalk geology. A tall square bottle was recovered from the very base of the ditch. It was made from brown glass, and measured 24.5cm tall and 5cm wide, with a metal screw cap and the letters CAE12 imprinted within a square on the base was recovered from the very base of the ditch. This is believed to be a bottle of Camp Coffee. A small quantity of barbed wire was also identified at the base of the ditch.
- 3.3.14 Cutting through the backfill of ditch **09** was a modern animal burial (**52**). The pit for the animal measured 0.95m wide and 1.2m deep with vertical sides and a flat base. The animal was left *in situ* due to its modern age. It could not be formally identified but was likely to have been a cow.

### **Trench 13**

- 3.3.15 A single pit was identified within Trench 13. Pit **18** had a diameter of 0.75m and was 0.11m deep with gently sloping sides and a flat base. It was filled with a dark grey-

brown clay silt (17) and contained 3 sherds (14g) of Late Neolithic Grooved Ware pottery and 24g of unworked burnt flint.

#### ***Trench 14***

3.3.16 The trench was devoid of archaeological remains.

#### ***Trench 15***

3.3.17 Located at the southern end of Trench 15 was east-west aligned ditch **28**. The ditch measured 1.07m wide and was 0.16m deep with gently sloping sides and a concave base. It was filled with a mid grey brown clay silt (29) and contained 1 sherd (8g) of not closely datable early prehistoric pottery. Situated on the northern side of ditch **28** was a possible hedge line (**30**).

#### ***Trench 16***

3.3.18 The trench was devoid of archaeological remains.

#### ***Trench 17***

3.3.19 Located at the southern end of Trench 17 was the continuation of east-west aligned ditch **28** (from Trench 15). This feature was not excavated. The continuation of the anti-tank defence ditch was also identified across this trench (but was also not excavated). Toward the northern end of the trench was a further east-west aligned ditch. Ditch **22** measured 1.2m wide and 0.2m deep with gently sloping sides and a concave base. It was filled with a mid orange brown chalky silt (23). On its northern side was another possible hedge line (**20**). This irregularly shaped feature was 0.8m wide and 0.26m deep and was filled with a mid orange brown chalky silt (21). A very small fragment of copper alloy sheet (sf1) was recovered from the fill.

#### ***Trench 18***

3.3.20 Two ditches running on two differing alignments were identified in Trench 18. Ditch **11** was orientated east to west and was the continuation of ditch **28** identified in Trench 16 (Fig. 6, S. 4). Here the ditch was 0.9m wide and 0.25m deep with gently sloping sides and a flat base. It was filled with a mid grey brown clay silt (12). A possible hedge line (**13**) was again identifiable on the northern side of the ditch. Here it was 0.8m wide and 0.15m deep with an irregular profile. It was also filled with a mid grey brown clay silt (14).

3.3.21 At the very southern end of Trench 18 was ditch **15**. This 1.5m wide and 0.3m deep ditch was orientated north-northwest to south-southeast. The ditch had gently sloping sides with a flat base and was filled with a dark orange brown sandy silt (16).

#### ***Trench 19***

3.3.22 The trench was devoid of archaeological remains.

#### ***Trench 20***

3.3.23 Two parallel east-west ditches were identified within the trench. The more northerly of the two (**32**) was the continuation of ditch **22** in Trench 17. Feature **32** (perhaps too wide and shallow to be called a ditch) measured 3.4m wide and 0.35m deep with gently sloping sides and a flat base (Plate 2). It was filled with a light grey brown clay silt (33) and contained 2 sherds (17g) of late Iron Age/early Roman pottery. An environmental

sample taken from fill 33 produced low levels of charred cereal grains and sparse charcoal.

- 3.3.24 Ditch **34** was located c.15m to the south and was the continuation of ditches **11** and **28** (from Trenches 15 and 18). Here the ditch measured 0.46m wide and 0.11m deep with a U-shaped profile. It was filled with a mid grey brown clay silt (35).

***Trench 21***

- 3.3.25 The trench was devoid of archaeological remains.

***Trench 22***

- 3.3.26 The trench was devoid of archaeological remains.

***Trench 23***

- 3.3.27 The trench was devoid of archaeological remains.

***Trench 24***

- 3.3.28 Ditch **38** was uncovered in the centre of the trench. This was the continuation of ditch **32** from Trench 20. Here the east-west aligned ditch measured 1.5m wide and 0.3m deep, and had gently sloping sides with a concave base. It was filled with a mid grey brown clay silt (39). Situated just 0.5m south of ditch **32** and running parallel with it was trackway **40**. The surviving hollow for the trackway measured 2.5m wide and was 0.2m deep with gently sloping sides and a concave base (Plate 3). A layer of small compact cobble stones (41) were identified across the base of this hollow. The fill above this (42) was made up of a mid grey brown clay silt.
- 3.3.29 A further 9m to the south was the continuation of east-west ditch **34** (from Trench 20). This ditch was not excavated here.

**3.4 Area GB2**

***Trench 25***

- 3.4.1 Two pits and two ditches were identified within Trench 25. Pit **150** measured 1.1m wide and 0.3m deep with steeply sloping sides and a flat base. It was filled with a mid brown silty sand (149). Pit **150** was cut into the top of ditch **152**. This ditch was orientated north-northwest to south-southeast. It measured 0.75m wide and was 0.15m deep with gently sloping sides and a concave base. It was filled with a light yellow brown silty sand (151).
- 3.4.2 Approximately 2.6m to the south-west, pit **154** measured 1m wide and 0.35m deep with gently sloping sides and a flat base. It was filled with a dark brown silty sand (153).
- 3.4.3 Ditch **156** was parallel to ditch **152**. The ditch was 0.75m wide and 0.3m deep with steeply sloping sides and a flat base. It was filled with a mid brown silty sand (155).

***Trench 26 (Plate 4)***

- 3.4.4 At the very north of the trench, ditch **128** was orientated north-west to south-east and terminated within the trench. It measured 0.7m wide and 0.22m deep with gently sloping sides and a concave base. It was filled with a mid grey brown chalky silt (129).
- 3.4.5 East-west aligned ditch **130** measured 1.1m wide and 0.24m deep with gently sloping sides and a concave base. It was filled with a mid grey brown chalky silt (131).

Possible pit or ditch terminus **132** measured 0.7m wide and 0.25m deep with steeply sloping sides and a concave base (Fig. 6, S.46). It was filled with a mid grey brown chalky silt (133).

- 3.4.6 Ditch **134** was orientated east-northeast to west-southwest. It measured 0.8m in width and was 0.3m deep with gently sloping sides and a concave base. It was filled with a mid yellow brown sandy silt (135) which contained a single sherd (40g) of residual Late Neolithic Impressed Ware pottery with twisted cord maggot impressed decoration.

#### ***Trench 27***

- 3.4.7 A single north-northwest to south-southeast aligned ditch was identified at the northern end of Trench 27. Ditch **115** was 0.47m wide and 0.24m deep with steeply sloping sides and a concave base. It was filled with a mid brown clay silt (116) and contained 1 sherd (2g) of not closely datable prehistoric pottery.

#### ***Trench 28***

- 3.4.8 Located at the centre of Trench 28 was pit **136**. It measured 0.9m long, 0.8m wide and was 0.14m deep with very gently sloping sides and a concave base. It was filled with a mid grey brown chalky silt (137). Toward the northern end of the trench was ditch **138**. The ditch was aligned north-northwest to south-southeast, measured 0.38m wide and was 0.12m deep with gently sloping sides and a concave base. It was filled with a mid yellow brown chalky silt (139).

#### ***Trench 29***

- 3.4.9 Ditch **103** was aligned east to west and terminated within the trench. The ditch measured 0.7m wide and 0.24m deep with steeply sloping sides and a concave base. It was filled with a mid brown clay silt (104). Approximately 1.6m to the south-west, ditch **105** was orientated north to south. It measured 0.8m wide and 0.18m deep with gently sloping sides and a concave base. It was filled with a mid brown grey chalky silt (106) which contained one struck flint flake and 6g of animal bone.
- 3.4.10 Ditch **107** was parallel to ditch **105**. It measured 0.9m in width and was 0.3m deep with steeply sloping sides and a concave base. It was filled with a dark brown clay silt (108).

#### ***Trench 30***

- 3.4.11 A single east-west ditch was identified in Trench 30. Ditch **140** was 0.7m wide and 0.2m deep with steeply sloping sides and a concave base. The earlier of the two fills (148) consisted of a 0.08m thick light grey brown sandy silt. This was overlain by a 0.14m thick dark grey brown sandy silt (141) that contained 78g of animal bone.

#### ***Trench 31***

- 3.4.12 Across the centre of Trench 31 was north-south aligned ditch **71**. Ditch **71** was 1.2m wide and 0.48m deep with steeply sloping sides and a concave base. The basal fill (72) consisted of a 0.22m thick mid grey brown silty sand. Above this was a 0.26m thick mid orange brown silty sand (78) which contained 11g of animal bone, two struck flint flakes and a flint core.

### **Trench 32**

- 3.4.13 A single east-northeast to west-southwest aligned ditch (**102**) was identified at the northern end of Trench 32 (Fig. 6, S.35). The ditch measured 2.1m wide and 0.65m deep with a V-shaped profile and contained three fills. Primary fill 101 consisted of a light yellow brown silty sand which had slumped in from the north. This was followed by a 0.3m thick mid brown silty sand (100) which was slumping in from the south. The final fill (99), was a 0.37m thick mid grey brown silty sand which contained 9 sherds (60g) of Middle Bronze Age (Deverel-Rimbury) pottery, 623g of animal bone and ten struck flakes. An environmental sample taken from fill 99 produced low levels of charred cereal grains.

### **Trench 33**

- 3.4.14 East-west aligned ditch **75** measured 1m wide and 0.44m deep, and had steeply sloping sides with a flat base (Fig. 6, S.43). Primary fill 74 consisted of a 0.23m thick mid orange grey clay silt which contained four struck flint flakes and a flint core. Secondary fill 73 was made up of a 0.22m thick dark orange brown clay silt which contained struck and unworked burnt flint (55g) and a single sherd of residual Beaker pottery.
- 3.4.15 Approximately 3m to the south-west was pit or tree throw **77**. The feature was 1.65m long, 0.96m wide and 0.11m deep with gently sloping sides and a concave base. It was filled with a light orange brown sandy silt (76) and contained one struck flint flake.

### **Trench 34**

- 3.4.16 Ditch **118** (**122**) was orientated north-south. It was 0.8m wide and 0.2m to 0.3m deep with steeply sloping sides and a flat base. It was filled with a mid brown silty sand (117 and 121) which contained two struck flint flakes and three flint blades.
- 3.4.17 Ditch **118** was cut through the top of possible ditch **120**. Ditch **120** was orientated east to west. It measured 3.5m wide and was 0.15m deep with gently sloping sides and a flat base. It was filled with a mid orange brown silty sand (119).

### **Trench 35**

- 3.4.18 A ditch and an area of intercutting pits were identified across the central portion of Trench 35. Ditch **127** was orientated east-northeast to west-southwest. It measured 1.45m wide and was 0.75m deep with steeply sloping sides and a concave base (Plate 5). The earlier of the two fills (126) consisted of a 0.5m thick light yellow brown sandy silt, slumped in from the southern side. This fill contained 7g unworked burnt flint. Above this was a 0.3m thick dark grey brown sandy silt (125). This contained 5 sherds (31g) of Middle Bronze Age pottery and 2 sherds (2g) of not closely datable prehistoric pottery; along with 36g of animal bone, fifteen struck flint flakes, two flint blades and 87g of burnt stone.
- 3.4.19 Immediately north of this ditch was a group of intercutting pits covering an area approximately 4m in length and extended beyond the limits of the trench. A single intervention was excavated across one area of the pitting. This identified three pits. The earliest of the three pits (**164**) had been almost completely truncated away by subsequent pits so no true dimensions could be ascertained. It was filled with a dark brown grey sandy silt (163) and was originally at least 0.13m deep. Truncating the northern side of pit **164** was pit **147**. It was at least 0.8m in diameter and measured 0.45m deep and had gently sloping sides with a concave base. It was filled with a mid brown-grey sandy silt (146). The latest of the three pits was **145**. This was 1.7m long

and at least 0.8m wide with a U-shaped profile. The earliest of its three fills (144) consisted of a 0.1m thick light grey brown sandy silt. This was overlain by a 0.15m thick mid grey brown sandy silt (143) which contained 15g of animal bone, two struck flint flakes and 17g of unworked burnt flint along with 0.942kg of burnt stone. The final fill (142) was made up of a 0.45m thick mid grey-brown sandy silt. This contained 16 small sherds (3g) of Early Neolithic pottery, 2g of animal bone, 26 struck flint flakes, three flint blades, four flint chips and 10g of unworked burnt flint and 0.247kg of burnt stone.

- 3.4.20 To the immediate east of this pit group was a further cluster of intercutting pits. These pits (**158**, **160** and **162**) were cleaned and the surface finds of seven struck flint flakes, a flint blade, 2g of unworked burnt flint, 41g of animal bone and 151g of burnt stone collected, but they were not excavated.
- 3.4.21 Situated at the southern end of Trench 35 was a square pit (approximately 0.5m in diameter) of modern date. This was not excavated.

#### ***Trench 36***

- 3.4.22 Across the centre of Trench 36 was the continuation of the Second World War anti-tank defence ditch, previously identified in Area GB1. The ditch, measuring c.7m wide at this point, was not excavated.
- 3.4.23 Ditch **166** (to the east) was orientated north-south. It measured 1.2m wide and was 0.1m deep with gently sloping sides and a concave base. It was filled with a light grey brown chalky silt (165).

#### ***Trench 37***

- 3.4.24 Ditch **79** was orientated north-south (Fig. 6, S.27). It measured 1.55m wide and was 0.55m deep with steeply sloping sides and a flat base. The primary fill (82) consisted of a 0.1m thick light grey brown chalky silt. This was overlain by a 0.04m thick layer of chalk (81). The secondary fill (80) was made up of a 0.36m thick mid grey brown clay silt. On the ditch's eastern side was pit **83**, which was truncated by the ditch. Pit **83** measured 1.04m long, 0.84m wide and was 0.16m deep with gently sloping sides and a concave base. It was filled with a light grey brown chalky silt (84).
- 3.4.25 A further two rectangular modern pits, identical to the one seen in Trench 35, were also identified within the trench, but were not excavated.

#### ***Trench 38***

- 3.4.26 Toward the western end of Trench 38, pit **56** was 1.7m wide and 0.36m deep with gently sloping sides and a concave base. The earlier of the two fills (58) consisted of a 0.26m thick dark brown grey clay silt which contained unworked burnt flint. Above this was a 0.12m thick fill of mid grey brown clay silt (57) which contained one struck flint flake. Situated c.1m to the east was a north-northwest to south-southeast aligned ditch (**59**). Ditch **59** was 0.8m wide and 0.22m deep with steeply sloping sides and a concave base. It was filled with a mid brown grey clay silt (60). A ditch of similar dimensions, fill, colour and alignment was identified 8.5m to the east. This ditch was not excavated.
- 3.4.27 Situated between the two parallel ditches was curvilinear ditch **61**, which terminated within the trench. The ditch was 0.74m wide and 0.36m deep, with steeply sloping sides and a concave base. It was filled with a dark brown-grey clay silt (62) which contained 68g of animal bone.

- 3.4.28 Located at the eastern end of the trench was the continuation of the anti-tank defence ditch (Plate 6). The ditch (**63**), which was sealed by the topsoil but cut through the subsoil, measured 5.25m wide and was 1.75m deep with a near-vertical edge on its western side, a more gentle slope to the east, and a flat base. It was filled with a mixture of topsoil and silty chalk (**64**). Barbed wire was identified at the base of the ditch.

#### ***Trench 39 (Plate 7)***

- 3.4.29 Two ditches and a possible hedge line were identified within Trench 29. Ditch terminus **65** was aligned north-east to south-west. It measured 0.7m wide and 0.22m deep with steeply sloping sides and a concave base. It was filled with a mid yellow-brown clay silt (**66**).
- 3.4.30 At the southernmost end of the trench was east-northeast to west-southwest aligned ditch **67**. The ditch measured 0.6m wide and 0.23m deep with steeply sloping sides and a concave base. It was filled with a mid yellow-brown clay silt (**68**). Situated on the northern side of the ditch was possible hedge line **69**. This hedge line measured 0.6m wide and 0.23m deep with an irregular profile. It was filled with a dark grey-brown clay silt (**70**). Environmental samples taken from the fills of **67** and **69** only produced sparse quantities of charcoal.

#### ***Trench 40***

- 3.4.31 Ditch terminus **109** was orientated north-northeast to south-southwest. The ditch measured 0.7m wide and 0.36m deep with steeply sloping sides and a flat base. It was filled with a mid grey brown clay silt (**11**). To the immediate north of this was posthole **111**. It had a diameter of 0.91m and was 0.6m deep with stepped sides and a flat base. It was filled with a mid grey brown clay silt (**112**).

#### ***Trench 41***

- 3.4.32 Ditch **113** was aligned north-northeast to south-southwest. It measured 0.7m wide and 0.3m deep with steeply sloping sides and a flat base. It was filled with a mid brown grey clay silt (**114**).
- 3.4.33 The continuation of ditch **109** from Trench 40 was also identified within the trench but was not excavated. The continuation of ditch **75** from Trench 33 was also seen in the trench, but not excavated.

#### ***Trench 42***

- 3.4.34 Archaeological features were identified across southern portion of Trench 42. Ditch **87** was orientated west-northwest to east-southeast. It was 0.95m wide and 0.3m deep with gently sloping sides and a concave base. It was filled with a mid grey brown sandy silt (**88**) which contained one sherd (13g) of Middle Bronze Age pottery and 50g of animal bone. An environmental sample taken from the fill of ditch **87** produced sparse levels of charred cereals and charcoal.
- 3.4.35 Ditch **87** was cut over the top of north-northwest to south-southeast aligned gully **89**. This gully measured 0.55m wide and 0.1m deep with gently sloping sides and a concave base. It was filled with a light grey brown sandy silt.
- 3.4.36 A total of eleven postholes were identified across the trench, three of which were excavated. Posthole **85** had a diameter of 0.6m and was 0.3m deep with near vertical sides and a flat base (Plate 8). It was filled with a mid grey brown sandy silt (**86**) which

contained one struck flint flake. An environmental sample of fill 86 produced only low levels of charcoal. Posthole **91** had a diameter of 0.4m and was 0.23m deep with steeply sloping sides and a flat base. It was filled with a mid grey brown sandy silt (92). Posthole **93** measured 0.5m in diameter and 0.1m deep with steeply sloping sides and a flat base. It was filled with a mid grey brown sandy silt (94) which contained one struck blade-like flint flake. An environmental samples taken from posthole **93** produced sparse amounts of charcoal.

### **Trench 43**

- 3.4.37 A single east-west ditch was identified at the northern end of Trench 43. Ditch **55** measured 2.6m wide and 0.9m deep with steeply sloping sides and a V-shaped base. It was filled with a mid brown sandy silt (54) which contained 1.722kg animal bone. Within this animal bone assemblage there was one cattle vertebra which showed evidence of butchery (see Appendix C.1).

### **Trench 44**

- 3.4.38 Archaeological features were identified along the full length of the trench. At the westernmost end, ditch **167** was aligned north-south. It measured 1.15m wide and 0.5m deep with steeply sloping sides and a concave base. It was filled with a dark grey-brown clay silt (43) which contained 4 small sherds (4g) of not closely datable early prehistoric pottery, along with 24g of animal bone, one struck flint flake and 211g of unworked burnt flint.
- 3.4.39 Approximately 15m to the east, ditch **47** was orientated north-northwest to south-southeast. It measured 0.7m wide and 0.09m deep with gently sloping sides and a concave base. It was filled with a dark orange-brown silty sand (48).
- 3.4.40 Elongated pit **49** was sub-rectangular in plan, measuring 3.5m in length. The pit extended beyond the limit of the trench but was at least 0.5m wide and was 0.06m deep with gently sloping sides and a flat base. It was filled with a dark orange-brown clay silt (50).
- 3.4.41 Located at the eastern end of the trench was east-west aligned ditch **44**. This was the continuation of ditch **55** in Trench 43. The full profile of the ditch was not seen, but it was at least 1.5m wide and was 0.84m deep with steeply sloping sides and a V-shaped base. The basal fill (45) consisted of a 0.55m thick fill of dark grey-brown sandy silt which contained four struck flint flakes and 19g of unworked burnt flint. Above this was a 0.3m thick dark grey-brown sandy silt (46) which contained 7 sherds (40g) of Middle Bronze Age pottery.
- 3.4.42 Ditch **44** was truncated by the continuation of the anti-tank defence ditch. The anti-tank ditch was not excavated in this trench. A sub-rectangular pit of modern age was also identified within the trench but was not excavated.

## **3.5 Finds Summary**

- 3.5.1 The evaluation at Worts' Causeway produced a small finds assemblage consisting of pottery, struck flint, unworked burnt flint, animal bone and burnt stone.
- 3.5.2 The flint assemblage (weighing 1.22kg) was collected from 24 contexts and highlights activity in the vicinity dating from the Mesolithic through to the Middle Bronze Age (Appendix B.1). The majority of the assemblage was made up of flakes but a small number of cores were also present.

- 3.5.3 A total of 0.377kg of pottery was recovered from fourteen contexts (Appendix B.2). The assemblage comprised small quantities of Early Neolithic pottery (*in situ*), Late Neolithic and Beaker, both *in situ* (in pits) and residual (in ditches), along with Middle Bronze Age *in situ* within ditches and postholes. There were also two sherds of Late IA/Early Roman pottery.
- 3.5.4 The animal bone assemblage weighs 2.06kg and came from thirteen contexts (Appendix C.1). The assemblage is dominated by cattle remains, with lesser amounts of sheep/goat, horse and deer. The majority of the animal bone came from ditch **55** in Trench 43. A single cow vertebra from this assemblage shows signs of butchery.
- 3.5.5 A collection of burnt stone (weighing 2.59kg) was also recovered from five contexts, all within Trench 35.

### **3.6 Environmental Summary**

- 3.6.1 A total of fourteen bulk soil samples were taken from ten trenches across the site (Appendix C.2). Preservation of plant remains by carbonisation is poor, with only sparse amounts of cereal grains being identified in three of the samples (ditch **32** in Trench 20, ditch **102** in Trench 32 and ditch **87** in Trench 42). Low levels of charcoal were also recovered from nine of the samples.

## 4 DISCUSSION AND CONCLUSIONS

### **Neolithic activity**

- 4.1.1 Assemblages of *in situ* Early and Late Neolithic pottery and struck flint were collected from pits in Trenches 5, 13 and 35. The most noteworthy of these came from a group of intercutting pits in Trench 35, and consisted of Early Neolithic pottery (13g) and the largest collection of struck flint seen across the site (43 pieces in total). Further assemblages of residual Late Neolithic pottery were also recovered from the Middle Bronze Age ditches.
- 4.1.2 The site is located immediately west of the Babraham Road Park and Ride excavation, where both Beaker and Grooved Ware in identical fabrics and with similar decorative motifs were recovered from *in situ* contexts. These pottery assemblages therefore tie the two sites together and affirm that evidence of Neolithic activity extends across the immediate landscape.

### **Field system**

- 4.1.3 Evidence for Bronze Age activity and land-use is well attested in the Addenbrooke's landscape (e.g. Bell Language School, Papworth Trust, AstraZeneca and Clay Farm). A recurring theme across this area is the presence of Middle Bronze Age strip fields and frequently complex enclosure systems.
- 4.1.4 Yates (2007) described these field systems as being distinguishably rectilinear, thus creating a grid of fields. Within this, he proposed two forms of layout, namely coaxial and aggregate, though this simple pattern has been seen to be more complex over the following years as more Middle Bronze Age fields and enclosures have been excavated. However, the field system identified at Worts' Causeway are clearly coaxial (Fig. 8), with the principal ditches running on an east-northeast to west-southwest alignment (approximately 160m apart) and smaller internal divisions aligned north-northeast to south-southwest. The resulting paddocks vary in length from 45m to 90m and in width from 30m to 40m.

### **Settlement activity**

- 4.1.5 Across the entire site, there were low levels of evidence for peripheral settlement activity. Within Area GB1, three small pits containing Late Neolithic pottery were identified (in Trenches 5 and 13). In Area GB2, Bronze Age activity was confined to Trenches 33, 35 and 42. However evidence for other possible activities was seen in Trenches 38, 40, 43 and 44 (Fig. 8).
- 4.1.6 Whilst nothing of note was recovered from any of the environmental samples (see Appendix C.2), collections of Middle Bronze Age pottery, struck flint, unworked burnt flint and burnt stone were particularly prevalent across the southern half of Area GB2 and indicate a settlement focus within this part of the enclosure system. The postholes present will represent parts of at least two structures.

### **Trackway**

- 4.1.7 The geophysical survey identified two broadly parallel ditches running east to west in the southern part of Area GB1. These were investigated in Trenches 15, 17, 18, 20 and 24. These two ditches were initially anticipated to be of Roman origin. However, the recovery of both prehistoric and Late Iron Age pottery from the ditches makes their interpretation more ambiguous. They form the northern limit of the extensive Middle

Bronze Age field system to the south, and would appear to be an integral part of this system, which would suggest that they were originally Bronze Age features.

- 4.1.8 The remains of a cobbled surface was uncovered in Trench 24 just 0.5m to the south of the more northerly ditch, suggesting that ditch and cobbles are likely to be contemporary. The distance between the two ditches varies from c.12m (in Trench 24) to c.21m (in Trench 17), implying that the ditches are converging as they move westward. Therefore the question arises as to whether these two features are in fact both roadside ditches. There is the possibility that the southern ditch represents a roadside ditch for another version of the trackway (whether earlier or later), or that it is more an integral part of the field system seen across Area GB2 to the south, it's northern boundary. Unfortunately with the evidence available at evaluation, a firm conclusion cannot be given.
- 4.1.9 During excavations at the Bell Language School (Bush 2015) and the Papworth Trust site (Phillips 2015a), 0.4km and 1km west respectively, the remains of two trackways were identified. At the Papworth Trust site, the metalled surface was fragmentary, surviving as discrete patches over a 50 metre wide area. It was nonetheless clearly orientated broadly east to west. The cobbled trackway seen at the Bell Language School was both more extensive and better preserved, running uninterrupted for 120m on a north-northeast to south-southwest orientation. Both these cobbled surfaces could be dated to the Late Bronze or earlier Iron Age. Extrapolating the alignments of these two trackways, and that at Worts' Causeway, a coherent routeway system starts to form (Fig. 7). There is a high likelihood that the trackway from the Papworth Trust site and the one identified in Area GB1 at the Worts' Causeway are one and the same. The Bell Language School trackway would meet this route just to the north.

It is likely that the entire Addenbrooke's landscape (and beyond) was linked by a network of trackways from at least the Bronze Age. Another east-southeast to west-northwest routeway has been identified during archaeological works at Clay Farm (Phillips & Mortimer 2012) and Fawcett School (Phillips 2015b), within an area of Middle Bronze Age settlement enclosures approximately 2km to the west. This track would meet the Papworth Trust/Worts' Causeway trackway adjacent to the Middle Bronze Age enclosure at the AstraZeneca site. During recent excavations at Clay Farm (Phillips & Mortimer in prep.), a further small area of cobbling on an east-west alignment was uncovered within a second area of Middle Bronze Age settlement enclosures. Whilst no definitive date could be ascertained for this surface it sinks into and seals a Middle Bronze Age well, and there is the potential for this also to represent a trackway that would join that which runs towards Worts' Causeway.

### ***GHQ Line***

- 4.1.10 The GHQ Line was conceived when the likelihood of German forces landing in England was considered to be a genuine and imminent threat. It was constructed between Bristol and London, then north to Richmond in Yorkshire, via Cambridge (Foot 2006). Situated across both Areas GB1 and GB2, this section around south-east Cambridge was constructed between June and August 1940 (Whittaker 2002).
- 4.1.11 The GHQ Line manifested itself as an asymmetrical bank and ditch which was strengthened by pillboxes along its route. Plate 9 shows that there were two pillboxes situated on the western side of Area GB1 on the outskirts of Netherhall Farm (these pillboxes are no longer standing). Further to this, the road block on Worts' Causeway can also be clearly seen.

- 4.1.12 This defensive ditch was uncovered in Trenches 5, 10, 12, and 17 of Area GB1 and Trenches 36, 38 and 44 in Area GB2. Machine interventions to investigate its profile and backfill were carried out in Trenches 12 and 38. Across the site the GHQ Line varies in width from 5.25m to 5.65m and in depth from 1.75m to 2.05m. The outside (eastern) edge was cut as a gentle slope leading to a flat base, with the inside (western) edge being near vertical. The ditch fill consisted of washed-in soil and chalk, particularly clear in Trench 38, followed by a mixed backfill of chalk and soil. Lengths of barbed wire recovered from the base of both interventions are consistent with the finds from archaeological works on the GHQ Line to both the north and south of the site at Wulfstan Way (Timberlake 2014) and Granham's Farm (Whittaker 2002).

### ***Significance***

- 4.1.13 The archaeological works at Worts' Causeway have revealed activity dating to the Neolithic and Bronze Ages. Whilst remains of this date are not uncommon across the South Cambridge landscape, it is notable that absolutely no features or artefacts of a post-Bronze Age date were identified, with the exception of the GHQ ditch and a smattering of post-medieval manuring finds. It therefore presents an intact Neolithic and principally Middle Bronze Age landscape as opposed to the more usual palimpsest where the early features have to be picked out amongst the mass of Iron Age and Roman archaeology. The reason why this location has not continued in use is not yet clear, though it is still possible that subsequent low-level Late Bronze Age and/or Early Iron Age settlement is also present.

## APPENDIX A. TRENCH DESCRIPTIONS AND CONTEXT INVENTORY

Trench 1						
<b>General description</b>				<b>Orientation</b>	N-S	
Trench was devoid of archaeology. Natural geology consisted of chalk.				<b>Width (m)</b>	1.8	
				<b>Length (m)</b>	35	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.3	topsoil	-	-
2	layer	-	0.17	subsoil	-	-

Trench 2						
<b>General description</b>				<b>Orientation</b>	NE-SW	
Trench was devoid of archaeology. Natural geology consisted of chalk.				<b>Width (m)</b>	1.8	
				<b>Length (m)</b>	35	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.29	topsoil	-	-
2	layer	-	0.26	subsoil	-	-

Trench 3						
<b>General description</b>				<b>Orientation</b>	NW-SE	
Trench was devoid of archaeology. Natural geology consisted of chalk.				<b>Width (m)</b>	1.8	
				<b>Length (m)</b>	35	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.3	topsoil	-	-

Trench 4						
<b>General description</b>				<b>Orientation</b>	NNW-SSE	
Trench was devoid of archaeology. Natural geology consisted of chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	35	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.3	topsoil	-	-

Trench 5						
<b>General description</b>					<b>Orientation</b>	ENE-WSW
Trench contained two postholes and the WWII tank defence ditch (unexcavated). Natural geology consisted of chalk.					<b>Width (m)</b>	2
					<b>Length (m)</b>	30
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.28	topsoil	-	-
2	layer	-	0.18	subsoil	-	-
3	cut	0.6	0.1	posthole	-	-
4	fill	-	0.1	posthole	pottery	LNeo-EBA
5	cut	0.45	0.05	posthole	-	-
6	fill	-	0.05	posthole	pottery	LNeo

Trench 6						
<b>General description</b>					<b>Orientation</b>	N-S
Trench contained a single pit. Natural geology consisted of chalk.					<b>Width (m)</b>	2
					<b>Length (m)</b>	50
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.31	topsoil	-	-
2	layer	-	0.05	subsoil	-	-
7	cut	0.6	0.2	pit	-	-
8	fill	-	0.2	pit	-	-

Trench 7						
<b>General description</b>					<b>Orientation</b>	NNW-SSE
Trench was devoid of archaeology. Natural geology consisted of chalk.					<b>Width (m)</b>	2
					<b>Length (m)</b>	55
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.32	topsoil	-	-
2	layer	-	0.01	subsoil	-	-

Trench 8						
<b>General description</b>				<b>Orientation</b>		ENE-WSW
Trench was devoid of archaeology. Natural geology consisted of chalk.				<b>Width (m)</b>		2
				<b>Length (m)</b>		30
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.22	topsoil	-	-
2	layer	-	0.01	subsoil	-	-

Trench 9						
<b>General description</b>				<b>Orientation</b>		NNE-SSW
Trench was devoid of archaeology. Natural geology consisted of chalk.				<b>Width (m)</b>		2
				<b>Length (m)</b>		45
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.27	topsoil	-	-
2	layer	-	0.05	subsoil	-	-

Trench 10						
<b>General description</b>				<b>Orientation</b>		E-W
Trench contained a buried soil beneath the subsoil. WWII tank defence cut through subsoil. Natural geology consisted of chalk.				<b>Width (m)</b>		2
				<b>Length (m)</b>		50
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.3	topsoil	-	-
2	layer	-	0.5	subsoil	-	-
19	layer	-	0.5	buried soil	-	-
36	fill	-	>0.7	anti-tank defence ditch	-	-
37	cut	6.95	>0.7	anti-tank defence ditch	-	-

Trench 11						
<b>General description</b>				<b>Orientation</b>	N-S	
Trench was devoid of archaeology. Natural geology consisted of chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	25	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.29	topsoil	-	-
2	layer	-	0.3	subsoil	-	-

Trench 12						
<b>General description</b>				<b>Orientation</b>	E-W	
WWII tank defence located in trench. Natural geology consisted of chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	35	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.3	topsoil	-	-
9	cut	5.8	2.05	anti-tank defence ditch	-	-
10	fill	-	20.5	anti-tank defence ditch	metal	modern
51	fill	-	1.2	pit	bone	modern
52	cut	0.95	1.2	pit	-	-
53	fill	-	0.65	anti-tank defence ditch	-	-

Trench 13						
<b>General description</b>				<b>Orientation</b>	N-S	
Single pit identifiable in trench. Natural geology consisted of chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	40	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.25	topsoil	-	-
17	fill	-	0.11	pit	pottery, burnt flint	LNeo
18	cut	0.75	0.11	pit	-	-

Trench 14						
<b>General description</b>				<b>Orientation</b>	NE-SW	
Trench was devoid of archaeology. Natural geology consisted of chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	35	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.27	topsoil	-	-
2	layer	-	0.13	subsoil	-	-

Trench 15						
<b>General description</b>				<b>Orientation</b>	NNE-SSW	
A single ditch was located within the trench. Natural geology consisted of chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	55	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.3	topsoil	-	-
2	layer	-	0.1	subsoil	-	-
24	cut	1.6	0.5	geological	-	-
25	fill	-	0.5	geological	-	-
26	cut	1.26	0.4	geological	-	-
27	fill	-	0.4	geological	-	-
28	cut	1.07	0.16	ditch	-	-
29	fill	-	0.16	ditch	pottery	NCD
30	cut	>0.5	0.16	hedge line	-	-
31	fill	-	0.16	hedge line	-	-

Trench 16						
<b>General description</b>				<b>Orientation</b>	NE-SW	
Trench was devoid of archaeology. Natural geology consisted of chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	30	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.3	topsoil	-	-
2	layer	-	0.25	subsoil	-	-

Trench 17						
<b>General description</b>				<b>Orientation</b>	NE-SW	
Two parallel ditches and the WWII defence ditch identified. Natural geology consisted of chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	55	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.26	topsoil	-	-
2	layer	-	0.15	subsoil	-	-
20	cut	0.8	0.26	hedge line	-	-
21	fill	-	0.26	hedge line	-	-
22	cut	1.2	0.2	ditch	-	-
23	fill	-	0.2	ditch	-	-

Trench 18						
<b>General description</b>				<b>Orientation</b>	N-S	
Two ditched identifiable at southern end of trench. Natural geology consisted of chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	45	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.35	topsoil	-	-
2	layer	-	0.25	subsoil	-	-
11	cut	0.9	0.25	ditch	-	-
12	fill	-	0.25	ditch	-	-
13	cut	0.8	0.15	hedge line	-	-
14	fill	-	0.15	hedge line	-	-
15	cut	1.5	0.3	ditch	-	-
16	fill	-	0.3	ditch	-	-

Trench 19						
<b>General description</b>				<b>Orientation</b>	NNE-SSE	
Trench was devoid of archaeology. Natural geology consisted of chalk.				<b>Width (m)</b>	1.8	
				<b>Length (m)</b>	35	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.2	topsoil	-	-
2	layer	-	0.2	subsoil	-	-

Trench 20						
<b>General description</b>					<b>Orientation</b>	N-S
Trench contained two parallel ditches. Natural geology consisted of chalk.					<b>Width (m)</b>	1.8
					<b>Length (m)</b>	40
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.25	topsoil	-	-
2	layer	-	0.25	subsoil	-	-
32	cut	3.4	0.35	ditch	-	-
33	fill	-	0.35	ditch	pottery	C1 BC/AD
34	cut	0.46	0.11	ditch	-	-
35	fill	-	0.11	ditch	-	-

Trench 21						
<b>General description</b>					<b>Orientation</b>	E-W
Trench was devoid of archaeology. Natural geology consisted of chalk.					<b>Width (m)</b>	1.8
					<b>Length (m)</b>	20
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.3	topsoil	-	-
2	layer	-	0.23	subsoil	-	-

Trench 22						
<b>General description</b>					<b>Orientation</b>	NW-SE
Trench was devoid of archaeology. Natural geology consisted of chalk.					<b>Width (m)</b>	1.8
					<b>Length (m)</b>	30
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.25	topsoil	-	-
2	layer	-	0.1	subsoil	-	-

Trench 23						
<b>General description</b>				<b>Orientation</b>	E-W	
Trench was devoid of archaeology. Natural geology consisted of chalk.				<b>Width (m)</b>	1.8	
				<b>Length (m)</b>	30	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.25	topsoil	-	-
2	layer	-	0.15	subsoil	-	-

Trench 24						
<b>General description</b>				<b>Orientation</b>	N-S	
Cobbled surface with two parallel ditches identified (only one excavated). Natural geology consisted of chalk.				<b>Width (m)</b>	1.8	
				<b>Length (m)</b>	55	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.25	topsoil	-	-
2	layer	-	0.17	subsoil	-	-
38	cut	1.5	0.3	ditch	-	-
39	fill	-	0.3	ditch	-	-
40	cut	2.5	0.2	trackway	-	-
41	layer	-	-	cobbled surface	-	-
42	fill	-	0.2	trackway	-	-

Trench 25						
<b>General description</b>				<b>Orientation</b>	NE-SW	
A total of two ditches and two pits were identified. Natural geology consisted of silty chalk.				<b>Width (m)</b>	1.8	
				<b>Length (m)</b>	40	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.35	topsoil	-	-
2	layer	-	0.25	subsoil	-	-
149	fill	-	0.3	ditch	-	-
150	cut	1.1	0.3	ditch	-	-
151	fill	-	0.15	pit	-	-
152	cut	0.75	0.15	pit	-	-
153	fill	-	0.35	geological	-	-
154	cut	1	0.35	geological	-	-

155	fill	-	0.3	ditch	-	-
156	cut	0.75	0.3	ditch	-	-

Trench 26						
<b>General description</b>				<b>Orientation</b>	N-S	
Trench contained three ditches and a pit. Geology consisted of silty chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	70	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.35	topsoil	-	-
2	layer	-	0.4	subsoil	-	-
128	cut	0.7	0.22	ditch	-	-
129	fill	-	0.22	ditch	-	-
130	cut	1.1	0.24	ditch	-	-
131	fill	-	0.24	ditch	-	-
132	cut	0.7	0.25	pit	-	-
133	fill	-	0.25	pit	-	-
134	cut	0.8	0.3	ditch	-	-
135	fill	-	0.3	ditch	pottery	LNeo

Trench 27						
<b>General description</b>				<b>Orientation</b>	NNE-SSW	
Single small ditch identified at northern limit of trench. Geology consisted of silty chalk.				<b>Width (m)</b>	1.8	
				<b>Length (m)</b>	20	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.27	topsoil	-	-
2	layer	-	0.16	subsoil	-	-
115	cut	0.47	0.24	ditch	-	-
116	fill	-	0.24	ditch	pottery	NCD

<b>Trench 28</b>						
<b>General description</b>				<b>Orientation</b>	NE-SW	
Pit and ditch identifiable toward northern end of trench. Natural geology consisted of silty chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	75	
<b>Contexts</b>						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.25	topsoil	-	-
2	layer	-	0.2	subsoil	-	-
136	cut	0.8	0.14	pit	-	-
137	fill	-	0.14	pit	-	-
138	cut	0.38	0.12	ditch	-	-
139	fill	-	0.12	ditch	-	-

<b>Trench 29</b>						
<b>General description</b>				<b>Orientation</b>	NE-SW	
Three ditches of two differing alignments seen. Natural geology made up of silty chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	35	
<b>Contexts</b>						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.25	topsoil	-	-
2	layer	-	0.28	subsoil	-	-
103	cut	0.7	0.24	ditch	-	-
104	fill	-	0.24	ditch	-	-
105	cut	0.8	0.18	ditch	-	-
106	fill	-	0.18	ditch	flint, bone	-
107	cut	0.9	0.3	ditch	-	-
108	fill	-	0.3	ditch	-	-

Trench 30						
<b>General description</b>				<b>Orientation</b>		N-S
Single ditch in trench. Geology consisted of silty chalk.				<b>Width (m)</b>		2
				<b>Length (m)</b>		35
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.33	topsoil	-	-
2	layer	-	0.33	subsoil	-	-
140	cut	0.7	0.2	ditch	-	-
141	fill	-	0.14	ditch	bone	-
148	fill	-	0.14	ditch	-	-

Trench 31						
<b>General description</b>				<b>Orientation</b>		E-W
Single ditch in trench. Geology consisted of silty chalk.				<b>Width (m)</b>		2
				<b>Length (m)</b>		50
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.3	topsoil	-	-
2	layer	-	0.2	subsoil	-	-
71	cut	1.2	0.48	ditch	-	-
72	fill	-	0.48	ditch	flint	-

Trench 32						
<b>General description</b>				<b>Orientation</b>		NNE-SSW
Single ditch in trench. Geology consisted of silty chalk.				<b>Width (m)</b>		2
				<b>Length (m)</b>		50
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.3	topsoil	-	-
2	layer	-	0.3	subsoil	-	-
99	fill	-	0.37	ditch	pottery, bone, flint	MBA
100	fill	-	0.3	ditch	-	-
101	fill	-	0.6	ditch	-	-
102	cut	2.1	0.65	ditch	-	-

<b>Trench 33</b>						
<b>General description</b>				<b>Orientation</b>		NNE-SSW
A single ditch and pit/tree throw identifiable at southern end of trench. Geology consisted of chalk.				<b>Width (m)</b>		1.8
				<b>Length (m)</b>		30
<b>Contexts</b>						
<b>context no</b>	<b>type</b>	<b>Width (m)</b>	<b>Depth (m)</b>	<b>comment</b>	<b>finds</b>	<b>date</b>
1	layer	-	0.25	topsoil	-	-
73	fill	-	0.22	ditch	pottery	LNeo-EBA
74	fill	-	0.23	ditch	-	-
75	cut	1	0.45	ditch	-	-
76	fill	-	0.11	pit/tree throw	-	-
77	cut	0.95	0.11	pit/tree throw	-	-

<b>Trench 34</b>						
<b>General description</b>				<b>Orientation</b>		NNW-SSE
Ditch contained two ditches. Geology made up of chalk.				<b>Width (m)</b>		2
				<b>Length (m)</b>		50
<b>Contexts</b>						
<b>context no</b>	<b>type</b>	<b>Width (m)</b>	<b>Depth (m)</b>	<b>comment</b>	<b>finds</b>	<b>date</b>
1	layer	-	0.45	topsoil	-	-
2	layer	-	0.2	subsoil	-	-
117	fill	-	0.3	ditch	flint	-
118	cut	0.8	0.3	ditch	-	-
119	fill	-	0.15	ditch	-	-
120	cut	3.5	0.15	ditch	-	-
121	fill	-	0.2	ditch	flint	-
122	cut	0.8	0.2	ditch	-	-
123	fill	-	0.1	geological	-	-
124	cut	1.3	0.1	geological	-	-

Trench 35						
General description				Orientation		N-S
A large group of intercutting pit (only partially excavated) and a ditch were seen within the trench. Geology made up of chalk.				Width (m)		2
				Length (m)		35
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.25	topsoil	-	-
125	fill	-	0.3	ditch	pottery, flint	MBA
126	fill	-	0.35	ditch	burnt flint	-
127	cut	1.45	0.75	ditch	-	-
142	fill	-	0.45	pit	pottery, flint, bone	ENeo
143	fill	-	0.15	pit	flint, bone	-
144	fill	-	0.1	pit	-	-
145	cut	>0.85	0.7	pit	-	-
146	fill	-	0.45	pit	-	-
147	cut	>0.8	0.45	pit	-	-
157	fill	-	-	pit (unexc)	-	-
158	cut	-	-	pit (unexc)	-	-
159	fill	-	-	pit (unexc)	flint	-
160	cut	-	-	pit (unexc)	-	-
161	fill	-	-	pit (unexc)	flint	-
162	cut	-	-	pit (unexc)	-	-
163	fill	-	0.13	pit	-	-
164	cut	0.2	0.13	pit	-	-

Trench 36						
General description				Orientation		E-W
A single ditch and the continuation of the WWII tank defence seen within trench. Natural geology consisted of chalk.				Width (m)		2
				Length (m)		45
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.33	topsoil	-	-
2	layer	-	0.15	subsoil	-	-
165	fill	-	0.1	ditch	-	-
166	cut	1.2	0.1	ditch	-	-

<b>Trench 37</b>						
<b>General description</b>				<b>Orientation</b>	NW-SE	
Ditch truncating a pit within the trench. Natural geology consisted of chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	40	
<b>Contexts</b>						
<b>context no</b>	<b>type</b>	<b>Width (m)</b>	<b>Depth (m)</b>	<b>comment</b>	<b>finds</b>	<b>date</b>
1	layer	-	0.35	topsoil	-	-
2	layer	-	0.07	subsoil	-	-
79	cut	1.55	0.55	ditch	-	-
80	fill	-	0.36	ditch	-	-
81	fill	-	0.04	ditch	-	-
82	fill	-	0.1	ditch	-	-
83	cut	0.84	0.16	pit	-	-
84	fill	-	0.16	pit	-	-

<b>Trench 38</b>						
<b>General description</b>				<b>Orientation</b>	WNW-ESE	
A number of features within trench including WWII tank defence. Trench located on northern edge of headland. Chalk geology.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	50	
<b>Contexts</b>						
<b>context no</b>	<b>type</b>	<b>Width (m)</b>	<b>Depth (m)</b>	<b>comment</b>	<b>finds</b>	<b>date</b>
1	layer	-	0.3	topsoil	-	-
2	layer	-	0.5	subsoil	-	-
56	cut	1.7	0.16	pit	-	-
57	fill	-	0.12	pit	flint	-
58	fill	-	0.26	pit	-	-
59	cut	0.8	0.22	ditch	-	-
60	fill	-	0.22	ditch	-	-
61	cut	0.74	0.36	ditch	-	-
62	fill	-	0.36	ditch	bone	-
63	cut	5.25	1.75	anti-tank defence ditch	-	-
64	fill	-	1.75	anti-tank defence ditch	metal	modern

<b>Trench 39</b>						
<b>General description</b>				<b>Orientation</b>	NNE-SSW	
Two ditches identifiable. Trench located across the headland. Geology consisted of chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	60	
<b>Contexts</b>						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.35	topsoil	-	-
2	layer	-	0.2	subsoil	-	-
65	cut	0.7	0.22	ditch	-	-
66	fill	-	0.22	ditch	-	-
67	cut	0.6	0.23	ditch	-	-
68	fill	-	0.23	ditch	-	-
69	cut	0.46	0.23	hedge line	-	-
70	fill	-	0.23	hedge line	-	-

<b>Trench 40</b>						
<b>General description</b>				<b>Orientation</b>	N-S	
Ditch terminus and posthole seen in trench. Natural geology consisted of chalk.				<b>Width (m)</b>	2	
				<b>Length (m)</b>	35	
<b>Contexts</b>						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.3	topsoil	-	-
2	layer	-	0.3	subsoil	-	-
109	cut	0.7	0.36	ditch	-	-
110	fill	-	0.36	ditch	-	-
111	cut	0.91	0.6	posthole	-	-
112	fill	-	0.6	posthole	-	-

Trench 41						
<b>General description</b>					<b>Orientation</b>	E-W
Three ditches (only one excavated) identifiable in the trench. Natural geology consisted of chalk.					<b>Width (m)</b>	2
					<b>Length (m)</b>	45
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.2	topsoil	-	-
2	layer	-	0.2	subsoil	-	-
113	cut	0.7	0.3	ditch	-	-
114	fill	-	0.3	ditch	-	-

Trench 42						
<b>General description</b>					<b>Orientation</b>	NNE-SSW
A ditch and a large number of postholes (only three excavated) identified across the trench. Natural geology of silty chalk.					<b>Width (m)</b>	2
					<b>Length (m)</b>	45
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.3	topsoil	-	-
2	layer	-	0.15	subsoil	-	-
85	cut	0.6	0.3	posthole	-	-
86	fill	-	0.3	posthole	flint	-
87	cut	0.95	0.3	ditch	-	-
88	fill	-	0.3	ditch	pottery, bone	MBA
89	cut	0.55	0.1	gully	-	-
90	fill	-	0.1	gully	-	-
91	cut	0.4	0.23	posthole	-	-
92	fill	-	0.23	posthole	-	-
93	cut	0.5	0.1	posthole	-	-
94	fill	-	0.1	posthole	flint	-
95	cut	1.4	0.15	geological	-	-
96	fill	-	0.15	geological	-	-
97	cut	1	0.15	geological	-	-
98	fill	-	0.15	geological	-	-

Trench 43						
<b>General description</b>				<b>Orientation</b>	N-S	
A single ditch identifiable at northern end of trench. Geology consisted of chalk.				<b>Width (m)</b>	1.8	
				<b>Length (m)</b>	30	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.25	topsoil	-	-
2	layer	-	0.1	subsoil	-	-
54	fill	-	0.9	ditch	bone	-
55	cut	2.6	0.9	ditch	-	-

Trench 44						
<b>General description</b>				<b>Orientation</b>	WNW-ESE	
Archaeology identifiable across all the trench including the WWII tank defence ditch. Natural geology consisted of chalk.				<b>Width (m)</b>	1.8	
				<b>Length (m)</b>	50	
Contexts						
context no	type	Width (m)	Depth (m)	comment	finds	date
1	layer	-	0.22	topsoil	-	-
2	layer	-	0.17	subsoil	-	-
43	fill	-	0.5	ditch	pottery, flint, bone	NCD
44	cut	>1.5	0.84	ditch	-	-
45	fill	-	0.55	ditch	burnt flint	-
46	fill	-	0.3	ditch	pottery	MBA
47	cut	0.7	0.09	ditch	-	-
48	fill	-	0.09	ditch	-	-
49	cut	3.5	0.06	pit	-	-
50	fill	-	0.06	pit	-	-
167	cut	1.15	0.5	ditch	-	-

## APPENDIX B. FINDS REPORTS

### B.1 Lithics

*By Lawrence Billington*

#### **Introduction**

- B.1.1 A total of 105 worked flints and 23 fragments of unworked burnt flint (439g) were recovered from the excavations. The assemblage is quantified by context and type in Table 2. Aside from one flake collected from topsoil deposits in Trench 10, one flake from a buried soil in Trench 10 and four struck flints from unstratified contexts, the remainder of the worked flint assemblage (99 pieces), and all of the burnt unworked flint, was derived from the fills of cut features. The worked flints recovered from cut features were derived from a total of 19 individual contexts, many of which produced single worked flints, whilst only four contexts contained five or more worked flints.
- B.1.2 The most notable assemblage, of 35 worked flints, was recovered from pit **145** (Trench 35), found in association with Early Neolithic pottery. Aside from the material from this single feature the remainder of the assemblage appears to represent residual material and very little of the worked flint can be associated with the main phase of Middle Bronze Age activity at the site.

#### **Results**

##### **Condition and raw material**

- B.1.3 The assemblage is generally in good to moderate condition. The entire assemblage is corticated, usually to a heavy white which completely masks the original colour of the flint. This heavy cortication has, in some cases, rendered feathered lateral and distal edges somewhat friable and vulnerable to edge rounding/damage. 42% of the worked flints are broken, in a very few cases these breaks are recent and have cut through the cortication. The entire assemblage is made up of flint, generally fine grained and of high quality. Surviving cortical surfaces include some abraded, thin and hard surfaces characteristic of material derived from fluvial gravels but the majority of pieces bear a thicker, hard white cortex which sometimes retain nodular protuberances. It seems likely that much of this latter material is derived from deposits eroded from the parent chalk which were probably locally available where the flint bearing chalk of the Holywell Nodular Chalk Formation and New Pit Chalk Formation outcrop within 1 and 2km to the east of the site (BGS 2002).

##### **Characterisation and dating**

- B.1.4 The worked flint assemblage is overwhelmingly dominated by unretouched removals, with just three cores and three retouched pieces. All stages of core reduction appear to be present with decortication and core trimming flakes alongside non cortical, potentially usable, flakes. The technological traits of the worked flint clearly indicate that the assemblage is chronologically mixed. In the absence of strictly diagnostic retouched pieces it is only possible to make a very broad distinction between an 'early' (Mesolithic/earlier Neolithic) blade based technology and a later flake based technology.
- B.1.5 Blades, bladelets and blade like flakes make up 14% of the total unretouched removals and are accompanied by two blade cores (from ditch fills 78 (Trench 31) and 73 (Trench 33)). This material is characterised by evidence for systematic and skilful working, with

frequent platform edge abrasion/trimming and the use of soft hammer percussion. There is a degree of variability within the blade based material, with less regular blade like pieces alongside very regular, prismatic bladelets. This is likely to have some chronological significance, with a mixture of Mesolithic and Early Neolithic material being present.

B.1.6 Both of the blade cores are systematically reduced pieces and the opposed platform core from ditch fill 78 (Trench 31), in particular, is more characteristic of Mesolithic than Early Neolithic assemblages in the region. A single retouched piece can be associated with these early technologies, a broken serrated blade from ditch fill 121 (Trench 34). This piece is a fairly robust blade, missing its distal end, with fine serrations along one lateral edge. Although serrated pieces are found in Mesolithic, earlier Neolithic and later Neolithic contexts they are especially characteristic of earlier Neolithic assemblages and elsewhere in the region they can form a very high proportion of the retouched component of such assemblages as at Stow-cum-Quy (Bishop 2007) and, locally, at Glebe Farm, Trumpington (Billington 2011).

Tr	Context	Context type	Chip	Irregular waste	Flake	Narrow flake	Blade/let	Blade like flake	Crested flake	Retouched flake	Serrated blade	Single platform blade core	Opposed platform blade core	Discoidal core	Total worked	Unworked burnt no.	Unworked burnt weight (g)
5	4	pit			1										1		
10	1	topsoil			1										1		
10	19	buried soil			1										1		
13	17	pit														1	23.9
25	142	pit														10	92.4
29	106	ditch			1										1		
31	78	ditch						1		1			1		3		
32	99	ditch		1	9										10		
33	73	ditch			3		2					1			6	2	55.4
33	74	ditch			4								1		5		
33	76	tree throw			1										1		
34	117	ditch			2		1	1							4		
34	121	ditch									1				1		
35	125	ditch		2	15	1	1	1							20		
35	126	ditch														1	7.7
35	142	pit	2	2	26		1	2							33	1	10.3
35	143	pit		1	1										2	2	17
35	159	pit			2			1	1	1					5	1	1.9
35	161	pit			3										3		
38	57	pit			1										1		
42	86	posthole			1										1		
42	94	posthole						1							1		
44	43	ditch			1										1	4	211.1
44	45	ditch														1	19.3
n/a	99999	unstrat			3			1							4		
<b>Totals</b>			<b>2</b>	<b>6</b>	<b>76</b>	<b>1</b>	<b>5</b>	<b>8</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>105</b>	<b>23</b>	<b>439</b>

Table 2: Flint assemblage quantification

- B.1.7 The 35 flints from pit **145** (Trench 35) were found in association with Early Neolithic pottery and represent the only assemblage from the site which can be closely associated with a potentially contemporary feature. The assemblage is made up entirely of unretouched removals with no retouched pieces, cores or obviously utilised pieces. Technologically the assemblage includes three blade like pieces characteristic of earlier Neolithic technologies alongside more generalised flake based material which includes a relatively large number of decortication flakes reflecting the earlier stages of core preparation and reduction.
- B.1.8 Several other pit features in Trench 34 produced small assemblages of worked flint which might relate to broadly contemporary activity, especially in the case of the five worked flints from pit **160** which includes a unidirectional crested narrow flake, a utilised blade like flake and a broken flake with some possible edge retouch. The relatively large assemblage of 20 worked flints derived from adjacent ditch **127** also contains some blade based pieces and systematically produced flakes which suggests that a proportion of this material, although presumably residual within a later feature, may derive from the same episode of Early Neolithic activity.
- B.1.9 The remainder of the assemblage is made up of flake based material typical of later (later Neolithic and Bronze Age) traditions of flintworking. The flake based flintwork is varied in technological terms but removals tend to be relatively broad and squat. Most removals have been struck from plain platforms, unprepared platforms using direct hard hammer percussion, although there is a relatively high incidence of platform trimming/abrasion, present on 13% of unretouched flakes. There is also a single flake with a finely faceted striking platform (from ditch **102**, Trench 32) which appears to have be the product of a levallois-like core, generally associated with later Neolithic (Grooved Ware associated) technologies (Ballin 2011). The only flake based core from the assemblage (from ditch fill 74, Trench 33) is also of a discoidal/levallois-like form characteristic of such later Neolithic technologies. Only one retouched tool can be tentatively associated with this later flintwork, a robust medial flake segment with lengths of both semi-invasive and abrupt (scraper) retouch from ditch fill 78 (Trench 31), likely to be of later Neolithic or Early Bronze Age date.
- B.1.10 Given the evidence for Middle Bronze Age activity at the site it is notable that very little of the flake based worked flint exhibits traits consistent with a Middle Bronze Age date. Although long neglected, the characteristics of Middle Bronze Age flintwork from the wider region are now relatively well documented (Herne 1991, Ballin 2002, McLaren 2010, Bishop 2012a, 67-69, 173-5), with assemblages exhibiting an expedient approach to core reduction evidenced by short reduction sequences, irregular flake morphologies, poor quality raw materials and frequent knapping errors (hinge fractures, incipient bulbs of percussion etc.). Retouched tools are similarly informal and expediently manufactured, often on non-flake blanks. None of these characteristics is particularly in evidence in the assemblage from Worts' Causeway, which can be usefully contrasted with the large Middle Bronze Age assemblage from Clay Farm, Trumpington (Bishop 2012b) and other significant later prehistoric assemblages from the local environs including the Hutchinson site, Addenbrooke's (McLaren and Edmonds 2008), Trumpington Meadows (Billington 2012) and Trumpington Park and Ride (Bishop 2004).
- B.1.11 The larger assemblages of flints derived from individual contexts and features, notably those from Trench 35, appear to be chronologically mixed, with a mixture of finer blade based pieces alongside a variety of flake based material. Whilst it is possible that some of this material relates to flint working and use contemporary with the features it is likely

that the vast majority represents residual Mesolithic, Neolithic and Early Bronze Age flintwork.

### ***Discussion and conclusions***

- B.1.12 Although relatively small, the worked flint assemblage recovered from the site provides good evidence for prehistoric activity at the site probably from the Mesolithic into the Early Bronze Age. Of particular significance is the relatively substantial assemblage of worked flints associated with Early Neolithic pottery from pit **145** and other possibly contemporary pit features in the same trench. These assemblages, and any further material recovered in later phases of excavation at the site, have the potential to contribute to a growing number of securely dated lithic assemblages from Early Neolithic contexts in the area.
- B.1.13 Very little of the flintwork from the evaluation can be confidently associated with the Middle Bronze Age phases of the sites use. Across the region more generally is possible to draw something of a distinction between Middle Bronze Age sites with very little associated flintwork, and those which produce large, often spatially discrete, lithic assemblages (see Bishop 2012a, 173-5). This pattern is exemplified locally by the paucity of worked flint associated with the Middle Bronze Age enclosure excavated at the Laboratory of Molecular Biology site, Addenbrooke's (Billington 2009) when compared to the very large assemblages from parts of the Middle Bronze Age enclosures/field systems at Clay Farm, Trumpington (Bishop 2012b). As the more substantial Middle Bronze Age assemblages are often found as localised, very discrete and dense, 'dumps' the results of the evaluation do not necessarily preclude the recovery of such assemblages from the site given more extensive excavation and sampling.

## **B.2 Pottery**

*By Sarah Percival*

### ***Introduction and methodology***

- B.2.1 A total of 99 sherds weighing 377g were collected from 14 excavated contexts in eleven trenches (Table 3). The pottery is fragmentary and no complete vessels were recovered. The sherds are mostly small and poorly preserved and the average sherd weight is 4g.
- B.2.2 The assemblage includes six sherds of undecorated Early Neolithic bowl (3600-3200BC), twenty one sherds of Later Neolithic Grooved Ware (c.3000-2000BC) and forty sherds of Late Neolithic to Early Bronze Age Beaker (c.2600-1800BC) alongside twenty two mid Bronze Age sherds (c.1500-1100BC). Two sherds are Late Iron Age or Early Roman and eight sherds are prehistoric but are otherwise not closely datable.
- B.2.3 The assemblage was analysed in accordance with the Guidelines for analysis and publication laid down by the Prehistoric Ceramic Research Group (PCRG 2010). The total assemblage was studied and a full catalogue was prepared. The sherds were examined using a binocular microscope (x10 magnification) and were divided into fabric groups defined on the basis of inclusion types. Fabric codes were prefixed by a letter code representing the main inclusion present (F representing flint, G grog and Q quartz). Vessel form was recorded; R representing rim sherds, B base sherds, D decorated sherds and U undecorated body sherds. The sherds were counted and

weighed to the nearest whole gram. Decoration and abrasion were also noted. The pottery and archive are curated by OAE.

<i>Trench</i>	<i>Feature</i>	<i>Context</i>	<i>Feature Type</i>	<i>Spot Date</i>	<i>Quantity</i>	<i>Weight (g)</i>
5	3	4	Pit	Later Neolithic to early Bronze Age	39	99
	5	6	Pit	Later Neolithic	17	30
13	18	17	Pit	Later Neolithic	3	14
15	28	29	Ditch	Not closely datable	1	8
20	32	33	Ditch	C1 BC/AD	2	17
26	134	135	Ditch	Later Neolithic	1	40
27	115	116	Ditch	Not closely datable	1	2
32	102	99	Ditch	Mid Bronze Age	9	60
33	75	73	Ditch	Later Neolithic to early Bronze Age	1	4
35	127	125	Ditch	Mid Bronze Age	5	31
				Not closely datable	2	2
	145	142	Pit	Early Neolithic	6	13
42	85	88	Posthole	Mid Bronze Age	1	13
44	44	46	Ditch	Mid Bronze Age	7	40
	167	43	Ditch	Not closely datable	4	4
<b>Total</b>					<b>99</b>	<b>377</b>

Table 3: Quantification of prehistoric pottery by trench

## Results

### Trench 5

- B.2.4 Two features in Trench 5 produced prehistoric pottery. Pit **03** contained 39 sherds weighing 99g from two vessels, both fingertip rusticated Beakers with rounded upright rims. One has a pinched cordon beneath the rim and is made of sandy fabric with grog and sparse flint inclusions. The second rim is from a similar vessel, though without the neck cordon, made of fabric containing numerous pale grog pieces.
- B.2.5 Pit **05** contained seventeen sherds weighing 30g of very abraded pottery decorated with faint fingertip impressions combined with incised channels. The sherds are made of fine sandy clay with sparse grog and shell inclusions. The sherds have been tentatively identified as being Grooved Ware.

### Trench 13

- B.2.6 Pit **18** in Trench 13 produced three undecorated sherds weighing 14g in similar sand, grog and shell tempered fabric to those found in pit **05** Trench 5 and on this basis have been assigned a later Neolithic date.

### Trench 15

- B.2.7 Ditch **28** contained a single sherd weighing 8g in pale shell-tempered fabric. It is possible that this sherd is of Mid Bronze Age date.

### Trench 20

- B.2.8 Two sherds of LIA/Roman sandy greyware weighing 17g were found in fill 33 of ditch **32**. The sherds have fine combed decoration to the exterior.

### **Trench 26**

- B.2.9 A large decorated body sherd weighing 40g was recovered from fill 135 of ditch **136**. The sherd, which is made of vacuous, flint-tempered fabric and is decorated on the exterior with twisted cord maggots, could be Later Neolithic Impressed Ware but could perhaps be mid Neolithic Peterborough Ware.

### **Trench 27**

- B.2.10 A small flint-tempered sherd weighing 2g from the fill of ditch **115** is prehistoric but is otherwise not closely datable.

### **Trench 32**

- B.2.11 Ditch **102** contained nine sherds, 20g, of mid Bronze Age date, all in coarse, shell-tempered fabrics. The assemblage contains rims from two vessels, both tub-shaped jars with simple flat rims, one decorated with slashes to the rim top similar to examples from the Hutchison Site, Addenbrooke's (Evans *et al.* 2008, fig.2.9, 6).

### **Trench 33**

- B.2.12 A small scrap of Beaker decorated with square-toothed-comb impressions in fine sandy fabric with occasional small angular flint was found in the fill of ditch **75**.

### **Trench 35**

- B.2.13 A total thirteen sherds weighing 46g were recovered from Trench 35. Seven sherds in three fabrics were collected from fill 125 of ditch **127**. These include five undecorated, shell-tempered body sherds weighing 31g of middle Bronze Age date and a very small scrap in orange sandy fabric and a further scrap which is possibly shell-tempered which are undatable.
- B.2.14 Six sherds, 13g from pit **145**, include a rolled rim in flint-tempered fabric and five undecorated body sherds in fine shell-tempered fabric which may be Early Neolithic bowl.

### **Trench 42**

- B.2.15 A single sherd weighing 13g from fill 88 of posthole **85** is made of coarse shell-tempered fabric and maybe of mid Bronze Age date.

### **Trench 44**

- B.2.16 Ditch 44, Trench 44, contained seven sherds weighing 40g of mid Bronze Age pottery, including a flat rim from a chunky tub-shaped vessel. The sherds are made of sandy fabric with moderate small to coarse shell inclusions. A further four scraps in sandy fabric with possible grog and shell inclusions may also be middle Bronze Age but are too small and abraded to date with certainty.

### ***Discussion and conclusions***

- B.2.17 The assemblage comprises a range of early prehistoric pottery, some redeposited in the fills of later features such as the possible Peterborough Ware from in ditch **134** (Trench 26), but including possible Early Neolithic bowl from a ?contemporary pit in trench 35, Trench 26 and small Beaker and perhaps Grooved Ware assemblages from two Later Neolithic to Early Bronze Age pits in Trench 5. Both Beaker and Grooved Ware in identical fabrics and with similar decorative motifs have been found locally at the

Babraham Road Park and Ride site (Percival 2015) recovered from a series of pits and pit clusters.

- B.2.18 The twenty two Middle Bronze Age sherds find parallel with contemporary pottery found locally at the Hutchison Site, Addenbrooke's and, in much smaller quantities, at Babraham Road Park and Ride (Evans *et al.* 2008; Percival 2015). The mid Bronze Age pottery from Babraham Road was also recovered from ditches which are comparable with the ditches identified in Trenches 32, 35 and 44, whilst the pottery found at Addenbrooke's came mostly from small pits or postholes similar to feature **85** found in Trench 42.
- B.2.19 The assemblage indicates a continuation of sporadic later Neolithic to Early Bronze Age activity and more intense mid Bronze Age land use in the area.

## APPENDIX C. ENVIRONMENTAL REPORTS

### C.1 Faunal remains

*By Vida Rajkovača*

#### **Introduction**

C.1.1 The assemblage totalled some 77 assessable specimens with a combined weight of 2060g. Some 33 specimens were possible to assign to species (Table 3). The assemblage came from a series of ditches and three pits, all dated to the Middle Bronze Age. Bone was recovered from Trenches 29-32, 35, 38, 43 and 44, within Area GB2.

#### **Results**

C.1.2 The preservation of the material ranged from moderate to quite poor. With the exception of bone from context 54 (ditch **55**) in Trench 43, the bone was in general highly fragmented and severely eroded. The same context also generated the largest 'bone dump', with the NISP=30 and 1722g of bone (c.40% of the assemblage by count and 83.6% by weight). The remainder of the assemblage was made up of small quantities of bone from eight other ditch and three other pit contexts.

C.1.3 The assemblage was dominated by cattle with almost all skeletal elements being represented. Sheep/ goat were identified based on four loose teeth and a metacarpus fragment and horse based on a loose tooth and a scapula fragment.

<b>Taxon</b>	<b>NISP</b>	<b>%NISP</b>	<b>MNI</b>
Cow	26	78.8	2
Sheep/ goat	5	15.1	1
Horse	2	6.1	1
<b>Sub-total to species</b>	<b>33</b>	<b>100</b>	.
Cattle-sized	24	.	.
Sheep-sized	20	.	.
<b>Total</b>	<b>77</b>	.	.

*Table 4: Faunal assemblage quantification*

C.1.4 Only one butchery mark was recorded: cow first vertebra fragment, recovered from context 54 had three deep cuts into the cranial epiphysis, probably as preparation for disarticulation of the skull from the rest of the carcass.

C.1.5 In addition to the hand-recovered material, a small quantity of bone came as heavy residues following the processing of the environmental bulk soil samples. With the exception of a single probable deer loose tooth and a cow phalanx fragment, it was not possible to identify any other elements to species. The material is heavily eroded and highly fragmented. The absence of microfauna, birds and fish is a testimony to good hand-recovery and confirms the focus on domestic sources of food.

#### **Discussion and conclusion**

4.1.14 The prevalence of cattle from Middle Bronze Age contexts has been widely recorded both within the immediate locale (e.g. Faine 2012, Rajkovača 2015) and the region (e.g. Rajkovača and Seetah in press, Rajkovača in press). Though itself quantitatively

insufficient for discussions on husbandry practices, when viewed against comparative sites from the area, the assemblage has potential to strengthen our understanding of economy and settlement development in this part of south Cambridge.

## C.2 Environmental samples

By Rachel Fosberry

### **Introduction**

C.2.1 Fourteen bulk samples were taken from ten trenches during the evaluation of the site at Worts' Causeway, Cambridge. The purpose of this assessment is to determine whether plant remains are present, their mode of preservation and whether they are of interpretable value with regard to domestic, agricultural and industrial activities, diet, economy and rubbish disposal.

### **Methodology**

C.2.2 The total volume (up to eighteen litres) of each of the samples was processed by tank flotation using modified Siraff-type equipment. The floating component (flot) of the samples was collected in a 0.25mm nylon mesh and the residue was washed through 10mm, 5mm, 2mm and a 0.5mm sieve. A magnet was dragged through each residue fraction for the recovery of magnetic residues prior to sorting for artefacts. Any artefacts present were noted and reintegrated with the hand-excavated finds. The dried flots were subsequently sorted using a binocular microscope at magnifications up to x60 and an abbreviated list of the recorded remains are presented in Table 5 below.

C.2.3 Identification of plant remains is with reference to the *Digital Seed Atlas of the Netherlands* (Cappers *et al* 2006) and the authors' own reference collection. Nomenclature is according to Stace (1997). Carbonized seeds and grains, by the process of burning and burial, become blackened and often distort and fragment leading to difficulty in identification. Plant remains have been identified to species where possible. The identification of cereals has been based on the characteristic morphology of the grains and chaff as described by Jacomet (2006).

### **Quantification**

C.2.4 For the purpose of this initial assessment, items such as seeds, cereal grains and legumes have been scanned and recorded qualitatively according to the following categories

# = 1-10, ## = 11-50, ### = 51+ specimens ##### = 100+ specimens

C.2.1 Items that cannot be easily quantified such as charcoal, magnetic residues and fragmented bone have been scored for abundance

+ = rare, ++ = moderate, +++ = abundant

### **Results**

C.2.2 Preservation of plant remains is by carbonisation and is generally poor with very few charred remains present. Charred grains of cereals, most likely wheat (*Triticum* sp.) are present in features from Trenches 20, 32 and 42. Four charred grains were recovered from fill 33 of ditch **42**, two grains from fill 99 of ditch **102** and a single grain from fill 88 of ditch **87**.

Sample No.	Context No.	Cut No.	Feature Type	Trench No.	Sample size (L)	Flot Volume (ml)	Cereals	Charcoal	Large animal bones	Pottery	Flint debitage
1	4	3	Pit	5	8	1		+		#	
2	33	32	Ditch	20	19	5	#	+		#	
3	43	167	Ditch	44	18	5			#		
4	19		Layer	10	17	1		+	##		
5	58	56	Pit	38	9	2					
6	62	61	Ditch	38	10	3					
7	99	102	Ditch	32	15	5	#	+	#		
8	112	111	Posthole	40	6	2					
9	86	85	Posthole	42	9	5	0	+			
10	88	87	Ditch	42	8	5	#	+			
11	94	93	Posthole	42	5	1		+		#	
12	68	67	Ditch	39	8	1		+			
13	70	69	Hedge	39	8	1		+			
14	143	145	Pit	35	8	2					#

Table 5: Environmental results

### Discussion

- C.2.3 The plant remains recovered from Worts' Causeway are scarce and poorly preserved. The cereal grains present in three Bronze Age ditch fills may be contemporary, in which case they are likely to have blown into the ditches from elsewhere on site. Alternatively they could be more modern intrusions.
- C.2.4 The environmental samples show that there is limited potential for the recovery of preserved plant remains at this site. Similar results were obtained from the nearby site at The Bell Language School.

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APPENDIX E. GEOPHYSICAL SURVEY REPORT

**SITE AT WORTS' CAUSEWAY  
SOUTH EAST CAMBRIDGE**

**Archaeological Geophysical Survey  
2015**

**Report by:**

**A.D.H. Bartlett**

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01865 200864**

**for:**

**Oxford Archaeology East  
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### **Abstract**

- E.1.1 *This report describes a geophysical survey undertaken as part of an archaeological field evaluation of a proposed development site adjacent to a Roman road known as Worts' Causeway to the south-east of Cambridge. The survey produced a number of findings of potential archaeological relevance, and these have subsequently been tested by trial excavation. The trenching confirmed the archaeological significance of the main survey findings, which included a Bronze Age or Iron Age trackway in the northern part of the site, and a Middle Bronze Age field system and settlement remains towards the south.*

### **Introduction**

- E.1.2 The survey was commissioned from Bartlett Clark Consultancy, Specialists in Archaeogeophysics of Oxford, by Oxford Archaeology East. Fieldwork in the southern part of the site was done on 13 August, and the remainder was completed (after crops were removed) on 19-20 August 2015.
- E.1.3 Plans showing the survey findings were supplied to Oxford Archaeology, and used to inform subsequent excavations at the site. The survey plans are now included for the record in this report.

### **Topography and Geology**

- E.1.4 The evaluation area is in two sections which were identified (in site plans supplied by the client) as GB1 and GB2. These are located to the north and south respectively of the Worts' Causeway Roman road, which extends to the east from the vicinity of Addenbrooke's Hospital in south east Cambridge. The site includes fields around Netherhall Farm (at NGR TL 574551) in area GB1, and adjacent to Newbury Farm (TL 574546) to the north of Babraham Road in area GB2. Area GB1 includes woodland and gardens around Netherhall Farm which are unsuitable for geophysical coverage, and which are located outside the area subject to a planning application. The survey coverage across the remainder of the site (as indicated by red cross hatching in the site plan inset in figure 1) amounts to 12.4 ha.
- E.1.5 The site is on a bedrock of the Grey Chalk subgroup, and is free of drift deposits. Soils on chalk usually provide favourable conditions for the magnetic detection of archaeological features.

### **Archaeological Background**

- E.1.6 The site is intersected by a Roman road, and one purpose of the survey was therefore to test for the presence of any associated archaeological remains which might be present alongside Worts' Causeway.
- E.1.7 Additional evidence for the archaeological potential of the surrounding area is provided by archaeological investigations carried out in relation to a previous evaluation of a site located to the south of Babraham Road, and about 500m west from the southern end of area GB2. This site (of c. 7.5ha) was sampled by trial trenching in 2004, followed by a geophysical survey in 2012 [1].
- E.1.8 Findings from the excavation included settlement remains, quarry pits and field systems of mainly late-prehistoric date. There were pits and post holes indicative of a Late Bronze Age to Early Iron Age settlement in the centre of the site. Other findings included Iron Age and Roman ditch alignments which possibly formed an irregular

enclosure around the main settlement features, and ditch sections indicating a field system to the west of the site.

- E.1.9 The 2012 survey detected various linear features, some of which corresponded to previously excavated ditches, and other findings. The fill of the archaeological features was described in the trenching report as usually grey or pale, suggesting they contained little topsoil or occupation debris, and so were not strongly responsive to the survey.

### ***Objectives of the Survey***

- E.1.10 The purpose of the survey was to test for evidence of archaeological sites or remains, and to provide information which may inform further stages of the planning process.
- E.1.11 A geophysical survey is usually able to identify the extent and character of archaeological remains capable of producing a magnetic response. The magnetometer will detect cut features such as ditches and pits when they are silted with an increased depth of topsoil, which usually responds more strongly than the underlying natural subsoil. Fired materials, including baked clay structures such as kilns or hearths are also likely to produce a localised enhancement of the magnetic field strength, and the survey therefore responds preferentially to the presence of ancient settlement or industrial remains. The survey is also strongly affected by ferrous and other debris of recent origin.

### ***Survey Procedure***

- E.1.12 The procedure used for the investigation was a fluxgate gradiometer survey across the evaluation area.
- E.1.13 A survey grid was set out at the required locations, and tied to the OS grid using a GPS system with Omnistar correction to provide 0.1m or greater accuracy. The plans are therefore geo-referenced, and OS co-ordinates of map locations can be read from the AutoCAD version of the plans.
- E.1.14 The magnetometer readings were collected along transects 1m apart using Bartington 1m fluxgate gradiometers, and are plotted at 25cm intervals along each transect. The results of the survey are presented as grey a scale plot (at 1:2000 scale) in figure 1, and as a graphical (x-y trace) plot in figures 2-3 (at 1:1250 at A3). Inclusion of both types of presentation allows the detected magnetic anomalies to be examined in plan and profile respectively.
- E.1.15 The graphical (x-y) plot represents minimally pre-processed magnetometer readings, as recommended for initial presentation of survey data in the 2008 English Heritage geophysical guidelines document [2]. Adjustments are made for irregularities in line spacing caused by variations in the instrument zero setting (as is required for legibility in gradiometer data), but no further filtering or other process which could affect the anomaly profiles or influence the interpretation of the data has been applied. A weak additional 2D low pass filter has been applied to the grey scale plot to adjust background noise levels.
- E.1.16 An interpretation of the findings is shown in figures 2-3, and is reproduced separately to provide a summary of the findings in figure 4. Colour coding has been used in the interpretation to distinguish different effects. The interpretation is intended to categorize most of the identifiable magnetic anomalies, but cannot reproduce the detail of the grey scale plots.

E.1.17 Features as marked include magnetic anomalies which may show characteristics to be expected from features of potential archaeological significance (in red; some weaker possible features are in pink), and recent disturbances in grey. Small (and mainly natural) background magnetic anomalies are outlined in light brown. Pipes are shown in blue, and some of the more conspicuous ferrous objects (identifiable as narrow spikes in the graphical plots) are outlined in light blue. Possible cultivation effects are indicated in green.

### **Results**

E.1.18 This survey has detected a number of well-defined features of clear archaeological relevance, together with other recent or non-archaeological disturbances. The site is intersected by several pipes, which are marked in the interpretation (figure 4) in blue. These include a large pipeline north of Newbury farm (labelled A in figure 4), a possible sewer pipe (B), and a north-south iron water pipe extending the length of the site at C.

E.1.19 The most conspicuous archaeological finding is a field system made up of rectilinear ditched enclosures extending across much of area GB2. These are most clearly visible in the west and centre of the field at D and E, but fade towards the north of the field.

E.1.20 Some less strongly defined features located to the north of the main field system are marked in pink (rather than red), and are labelled as of possible archaeological significance in the interpretation. These include parallel but irregular east-west ditch-like features (F) at the south of area GB1. Findings across the remainder of area GB1 are limited. They include strong and probably recent disturbances (grey) near Netherhall Farm, and east-west parallel markings (shown in green) which extend across much of GB1, and are likely to relate to modern ploughing. There were no interpretable findings in the paddock surveyed to the west of Netherhall Farm, but an increase in ferrous debris (blue outlines) in the area to the south of the farm. There are no findings to suggest the presence of roadside enclosures or remains alongside Wort's Causeway.

E.1.21 It is usually possible in a magnetometer survey to identify small magnetic anomalies (distinguished by rounded profiles in the graphical plots 2-3) which may represent silted pits. Concentrations of such features may indicate the presence of ancient settlement remains, but they are not always readily distinguishable from small natural background magnetic anomalies (outlined here in light brown). The concentration of such disturbances increases towards the south of area GB2, but this part of the site is cut through by pipes, and there are again strong recent disturbances (grey) near Newbury Farm. Some potentially relevant features are indicated in the interpretation. They include a possible (but faint) circle at G, and pit-like features around H, but it is possible that others are present.

### **Conclusions**

E.1.22 The survey has detected archaeological features whose overall character and distribution was confirmed by the subsequent trenching. They include clearly defined ditched enclosures in area GB2 which were found on excavation to be a Middle Bronze Age field system. The parallel ditches (F) in GB1 were shown to be a Bronze Age or Iron Age trackway. Potential settlement remains were relatively inconspicuous in the survey data (as in the nearby 2012 survey), but the trenching identified a slight concentration of Middle Bronze Age pits and postholes in the area as suggested towards the south of field GB2.

***Bibliography***

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## APPENDIX F. OASIS REPORT FORM

### Project Details

OASIS Number	oxfordar3-222063		
Project Name	Land off of the Worts' Causeway, Cambridge: Sites GB1 and GB2		
Project Dates (fieldwork) Start	21-09-2015	Finish	02-10-2015
Previous Work (by OA East)	No	Future Work	Yes

### Project Reference Codes

Site Code	CAMWOR15	Planning App. No.	-
HER No.	ECB4532	Related HER/OASIS No.	-

### Type of Project/Techniques Used

Prompt	Direction from Local Planning Authority - PPG16
Development Type	Rural Residential

### Please select all techniques used:

<input type="checkbox"/> Aerial Photography - interpretation	<input checked="" type="checkbox"/> Grab-Sampling	<input type="checkbox"/> Remote Operated Vehicle Survey
<input type="checkbox"/> Aerial Photography - new	<input type="checkbox"/> Gravity-Core	<input type="checkbox"/> Sample Trenches
<input type="checkbox"/> Annotated Sketch	<input type="checkbox"/> Laser Scanning	<input type="checkbox"/> Survey/Recording Of Fabric/Structure
<input type="checkbox"/> Augering	<input type="checkbox"/> Measured Survey	<input checked="" type="checkbox"/> Targeted Trenches
<input type="checkbox"/> Dendrochronological Survey	<input type="checkbox"/> Metal Detectors	<input type="checkbox"/> Test Pits
<input type="checkbox"/> Documentary Search	<input type="checkbox"/> Phosphate Survey	<input type="checkbox"/> Topographic Survey
<input checked="" type="checkbox"/> Environmental Sampling	<input type="checkbox"/> Photogrammetric Survey	<input type="checkbox"/> Vibro-core
<input type="checkbox"/> Fieldwalking	<input type="checkbox"/> Photographic Survey	<input type="checkbox"/> Visual Inspection (Initial Site Visit)
<input checked="" type="checkbox"/> Geophysical Survey	<input type="checkbox"/> Rectified Photography	

### Monument Types/Significant Finds & Their Periods

List feature types using the [NMR Monument Type Thesaurus](#) and significant finds using the [MDA Object type Thesaurus](#) together with their respective periods. If no features/finds were found, please state "none".

Monument	Period	Object	Period
Ditch	Bronze Age -2.5k to -700	Potter	Bronze Age -2.5k to -700
Posthole	Bronze Age -2.5k to -700	Flint	Early Prehistoric -500k to -4k
Trackway	Bronze Age -2.5k to -700	Animal bone	Uncertain

### Project Location

County	Cambridgeshire	Site Address (including postcode if possible)
District	Cambridge City	Land off the Worts' Causeway Cambridge CB1 8RJ
Parish	Cambridge	
HER	Cambridge	
Study Area	13 hectares	National Grid Reference
		547446, 254976

## Project Originators

Organisation	OA EAST
Project Brief Originator	Kasia Gdaniec
Project Design Originator	Rob Wiseman
Project Manager	Richard Mortimer
Supervisor	Louise Bush

## Project Archives

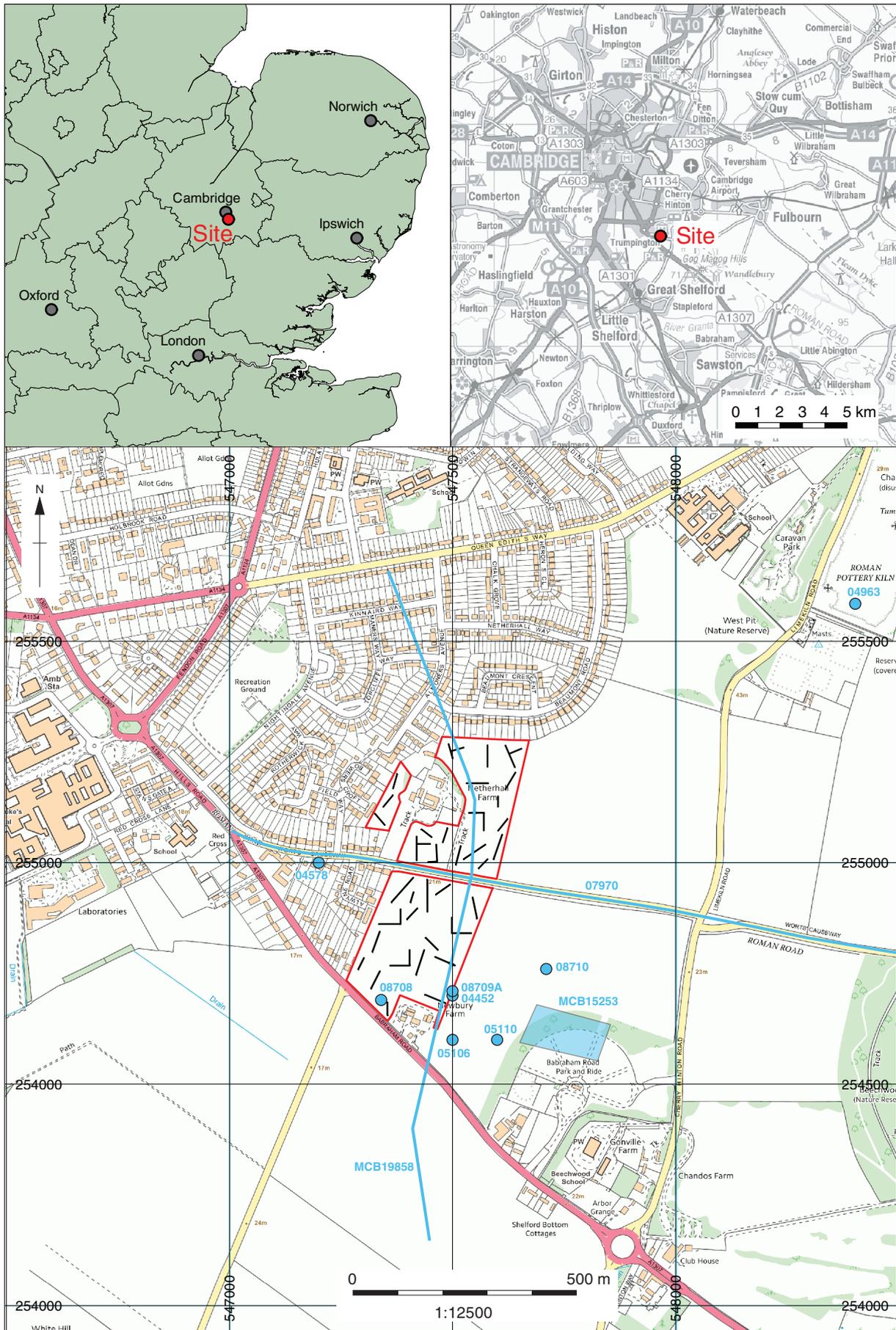
Physical Archive	Digital Archive	Paper Archive
CCC Store	OA East	CCC Store
ECB4532	CAMWOR15	ECB4532

## Archive Contents/Media

	Physical Contents	Digital Contents	Paper Contents
Animal Bones	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ceramics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Glass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human Bones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Metal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stratigraphic		<input type="checkbox"/>	<input type="checkbox"/>
Survey		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Textiles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worked Bone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worked Stone/Lithic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Digital Media	Paper Media
<input checked="" type="checkbox"/> Database	<input type="checkbox"/> Aerial Photos
<input checked="" type="checkbox"/> GIS	<input checked="" type="checkbox"/> Context Sheet
<input checked="" type="checkbox"/> Geophysics	<input type="checkbox"/> Correspondence
<input checked="" type="checkbox"/> Images	<input type="checkbox"/> Diary
<input checked="" type="checkbox"/> Illustrations	<input type="checkbox"/> Drawing
<input type="checkbox"/> Moving Image	<input type="checkbox"/> Manuscript
<input type="checkbox"/> Spreadsheets	<input type="checkbox"/> Map
<input checked="" type="checkbox"/> Survey	<input type="checkbox"/> Matrices
<input checked="" type="checkbox"/> Text	<input type="checkbox"/> Microfilm
<input type="checkbox"/> Virtual Reality	<input type="checkbox"/> Misc.
	<input type="checkbox"/> Research/Notes
	<input type="checkbox"/> Photos
	<input checked="" type="checkbox"/> Plans
	<input checked="" type="checkbox"/> Report
	<input checked="" type="checkbox"/> Sections
	<input type="checkbox"/> Survey

### Notes:



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Figure 1: Site location showing archaeological trenches (black) in development area (red)

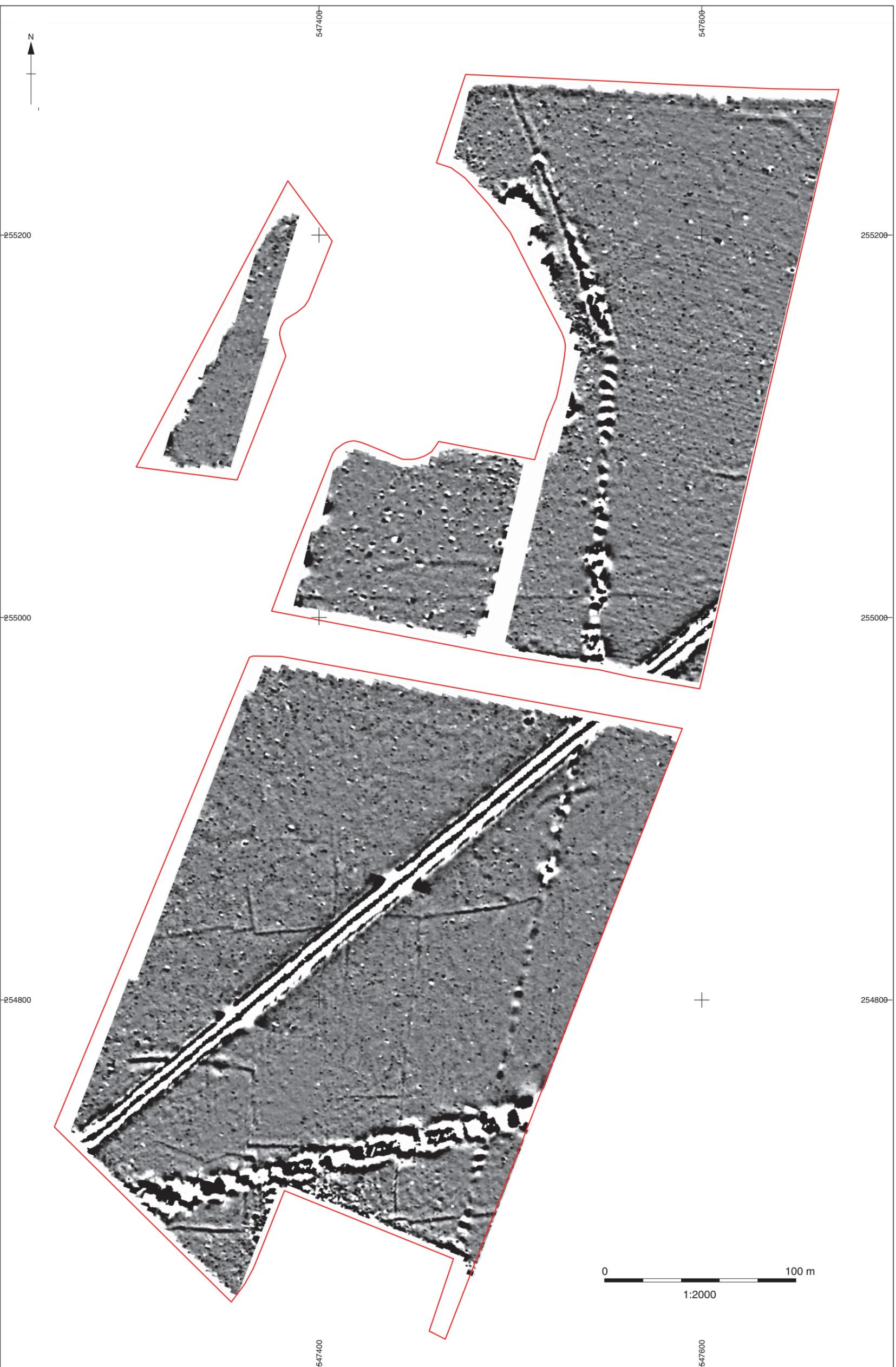


Figure 2: Geophysical survey results, data supplied by client

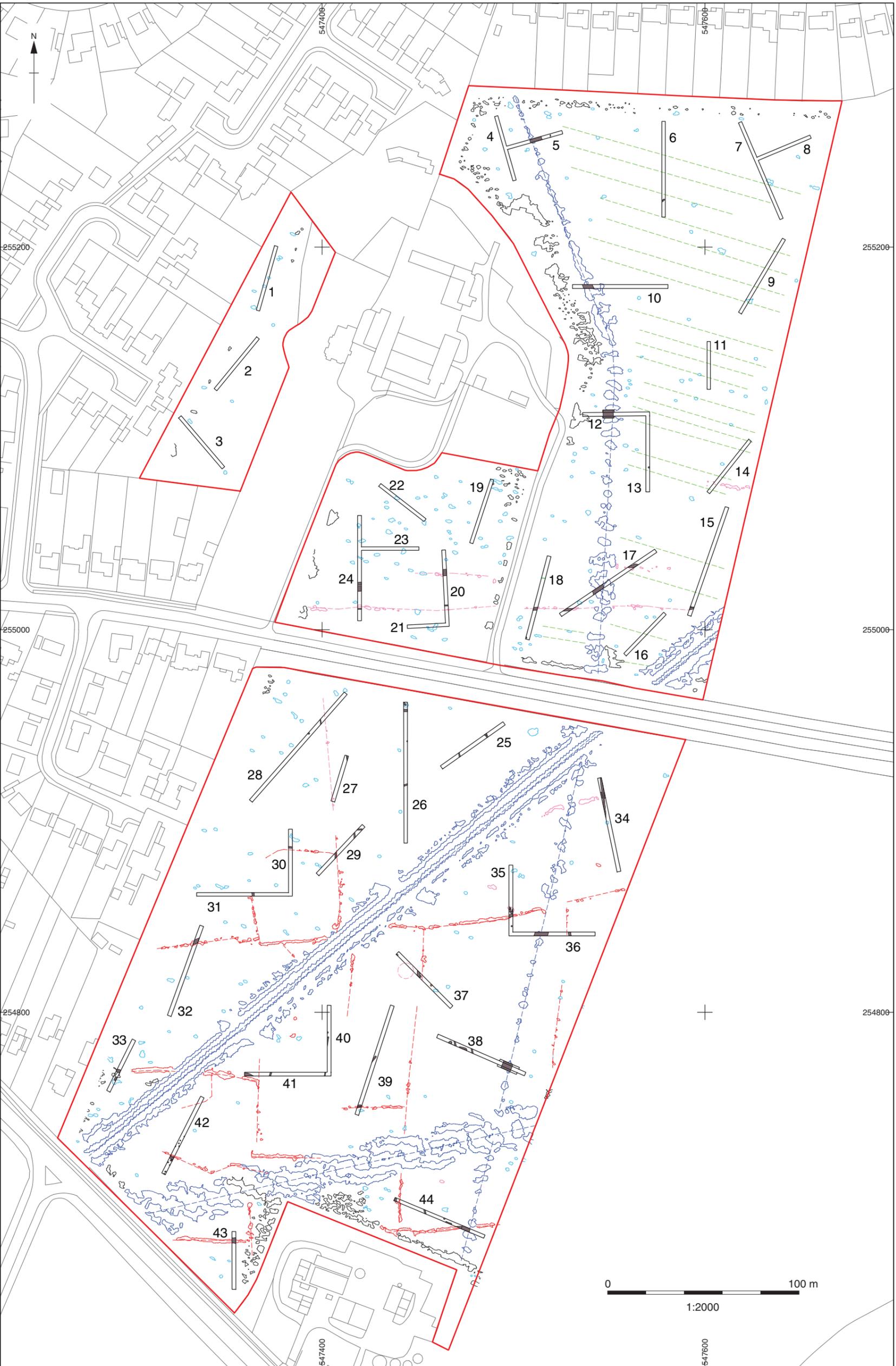


Figure 3: Overall trench plan

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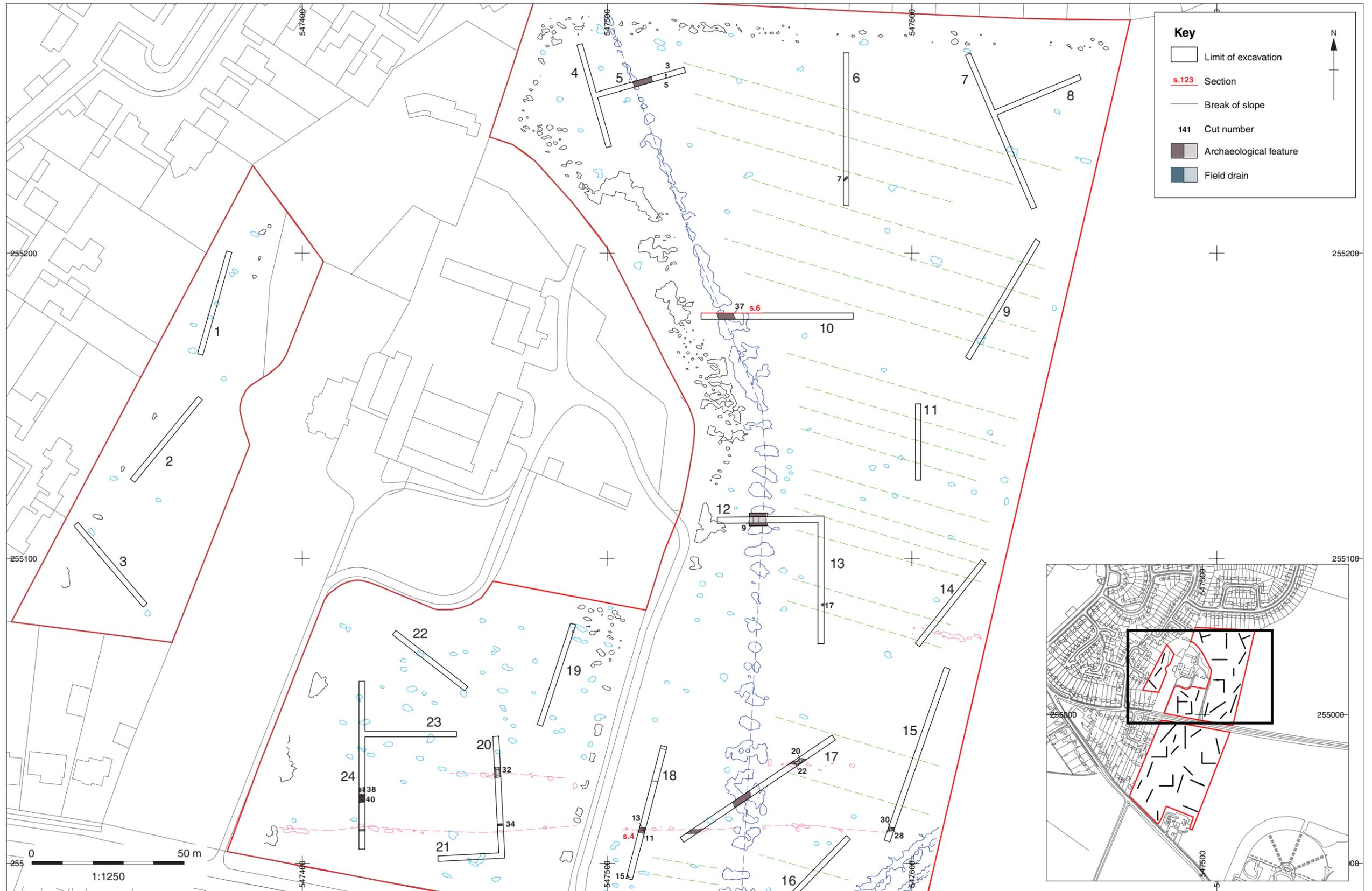


Figure 4: Area GB1 trenches

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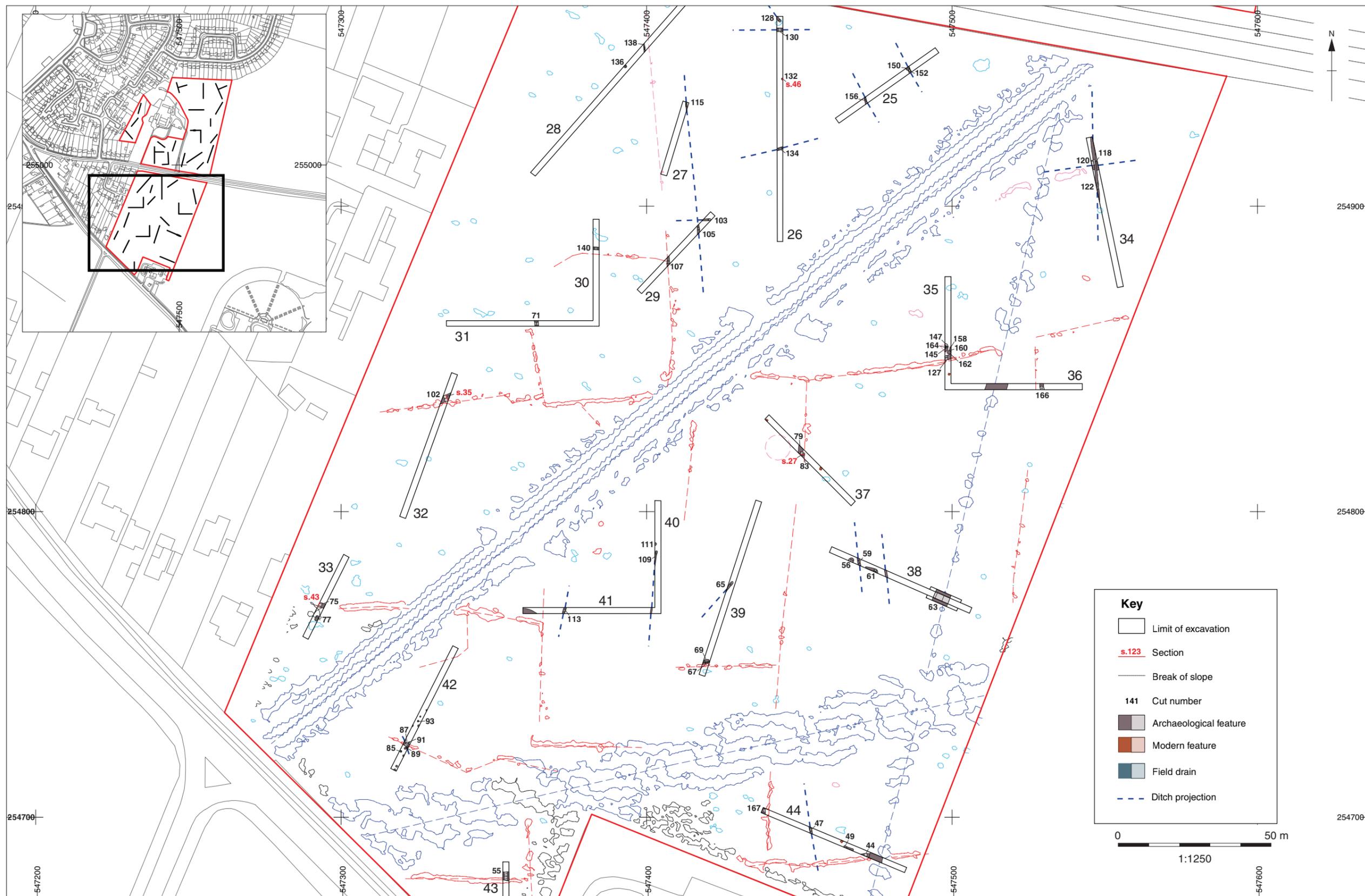


Figure 5: Area GB2 trenches

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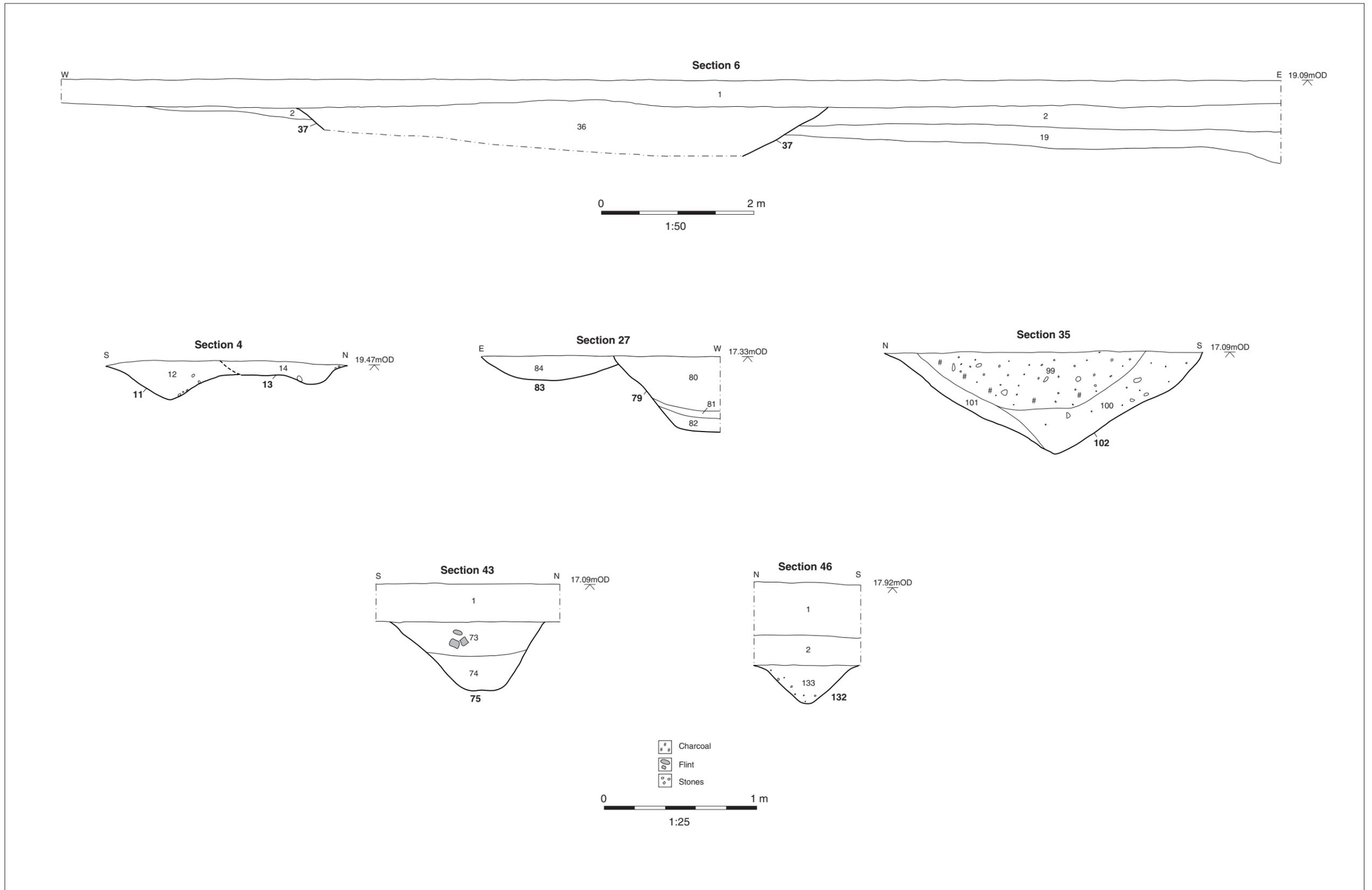


Figure 6: Selected sections

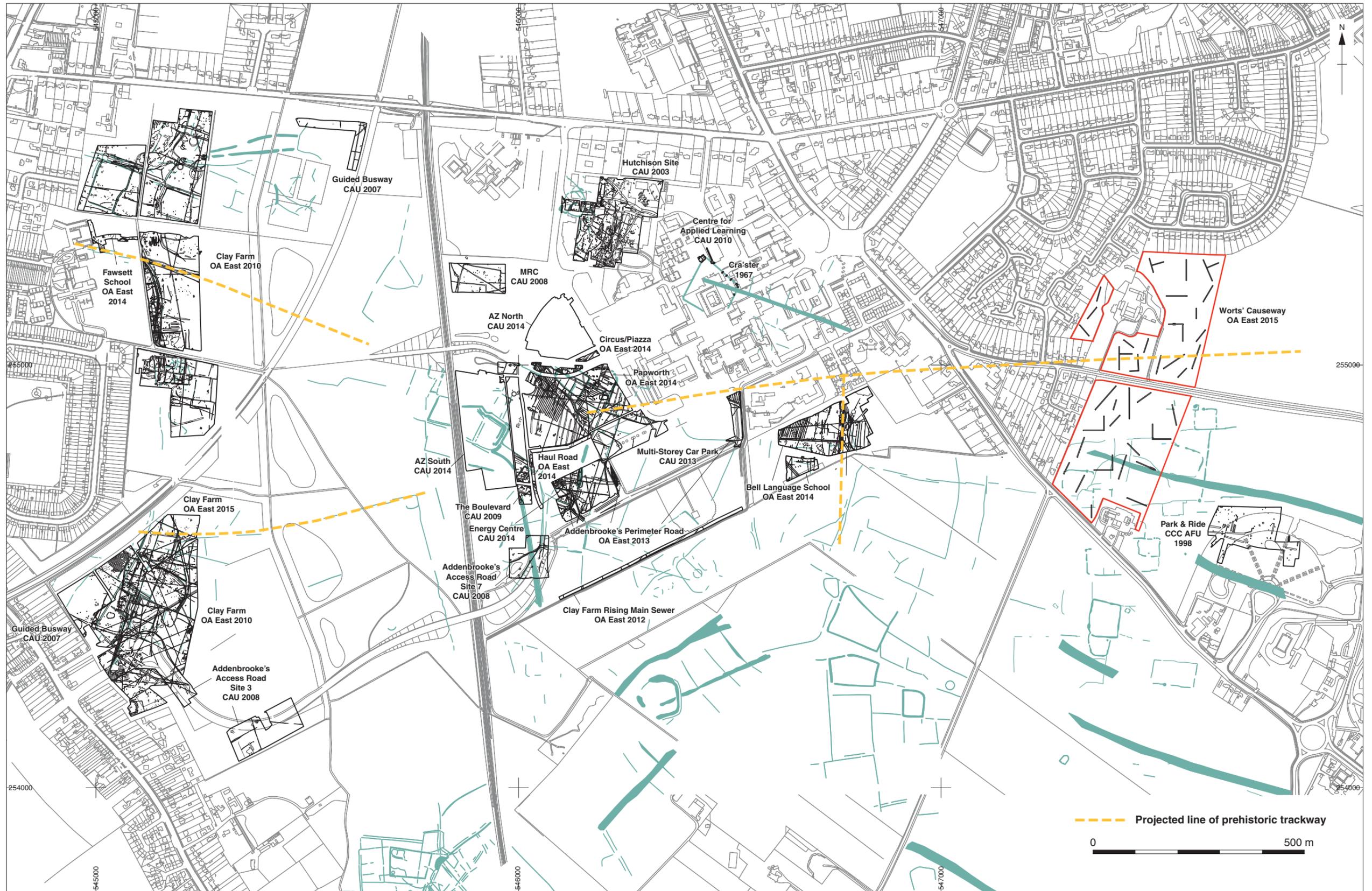


Figure 7: The site within its wider Addenbrooke's landscape



Figure 8: Projected Middle Bronze Age field system

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Plate 1: Trench 3, looking south-east



Plate 2: Ditch **32**, looking west



Plate 3: Trackway **40**, looking east



Plate 4: Trench 26, looking south

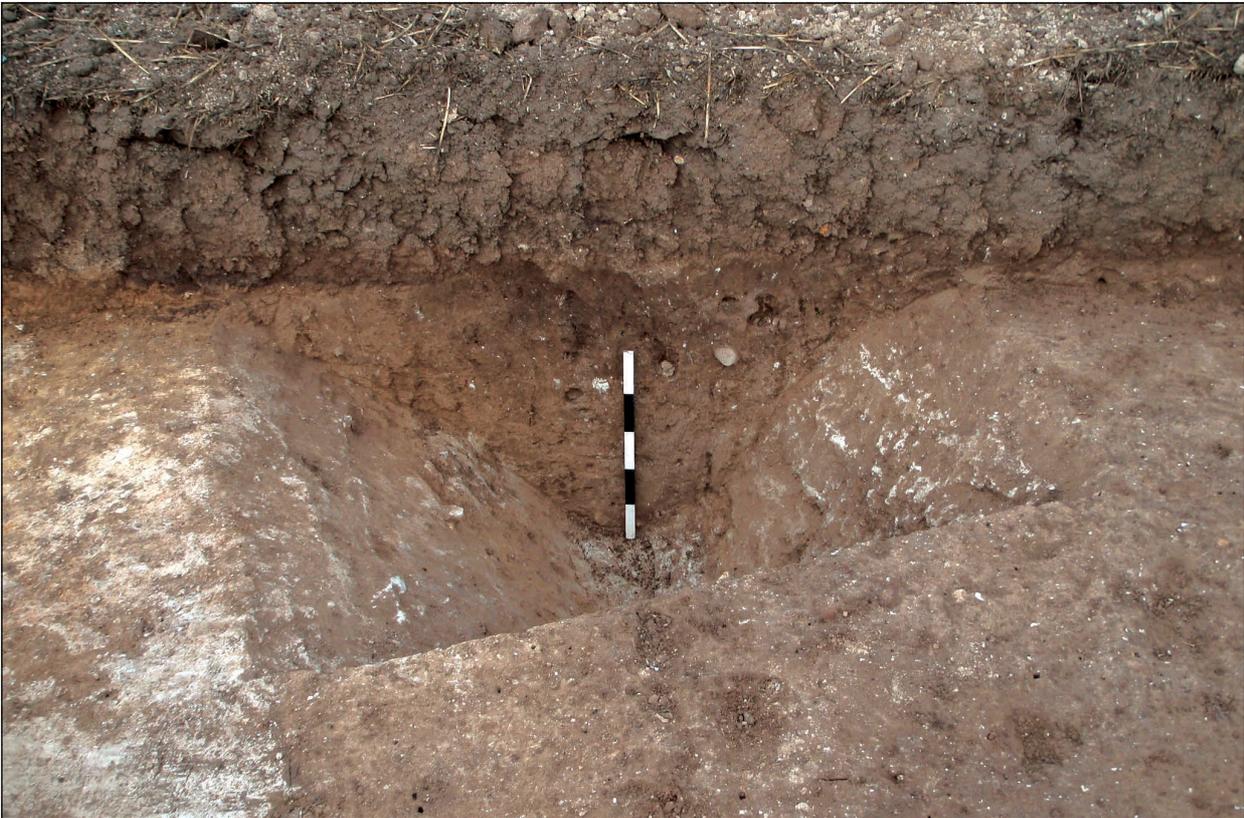


Plate 5: Ditch 127, looking west



Plate 6: Second World War anti-tank defence ditch **63**, looking south-west



Plate 7: Trench 39, looking north-north-east



Plate 8: Posthole 85, looking west

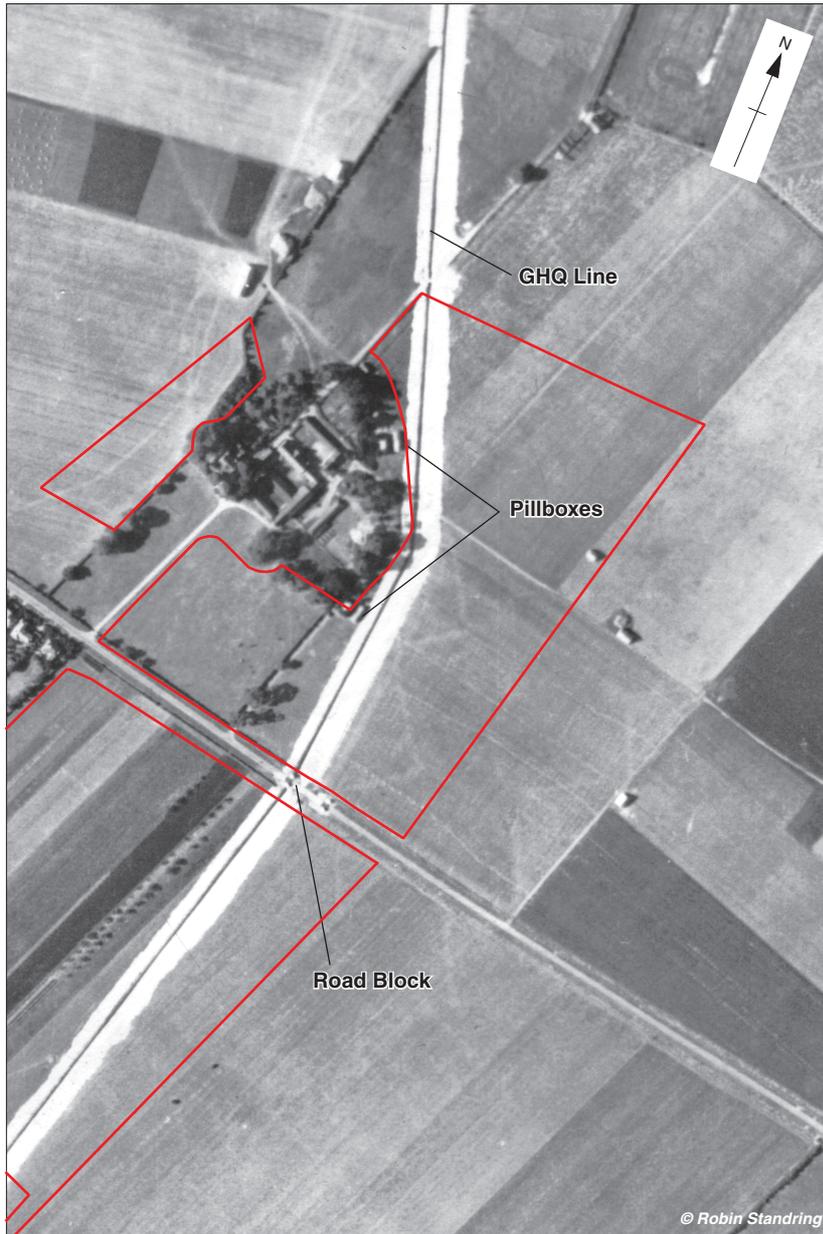
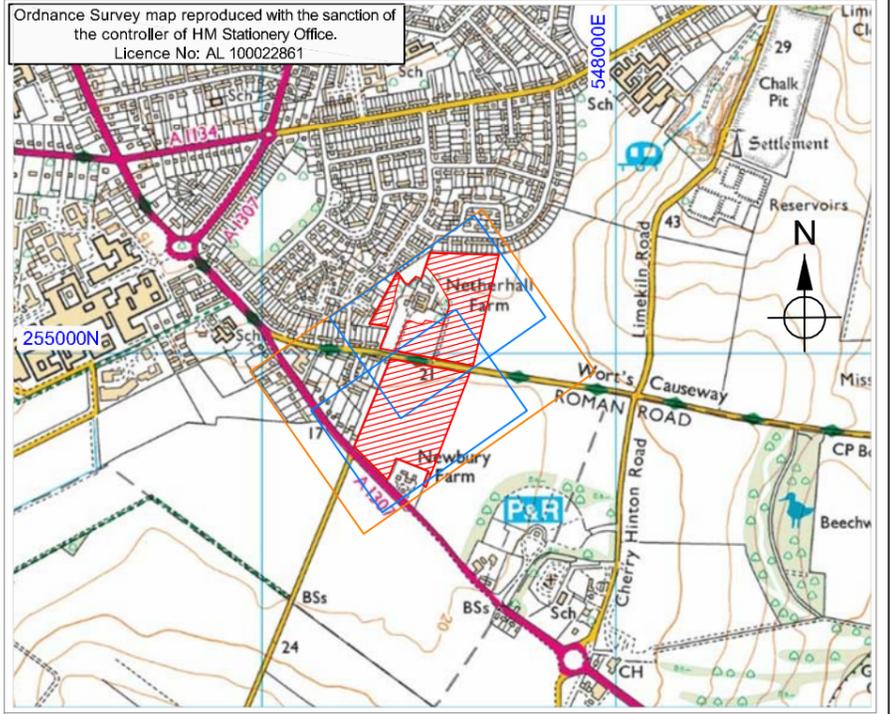
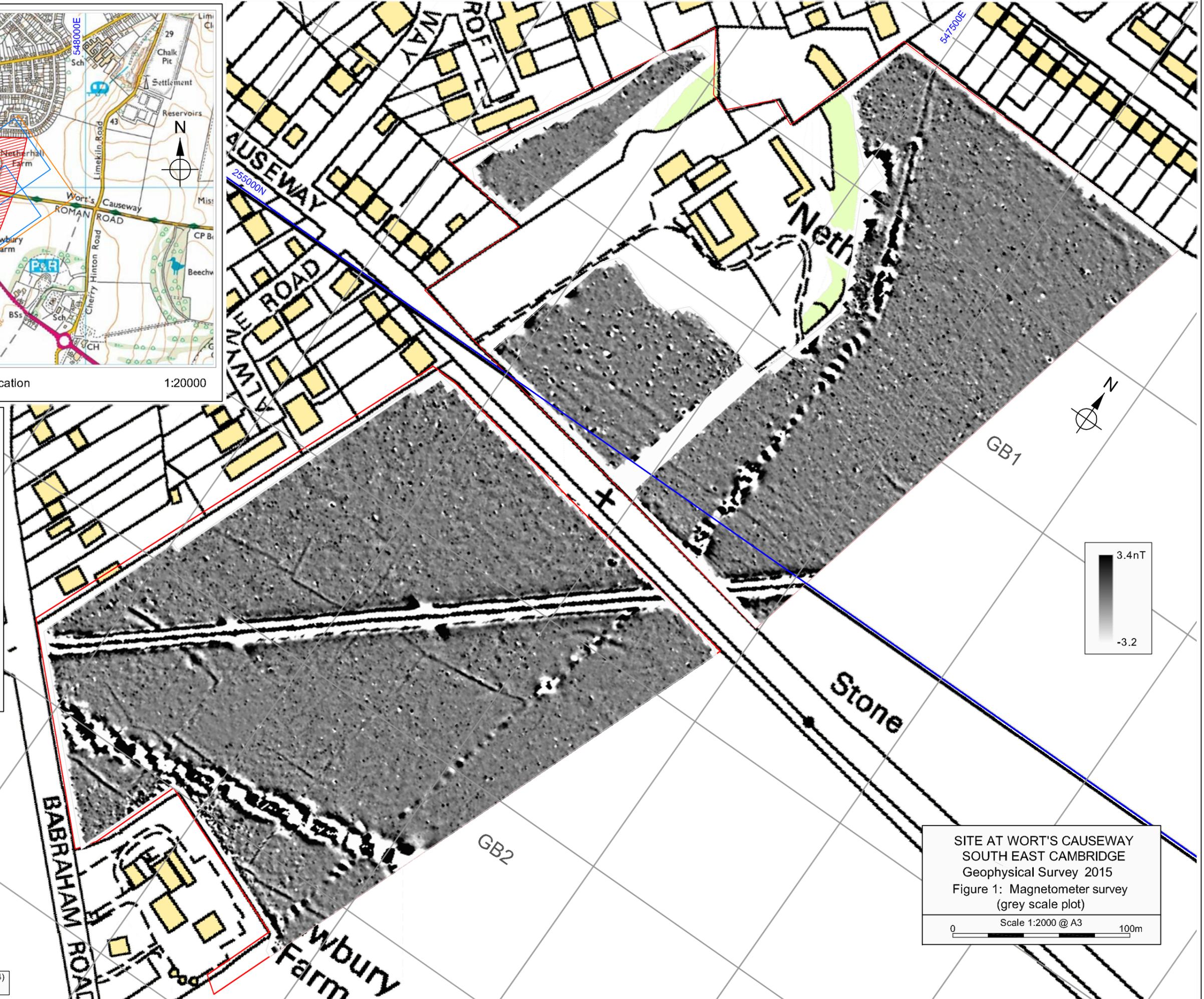
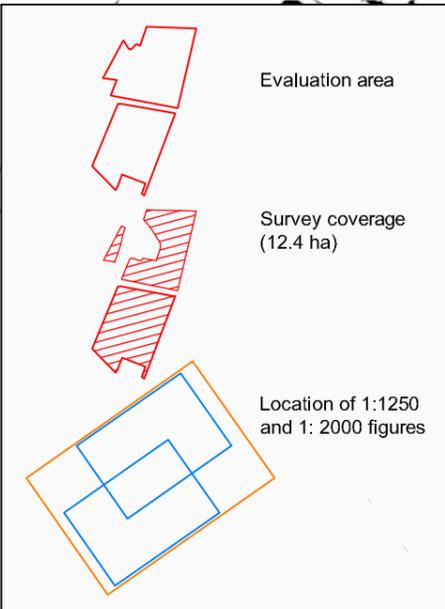


Plate 9: Aerial photograph showing route of GHQ Line with pillboxes (taken 31/08/1940)

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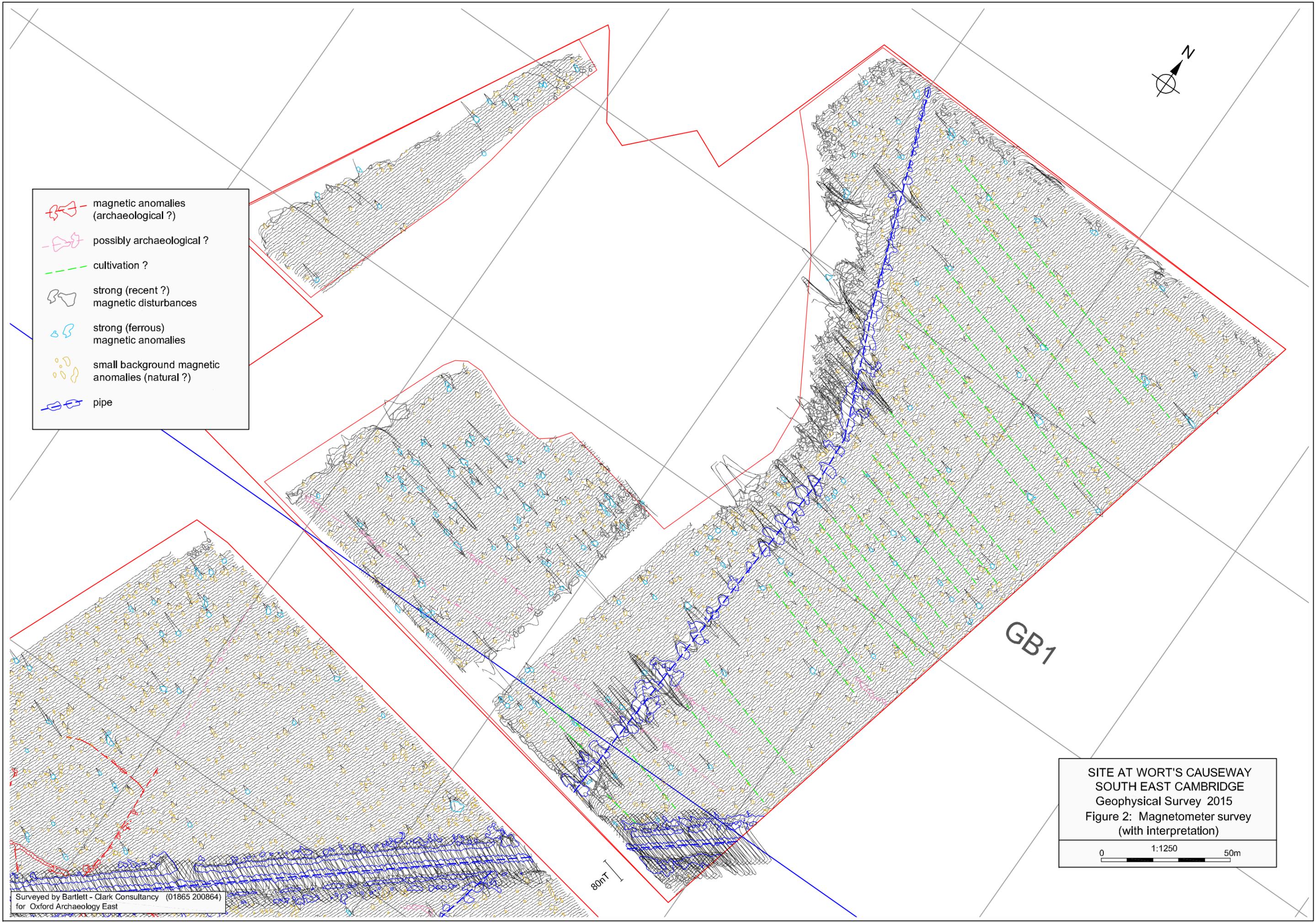
Site location 1:20000



SITE AT WORT'S CAUSEWAY  
SOUTH EAST CAMBRIDGE  
Geophysical Survey 2015  
Figure 1: Magnetometer survey  
(grey scale plot)  
Scale 1:2000 @ A3 100m



-  magnetic anomalies (archaeological ?)
-  possibly archaeological ?
-  cultivation ?
-  strong (recent ?) magnetic disturbances
-  strong (ferrous) magnetic anomalies
-  small background magnetic anomalies (natural ?)
-  pipe



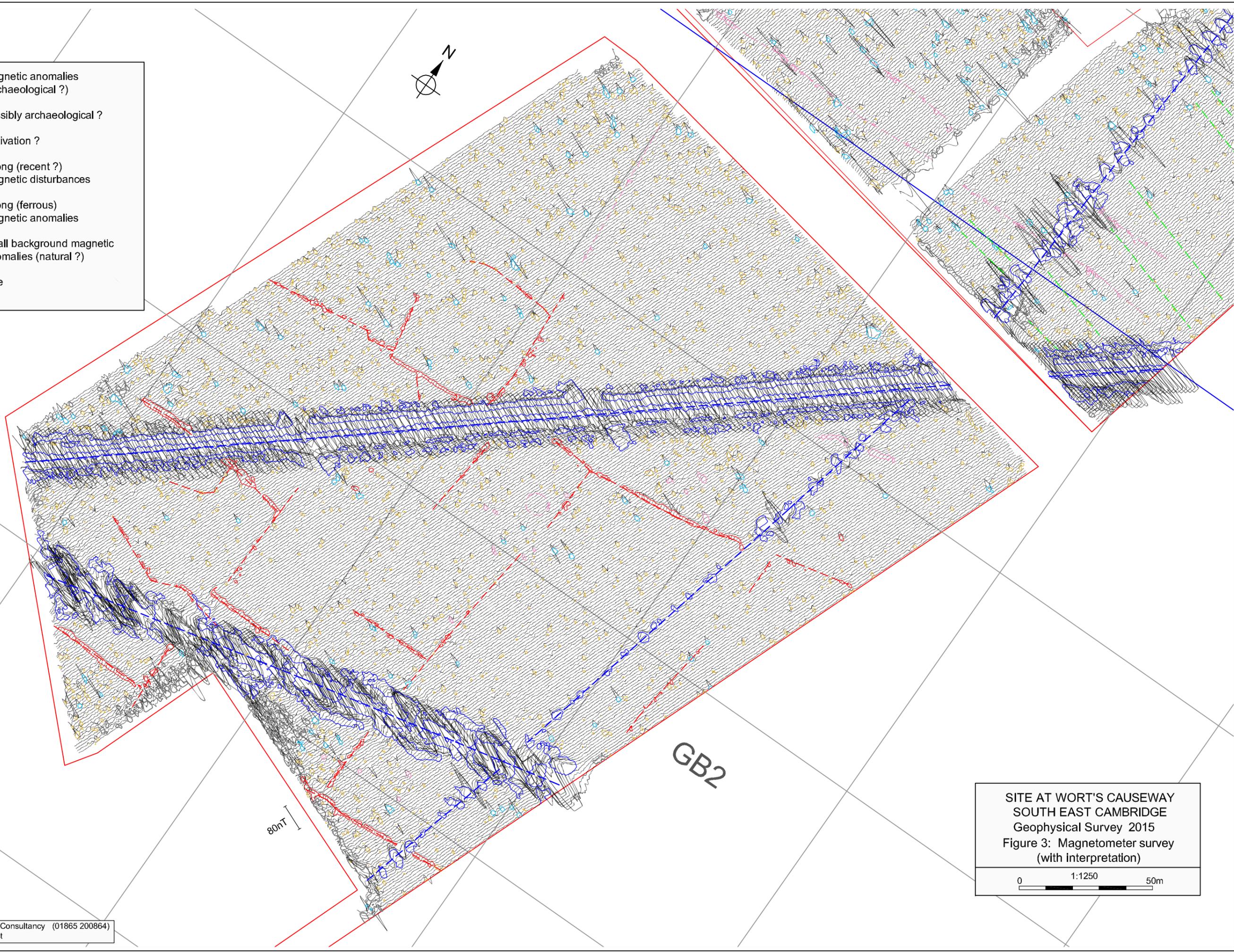
GB1

80mT

SITE AT WORT'S CAUSEWAY  
SOUTH EAST CAMBRIDGE  
Geophysical Survey 2015  
Figure 2: Magnetometer survey  
(with interpretation)

0 1:1250 50m

-  magnetic anomalies (archaeological ?)
-  possibly archaeological ?
-  cultivation ?
-  strong (recent ?) magnetic disturbances
-  strong (ferrous) magnetic anomalies
-  small background magnetic anomalies (natural ?)
-  pipe

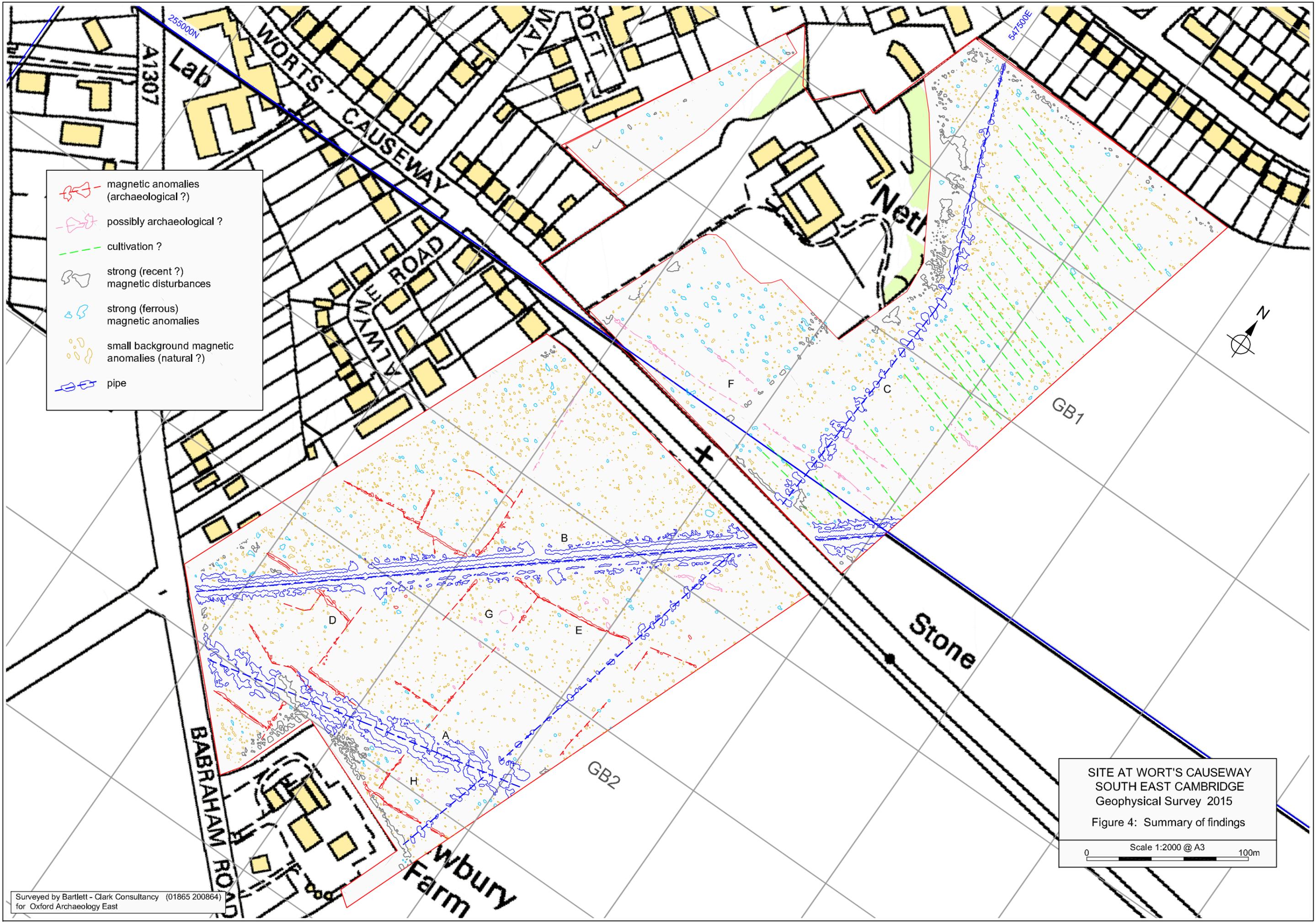


80nT

GB2

SITE AT WORT'S CAUSEWAY  
 SOUTH EAST CAMBRIDGE  
 Geophysical Survey 2015  
 Figure 3: Magnetometer survey  
 (with interpretation)

0 1:1250 50m



-  magnetic anomalies (archaeological ?)
-  possibly archaeological ?
-  cultivation ?
-  strong (recent ?) magnetic disturbances
-  strong (ferrous) magnetic anomalies
-  small background magnetic anomalies (natural ?)
-  pipe

SITE AT WORT'S CAUSEWAY  
 SOUTH EAST CAMBRIDGE  
 Geophysical Survey 2015  
 Figure 4: Summary of findings

Scale 1:2000 @ A3

0 100m



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