



**Land north of The Grange and
east of the A10
(including allocated site LIT2)
Littleport
Cambridgeshire
Archaeological Evaluation Report**

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Land north of The Grange and east of the A10 (including allocated site LIT2), Littleport, Cambridgeshire

Archaeological Evaluation Report

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Summary

Between 23rd January and 6th February 2017 Oxford Archaeology East excavated 99 evaluation trenches (numbered 1-103, with four excluded) at Land North of The Grange and east of the A10 (including allocated site LIT2), Littleport, Cambridgeshire (TL 5560 8640).

Geophysical survey had identified a pattern of ridge and furrow throughout the field, and other possible archaeological anomalies.

Low level prehistoric activity ranging from the Mesolithic to the Bronze age was evidenced in flints found in plough soils and abraded pottery sherds found in later features. A possible watering hole or natural hollow contained part of a Samian plate and Early Iron Age sherds but the date and nature of the feature were uncertain.

Throughout the site was a system of small agricultural ditches or gullies of potentially Roman or Medieval date, surviving in various conditions according to the level of ploughing in each field.

The system was overlain by the later Medieval to post-Medieval system, including a headland running through the site with extensive ridge and furrow cultivation. This system defined the layout of the fields at least until 1810 and probably until enclosure in 1840.

Undated postholes were also found in several trenches across the site.

Acknowledgements

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The project was managed for Oxford Archaeology by Tom Phillips. The fieldwork was directed by Stuart Ladd, who was supported by Toby Knight, Ro Booth, Lexi Dawson, Amy Revans, Dan Firth and Kelly Sinclair. Survey and digitizing was carried out by Neal Mason, Dave Brown and Stuart Ladd. Thanks is also extended to the teams of OA staff that cleaned and packaged the finds under the management of Natasha Dodwell, processed the environmental remains under the management of Rachel Fosberry, and prepared the archive under the management of Katherine Hamilton.

1 INTRODUCTION

1.1 Scope of work

1.1.1 Oxford Archaeology (OA) was commissioned by Manor Oak Homes to undertake a trial trench evaluation at Land north of Grange Lane, Littleport.

1.1.2 The work was undertaken to inform the Planning Authority in advance of a submission of a Planning Application. A brief was issued by Kasia Gdaniec and a written scheme of investigation was produced by OA detailing the Local Authority's requirements for work necessary to inform the planning process. This document outlines how OA implemented the specified requirements.

1.2 Location, topography and geology

1.2.1 The site lies to the north of Grange Lane on the western side of Littleport village centred on TL 5560 8640. The proposed development area covers some 27ha divided into 3 fields currently used for arable cultivation. Winter wheat was present in Fields 1 and 3.

1.2.2 Much of the site surface lies between 9 and 16mOD, sloping down to 4-5mOD in the far north and west as the landscape approaches the fen edge.

1.2.3 The location is on the western side of the Littleport peninsula of the Isle of Ely, a diamicton deposit overlying Kimmeridge clay, with fluvial gravel deposits mapped in the south-east of the site (BGS 2017). Across the centre, south and east of the site fluvial silts with gravels were uncovered, overlying clay which was exposed across the north-western fringes of the site.

1.3 Archaeological and historical background

1.3.1 A search of the Cambridgeshire HER for records within 1km of the site has been undertaken (provided by CCC HER). Relevant results are discussed here, with entries within c. 500m of site shown on Figure 1.

1.3.2 Geophysical survey was undertaken prior to trial trenching (Figure 3 and Appendix G). The results show that the area is dominated by ridge and furrow, a field baulk or headland as well as later features (see *Medieval and Post-medieval* below).

1.3.3 LIDAR composite data from the environment agency was also examined (Figure 2). This shows the general contours of the landscape as well as filled in modern field boundaries and modern disturbance along the western boundary of Field One. Detailed surface features include the headland, with modern ploughing to its west as well as ridge and furrow to its east.

Prehistoric

1.3.4 The Old Croft was the principal channel of the Ouse river system during prehistory. Its course can be followed to the north-east of Littleport and extended roughly north-west to south-east.

1.3.5 Evaluation and excavation at Highfield Farm (ECB141, ECB4721) directly to the east of the development area revealed scattered Neolithic and Bronze Age activity in the south-east corner of the site (on the hilltop). This included two ditches containing Peterborough ware

pottery and a 'pond' that contained flints and Beaker pottery (CB15682). There were no clear indications of prehistoric settlement and cumulatively the evidence suggests that the hill top was a focus of possible dispersed, ceremonial activity in the Neolithic to Bronze Age periods. Middle Bronze Age activity was limited to two circular pits containing domestic waste. In the Late Bronze Age to Early Iron Age, activity expanded south-west where a number of pits and postholes were identified containing domestic waste. A number of Early Iron Age pits re-cutting earlier features were identified on the hilltop along with a south-west to north-east aligned ditch cutting a Neolithic pit.

1.3.6 An evaluation on land at 1 Grange Lane, 450m to the east, revealed prehistoric buried soil layers along with almost 100 sherds of Early Iron Age pottery (MCB20348).

1.3.7 Excavations at Wisbech Road, 850m to the north-east identified Bronze Age and Iron Age settlement remains (MCB17425 and MCB19320), including a burnt flint mound, radiocarbon dated to the Middle Bronze Age (1500-1380 cal BC). To the west, at 80 Wisbech Road, an excavation revealed Late Bronze Age to Early Iron Age settlement activity in the form of numerous shallow pits and postholes, some containing pottery and occasional daub fragments (MCB17425). Peat growth in the north of the site was well-developed by this time, having begun around the Middle Bronze Age. Remains of two ditches, the larger of which ran down into the fen, suggest that similar agricultural land use continued into the late Iron Age.

1.3.8 Further afield, early prehistoric remains lie to the east of the parish on higher land/islands (e.g. Peacock's Farm at Shippea Hill – Clark *et al* 1935). Other notable prehistoric activity in the parish has been found at Apes Hall (3.5km to the north of the development site), again on higher ground overlooking the Old Croft, where Mesolithic and Neolithic lithic scatters have been recorded, along with Bronze Age flints and settlement evidence. Bronze axes and chance finds have been discovered in Littleport, with a settlement site at Plantation Farm excavated by Clark in 1932. Early Bronze Age material was also discovered at Peacock's Farm (Clark *et al* 1935). During the Bronze Age the landscape around Littleport consisted of peat fen which would have covered the minor roddons and waterways, although the Old Croft remained active.

Roman

1.3.9 The fieldwork at Highfield Farm (ECB4721) to the east revealed that during the Roman period the site was on the periphery of a rural domestic settlement consisting of field systems and stock enclosures, a covered working area, pits containing domestic waste, possible posthole structures or fence lines and evidence of butchery waste.

1.3.10 Evaluation at Parsons Lane (ECB519) revealed a series of ditches thought to be of Roman or Medieval date.

1.3.11 Excavations at Camel Road, 1km to the north-east, revealed part of a Roman settlement, with enclosures and structures recorded (MCB14077). The domestic character of the site was confirmed by the pottery recovered, which included Samian ware, large quantities of transport vessels, storage jars, and food preparation wares. The presence of glass vessels, tile and a box flue suggest the presence of a high status Roman dwelling nearby. There was also evidence of salt-making in the form of briquetage and processing tanks. Just to the north, also on Camel Road, a large man-made channel of Roman date was found during an evaluation and was interpreted as a Roman canal (MCB15678).

1.3.12 The Fenland Survey (Hall 1996) identified an array of saltern (salt-making) sites which occur in great density along the roddon of the Old Croft River. There are potentially as many as thirty such sites along the Old Croft, the largest of which may cover over three hectares, although it is important to note that these sites have not been excavated.

Anglo-Saxon

1.3.13 Evidence of a Saxon cemetery dating to the 5th-7th centuries was encountered during open area excavation west of Millfield Road (ECB2905, MCB 20848), only 200m east of the current site. The cemetery contained 97 graves including three horse burials, four urned cremations and the remains of 61 adults and 25 sub-adults whose contexts could be securely dated to the Anglo-Saxon period. Two graves were surrounded by small penannular ring ditches denoting the formation of small barrow burial monuments. Grave goods accompanying the pagan burials included highly decorative bronze brooches, weaponry (swords, shields, knives), bead necklaces (Baltic amber, glass & bone), personal and utility items and pots. The location of the associated settlement is currently unknown. It is worth noting that two evaluations at Millfield School to the south of the cemetery revealed no evidence of Saxon activity, the only features being a Roman pit (MCB17479) and post-medieval field drains (ECB4184).

1.3.14 Further Saxon settlement at Littleport may have been based around the hithe where the Old Croft ran close to the island. The Domesday Book records a *vill* and it is assumed that the present town covers part (if not all) of the medieval centre. Littleport was allotted to the Bishop of Ely on the formation of the See of Ely in 1109 (Atkinson *et al* 2002). The church of St George dates from the 14th century and was almost entirely rebuilt in the 15th century and restored in 1857.

Medieval and Post-medieval

1.3.15 The Domesday Book records a *vill* and it is assumed that the present town covers part (if not all) of the medieval centre. Littleport was allotted to the Bishop of Ely on the formation of the See of Ely in 1109 (Atkinson *et al* 2002). The church of St George dates from the 14th century and was almost entirely rebuilt in the 15th century and restored in 1857.

1.3.16 Medieval field boundaries, ridge and furrow and headlands were encountered at Highfield Farm and it was suggested that agricultural usage of this area commenced in the 14th century (CB15683). Evidence of ridge and furrow and two post-medieval ditches, probably boundary ditches, were found at Littleport Primary School, 200m to the north (MCB 16496).

1.3.17 It is likely that some of the medieval agricultural features continued in use into the post-medieval period. The Ordnance Survey Drawing (Sheet 250) for Littleport in 1810, prior to full enclosure, depicts a track way following the eastern section of Grange Lane before crossing the site north-westwards. Littleport Parish was finally enclosed in 1840 (Atkinson *et al* 2002).

1.3.18 The first edition Ordnance Survey 25" map shows the modern field boundaries as well as further subdivisions within Field 2 which are also represented in the geophysical survey data. Grange Lane is labelled 'New Ditch Drove'.

Geophysical Survey and LIDAR

1.3.19 Geophysical survey (Fig. 3 and Appendix F) was conducted at the Grange Lane site prior to this evaluation and Environment Agency LIDAR data has since been obtained. The geophysics revealed a system of two or three fields of sinuous furrows covering the entire site, the furrows abutting in an irregular headland in Fields 1 and 3. The headland corresponds with the track depicted on the 1810 map (Fig. 7). These furrows were less distinct in Field 2, suggesting they had been ploughed out. The headland was visible as a raised bank through Field 3 prior to evaluation, but was much reduced in Field 1. Ridge and furrow was not visible on the ground surface. However, the LIDAR composite data did reveal sinuous ridge and furrow visible on the surface in Field 3, abutting the headland, curiously at 90 degrees to the furrows shown on geophysics. Presumably this represents a later and shallower phase of cultivation now ploughed out.

2 EVALUATION AIMS AND METHODOLOGY

2.1 Aims

2.1.1 In response to the Brief, a programme of geophysical survey was commissioned prior to the design of a trenching plan for trial trench evaluation. Results (Gater 2017) are included in 0 with a greyscale plot included in Figure 3 of this report.

2.1.2 The project aims and objectives for physical evaluation were as follows:

- i. To determine or confirm the general nature of any remains present.
- ii. To determine or confirm the approximate date or date range of any remains, by means of artefactual or other evidence.
- iii. To determine or confirm the approximate extent and condition of any remains, by means of artefactual or other evidence.
- iv. To ground-truth geophysical features and potential archaeological features highlighted in communication with Kasia Gdaniec
- v. To search for evidence of Anglo-Saxon settlement associated with the neighbouring cemetery to the east.

2.2 Methodology

2.2.1 Ninety-nine trenches were set out by GPS, most with lengths of 50m (Figures 1 & 2) either at random or targeting potential archaeological anomalies. The site survey was carried out using a Leica GS08 RTK GPS.

2.2.2 It was necessary to shorten some trenches due to obstacles on site. The presence of an intermediate pressure gas main in Field 2 and overhead cables between Fields 1 and 3 and across Field 2 (see Figure 1) constrained the placement of trenches. Trenches were numbered sequentially from 1 to 103, with Trenches 5, 10, 19, 37 and 46 being excluded following confirmation of the site boundaries. In total the evaluation comprised some 4800m of trenching.

2.2.3 Machine excavation was carried out under constant archaeological supervision with two tracked 360 excavators using toothless ditching buckets 2.2m wide. Plough soils were removed, stopping at the top of the natural geological horizon or the top of archaeological deposits, whichever came first.

2.2.4 Due to wet conditions and the heavy soils, under advice from Kasia Gdaniec bucket sampling of top and sub-soils was not undertaken.

2.2.5 All archaeological features and deposits were recorded using OA East's pro-forma sheets. Trench locations, plans and sections were recorded at appropriate scales and colour photographs were taken of all relevant features and deposits.

2.2.6 Bulk soil samples were taken for environmental analysis.

3 RESULTS

3.1 Introduction and presentation of results

3.1.1 The results of the evaluation are presented below, and include a stratigraphic description of the trenches which contained archaeological remains. The full details of all trenches with dimensions and depths of all deposits form the content of Appendix A. Finds data and spot dates are tabulated in Appendix B.

3.1.2 Context numbers have been assigned to all investigated deposits.

3.2 General soils and ground conditions

3.2.1 Soils in Fields 1 and 3 were generally fairly uniform with a reddish subsoil present between 0.1 and 0.4m thick. In Field 3 this was generally thicker, particularly where it formed the remains of the headland 3. Little or no sub-soil survived in Field 2. The west of Field 1 had been subject to modern disturbance resulting in some inverted geological deposits, buried topsoil and no surviving original subsoil.

3.2.2 Conditions were cold, with several short spells of heavy rain causing some trenches to flood partially. Archaeological features, where present, were easy to identify against the underlying natural geology.

3.3 General distribution of archaeological deposits

3.3.1 Prehistoric and Roman material was recovered from a possible natural or pond-like feature in Trench 72. Three possible postholes were excavated in Trench 77, producing a sherd of prehistoric pottery.

3.3.2 The geophysical survey indicated that furrows would be present across the whole site, trenching found that many of the furrows had not penetrated below the sub-soil. A system of small, regular, parallel linear features was found, however, that did not always coincide with or share alignments with the ridge and furrow system. These “cultivation” ditches had steep sides and rounded bases and were filled with a mid-greyish brown clayey silt (unless otherwise specified) that produced no finds, but were not necessarily easily distinguishable from furrows. In contrast, the furrows were occasionally darker, containing redeposited clay and a clayey silt more similar to the top soil, with occasional sherds of post-medieval pottery.

3.3.3 During post-excavation it was possible to accurately plot these features against the clear furrow system apparent on geophysics and conclude that some were most likely the bases of furrows while ‘cultivation ditches’ were distinct features of an earlier phase. On Figure 3 onwards, these cultivation ditches are shown as archaeological features, distinct from the furrows.

3.3.4 Small pits that have been associated with the cultivation ditches (by their locations and fills) were excavated in Trenches 35 and 54. A potentially later pit was excavated in Trench 15.

3.3.5 Potentially modern postholes were recorded in Trenches 16 and 17.

3.3.6 Backfilled field boundaries were found in all three fields (see Figure 3 etc.).

3.4 Field 1 (Fig. 4)

Trench 1

3.4.1 No geophysical anomalies were noted.

3.4.2 Two cultivation ditches 0.4m wide crossed the east of the trench on a north-west to south-east alignment, 3.7m apart (not excavated).

3.4.3 Modern disturbance (present across the west of Field 1) affected the western 14m of Trench 1, appearing as disturbed soils, with pockets penetrating the natural clay. Natural deposits were visible across the rest of the trench (Plate 1).

Trench 2

3.4.4 Four cultivation ditches 0.5-0.8m wide, aligned north-west to south-east at intervals of 3.5-6m crossed the middle of the trench. The easternmost coincided with a geophysical anomaly (furrow) but was not on the same alignment.

3.4.5 A narrower ditch (**215**) 0.35m wide and 0.05m deep lay perpendicular to the cultivation ditches at the east end of the trench. It was filled by the same material as the other cultivation ditches.

3.4.6 Two probable furrows were identified as geophysical anomalies but did not penetrate the subsoil. Pockets of modern interference affected the western 6-7m of the trench and no archaeological features were visible.

Trench 3

3.4.7 Two probable furrows and a south-south-west to north-north-east linear anomaly (see also Trenches 4, 9, 17 and 28) and were identified as geophysical anomalies. The latter was described as comprising 'differing magnetic components and these are thought to represent an old track-come-boundary' (Gater 2017, 3). No evidence for this was visible in the soils or cutting through the natural silts. Lacking a consistent negative geophysical signal this feature may only have been present in the sub-soil or even the top soil.

Trench 4

3.4.8 Two furrows and a possible track way (see Trench 3) were identified as geophysical anomalies but were not identifiable in the trench.

Trench 6

3.4.9 One furrow identified as geophysical anomaly at southern end but not identified in the trench.

3.4.10 Natural was reached at approximately 0.6m below ground surface but no archaeological features present. Substantial shallow (up to around 0.6m from surface) modern disturbance except at the southern 8m of the trench.

Trench 7

3.4.11 Two furrows were identified as geophysical anomalies but only one (slightly deeper) was identifiable in the centre of the trench.

3.4.12 Five parallel cultivation ditches (not excavated) 0.4-0.7m wide and at intervals of 3.5-10m crossed the trench on a north-west to south-east alignment. One cultivation ditch (**211**) was excavated. It was 0.4m wide and 0.07m deep. It was unclear if it cut the sub-soil or merely the transition from the subsoil to natural clay-silts but up to a further 0.2m of depth survived.

Trench 8

3.4.13 Two furrows were identified as geophysical anomalies both were identifiable as very shallow features in the trench.

3.4.14 Five north-west to south-east cultivation ditches crossed the trench. They were 0.6-0.8m wide and spaced at intervals of 4.5-8m.

3.4.15 A filled in modern field boundary was identified at the east end of the trench.

Trench 9

3.4.16 None of the features identified by geophysical survey (three furrows and a possible track way) was found in this trench.

Trench 11

3.4.17 No archaeology. The entire of this trench was affected by the same modern disturbance as Trenches 1, 2 and 6. Natural deposits were revealed at a depth of 0.6-0.8m.

Trench 12

3.4.18 Four probable furrows were identified as geophysical anomalies, two were identifiable as very shallow features in the trench.

3.4.19 A fifth linear feature was parallel with the furrows but was not visible on the geophysical survey and appeared to be too close to the furrows to be part of the same system. It may be a cultivation ditch (although was on a different alignment to those) or alternatively could represent another phase of ridge and furrow.

Trench 13

3.4.20 Five probable furrows were identified as geophysical anomalies, two were identifiable as very shallow features in the trench.

Trench 14

3.4.21 No archaeology. Modern disturbance was present across the western 12m of the trench with pockets reaching at least 0.6m below the ground surface where natural deposits became visible.

Trench 15

3.4.22 Three probable furrows were identified as geophysical anomalies; one was identifiable as a very shallow feature in the trench.

3.4.23 A pit (**156**) of probable post-medieval date lay in the north of the trench, partly under the eastern edge of the trench (Plate 2). It was circular in plan, 1.35m wide and 0.53m deep with sides slightly undercut. Its lower fill (157) comprised compact clayey sandy silt which was

up to 0.4m thick, possibly tipped from the eastern side. The upper fill (158) was dark greyish brown clayey silt with frequent charcoal flecks. Fragments of CBM and some regular, square chips of burnt wood or charcoal (discarded) suggest a relatively modern date. Small, abraded sherds of prehistoric pottery were recovered from environmental samples but are probably residual. A single barley grain was recovered from the upper fill, 158.

Trench 16

3.4.24 Two probable furrows were identified as geophysical anomalies; none were identifiable in the trench

3.4.25 Two cultivation ditches on a south-west to north-east alignment crossed each end of this trench. The eastern ditch (**148**) was excavated. It was 0.7m wide and 0.14m deep with shallow sides and a u-shaped base. Its fill (149) was consistent with the other cultivation ditches: mid-greyish brown clayey silt. To its east was a perpendicular cultivation ditch (unexcavated).

3.4.26 In the centre of the trench was a pit or posthole (**144**) and shallow pit (**146**). Neither was dated. Pit **144** was 0.38m wide and 0.16m deep. Pit **146** was wider at 0.75m but with similar depth. Both were filled (145, 147 respectively) with the same type of fill as the cultivation ditches.

Trench 17

3.4.27 Two furrows and a possible trackway (see Trench 3) were identified as geophysical anomalies, but none were identifiable in the trench

3.4.28 Two shallow pits or postholes were present in this trench. At the western end **150** was 0.09m deep and 0.35m wide with a concave base and shallow sides. Its fill (151) was a mixed pale brown clayey silt. Further east, **152** was deeper at 0.18m deep and 0.24m wide, with irregular steep sides and a much darker mixed fill (153).

Trench 18

3.4.29 Six furrows were identified as geophysical anomalies two were identifiable as very shallow features in the trench, a further two may also be the remains of furrows although they did not coincide precisely with the geophysics plot.

Trench 20

3.4.30 Trench 20 targeted a faint geophysical anomaly; a circular feature perhaps 37m in diameter, with a concentric inner circle of 13m diameter. This feature was not found in the trench and may be the result of a combination of geological variations intersecting with three furrows.

Trench 21

3.4.31 Three furrows were identified as geophysical anomalies but none were found in the trench. However, two 0.5-0.6m wide ditches approximately 5m apart crossed the trench on a north-west to south-east alignment and were parallel with the furrows. Although they did not coincide with the geophysical anomalies they may represent another phase of ridge and furrow.

Trench 22

3.4.32 Lying at the western side of Field 1, this trench revealed the same modern truncation as seen in previous trenches in the area. Pockets of it reached depths of c. 0.6m below the surface, with the sub-soil having been truncated.

Trench 23

3.4.33 Four furrows were identified as geophysical anomalies but none were found in the trench.

Trench 24

3.4.34 Four furrows were identified as geophysical anomalies, two were found in the trench, one of which (259) was excavated. This was 0.05m deep although its full width, in excess of 0.6m was obscured by a field drain.

3.4.35 One ditch aligned west-north-west to east-south-east at the south end of the trench was 1.1m and may represent another phase of ridge and furrow.

Trench 25

3.4.36 Two furrows were identified as geophysical anomalies and were found in the trench.

3.4.37 Two cultivation ditches were located between and on the same alignment as the furrows.

Trench 26

3.4.38 Six furrows were identified as geophysical anomalies and all were found in the trench.

3.4.39 Five cultivation ditches were also present, typically 0.5m in width with a minimum spacing of 4.4m. The fills of these features differed from the furrows in character.

Trench 27

3.4.40 A modern field boundary, two furrows and a possible trackway (see Trench 3) were identified as geophysical anomalies but only the modern boundary was found in the trench.

3.4.41 Two cultivation ditches aligned north-north-west to south-south-east were recorded near either end of the trench.

Trench 28

3.4.42 Four furrows and a possible trackway (see Trench 3) were identified as geophysical anomalies but not found in the trench.

3.4.43 A single cultivation ditch 0.5m wide was recorded running obliquely to the trench at its southern end.

Trench 29

3.4.44 Two furrows were identified as geophysical anomalies but were not found in this trench.

3.4.45 Four cultivation ditches, all aligned north-north-west to south-south-east crossed the trench at irregular intervals.

Trench 30

3.4.46 Five furrows were identified as geophysical anomalies but only three were found in the trench.

3.4.47 Two cultivation ditches were recorded on the same alignment as the furrows but did not coincide with the geophysical survey, they may represent another phase of ridge and furrow.

Trench 31

3.4.48 The majority of this trench was disturbed by modern activity.

Trench 32

3.4.49 A possible furrow was recorded at the northeast end of the trench, aligned perpendicular to it. Four furrows were visible on geophysics.

Trench 33

3.4.50 Two furrows were identified as geophysical anomalies but only one was certainly found in the trench.

3.4.51 Five cultivation ditches aligned on the same northwest to southeast orientation as the furrows crossed the trench. These ditches may represent a different phase of ridge and furrow.

Trench 34

3.4.52 A modern field boundary, two furrows and a possible trackway (see Trench 3) were identified as geophysical anomalies but only the modern boundary was found in the trench.

3.4.53 Three cultivation ditches were recorded in the trench, aligned loosely northwest to southeast but not quite parallel.

Trench 35

3.4.54 All features in Trench 35 were excavated. Two cultivation ditches aligned west-north-west to east-south-east crossed the trench. In the north, Ditch **116** was 0.35m wide and 0.1m deep with a u-shaped profile. Ditch **329** in the south had a similar profile but more of it survived. It was 1.1m wide and 0.3m deep.

3.4.55 A cluster of small pits (e.g. Plate 4) was associated with Ditch **116**. These pits (**118, 120, 322, 324, 326**) ranged from 0.7 to 1.6m wide and 0.3 to 0.4m deep. They were sub-circular in plan with the exception of Pit **118** which was sub-square. The ditch fills (117, 330 respectively) and pit fills (119, 121, 323, 325, 327 respectively) typical of the cultivation ditches: mid brownish grey clayey silts not suggestive of intensive activity in the immediate area. Pit **118** produced a moderately abraded Roman sherd.

3.4.56 Two furrows (**114** (north) and **331** (south)) were visible, one at each end of the trench. Both were 0.9m wide and 0.08-0.14m deep. Two additional furrows were visible on geophysics but not in the ground.

Trench 36

3.4.57 Four cultivation ditches aligned north-north-west to south-south-east were recorded. Two furrows on a different alignment, closer to east-west, were visible on geophysics.

Trench 38

3.4.58 Two furrows were recorded in plan with an additional three visible on geophysics only.

Trench 39

3.4.59 This trench was shortened to 25m due to the proximity of the site boundary. Three small cultivation ditches were on a different alignment to the nearby furrows on geophysics (one of which would have crossed the trench but was not visible).

Trench 40

3.4.60 The northern end of the trench contained the southern limits of the modern disturbance in Field 1. Two furrows were visible on geophysics but not visible in the ground.

Trench 41

3.4.61 This trench was targeted on a possible anomaly situated on the line of the headland/trackway that crossed the fields prior to enclosure. However, this proved to be a product of the modern disturbance on the west side of the field. Truncation here was deeper with a machined sondage reaching natural deposits around 1.1m below the surface.

Trench 42

3.4.62 Three parallel cultivation ditches and a perpendicular ditch crossed this trench. At the eastern end, Ditch **255** was 0.35m wide and 0.09m deep. It was aligned northwest to southeast (as were its two parallels in the west of the trench). Perpendicular to it, lying just to the west, Ditch **257** was 0.43m wide and 0.04m deep. Three furrows were visible on geophysics.

Trench 43

3.4.63 A single cultivation ditch (**185**) crossed this trench. It was immediately adjacent to and closely aligned with one of the four furrows crossing the trench (Furrow **187**). Ditch **185** was 0.3m wide and 0.1m deep while Furrow **187** was slightly wider at 0.45m.

3.4.64 An additional furrow appeared only on the geophysics at the southern end of the trench.

Trench 44

3.4.65 Three cultivation ditches were recorded spread across the trench, all aligned north-north-west to south-south-east. Two furrows on geophysics crossed the trench obliquely, but were not visible in the ground.

3.4.66 The modern field boundary continued from Trench 34. A possible track way (see Trench 3) was visible on geophysics but not in the trench.

Trench 45

3.4.67 The base of a single furrow crossed the length of the trench.

Trench 47

3.4.68 No archaeology. Up to four furrows visible on geophysics only.

Trenches 48 & 49

3.4.69 Forming an L-shape these trenches were designed to target the north-western extents of the headland as it joined Field 1. Here the headland was topographically much reduced in comparison with Field 2. It was however reflected as a much thicker sub-soil 0.3-0.35m thick compared to 0.1m at the far ends of both trenches and a typical 0.2m in surrounding trenches. The trench was over-machined at the intersection of the two trenches as the natural geology below the headland was a finer silty sand contrasting with the surrounding clay.

3.4.70 Several faint furrows cross these trenches on geophysics but none was visible in the ground.

Trench 50

3.4.71 Three cultivation ditches spaced 14m apart crossed the trench aligned north-north-west to south-south-east. They were 0.6-0.8m wide. One furrow crossed the western end of the trench, aligned northwest to southeast. Two further parallel furrows were only visible as geophysical anomalies.

Trench 51

3.4.72 This trench was shortened 31m to maintain access to the east of the field along tractor lines.

3.4.73 Four furrows were identified as geophysical anomalies, only one was found in the trench.

3.4.74 Three more linear features may be cultivation ditches and were on a different (north-north-west to south-south-east) alignment.

Trench 52

3.4.75 Seven furrows were identified as geophysical anomalies, only one was certainly found in the trench a second linear feature aligned on a similar west-north-west to east-south-east orientation in the north of the trench did not precisely coincide with a geophysical anomaly and may be a cultivation ditch or a different phase of ridge and furrow.

Trench 53

3.4.76 Two cultivation ditches, aligned north-north-west to south-south-east 18m apart were located in this trench. A third feature at the western end of the trench may have been a furrow.

Trench 54

3.4.77 Five furrows were identified as geophysical anomalies, four of which were identified in the trench.

3.4.78 At the south-east end of the trench there were four pits, sub-oval in plan, similar in character to those in Trench 35 (Plate 5). Due to flooding it was only possible to excavate one of these, Pit **283**, which was 1.55m across and 0.4m deep with steep sides and a flattish base. Its fill (284) was a mid-brown clayey silt.

3.4.79 A probable post-medieval posthole (**285**) lay in the north of the trench close to a probable furrow. This was 0.3m in diameter and 0.15m deep.

3.5 Field 2 (Fig. 5)

Trenches 55-57

3.5.1 No features were identified in these trenches

Trench 58

3.5.2 This trench was positioned to test an east to west linear geophysical anomaly that is also depicted on the first edition Ordnance Survey 6-inch map.

3.5.3 The natural exposed in this trench was clay with veins of sand through which a ditch (**41**) was cut, confirming the map and geophysical evidence. It was 0.4m deep and 2.04m wide with 45-degree sides and a narrow flat base. It had been filled with dark clayey silt (42), very similar to topsoil and contained clay tobacco pipe.

Trench 59

3.5.4 No archaeology was found in this trench.

Trench 60

3.5.5 Trench 60 was located to test the presence of a north to south linear geophysical anomaly. Two ditches (**81** and **83**) coincided with and were on the same alignment as the anomaly. Ditch **83** had steep sides and a narrow flat base, similar to Ditch **41** in Trench 58. It was 1.5m wide and 0.75m deep. This may have silted up naturally, having a fairly pale lower fill (84) above which was a mid/light-brown clayey silt (85). It was cut by Ditch **81** which had shallower sides and a concave base. It was 1.2m wide and 0.5m deep. Its fill (82) resembled that of Ditch **41** – probably backfilled topsoil, and it contained a fragment of tobacco pipe.

Trench 61

3.5.6 This trench was located over a faint west-south-west to east-north-east linear geophysical anomaly (probably a furrow), but no features were found in the trench.

Trench 62

3.5.7 This trench was located over four faint west-south-west to east-north-east linear geophysical anomalies (probably furrows). Three of the furrows were present (**102** (Plate 6), **106** and **110**).

3.5.8 Another east to west linear feature (**104**) was on a slightly different alignment to the furrows although it coincided with one of the geophysical anomalies. This may be a cultivation ditch, it was 0.7m wide and 0.08m deep.

3.5.9 A small pit or posthole (**108**) is likely to be modern.

Trench 63

3.5.10 Four furrows were identified as geophysical anomalies but only two (**92** and **96**) were revealed in the trench.

3.5.11 Two ditches were revealed in the trench; Ditch **88** on a west-south-west to east-north-east alignment and probably a continuation of Ditch 42 (Trench 58) and south-south-east to north-north-west aligned Ditch **86** which cut Furrow **92**. Ditch **86** was only 0.54m wide and 0.12m deep. It did not appear directly as a geophysical anomaly although a linear trend of ferrous hot spots was parallel with it. The same ditch was also present in Trenches 70 and 73.

Trench 64

3.5.12 At least four or five furrows were visible as geophysical anomalies but were not found in this trench, no other features were present.

Trench 65

3.5.13 At least four or five furrows were visible as geophysical anomalies but were not found in this trench.

3.5.14 Two cultivation ditches were found at the northern end of the trench. They were 5.5m apart, each 0.55m wide. They were aligned east-west, in contrast with the furrows in this field.

Trench 66

3.5.15 Four furrows appeared only as geophysical anomalies and were not found in the trench.

3.5.16 On a different alignment to the furrows were four probable cultivation ditches. The southernmost (**100**) terminated in the trench. This was 0.06m deep and 0.6m wide. Further north, Ditch **98** shared the same alignment and similar dimensions. Ditch **96** was closer to northwest to southeast in alignment and had a U-shaped profile 0.65m wide and 0.26m deep, while Ditch **94** was slightly smaller but aligned closely to east-west. Their fills (99, 97, 95, 93 respectively) were similar to the finds-poor cultivation ditches of Field 1.

Trench 67

3.5.17 Geophysical anomalies were weak in this area although several linear features (probably furrows) were visible, none was found in the trench.

3.5.18 Two cultivation ditches, unexcavated, lay at the north of the trench. Their alignments were almost east to west.

Trench 68

3.5.19 Geophysical anomalies were weak in this area although eight linear features (probably furrows) were visible, none was found in the trench.

3.5.20 Four cultivation ditches (**50, 52, 54, 56**) ditches were excavated, all aligned east to west but spaced at irregular intervals, with two positioned next to each other (**50** and **52**). All were between 0.4 and 0.9m wide and between 0.08 and 0.21m deep.

Trench 69

3.5.21 Faint geophysical anomalies suggested the presence of approximately six furrows, but only one was found in this trench.

3.5.22 A single cultivation ditch aligned east to west was located just to the south of the furrow.

Trench 70

3.5.23 Ditch **86** continued from Trench 63 into this trench. Two or three furrows appeared on geophysics but were not visible in the ground.

Trench 71

3.5.24 No archaeology was present in this trench. Three furrows were visible on geophysics only.

Trench 72

3.5.25 This trench was shortened to 47.5m to avoid trees at the edge of the field. Thicker subsoil at its southern end was machined away. This overlay a large feature (**43**), the upper fills of which were also removed in a machine-cut sondage (Plate 7).

3.5.26 Below the machined level, a 2x1m test pit was dug by hand, and its base was tested in several places using an auger. Its total depth was 1.4m below plough soils and it was at least 5.7m wide, although its southern edge probably within another 3m or 4m beyond the southern end of the trench as its base was rising up again in that direction. At its deepest it was cut into clean blue clay (underlying the surface deposits of mixed gravels, sands and chalk).

3.5.27 Its basal fill (44) was a mid greyish blue silty clay, washed-in or weathered natural clay. It produced only animal bone. Overlying this was a deposit (45) of mid brown silty clay which produced animal bone and a single fragment of Samian ware. The next fill (49) in the sequence was a darker brown clayey silt, producing a single sherd of flint tempered Early Iron Age pottery.

3.5.28 A shallower circular pit (**46**) 1.3m in diameter and around 0.9m deep was cut into the fills of Hollow **43**. The pit was filled by a dark brown silty clay but produced no finds.

3.5.29 The hollow may have been a pond, pool or large watering hole, potentially originally of natural origin but dug out (**46**) for re-use after it had silted up. However, this area was highest and best-drained part of the site with diamicton deposits around 1-1.2m thick overlying the clay and despite the wintry conditions and heavy rain during excavation, these features held very little water.

3.5.30 The date of the feature is uncertain, it may be Roman but the finds are poor and it could have been open later and/or over a long period of time. Environmental sampling produced no organic remains.

Trench 73

3.5.31 One cultivation ditch crossed the trench on a west-north-west to east-south-east alignment. This was 1 wide but conditions were too wet to investigate.

3.5.32 Four furrows were visible on geophysics only.

3.5.33 The 19th century field ditch (**86**) continued from Trenches 63 and 70. It was excavated here (**112**) with a width of 0.4m and a depth of 0.15m.

Trench 74

3.5.34 This trench was shortened to 46m to avoid the green verge in the field. One cultivation ditch, aligned west-northwest to east-southeast was recorded.

Trench 75

3.5.35 No archaeology or evidence of furrows was found in this trench.

Trench 76

3.5.36 Four or five furrows are visible as geophysical anomalies but only one (**138**) was found in the trench.

3.5.37 The western terminus of an east to west aligned cultivation ditch (**142**) lay in the south of the trench (see Plate 8). This was 0.86m wide and 0.16m deep, filled with a mid greyish brown clayey silt (143).

3.5.38 Further north, a shallow post-medieval pit (**140**) 1.1m wide and 0.3m deep lay against the north-western baulk. It had gradually sloping sides and its fill was a very clean clayey silt (141). This produced a sherd of Post-medieval Redware

3.5.39 A probable modern ditch (**135**) crossed the centre of the trench, aligned north-west to south-east. This cut the surviving subsoil and was filled with an initial silting of mid greyish brown clayey silt (146) then a dark brown clayey silt (147), possibly backfilled topsoil similar to 19th century ditched boundaries in the west of the field. This ditch can be traced a further 16m southeast as a geophysical anomaly and may represent an enclosure ditch depicted on the 1810 map (Figure 7).

Trench 77

3.5.40 Five furrows are revealed as geophysical anomalies, two of which (**129** and **133**) were visible in the trench.

3.5.41 A cultivation ditch (**121**) followed a south-south-west to north-north-east orientation obliquely through the south of the trench. This was 0.5m wide and 0.09m deep. A second (**131**) crossed the north of the trench on a north-west to south-east orientation (0.4m wide, 0.1m deep) and was cut by furrow **133**.

3.5.42 Three undated postholes (Plate 9) spaced 0.3m apart aligned north-south (from south: **123**, **125** and **127**) may be evidence for a structure, possibly a fence.

Trench 78

3.5.43 Two or three furrows represented as geophysical anomalies were not found in the trench.

3.5.44 A 16m long segment of cultivation ditch aligned west to east terminated or shallowed out at its eastern end. A perpendicular north to south aligned cultivation ditch was located at the eastern end of the trench.

Trench 79

3.5.45 Four furrows were visible as faint geophysical anomalies but were not found in the trench. The eastern terminus of a single possible cultivation ditch lay at the north end of the trench.

Trench 80

3.5.46 Four furrows were visible as faint geophysical anomalies but were not found in the trench. Five cultivation ditches were recorded crossing the trench on a west to east alignment, spaced between 4m and 8m apart. Of these, the two southern most were excavated (Ditches **60** and **62**). Both were 0.4m wide and around 0.2m deep with steep sides and rounded bases. Their fills (61 and 63) comprised mid greyish brown clayey silts.

3.6 Field 3 (Fig. 6)

Trench 81

3.6.1 Trench 81 was shortened to 48m in order to maintain distance from the modern field boundary. It was positioned between furrows shown on geophysics.

3.6.2 A total of six cultivation ditches were recorded in this trench. They followed two ordinal alignments: southwest to northeast (from west: **15**, **13**, **11**) and northwest to southeast (from west: **8**, **3**, **1**).

3.6.3 The western end of the trench cut through soil that formed a headland which crossed the field. This were represented by an increase in the thickness of the subsoil which was approximately 0.2m thicker (up to 0.5m) than at the east end of the trench (Plate 10).

3.6.4 A shallow (0.5m wide and 0.07m deep) north to south aligned ditch (**6**) near the centre of the trench produced post-medieval pottery and possibly parallel with the eastern side of the headland, appearing again in Trench 84.

Trench 82

3.6.5 A single furrow was visible in the west of the trench. Two more were only seen as geophysical anomalies.

Trench 83

3.6.6 Three parallel cultivation ditches lay in the west of the trench spaced at intervals of approximately 5.5m with widths between 0.5m and 0.7m. Two in the west were excavated (**181**, **183**; Plate 11) and were 0.15m and 0.2m deep respectively.

3.6.7 Two furrows were visible only on geophysics. A filled-in modern field boundary crossed the middle of the trench.

Trench 84

3.6.8 Trench 84 was targeted just off the headland. Four probable cultivation ditches lay within the trench, all were excavated and had similar greyish brown clayey silt fills. Two west-east aligned ditches (**19** and **23**) crossed the northwest of the trench. Both were less than 0.1m deep. A ditch (**29**) excavated in the centre of the trench may in fact have been the abutting of two west-east aligned ditches. A fourth ditch (**33**) of similar nature lay in the south

of the trench on a south-southwest to north-northeast alignment. Again this was shallow at 0.12m deep.

3.6.9 Following comparison with geophysics it was possible to interpret four more excavated linear features as furrows (**23**, **27**, **31** and **35**), the last producing a clay tobacco pipe.

3.6.10 Finally, post-medieval Ditch **25**, aligned north-south probably represented the southern continuation of Ditch **6** from Trench 81. This was 0.54m wide and 0.12m deep.

3.6.11 An amorphous sub-soil hollow around 1-2m across and 0.05m deep, initially interpreted and excavated as a furrow (**21**) in the northwest of the trench produced a badly corroded coin (SF1).

Trench 85

3.6.12 Four parallel cultivation ditches at intervals of 5-8m apart and 0.3-0.5m wide, aligned west-northwest to east-southeast crossed the trench. A fifth parallel linear feature appeared to be a furrow, corresponding with geophysics. Four further furrows appeared on geophysics but not in the trench.

Trench 86

3.6.13 Three furrows aligned northwest-southeast were visible, with a fourth only showing on geophysics.

Trench 87

3.6.14 A cultivation ditch in the north of the trench was probably the extension of Ditch **183** from Trench 83, aligned south-southwest to north-northeast. A second probably cultivation ditch perpendicular to this lay in the south of the trench. This was however parallel with seven probable furrows visible in the trench, corresponding with the geophysics.

Trench 88

3.6.15 All five furrows visible on geophysics were found in the trench.

Trench 89

3.6.16 Trench 89 was targeted across the headland. It did not intersect with any furrows on geophysics. Five west-east aligned cultivation ditches crossed the trench at varying intervals (from southwest:**161**, **163**, **167**, **169** and **37**). All were between 0.4 and 0.6m wide and 0.1-0.2m deep. Two ditches (in the centre of the trench, **165**, and at its northeast end, **39**) followed an almost perpendicular alignment. These were 1 and 1.3m wide respectively and 0.2m deep.

3.6.17 Subsoil up to 0.6m thick represented the remains of the headland.

Trench 90

3.6.18 Eight near-parallel linear features were recorded. By comparison with the geophysics, three were interpreted as furrows and five as cultivation ditches. Of the latter, one was excavated (Ditch **201**). This was 0.15m deep and 0.4m wide. Medieval pottery was found but only on its upper surface – potentially an intrusion from the subsoil.

Trench 91

3.6.19 Two cultivation ditches aligned west-east lay in the southwest of the trench (Plate 12). A furrow crossed the north-eastern half. Five further furrows were visible on geophysics only.

Trench 92

3.6.20 Six parallel west-east aligned cultivation ditches were recorded. They had intervals of between 3 and 5m, with a 12m gap in the centre of the trench. The southernmost was excavated (**253**) and found to be typical of those recorded across the site: 0.5m wide and 0.08m deep with a mid-greyish brown clayey silt fill (**254**).

3.6.21 Four furrows were visible only on geophysics.

Trench 93

3.6.22 Three cultivation ditches, two aligned northwest-southeast (**249**, **247**) and one west-northwest to east-southeast (**245**) crossed the trench. These were 0.5-0.7m wide and 0.1 to 0.15m deep. Ditch **247** produced a Late Iron Age-early Roman sherd.

3.6.23 Three furrows crossed the trench obliquely to the cultivation ditches. The westernmost (**251**) was excavated.

Trench 94

3.6.24 The south of the trench contained one possible cultivation ditch. Parallel to the north were six furrows all corresponding with geophysics.

Trench 95

3.6.25 A group of four parallel west-east cultivation ditches was recorded in the northeast of the trench, with intervals of 2-3m, typically around 0.5m wide. One (**179**) was excavated. It was 0.46m wide and 0.12m deep. A fifth on the same alignment terminated (**171**) in the southwest of the trench. This was 0.35m wide and 0.1m deep. It was associated with a small pit (**173**) 0.45m wide and 0.15m deep with steep sides and a flat base.

3.6.26 Following a more north-north-westerly alignment were two more ditches, Ditch **175** (0.45m wide and 0.1m deep) and Ditch **177** (0.64m wide and 0.12m deep). Ditch **175** may have had a slight curve to northeast although this was hard to determine in the confines of a 2.2m trench. Ditch **177** corresponded with a strong linear feature on the geophysics

Trenches 96 and 97

3.6.27 Trench 97 was targeted across furrows on geophysics, with Trench 96 a southern extension at its western end to take in a section of the headland.

3.6.28 A cultivation ditch aligned west-east was identified in Trench 97, below the thicker subsoil up to 0.5m thick.

3.6.29 Two furrows were recorded in Trench 97. One was partly excavated (**203**). This was cut by a field drain (**205**) which produced residual Roman pottery. A third furrow was only visible on geophysics.

Trench 98

3.6.30 A single cultivation ditch (**241**) ran obliquely along the southern half of Trench 98. This was 0.65m wide and 0.18m deep with shallow slides. South of this was a furrow (**243**), which was unexcavated although sherds of 17th century pottery were retrieved from its surface. Five further furrows were visible on geophysics only.

Trench 99

3.6.31 Two furrows were recorded, corresponding with the geophysics.

Trench 100

3.6.32 Two cultivation ditches lay at the north-eastern end of the trench aligned west-east and west-northwest to east-southeast. A single furrow was also recorded, with two others visible on geophysics.

Trench 101

3.6.33 Trench 101 was targeted across the headland near Grange Lane. A very slight feature (**209**) in the centre of the trench was interpreted as the base of a furrow, and could have been the very tail end of the furrow on geophysics to the east, but may in fact have been just a pocket of subsoil. The headland through the centre of the trench was made up of thicker subsoil, up to 0.4m contrasting with 0.25-0.3 at either end of the trench.

Trench 101

3.6.34 Two north-south aligned cultivation ditches and a single furrow were recorded.

Trench 103

3.6.35 No archaeology. Two furrows visible only on geophysics

3.7 Finds summary

3.7.1 A heavily corroded copper alloy coin (SF1) came from a pocket of subsoil in Trench 84.

3.7.2 A small-moderate pottery assemblage of 31 sherds, weighing 0.331 kg was recovered from topsoil, subsoil and features in 15 trenches. The condition of the overall assemblage is abraded. The average sherd weight from individual contexts is low at approximately 11g. Prehistoric sherds (probably residual) and an abraded piece of Central Gaulish Samian ware were found within features.

3.7.3 In total 0.38kg of animal bone was recovered, the majority from the hollow/pond feature in Trench 72. Eight struck flints were collected, the majority from topsoil. Small quantities of ceramic building material (undated) and tobacco pipe were also found.

4 DISCUSSION

4.1 Evaluation objectives and results

4.1.1 One of the key aims of the evaluation was to search for settlement evidence associated with the Anglo-Saxon cemetery previously excavated to the east of Field 3. No such evidence was found, suggesting such settlement may lie closer to the core of the medieval village.

4.2 Interpretation

Prehistoric

4.2.1 Small quantities of flints (Late Mesolithic to Early Neolithic, and potentially Bronze Age) recovered from soils across the site probably result from transient background activity, with the Fens to the northwest representing a valuable hunting resource and the higher ground on which Littleport was situated no doubt providing useful routeways. No certain prehistoric features were found during the evaluation, although (129) of three postholes in Trench 77 produced a sherd of prehistoric pottery. Small quantities of Bronze Age pottery found in Trench 15 were also probably residual.

Roman?

4.2.2 The hollow/pond/possible watering hole (43, Trench 72) produced Roman and prehistoric material but in such small quantities that it is impossible to date confidently. Environmental remains did not provide any insight as to its purpose (with no organic remains at all). They also do not suggest waterlogging and the immediate surface geology was some of the driest on site. If dug as a watering hole, it may have been subject to intrusion as well as accumulation of residual finds. There were no associated features to aid interpretation. The pit cut through it (46) did not produce any datable material.

Cultivation Ditches

4.2.3 The term 'cultivation ditches' has been used throughout. The usage stems from the appearance of regular parallel ditches that were distinct from furrows. However, it has also been applied to ditches that appear to derive from the same phase but whose purpose may be different (for example perpendicular ditches that may mark the edges of areas of cultivation). They did however share similarities: a linear form, often regularly spaced (and lacunae could easily be caused by truncation), typically shallow and less than 1m in width. Their fills were consistently pale and lacked finds. As such they appeared to form a coherent phase. The variety of alignments suggests the potential that these represented more than one phase, although rarely did conflicting alignments (except ordinal) occur in the same area (e.g. Trenches 8, 12 and 16 or Trenches 29 and 30).

4.2.4 These ditches were found throughout the centre, south and east of the site, but were lacking in the west of Field 1 and northwest of Field 2. Gullies found to the west during evaluation prior to construction of the lagoon (CHER MCB16923) may be part of the same system.

4.2.5 Rare stratigraphic relationships on site (e.g. in Trench 77) suggest these features pre-date the furrows. This is also supported by the fact that they are not visible on geophysics while the ridge and furrow system and later field ditches are. It is possible that these features

might be Roman, outlying the dense occupational activity found to the west at the Highfields Evaluation (ECB4721), however there is little dating to confirm this. Medieval and Post-medieval wares were recovered from Ditches **201** (Trench 90), **247** (Trench 93) and **175** (Trench 95), but in two cases these were potentially intrusions from the subsoil. Unfortunately, environmental sampling was also inconclusive.

4.2.6 In some areas (e.g. Trenches 26, 33 and 87) the alignment of the cultivation ditches is exactly parallel with (or perpendicular to) the ridge and furrow system. It is suggested then that they could also be an earlier medieval system from which the ridge and furrow system developed.

Pits

4.2.7 Small irregular pits were found near a cultivation ditch in Trench 35 and between furrows in Trench 54. They have been associated with the cultivation ditches by virtue of their pale sterile fills and an absence of any other features with which to associate them. In both clusters, the pits did not intercut, but respected each other (and coincidentally or not) did not intersect with cultivation ditches or furrows.

Later Medieval to Post-Medieval

4.2.8 The geophysical survey of the site (Figure 3 and Appendix G) is dominated by a ridge and furrow system abutting an irregular linear headland. These features were almost exclusively confined to the subsoil, making them almost impossible to see. Where they did intrude into the natural geology, they produced 17th to 18th century finds. The headland formed the line of a trackway as late as 1810, prior to full enclosure in 1840 (see Figure 7). Although some furrows apparently survived (on geophysics) into the area of modern disturbance in Field 1, most were completely truncated. None appeared within those trenches.

4.2.9 Curiously the LIDAR data (Figure 2) shows sinuous furrows in Field 3 respecting the headland but following an alignment perpendicular to those on the geophysics. Presumably this was a later variant on the same system, too shallow to leave a trace on the geophysics.

4.2.10 Ditches appearing on the first edition Ordnance Survey Six Inch map in Field 2 were found during excavation. Ditch **135** in Trench 77 may have represented a relatively late boundary, although it did not appear on any maps and was on a different alignment with the post-enclosure field boundaries.

Undated features

4.2.11 Undated postholes were found in Trenches 16 (Plate 3) and 17 (two each) and in Trenches 54 and Trench 62 (one each). Those in Trench 77 (Plate 9) produced prehistoric pottery. In all cases, these features' fills were somewhat darker than the cultivation ditches.

4.2.12 Pit **156** in Trench 15 contained four sherds of Bronze Age pottery, more than the rest of the site together. It also produced one charred barley grain. The pottery is suspected to be residual in a post-medieval pit but this is largely based on the darker upper fill contrasting with cultivation ditches. It seems unlikely to be an Early Bronze Age pit (the pottery could not be closely dated), having a dearth of finds (e.g. Garrow 2006) and would be a rare occurrence on clay (Garrow 2006, Table 3.2 & Figs. 3.9 & 3.10).

4.3 Potential

4.3.1 The results of the evaluation show that the site has never seen any more than transient occupation. The few undated postholes are not associated with broader features or sufficient dateable cultural material to suggest significant occupation. Indeed, they could all be the result of modern fencing.

4.3.2 Whether the cultivation ditches were Roman or Medieval in origin, they lack artefacts and ecofacts to aid understanding of the Roman occupation nearby to the east or the subsequent Anglo-Saxon and Medieval development focused along Ely road nearer the core of the modern village. Where associated with Roman settlements, such features merit investigation as they tend to acquire at least some material incorporated into manure or middens from the settlement. However, this does not appear to be the case here and it is unlikely that further investigation would illuminate more than the evaluation has: their alignments, extents and relationship to later features.

Appendix A TRENCH DESCRIPTIONS AND CONTEXT INVENTORY

Trench Number	Length (m)	Geology	Topsoil thickness (avg.)	Subsoil thickness (avg.)	Features assigned context numbers	Cultivation Ditches	Furrows (ground/geophysics)	Other contexts
1	50	Clay and gravels	0.3	0.2		2		
2	50	Clay/silt	0.3	0.2		4	3/6	
3	50	Clay/silt	0.3	0.15				
4	46							
6	50	Clay/gravels						Significant modern disturbance
7	50	Clay/silt	0.4	0.25	211 Cultivation ditch (fill 212)	5	1/3	
8	49.5	Clay/gravels	0.25	0.15				
9	50	Clay/silt					0/3	Trackway on geophysics
11	50	Clay	0.25	-				Significant modern disturbance
12	50	Clay/silt	0.3	0.1		1	2/4	
13	49.7	Clay/silt w. gravel	0.3	0.1			2/5	
14	50	Clay/silt	0.3	0.15				Significant modern disturbance
15	50	Clay/gravel	0.25	0.1	156 Pit (post-med?; fills 157, 158)		1/3	
16	50	Clay/silt	0.35	0.1	144 Pit/posthole (fill 145) 146 Pit/posthole (fill 147) 148 Cultivation ditch (fill 149)	2	0/2	
17	50	Clay/silt w. gravel	0.35	0.1	150 Pit/posthole (fill 151) 152 Pit/posthole (fill 153)		0/2	Trackway on geophysics
18	50	Clay/silt	0.25	0.2		1	3/6	
20	50	Sandy silt	0.35	0.3			0/3	
21	50	Clay/silt	0.35	0.15		2	0/3	
22	50	Clay	0.4	0.2				Significant modern disturbance
23	50	Clay/silt	0.25	0.15			0/4	
24	50	Clay/silt	0.4	0.15	259 Furrow (fill 260)	1	2/5	
25	50	Clay/silt	0.3	0.2		2	2/2	
26	50	Clay/silt w. gravel	0.25	0.2		5	6/6	
27	50	Clay/silt	0.3	0.3		2	0/2	Modern ditch
28	50	Clay/silt	0.25	0.2		1	0/4	
29	50	Clay/silt	0.3	0.25		4	0/2	
30	40	Clay/silt	0.3	0.25		2	3/5	
31	50	Clay/silt	0.4	0.25				Significant modern disturbance
32	50	Clay/silt	0.35	0.15		0	1/5	

Trench Number	Length (m)	Geology	Topsoil thickness (avg.)	Subsoil thickness (avg.)	Features assigned context numbers	Cultivation Ditches	Furrows (ground/geophysics)	Other contexts
33	50	Clay/silt	0.4	0.2		5	½	
34	50	Clay/silt	0.3	0.2		3	0/1	Modern ditch
35	50	Clay/silt	0.35	0.25	114 Furrow (fill 115) 116 Cultivation ditch (fill 117) 118 Pit (fill 119) 120 Pit (fill 321) 322 Pit (fill 323) 324 Pit (fill 325) 326 Pit (fill 327) 329 Cultivation ditch (fill 330) 331 Furrow (fill 332)	2	2/4	
36	50	Clay/silt	0.25	0.2		4	0/2	
38	50	Clay/silt w. gravel	0.3	0.2			2/5	
39	25	Clay/silt w. gravel	0.3	0.2		3	0/1	
40	50	Clay/silts	0.4	0.3			0/2	Significant modern disturbance
41	50	Clay/silt	0.35	0.1			0/3	Significant modern disturbance
42	50	Clay/silt	0.34	0.15	255 Cultivation ditch (fill 256) 257 Cultivation ditch (fill 258)	4	0/3	
43	50	Clay/silt	0.35	0.2	185 Cultivation ditch (fill 186) 187 Cultivation ditch (fill 188) 189 Cultivation ditch (fill 190)	1	4/5	
44	50	Clay/silt	0.3	0.25		3	0/2	Modern ditch
45	50	Clay/silt	0.3	0.2			1/1	
47	50	Clay/silt	0.35	0.15			0/4	
48	50	Clay/silt/sand	0.35	0.25			0/3	Headland subsoil
49	60	Clay/silt/sand	0.3	0.2			0/3?	Headland subsoil
50	50	Clay/silt	0.3	0.2		3	1/3	
51	31	Clay/silt				4	0/4	
52	50	Clay/silt w. gravels	0.3	0.3		1	1/7	
53	50	Clay/silt w. gravels	0.25	0.2		3	0/2	
54	45	Clay/silt w. gravels	0.35	0.25	281 Furrow (fill 282) 283 Pit (fill 284) 285 Posthole (fill 286)		1/4	
55	50	Clay	0.25	0.15			4/5	
56	50	Clay	0.35	0.15				
57	50	Clay	0.3	0.1				

Trench Number	Length (m)	Geology	Topsoil thickness (avg.)	Subsoil thickness (avg.)	Features assigned context numbers	Cultivation Ditches	Furrows (ground/geophysics)	Other contexts
58	50	Clay w. sands	0.3	0.2	41 C19th field ditch (fill 42)		0/1	
59	50	Clay	0.35	0.2				
60	50	Clay	0.3	0.25	81 C19th field ditch (fill 82) 83 Post-med field ditch (fill 84)			
61	50	Clay w. gravels	0.25	0.2			0/1	
62	50	Clay	0.3	0.15	102 Furrow (fill 87) 104 Cultivation ditch? (fill 105) 106 Furrow (fill 107) 108 Posthole (modern; fill 109) 110 Furrow (fill 111)	1	3/5	
63	50	Clay	0.3	0.2	86 C19th field ditch (fill 87) 88 C19th field ditch (fill 89) 90 Furrow 92 Furrow		2/4	
64	50	Clay	0.25	0.2			0/5	
65	50	Clay w. sand//gravels	0.3	0.1		2	2/6?	
66	50	Clay	0.35	0.1	94 Cultivation ditch (fill 95) 96 Cultivation ditch (fill 97) 98 Cultivation ditch (fill 99) 100 Cultivation ditch (terminus; fill 101)	4	0/2?	
67	50	Clay w. gravels	0.3	0.07		2		
68	50	Clay/silt	0.35	0.05	50 Cultivation ditch (fill 51) 52 Cultivation ditch (fill 53) 54 Cultivation ditch (fill 55) 56 Cultivation ditch (fill 57)	4	0/6?	
69	50	Clay w. gravels	0.3	0.1		1	1/5?	
70	50	Clay	0.3	0.1	(112 C19th ditch, Trench 73)		0/1?	
71	50	Clay w. gravels	0.3	-			0/3?	
72	45	Clay/silt w. gravels	0.4	0.15	43 Hollow/pond (fills 44, 45, 48, 49) 46 Pit (fill 47)	1	0/5?	
73	50	Clay	0.35	0.2	112 C19th cultivation ditch (fill 113)			
74	50	Clay	0.3	0.25		1		
75	50	Clay	0.32	0.2				
76	50	Clay/silts	0.35	0.2	135 Ditch (post-medieval?; fills 136, 137) 138 Furrow (fill 139) 140 Pit/natural? (fill 141) 142 Cultivation ditch (fill 141)	1	1/3?	

Trench Number	Length (m)	Geology	Topsoil thickness (avg.)	Subsoil thickness (avg.)	Features assigned context numbers	Cultivation Ditches	Furrows (ground/geophysics)	Other contexts
77	50	Clay/silts	0.3	0.1	121 Cultivation ditch (fill 122) 123 Post hole (fill 124) 125 Post hole (fill 126) 127 Post hole (fill 128) 129 Furrow (fill 130) 131 Cultivation ditch (fill 132) 133 Furrow (fill 134)	2	2/3?	
78	50	Clay/silt	0.3	0.25		2	0/2?	
79	50	Clay w. gravels	0.4	0.25		1		
80	50	Clay w. gravels	0.3	0.3	60 Cultivation ditch (fill 61) 62 Cultivation ditch (fill 63)	5	0/4	
81	46	Clay/silt	0.4	0.4	1 Cultivation ditch (fill 6) 3 Cultivation ditch (fill 8) 6 Ditch (post-medieval? Fill 7)) 8 Cultivation ditch (fill 10) 11 Cultivation ditch (fill 12) 13 Cultivation ditch (fill 14) 15 Cultivation ditch (fill 16) 17 Cultivation ditch (fill 18)	6	0/1	Headland subsoil
82	50	Clay/silt w. gravels	0.35	0.25			1/2	
83	50	Clay	0.45	0.3	181 Cultivation ditch (fill 182) 183 Cultivation ditch (fill 184)		0/2	
84	50	Clay/silt	0.3	0.25	19 Cultivation ditch (fill 20) 21 Cultivation ditch (fill 22) 23 Cultivation ditch (fill 24) 25 Cultivation ditch (fill 26) 27 Furrow (fill 28) 29 Ditch (fill 30) 31 Furrow (fill 32) 33 Cultivation ditch (fill 34) 35 Cultivation ditch (fill 36)	6	2/4	Modern ditch
85	50	Clay/silt	0.35	0.25		4	1/4	
86	50	Clay/silt	0.35	0.35			3/4	
87	50	Clay/silt	0.3	0.15		2	7/7?	
88	50	Clay/silt w. gravels	0.35	0.15			5/5	

Trench Number	Length (m)	Geology	Topsoil thickness (avg.)	Subsoil thickness (avg.)	Features assigned context numbers	Cultivation Ditches	Furrows (ground/geophysics)	Other contexts
89	50	Clay	0.4	0.3	37 Cultivation Ditch (fill 38) 39 Cultivation Ditch (fill 40) 161 Cultivation Ditch (fill 161) 163 Cultivation Ditch (fill 164) 165 Cultivation Ditch (fill 166) 167 Cultivation Ditch (fill 168) 169 Cultivation Ditch (fill 170)	7		Headland subsoil
90	50	Clay/silt	0.3	0.25	201 Cultivation ditch (fill 202)	5	3/7	
91	50	Clay/silt w. gravels				2	1/6	
92	50	Clay/silt	0.35	0.35	253 Cultivation ditch (fill 254)	6	0/4	
93	50	Clay/silt	0.35	0.2	245 Cultivation ditch (fill 246) 247 Cultivation ditch (fill 248) 249 Cultivation ditch (fill 250) 251 Furrow (fill 252)	3	3/3	Modern ditch
94	50	Clay/silt w. sand	0.35	0.1		1	6/6	
95	50	Clay/silt	0.35	0.3	171 Cultivation ditch (fill 172) 173 Pit/posthole (fill 174) 175 Cultivation ditch (fill 176) 177 Cultivation ditch (fill 178) 179 Cultivation ditch (fill 180)	7		
96	50	Clay/silt	0.35	0.35	203 Furrow (fill 204) 205 Field drain (206)		2/3	
97	20	Clay/silt	0.35	0.5		1	0/1	Headland subsoil
98	50	Clay/silt	0.3	0.2	241 Cultivation ditch (242) 243 Furrow (fill 244)	1	1/5	
99	50	Clay/sand	0.35	0.15			2/2	
100	50	Clay/silt	0.3	0.35		2	1/3	
101	50	Clay/silt w. gravels/chalk	0.3	0.3	209 Possible furrow?		1?/3?	Headland subsoil
102	50	Clay/silt	0.3	0.1		1	1/1	
103	50	Clay/silt	0.35	0.15			0/3?	
All	-	-	-	-	213 – Topsoil 214 -- Subsoil	-	-	-

Appendix B FINDS REPORTS

B.1 Metal Small Finds

SF1 Coin

B.1.1 A heavily corroded copper alloy coin was recovered from a possible subsoil pocket in Trench 84.

B.2 Pottery

By Carole Fletcher with Roman pottery identified by Stephen Wadson and prehistoric pottery by Matt Brudenell

Introduction

B.2.1 Archaeological works produced a small-moderate pottery assemblage of 31 sherds, weighing 0.331 kg, recovered from topsoil, subsoil and features in 15 trenches. The condition of the overall assemblage is abraded. The average sherd weight from individual contexts is low at approximately 11g.

Methodology

B.2.2 The Prehistoric Ceramics Research Group (PCRG), Study Group for Roman Pottery (SGRP), The Medieval Pottery Research Group (MPRG), 2016 A Standard for Pottery Studies in Archaeology and the MPRG A guide to the classification of medieval ceramic forms (MPRG, 1998) act as standards.

B.2.3 Dating was carried out using OA East's in-house system based on that previously used at the Museum of London. Fabric classification has been carried out for all previously described medieval and post-medieval types. All sherds have been counted, classified, weighed, and the Minimum Number of Vessels (MNV) determined. All the pottery has been recorded and dated on a context-by-context basis and the catalogue is recorded in Table 1. The archives are curated by Oxford Archaeology East until formal deposition.

Assemblage

B.2.4 A single feature in Trench 15 (Field 1) produced pottery. Prehistoric sherds were recovered from two contexts within Pit **156**, of these, a single sherd is Early Bronze Age. The remaining sherds could not be closely dated, other than to say they are also prehistoric; these may also be Early Bronze Age. The pottery recovered from this feature, 7 sherds weighing 0.006kg, indicates Early Bronze Age activity within the area being evaluated, however the low number and weight of pottery sherds recovered do not make for reliable dating of the feature, since all of the sherds could be the result of reworking and bioturbation.

B.2.5 Pit **118** in Trench 35 produced a base sherd from a Roman Sandy reduced ware jar, the sherd is 1st-4th century and only moderately abraded. The sherd suggests the context may be Roman, however the lack of any other dating material makes this tentative.

B.2.6 More Roman material was recovered from Trench 72, where the pool/hollow, feature **43**, produced a sherd of Central Gaulish Samian, part of the foot ring and base from a 2nd century Dragendorff 18/31 or 31 dish/bowl. The feature also produced two sherds of flint and

quartz-tempered fabric, identified as Early Iron Age from a later context. However, once again the low levels of pottery recovered only allow for tentative dating of the feature.

B.2.7 A pit/post hole **140** in Trench 76 produced a small body sherd from a Post-medieval Redware (c.1550-1800) bowl or jar, and a single abraded prehistoric sherd was recovered from post hole 125 in Trench 77. Neither feature can be securely dated by the presence of a single sherd of pottery.

B.2.8 Furrows were excavated in Trenches 77, 84, and 98 and produced abraded pottery from a wide date range. An abraded residual Roman Sandy Greyware sherd and a base sherd from a Staffordshire Mottled ware drinking vessel (c.1650-1800) were recovered from Furrow **129** Trench 77. Furrow **31** in Trench 84 contained an abraded medieval jug sherd, alongside a fragment from a Post-medieval Redware (c.1550-1800) bowl. The final furrow in Trench 98, **243**, produced a sherd from a Staffordshire Slipware bowl (c.1660-1800).

B.2.9 Cultivation ditches in Trenches 81, 90, 93, 95 produced in total six abraded sherds of pottery. In Trench 90, Ditch **201** contained two sherds of pottery, of which only one could be identified as medieval; the other could not be closely dated, but as mentioned in the text these may be intrusive. In Trench 93, Ditch **247** produced a residual Late Iron Age-early Roman sherd, alongside Post-medieval Redware (c.1550-1800). The remaining cultivation ditch in Trench 95, 175, also produced a Post-medieval Redware sherd (c.1550-1800).

B.2.10 Ditch **6** in Trench 81 produced a small sherd of Post-medieval Redware (c.1550-1800).

B.2.11 A field drain, **205**, in Trench 96 produced a relatively unabraded neck sherd from a Nene Valley Colour Coat flagon or jug, which may be from a feature the field drain had destroyed, as no other Roman material recovered was in such relatively good condition. No other datable ceramic material was recovered from this trench.

B.2.12 Pottery was also recovered from the topsoil of Trenches 48, 69, and 81 and subsoil from Trenches 34 and 72. As might be expected, the pottery was a mixture of medieval and post-medieval fabrics including, from Trench 34, a frilled-thumbed base sherd from a large Langerwehe/Raeren stoneware jug and from Trench 69, an unabraded sherd of a Medieval Ely ware bowl.

Discussion

B.2.13 Likely to be domestic in origin, the small number of prehistoric sherds indicate some low level of Early Bronze Age and Iron Age activity within the area evaluated. The material was recovered from three trenches, 15, 72 and 93. Some of the features within these trenches that contained this prehistoric pottery can only be tentatively dated by the material present, due to the small and abraded nature of the sherds. Similarly, the Roman sherds recovered indicate low levels of Roman settlement activity in the vicinity of the area evaluated, rather than within the evaluated area itself. A single sherd was recovered from a pit, **118**, in Trench 35 and a fragment of Central Gaulish Samian recovered from the pond/pool **43** in Trench 77, the remainder being recovered from post-Roman linear features. The low levels of pottery suggest that some of the material became incorporated into the features through manuring and subsequent reworking, rather than deliberate deposition within features.

B.2.14 Post-Roman material forms the bulk of the small assemblage, with a few abraded medieval sherds, including two Ely ware vessels (one a glazed bowl), a South-east Fenland Medieval Calcareous Buff ware sherd and a micaceous sherd from an East Anglian Redware

vessel, possibly a Hedingham Fineware jug. Post-medieval material comprises the largest component of the assemblage by weight, and includes a single sherd from a late 15th-16th century German stoneware, which represents the only continental import in the post-Roman assemblage. The post-medieval sherds are also abraded, indicating significant reworking, most likely by ploughing.

B.2.15 There are no specialist vessels present in the assemblage and the low levels of pottery recovered from all periods, alongside the plain and fragmentary nature of the total assemblage, means it is of little significance. If no further work on the site is undertaken, the following catalogue acts as a full record and the pottery may be deselected prior to archival deposition.

Context	Cut	Trench	<i>Fabric</i>	Basic Form-description	MNV	No of sherds	Weight (kg)	Pottery Date
7	6	81	Post-medieval Redware	Jar body sherd, externally and internally glazed (honey coloured glaze). Abraded	1	1	0.003	1550-1800
32	31	84	Post-medieval Redware	Bowl, flat base sherd, internally glazed (honey coloured glaze). Abraded	1	1	0.012	1550-1800
32	31		East Anglian Redware/Late Hedingham Fineware	Abraded body sherd of uncertain form. External off-white slip and greenish glaze with a raised or applied strip on external surface	1	1	0.026	1350-1500
45	43	72	Central Gaulish Samian	Footring and part of base from a Dragendorff 18/31 or 31 dish/bowl	1	1	0.014	AD120-200
48	43		Early Iron Age	Body sherd flint and quartz tempered fabric	1	2	0.008	800-350BC
119	118	35	Sandy Reduced ware	Base sherd from a jar	1	1	0.011	1st-4th century
126	125	77	Prehistoric	Abraded, soft fabric reduced core, oxidised surface. Some calcareous inclusions, some quartz and common small voids from burnt out organic material	1	1	0.003	Prehistoric
130	129	77	Staffordshire Mottled ware	Flat slightly splayed base sherd from a drinking vessel, external and internal mottled brown glaze	1	1	0.008	1650-1800
130	129		Sandy Greyware (early)	Abraded body sherds of uncertain form	1	2	0.005	1st-mid 2nd century
141	140	76	Post-medieval Redware	Small bowl or jar body sherd, internally glazed occasional iron fleck, thin patches of external glaze (honey coloured glaze). Abraded	1	1	0.006	1550-1800
157	156	15	Prehistoric	Abraded small fragments oxidised dull orange-buff sand-tempered fabric with one reduced surface	1	4	0.003	Prehistoric

Context	Cut	Trench	<i>Fabric</i>	Basic Form-description	MNV	No of sherds	Weight (kg)	Pottery Date
158	156	15	Early Bronze Age	Soft and light quartz and grog tempered fabric	1	1	0.002	Early Bronze Age
158	156	15	Prehistoric	Small abraded fragments of indeterminate fabric	0	2	0.001	Prehistoric
176	175	95	Post-medieval Redware	Small jar body sherd, externally and internally glazed, occasional iron flecks, thin patches of external glaze (honey coloured glaze). Abraded	1	1	0.003	1550-1800
202	201	90	Medieval Sandy Coarseware	Moderately abraded rim sherd from large jar	1	1	0.002	1150-1500
202	201		Sandy oxidised ware with reduced surface	Abraded small fragment of uncertain form	1	1	0.002	Not closely datable
206	205	96	Nene Valley Colour Coat	Moderately abraded neck from a flagon or jug	1	1	0.028	3rd-4th century
213		69	Medieval Ely ware	Bowl body sherd, internally green glazed, abraded	1	1	0.013	1150-1350
213		48	South-east Fenland Medieval Calcareous Buff ware	Abraded body sherd of uncertain form.	1	1	0.008	1150-1450
213		81	Medieval Sandy Coarseware	Abraded sherd with remains of thumbbed applied strip	1	1	0.007	1150-1500
214		34	Langerwehe/Raeren stoneware	Moderately abraded, frilled-thumbbed base from a large jug or jar, external brown glaze, internal clear glaze	1	1	0.105	1450-1500
214		72	Post-medieval Redware	Bowl or jar body sherd, internally glazed (treacle glaze). Abraded	1	1	0.013	1550-1800
244	243	98	Staffordshire Slipware	Press moulded bowl rim with notched or piecrust edge, internally decorated off-white slip over brown, and then clear glazed	1	1	0.027	1660-1800
248	247	93	Post-medieval Redware	Bowl body sherd, internally glazed (mid brown glaze). Abraded	1	1	0.019	1550-1800
248	247		Late Iron Age-Early Roman	Quartz, flint and ?limestone	1	1	0.002	Early-mid 1st century
Total					24	31	0.331	

Table 1: Pottery catalogue

B.3 Clay Tobacco Pipe

By Carole Fletcher

B.3.1 During the evaluation three fragments of white ball clay tobacco pipe, weighing 0.024kg, was recovered from Trenches 58, 60 and 84. Terminology used in this report is taken from Oswald's simplified general typology (Oswald 1975, 37–41) and Crummy and Hind (Crummy 1988, 47-66). A quantification table for the clay pipes can be found at the end of this report, based on the recording methods recommended by the Society for Clay Pipe Research (<http://scpr.co/PDFs/Resources/White%20BAR%20Appendix%204.pdf>). Stem bore diameter recording has not been undertaken on this assemblage due to its limited size. The assemblage is catalogued in Table 1.

B.3.2 The fragments of clay tobacco pipe recovered represent what is most likely casually discarded pipes. The pipe fragments do little other than to indicate the consumption of tobacco on or in the vicinity of the site, most likely in the late 17th-18th century, when considered in relation to the date of the bowl recovered from the field boundary ditch **41**, and the post-medieval pottery also recovered. The plain and fragmentary nature of the assemblage means it is of little significance. If no further work on the site is undertaken, the following catalogue acts as a full record and the clay tobacco pipe may be deselected prior to archival deposition.

Trench	Context	Cut	Form	Weight (kg)	No. of pipe stem fragments	No. of complete or partial bowls	Description	Date
58	42	41	Oswald Type 9	0.014		1	Surviving stem length 22mm, joined to a rounded, slightly oval heel below a well formed bowl with neatly trimmed mould seams, near invisible on most of the bowl and only obvious on the underside of the stem and edge of the heel. Almost all of the rim has been broken away, as a result no rouletting could be observed. Height from heel to highest surviving point on bowl 41mm.	c.1680-1710
60	82	81	Fragment of pipe stem	0.007	1		Length of stem 59mm, slightly oval with trimmed mould lines, one of which is somewhat visible. The stem tapers from 10mm to 8.8mm (at widest axis).	Not closely datable
84	36	35	Fragment of pipe stem	0.003	1		Length of stem 34mm, slightly oval stem, tapering somewhat with faintly prominent, but trimmed mould lines.	Not closely datable
Total				0.024	2	1		

Table 2: Clay Tobacco Pipe Catalogue

B.4 Ceramic Building Material and Fired Clay

By Carole Fletcher

B.4.1 The archaeological works produced a fragmentary assemblage of ceramic building material (CBM) weighing 0.036kg. The assemblage includes a moderately abraded fragment of brick or tile, recovered from a furrow in Trench 77, an abraded fragment, possibly tile, from Furrow **243** in Trench 98, and fired clay weighing 0.001kg.

B.4.2 The material is not closely datable. The brick/tile from Furrow **129** may be post-medieval; both Roman and post-medieval pottery was recovered from features in Trench 77. The tile from Furrow **243** may be Roman or medieval; no other datable material was recovered from features in Trench 98.

B.4.3 The low levels of CBM recovered do little other than to indicate buildings were present in the vicinity of the site. The fragmentary nature of the assemblage means it is of little significance. If no further work on the site is undertaken, the following catalogue acts as a full record and the CBM and fired clay may be deselected prior to archival deposition.

Context	Cut	Trench	Weight (kg)	Form	Description	Date
130	129	77	0.014	Brick or tile	Single fragment. Rough surface and part of body in a poorly mixed pink and dull red clay with pale orange-pink and cream surfaces.	Not closely datable however likely to be post-medieval
122	121	77	0.001	Undiagnostic fired clay	Dull orange-red sand fabric.	Not closely datable
172	71	95	0.001	Undiagnostic Ceramic Building Material	Dull orange-red silty fabric.	Not closely datable
244	243	98	0.021	?Tile	Abraded surface fragment of possible tile, dull orange surface, mid grey core, quartz temper with calcareous inclusions and clay pellets or grog, relatively soft fabric. Uncertain if Roman or medieval.	Not closely datable
Total			0.037			

Table 3: Ceramic Building Material and Fired Clay Catalogue

B.5 Flint

By Anthony Haskins

Introduction

B.5.1 A small assemblage of 8 struck flints was recovered from the topsoil and subsoil during the evaluation. This report outlines the initial rapid assessment of the material.

Methodology

B.5.2 The recovered lithics were rapidly scanned and attributed to an arbitrary classification based on form of the material (Table 4). For the purposes of this report the burnt flint was counted but no further work was carried out on this material due to the difficulty in identifying struck and burnt material.

Trench	Context	Blade	Flake	Single Platform Core	Burnt
20	213		2		
48	213	1			
68	213			1	
81	213				1
101	213		1		
73	214		1		
77	214	1			
Totals		2	4	1	1

Table 4: Flint quantification

Assessment

B.5.3 This small residual assemblage is struck from either a translucent mid yellowish-brown flint of good quality with a pebble flint cortex or a heavily re-corticated flint with thermal flaws present.

B.5.4 The flakes present within the topsoil are heavily rolled and abraded with a mix of technology suggestive of a Late Mesolithic or Early Neolithic component mixed with material potentially from the Bronze Age.

B.5.5 The large flake recovered from the topsoil is particularly fresh although it is plough damaged and could in fact have been struck by a plough. The single platform flake core also recovered from the topsoil also looks very fresh and may have been formed during the machining of the trench.

Conclusions

B.5.6 The small residual assemblage suggests that some prehistoric activity from the Late Mesolithic/Early Neolithic to the Bronze Age occurred within the area of the proposed development. However, the quantity of material recovered makes it difficult to ascertain whether significant activity occurred.

B.6 Miscellaneous

By Carole Fletcher

B.6.1 A single fragment of oil-type shale was recovered from the pond/pool feature 43 in Trench 72 and a fragment of reduced fuel ash slag or clinker weighing 0.001 kg, recovered from cultivation ditch 6 in Trench 81, may both relate to the raking out in the 19th century of a steam ploughing engine or traction engine firebox. The material is of little significance other than to indicate steam driven engines may have been used in the fields and the material may be deselected prior to archive deposition.

Appendix C ENVIRONMENTAL REPORTS

C.1 Environmental Samples

C.1.1 Bulk samples were taken from features within Trenches 15, 42, 54, 72 and 76 in the evaluated area of Grange Lane, Littleport, Cambridgeshire in order to assess the quality of preservation of plant remains and their potential to provide useful data as part of further archaeological investigations.

Methodology

C.1.2 The total volume of each of the selected samples was processed by tank flotation using modified Siraff-type equipment for the recovery of preserved plant remains, dating evidence and any other artefactual evidence that might be present. The floating component (flot) of the samples was collected in a 0.3mm nylon mesh and the residue was washed through 10mm, 5mm, 2mm and a 0.5mm sieve.

C.1.3 The dried flots were scanned using a binocular microscope at magnifications up to x 60 and an abbreviated list of the recorded remains are presented in Table 1. 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 Zohary and Hopf (2000) for cereals and Stace (1997) for other plants. 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).

Results

Trench 15

C.1.4 A single charred barley (*Hordeum vulgare*) grain was recovered from Fill 158 of post-medieval/modern Pit **156**.

Trench 42

C.1.5 A small fragment of charred bean (Fabaceae) was identified from the Fill 256 of cultivation Ditch **255**.

Trench 54

C.1.6 A single charred buttercup (*Ranunculus acris/repens/bulbosus*) was recovered from Fill 282 of Cultivation Ditch **281**.

Trench 72

C.1.7 Samples taken from Hollow/Pond **43** and pit **46** did not contain any preserved plant remains.

Trench 76

C.1.8 A single sample taken from Cultivation Ditch **135** did not contain preserved plant remains other than sparse charcoal fragments.

Area/ trench no.	Feature no.	Context no.	Sample no.	Feature type	% context sampled	Volume processed (l)	Flot volume (ml)	Cereals	Weed seeds	Flot contents	Pottery	Small mammal bones
15	158	156	7	Pit	<10	14	20	#	0	Single charred barley grain	#	0
42	255	256	6	Ditch	<10	14	1	0	0	Fragment of charred bean	0	0
54	281	282	4	Gully	<10	14	2	0	#	Single charred buttercup seed	0	0
72	43	44	2	Hollow/ pond	<10	13	2	0	0	None	0	0
72	43	49	5	Hollow/ pond	<1	7	1	0	0	None	0	0
72	46	47	1	Pit	<20	11	10	0	0	None	0	#
76	135	137	3	Ditch	<10	8	2	0	0	None	0	##

Table 5: Environmental Samples

Discussion

C.1.9 The environmental samples from this site produced very sparse charred plant remains that were recovered from post-medieval or later features. Only single specimens were recovered from each of these samples and it is possible that they are modern intrusions from stubble burning that have worked their way down through the soil by bioturbation.

C.1.10 Pond/hollow **43** did not contain any evidence of waterlogging.

C.2 Animal Bone

By Zoe Ui Choileain

Introduction

C.2.1 A total weight of 315g of animal bone was recovered from Grange Lane in Littleport, Cambridgeshire.

Methodology

C.2.2 All bone analysed was hand collected on site. All identifiable elements were recorded using a version of the criteria described in Davis (1987). Identification of the assemblage was undertaken with the aid of Schmid (1972), plus use of the OAE reference collection. The assemblage was too small and fragmented for most taphonomic information to be observed. The preservation of the cortical bone was evaluated using the 0-5 scale devised for human bone by McKinley (2004, 16 fig. 6). Erosion grades (simplified version of Brickley & McKinley 2004, 14-15): 0 (surface morphology clearly visible, fresh appearance), 1 (light and patchy surface erosion), 2 (more extensive surface erosion than grade 1), 3 (most of bone surface affected by some degree of erosion), 4 (all of bone surface affected by erosive

action), 5 (heavy erosion across whole surface, completely masking normal surface morphology).

Results

C.2.3 Results are presented in Table 6 below. Cattle and sheep/goat were the only species identified. Context (45) contained a cattle mandible and radius both of which showed signs of butchery in the form of small cut marks, probably from defleshing.

Context	Element	Weight (g)	Number of frags	Taxon	Erosion	Butchery	Gnawed	Age
45	Mandible	66	1	Cattle	1	Yes	No	No
45	Radius	46	1	Cattle	1	Yes	No	No
45	Tibia	40	1	Cattle	1	No	No	No
137	Loose mand cheek tooth	77	1	Cattle	2	No	No	Yes
137	Scapula	46	1	Large mammal	2	No	Yes	No
157	Loose mand cheek tooth	40	1	Sheep/Goat	2	No	No	Yes

Table 6: Animal bone summary table

Appendix D **HISTORIC MAPS CONSULTED**

1810

Ordnance Survey Drawing 250 - Littleport

<http://www.bl.uk/onlinegallery/onlineex/ordsurvdraw/l/002osd000000023u00210000.html>

and

[https://commons.wikimedia.org/wiki/File:Ordnance_Survey_Drawings_-_Littleport,_Cambridgeshire_\(OSD_250\).jpg](https://commons.wikimedia.org/wiki/File:Ordnance_Survey_Drawings_-_Littleport,_Cambridgeshire_(OSD_250).jpg)

[accessed 10/2/2017]

1902

Cambridgeshire XXII.15 (includes: Littleport)

<http://maps.nls.uk/view/114485470>

[accessed 10/2/2017]

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Appendix F **GEOPHYSICAL SURVEY**

Appendix G OASIS REPORT FORM

Project Details

OASIS Number	Oxfordar3-276441		
Project Name	Grange Lane, Littleport		
Start of Fieldwork	23/01/2017	End of Fieldwork	06/01/2016
Previous Work	No	Future Work	Unknown

Project Reference Codes

Site Code	ECB4885	Planning App. No.	EIA
HER Number	ECB4885	Related Numbers	

Prompt	Pre-application Brief
Development Type	Housing, business units, shops
Place in Planning Process	Pre-application

Techniques used (tick all that apply)

- | | | |
|--|---|---|
| <input type="checkbox"/> Aerial Photography – interpretation | <input type="checkbox"/> Grab-sampling | <input type="checkbox"/> Remote Operated Vehicle Survey |
| <input type="checkbox"/> Aerial Photography - new | <input type="checkbox"/> Gravity-core | <input checked="" 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 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	Period	Object	Period
Ditches	Uncertain	Coin	Uncertain
Furrows	Post Medieval (1540 to 1901)	Pottery	Roman (43 to 410)
Pits	Post Medieval (1540 to 1901)	Pottery	Late Prehistoric (- 4000 to 43)
Postholes	Uncertain	Pottery	Medieval (1066 to 1540)
		Pottery	Post Medieval (1540 to 1901)

Project Location

County	Cambridgeshire	Address (including Postcode) Land North of Grange Lane, Littleport, CB6 1HW
District	East Cambridgeshire	
Parish	Littleport	
HER office	Cambridgeshire	
Size of Study Area	27.7ha	
National Grid Ref	TL 5560 8640	

Project Originators

Organisation	OA East
Project Brief Originator	Kasia Gdaniec, CCC HET

Project Design Originator	Tom Phillips, OA East
Project Manager	Tom Phillips, OA East
Project Supervisor	Stuart Ladd, OA East

Project Archives

	Location	ID
Physical Archive (Finds)	CCC	ECB4885
Digital Archive	OA East	ECB4885
Paper Archive	CCC	ECB4885

Physical Contents	Present?	Digital files associated with Finds	Paperwork associated with Finds
Animal Bones	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ceramics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Glass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human Remains	<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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Stratigraphic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Survey	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Digital Media

Database	<input checked="" type="checkbox"/>
GIS	<input checked="" type="checkbox"/>
Geophysics	<input checked="" type="checkbox"/>
Images (Digital photos)	<input checked="" type="checkbox"/>
Illustrations (Figures/Plates)	<input checked="" type="checkbox"/>
Moving Image	<input type="checkbox"/>
Spreadsheets	<input checked="" type="checkbox"/>
Survey	<input checked="" type="checkbox"/>
Text	<input checked="" type="checkbox"/>
Virtual Reality	<input type="checkbox"/>

Paper Media

Aerial Photos	<input type="checkbox"/>
Context Sheets	<input type="checkbox"/>
Correspondence	<input type="checkbox"/>
Diary	<input type="checkbox"/>
Drawing	<input checked="" type="checkbox"/>
Manuscript	<input type="checkbox"/>
Map	<input type="checkbox"/>
Matrices	<input type="checkbox"/>
Microfiche	<input type="checkbox"/>
Miscellaneous	<input type="checkbox"/>
Research/Notes	<input type="checkbox"/>
Photos (negatives/prints/slides)	<input type="checkbox"/>
Plans	<input checked="" type="checkbox"/>
Report	<input checked="" type="checkbox"/>
Sections	<input checked="" type="checkbox"/>
Survey	<input type="checkbox"/>



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GEOPHYSICAL SURVEY REPORT

STRATASCAN™



Project name:
Grange Lane, Littleport, Cambridgeshire

Client:
Oxford Archaeology East

Job ref:
J10756

January 2017

GEOPHYSICAL SURVEY REPORT

Project name: Grange Lane, Littleport, Cambridgeshire Client: Oxford Archaeology East	Job ref: J10756
Survey date: 3-6, 11 January 2017	Report date: 26 January 2017
Field team: Rob Knight BA Adam Clark BA Tom Cockcroft MSc	Project Manager: Simon Haddrell BEng(Hons) AMBCS PCIfA
Report written by: Dr John Gater MCIfA FSA	Report approved by: David Elks MSc ACIfA
CAD illustrations by: Rebecca Davies BSc	Site Director: Dr John Gater MCIfA FSA
Version number and issue date: V1 01/02/2017	Amendments:



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1 SUMMARY OF RESULTS

Although there are no anomalies falling into the category of *probable* or *possible* archaeology, there is a plethora of responses associated with ridge and furrow cultivation. This clearly covered most of the site and former fields have been identified. A number of anomalies have been classified as having an uncertain origin; in a less rich archaeological landscape these responses would probably have been earmarked as being agricultural or natural in origin.

2 INTRODUCTION

2.1 Background synopsis

Stratascan were commissioned to undertake a geophysical survey of an area outlined for residential development. This survey forms part of an archaeological investigation being undertaken by Oxford Archaeology East on behalf of Manor Oak Homes.

2.2 Site Details

NGR / Postcode	TL 555 860 / CB6 1HW
Location	The proposed development area is located on the south west side of Littleport, which is located between Ely and Downham Market. The site lies on the northernmost tip of the 'Isle of Ely' and occupies three large fields set in a piece of land between the A10 to the west and Grange Road to the south.
HER/SMR	Cambridgeshire
District	East Cambridgeshire
Parish	Littleport
Topography	Generally level; it occupies an area of high ground elevated above the surrounding low-lying fen floor.
Current Land Use	Arable
Weather Conditions	Overcast / occasional showers
Soils	Soils: Ashley (527q) – Stagnogleyic argillic brown earths (Soil Survey of England and Wales, Sheet 4, Eastern England).
Geology	Bedrock: Kimmeridge Clay Formation – Mudstone. Superficial: Oadby Member - Diamicton (British Geological Survey website).
Archaeology	The proposed development area lies adjacent to a known rich, multi-period archaeological landscape. Undated ditches were excavated in advance of the development of the balancing lagoon at the western boundary of the site; prehistoric to Roman sites are known along the northern edge of the island, along Wisbech Road. The site is considered to have a high potential for archaeological remains. (CHET 2016).
Survey Methods	Magnetometer survey (fluxgate gradiometer – handheld and cart system)
Study Area	c. 29 ha

2.3 Aims and objectives

To locate and characterise any anomalies of possible archaeological interest within the study area.

3 METHODS, PROCESSING & PRESENTATION

3.1 Standards & Guidance

This report and all fieldwork have been conducted in accordance with the latest guidance documents issued by Historic England (2008) and the Chartered Institute for Archaeologists (2002 & 2014).

Stratascan Ltd are a Registered Organisation with the CifA and are committed to upholding its policies and standards.

3.2 Survey methods

Detailed magnetic survey was used as a proven efficient and effective method of locating archaeological anomalies associated with cut features like ditches and pits. The area was investigated using a cart system where field conditions permitted; elsewhere hand-held instruments were employed. More information on these systems is included in Appendix A.

3.3 Processing

The following schedule shows the basic processing carried out on the data used in this report:

1. *De-stripe*
2. *De-stagger*

3.4 Presentation of results and interpretation

The presentation of the data for each site involves a plot of the minimally processed data as a greyscale plot and a colour plot showing extreme magnetic values. Magnetic anomalies have been identified and plotted onto the 'Interpretation of Anomalies' drawing.

When interpreting the results, several factors are taken into consideration, including the nature of archaeological features being investigated and the local conditions at the site (geology, pedology, topography etc.). Anomalies are categorised by their potential origin. Where responses can be related to very specific known features documented in other sources, this is done (for example: Abbey Wall, Roman Road). For the generic categories levels of confidence are indicated, for example: probable, or possible archaeology. The former is used for a confident interpretation, based on anomaly definition and/or other corroborative data such as cropmarks. Poor anomaly definition, a lack of clear patterns to the responses and an absence of other supporting data reduces confidence, hence the classification "possible".

4 RESULTS

4.1 *Probable / Possible Archaeology*

No *probable* or *possible* archaeology has been identified within the survey area.

4.2 *Medieval/Post-Medieval Agriculture*

Parallel and widely spaced anomalies dominate the results from all three fields; the responses are indicative of former ridge and furrow cultivation. The cultivation patterns show little respect for the modern field boundaries, clearly crossing these features and also following differing alignments. It is possible to infer the shape and size of former, unmapped, fields in medieval and later times. There is only one zone without ridge and furrow ploughing; this is located at the northern tip of the south-western field.

4.3 **Other Anomalies**

There are several straight linear anomalies in the data; these either indicate confirmed former field boundaries, where marked on old maps, or conjectural field divisions, where there is no supporting map evidence. A service pipe is visible in the data bisecting the south-western field. A third linear anomaly, in the northern field, comprises differing magnetic components and these are thought to represent an old track-come-boundary.

Other linear magnetic responses have been classified as having an *uncertain origin*. They follow different alignments to the ridge and furrow, but could indicate effects from more recent agricultural activity. The lack of any shape or form to these magnetic anomalies makes an archaeological interpretation unlikely. The same uncertainty applies to the circular and curvilinear anomalies in the south-western field which could be a result of localised variations in the magnetic gravels. While an archaeological cause cannot be totally ignored, this seems unlikely.

Areas of ferrous responses along the survey edges are the result of nearby fences, particularly along the northern survey boundary where there is a very strong ferrous response. The effects of this disturbance and other ferrous disturbance within the survey area can mask weaker archaeological anomalies. Smaller ferrous anomalies, or 'magnetic spikes', indicate small ferrous metal objects and are likely to be modern rubbish in the topsoil.

5 **DATA APPRAISAL & CONFIDENCE ASSESSMENT**

Mudstone geologies and gravel deposits are classified as generally providing an average response for magnetic survey. In this instance, the mapping of former field boundaries and the very clear ridge and furrow results suggest that, if present, archaeological features pertaining to prehistoric or Romano British settlement would have been identified. Saxon remains are more difficult to detect; more ephemeral archaeological features may have been masked by the ridge and furrow cultivation.

6 **CONCLUSION**

The survey at Littleport has mapped ridge and furrow cultivation patterns over most of the site. The results are very clear and it is possible to identify earlier agricultural fields.

A few anomalies have been classified as having an *uncertain origin*. While an archaeological cause cannot be dismissed, such an interpretation is perhaps less likely than an agricultural or natural origin.

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Appendix A - Technical Information: Magnetometer Survey Method

Cart collection

Every point that is recorded is referenced using a Trimble R8 RTK GNSS system.

An RTK GPS (Real-time Kinematic Global Positioning System) can locate a point on the ground to a far greater accuracy than a standard GPS unit. A standard GPS suffers from errors created by satellite orbit errors, clock errors and atmospheric interference, resulting in an accuracy of 5m-10m. An RTK system uses a single base station receiver and a number of mobile units. The base station re-broadcasts the phase of the carrier it measured, and the mobile units compare their own phase measurements with those they received from the base station.

Survey equipment and gradiometer configuration

Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.2 nanoTeslas (nT) in an overall field strength of 48,000nT, can be accurately detected using an appropriate instrument.

The magnetic survey was carried out using a Bartington magnetometer cart system utilizing Bartington 1000L Gradiometer sensors. The instrument consists of two fluxgates very accurately aligned to nullify the effects of the Earth's magnetic field. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background.

Sampling interval

For cart collected data readings were taken at intervals of 0.125m along traverses 0.75m apart.

Depth of scan and resolution

The Bartington magnetometer cart system collects data at 10Hz which approximates 0.125m.

Data capture

The readings are logged consecutively into the data logger which in turn is daily down-loaded into a portable computer whilst on site. At the end of each site survey, data is transferred to the office for processing and presentation.

Data Processing

Zero Mean Traverse	This process sets the background mean of each traverse within each grid to zero. The operation removes striping effects and edge discontinuities over the whole of the data set.
Step Correction (Destagger)	When gradiometer data are collected in 'zig-zag' fashion, stepping errors can sometimes arise. These occur because of a slight difference in the speed of walking on the forward and reverse traverses. The result is a staggered effect in the data, which is particularly noticeable on linear anomalies. This process corrects these errors.

Display

Greyscale/ Colourscale Plot	This format divides a given range of readings into a set number of classes. Each class is represented by a specific shade of grey, the intensity increasing with value. All values above the given range are allocated the same shade (maximum intensity); similarly all values below the given range are represented by the minimum intensity shade. Similar plots can be produced in colour, either using a wide range of colours or by selecting two or three colours to represent positive and negative values. The assigned range (plotting levels) can be adjusted to emphasise different anomalies in the data-set.
-----------------------------	--

Interpretation Categories

In certain circumstances (usually when there is corroborative evidence from desk based or excavation data) very specific interpretations can be assigned to magnetic anomalies (for example, *Roman Road, Wall*, etc.) and where appropriate, such interpretations will be applied. The list below outlines the generic categories commonly used in the interpretation of the results.

<i>Archaeology/Probable Archaeology</i>	This term is used when the form, nature and pattern of the response are clearly or very probably archaeological and /or if corroborative evidence is available. These anomalies, whilst considered anthropogenic, could be of any age.
<i>Possible Archaeology</i>	These anomalies exhibit either weak signal strength and / or poor definition, or form incomplete archaeological patterns, thereby reducing the level of confidence in the interpretation. Although the archaeological interpretation is favoured, they may be the result of variable soil depth, plough damage or even aliasing as a result of data collection orientation.
<i>Industrial / Burnt-Fired</i>	Strong magnetic anomalies that, due to their shape and form or the context in which they are found, suggest the presence of kilns, ovens, corn dryers, metal- working areas or hearths. It should be noted that in many instances modern ferrous material can produce similar magnetic anomalies.
<i>Former Field Boundary (probable & possible)</i>	Anomalies that correspond to former boundaries indicated on historic mapping, or which are clearly a continuation of existing land divisions. Possible denotes less confidence where the anomaly may not be shown on historic mapping but nevertheless the anomaly displays all the characteristics of a field boundary.
<i>Ridge & Furrow</i>	Parallel linear anomalies whose broad spacing suggests ridge and furrow cultivation. In some cases the response may be the result of more recent agricultural activity.
<i>Agriculture (ploughing)</i>	Parallel linear anomalies or trends with a narrower spacing, sometimes aligned with existing boundaries, indicating more recent cultivation regimes.
<i>Land Drain</i>	Weakly magnetic linear anomalies, quite often appearing in series forming parallel and herringbone patterns. Smaller drains will often lead and empty into larger diameter pipes and which in turn usually lead to local streams and ponds. These are indicative of clay fired land drains.
<i>Natural</i>	These responses form clear patterns in geographical zones where natural variations are known to produce significant magnetic distortions.
<i>Magnetic Disturbance</i>	Broad zones of strong dipolar anomalies, commonly found in places where modern ferrous or fired materials (e.g. brick rubble) are present. They are presumed to be modern.
<i>Service</i>	Magnetically strong anomalies usually forming linear features indicative of ferrous pipes/cables. Sometimes other materials (e.g. pvc) cause weaker magnetic responses and can be identified from their uniform linearity crossing large expanses.
<i>Ferrous</i>	This type of response is associated with ferrous material and may result from small items in the topsoil, larger buried objects such as pipes, or above ground features such as fence lines or pylons. Ferrous responses are usually regarded as modern. Individual burnt stones, fired bricks or igneous rocks can produce responses similar to ferrous material.
<i>Uncertain Origin</i>	Anomalies which stand out from the background magnetic variation, yet whose form and lack of patterning gives little clue as to their origin. Often the characteristics and distribution of the responses straddle the categories of <i>Possible Archaeology</i> and <i>Possible Natural</i> or (in the case of linear responses) <i>Possible Archaeology</i> and <i>Possible Agriculture</i> ; occasionally they are simply of an unusual form.

Where appropriate some anomalies will be further classified according to their form (positive or negative) and relative strength and coherence (trend: weak and poorly defined).

Appendix B - Technical Information: Magnetic Theory

Detailed magnetic survey can be used to effectively define areas of past human activity by mapping spatial variation and contrast in the magnetic properties of soil, subsoil and bedrock. Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.2 nanoTeslas (nT) in an overall field strength of 48,000nT, can be accurately detected.

Weakly magnetic iron minerals are always present within the soil and areas of enhancement relate to increases in *magnetic susceptibility* and permanently magnetised *thermoremanent* material.

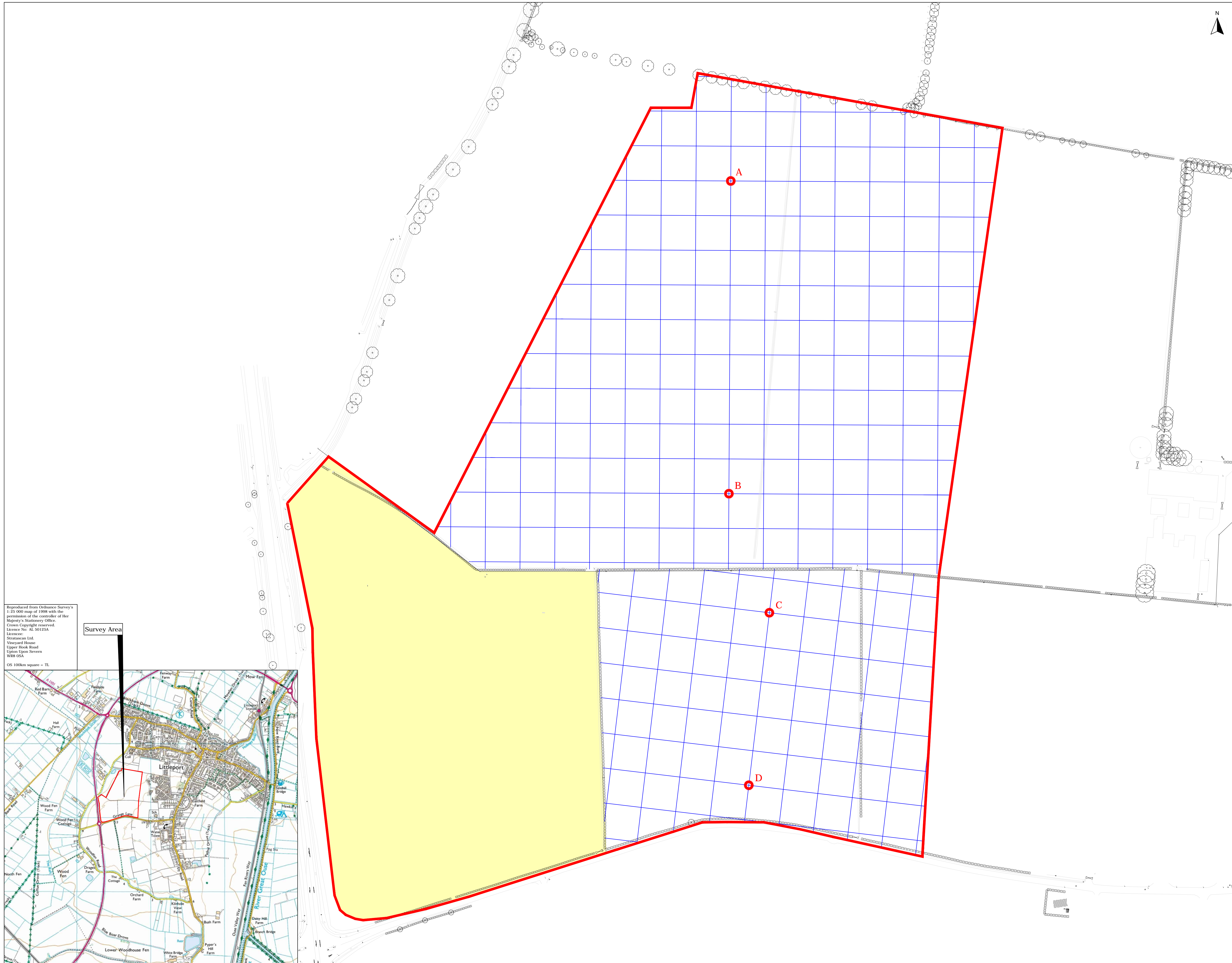
Magnetic susceptibility relates to the induced magnetism of a material when in the presence of a magnetic field. This magnetism can be considered as effectively permanent as it exists within the Earth's magnetic field. Magnetic susceptibility can become enhanced due to burning and complex biological or fermentation processes.

Thermoremanence is a permanent magnetism acquired by iron minerals that, after heating to a specific temperature known as the Curie Point, are effectively demagnetised followed by re-magnetisation by the Earth's magnetic field on cooling. Thermoremanent archaeological features can include hearths and kilns and material such as brick and tile may be magnetised through the same process.

Silting and deliberate infilling of ditches and pits with magnetically enhanced soil creates a relative contrast against the much lower levels of magnetism within the subsoil into which the feature is cut. Systematic mapping of magnetic anomalies will produce linear and discrete areas of enhancement allowing assessment and characterisation of subsurface features. Material such as subsoil and non-magnetic bedrock used to create former earthworks and walls may be mapped as areas of lower enhancement compared to surrounding soils.

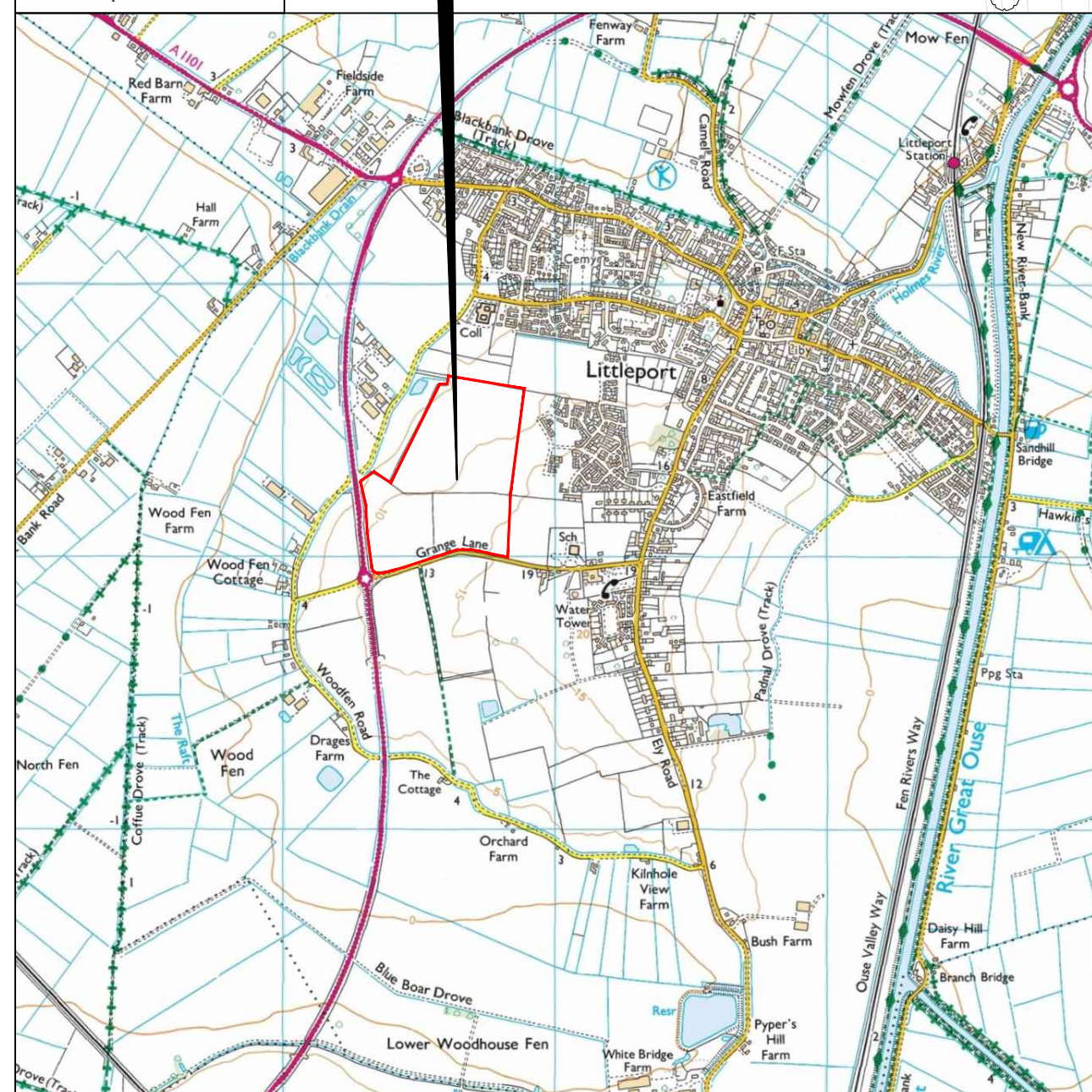
Magnetic survey is carried out using a fluxgate gradiometer which is a passive instrument consisting of two sensors mounted vertically 1m apart. The instrument is carried about 30cm above the ground surface and the top sensor measures the Earth's magnetic field whilst the lower sensor measures the same field but is also more affected by any localised buried field. The difference between the two sensors will relate to the strength of a magnetic field created by a buried feature, if no field is present the difference will be close to zero as the magnetic field measured by both sensors will be the same.

Factors affecting the magnetic survey may include soil type, local geology, previous human activity, disturbance from modern services etc.



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Survey Area



	Cart collected data
OS GRID REFERENCES	
A	555660.55, 286567.75
B	555658.95, 286297.76
C	555693.88, 286194.97
D	555676.11, 286046.03

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SITE LOCATION AND REFERENCING

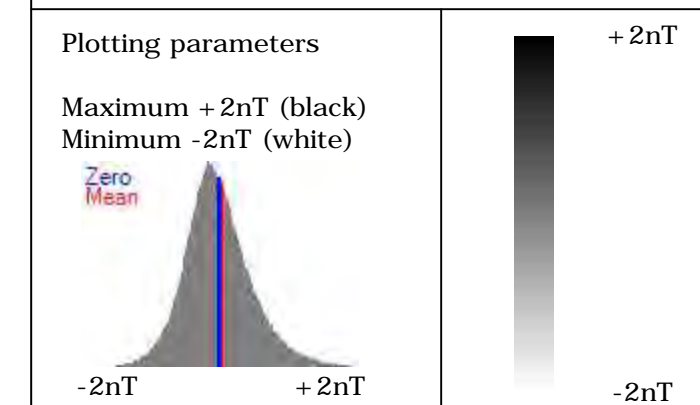
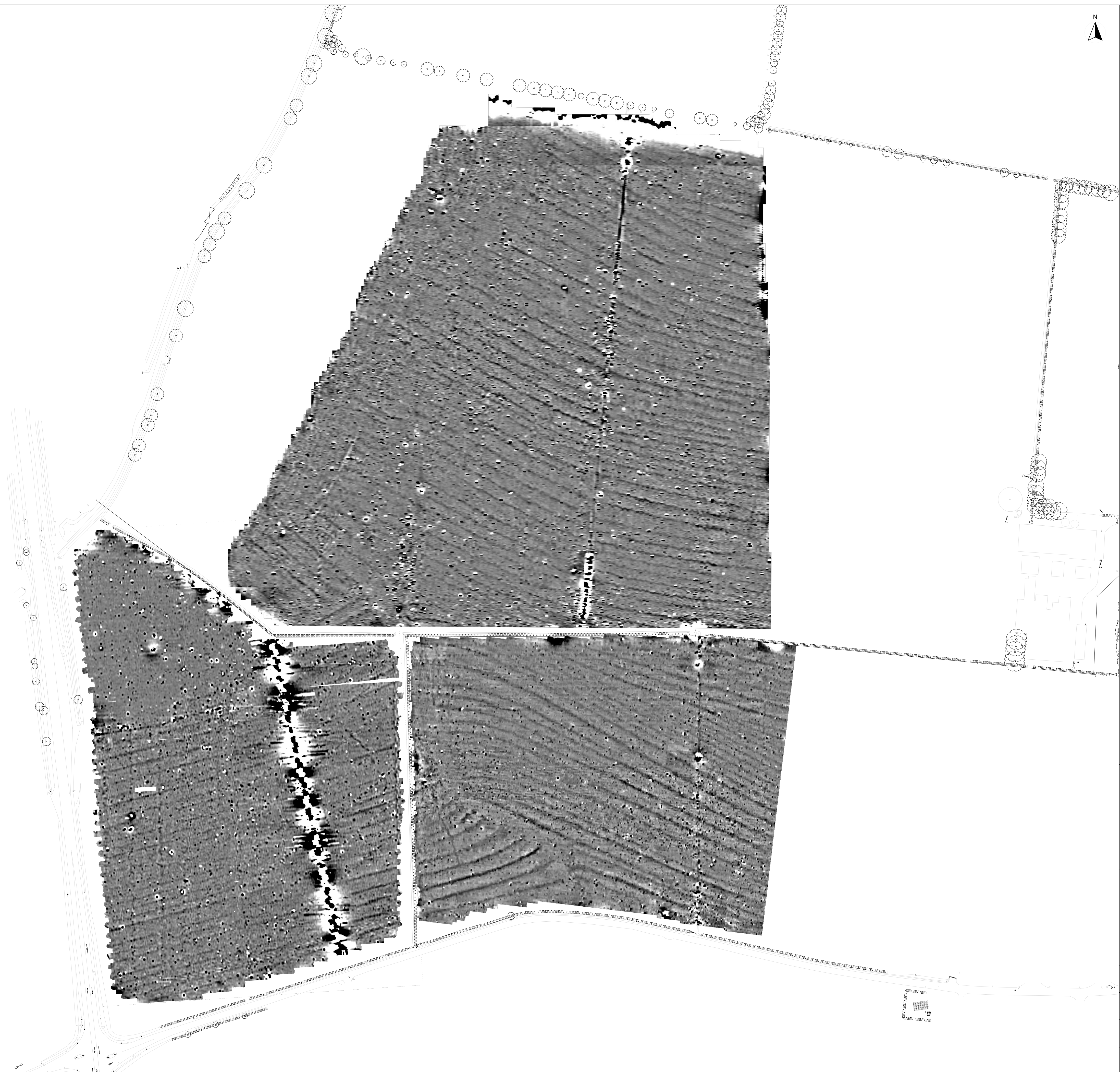
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Project: J10756 - GRANGE LANE, LITTLEPORT, CAMBRIDGESHIRE

Scale: 1:1500 @ A1

0m 10 20 30 40 50 60 70 80 90m

Fig No: 01



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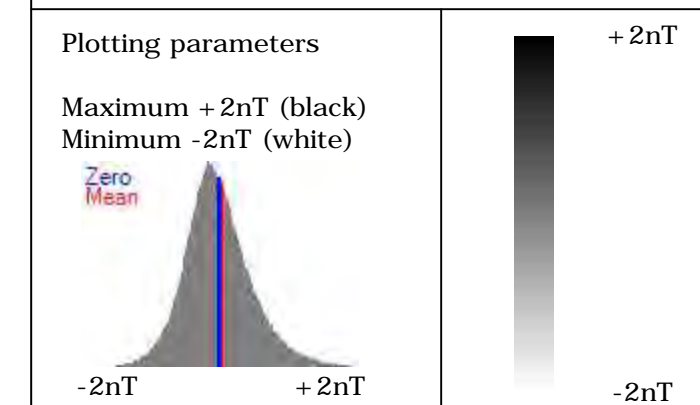
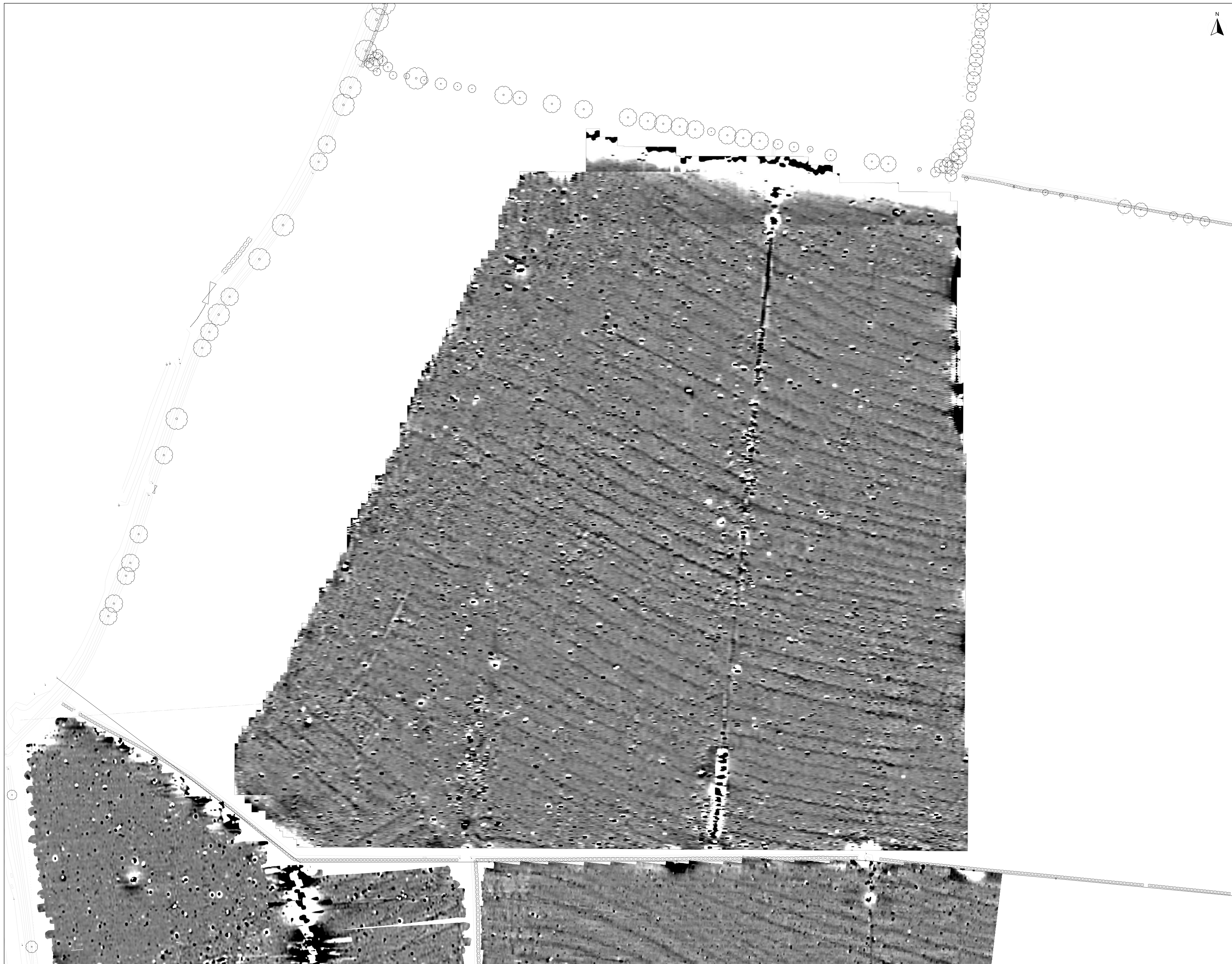
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Fig No: 02



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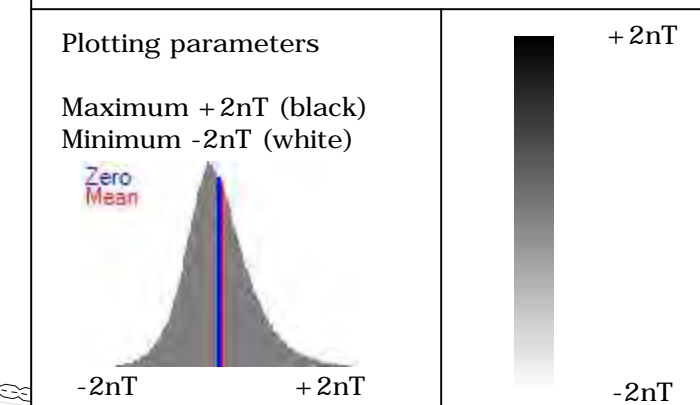
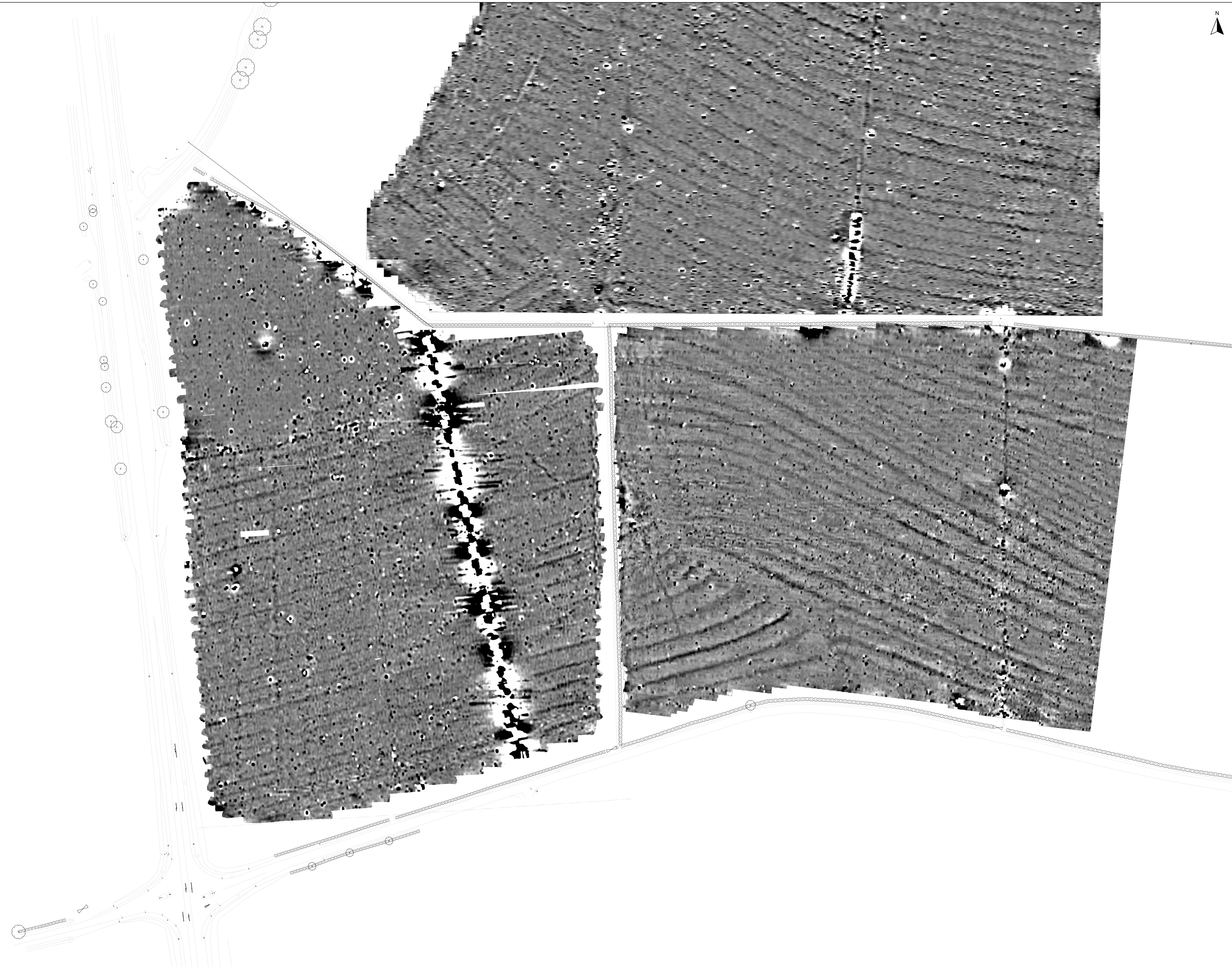
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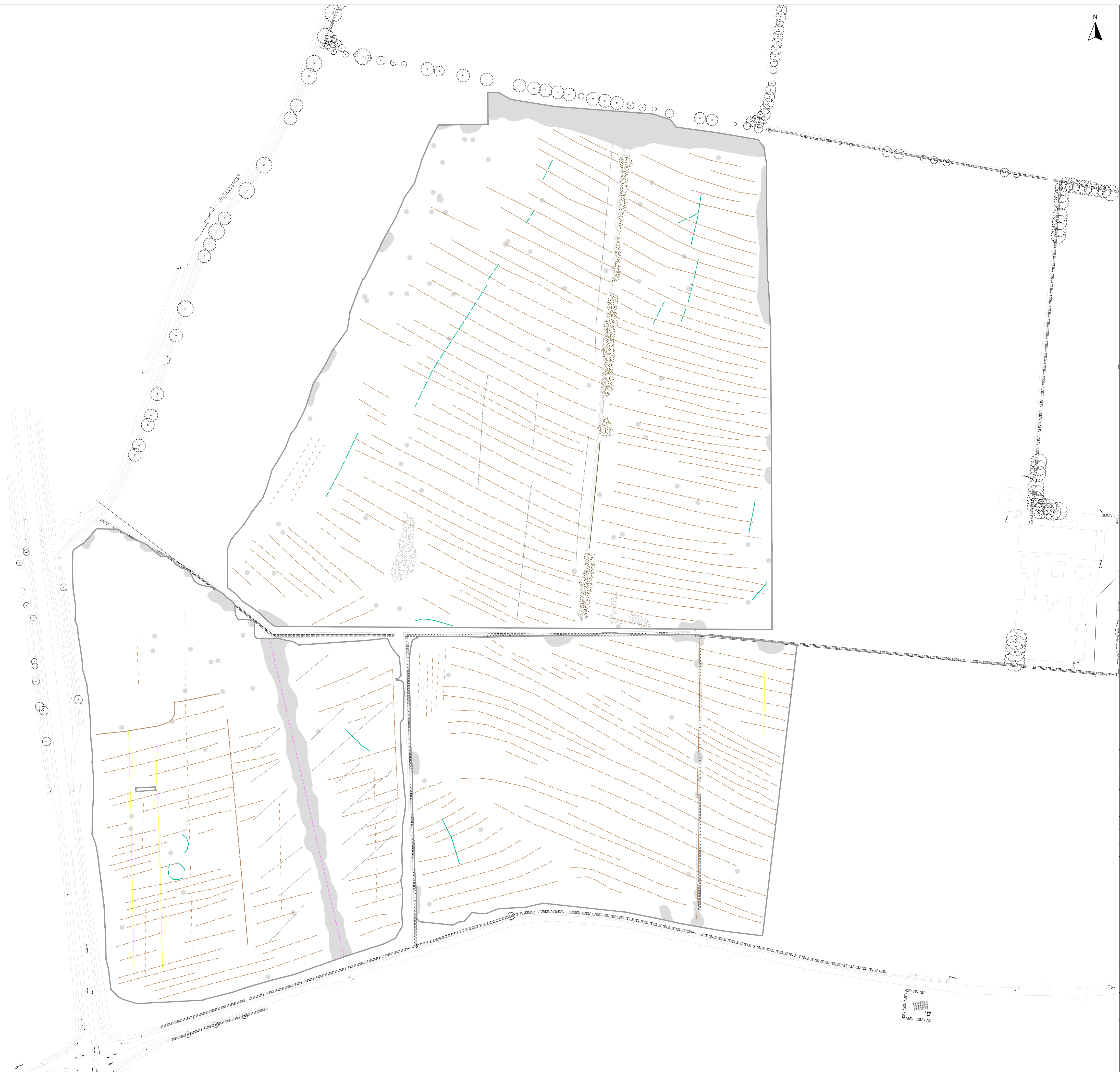
Title: PLOT OF MINIMALLY PROCESSED GRADIOMETER DATA - SOUTH

Client: OXFORD ARCHAEOLOGY EAST

Project: J10756 - GRANGE LANE, LITTLEPORT, CAMBRIDGESHIRE

Scale: 1:1000 @ A1
0m 10 20 30 40 50 60m

Fig No: 04



KEY

	Former field boundary (corroborated)
	Possible former field boundary
	Ridge and furrow
	Appliances (e.g. ploughing)
	Trackway (ferrous/magnetic disturbance)
	Land drain
	Magnetic debris
	Service
	Ferrous
	Uncertain (positive/trend)

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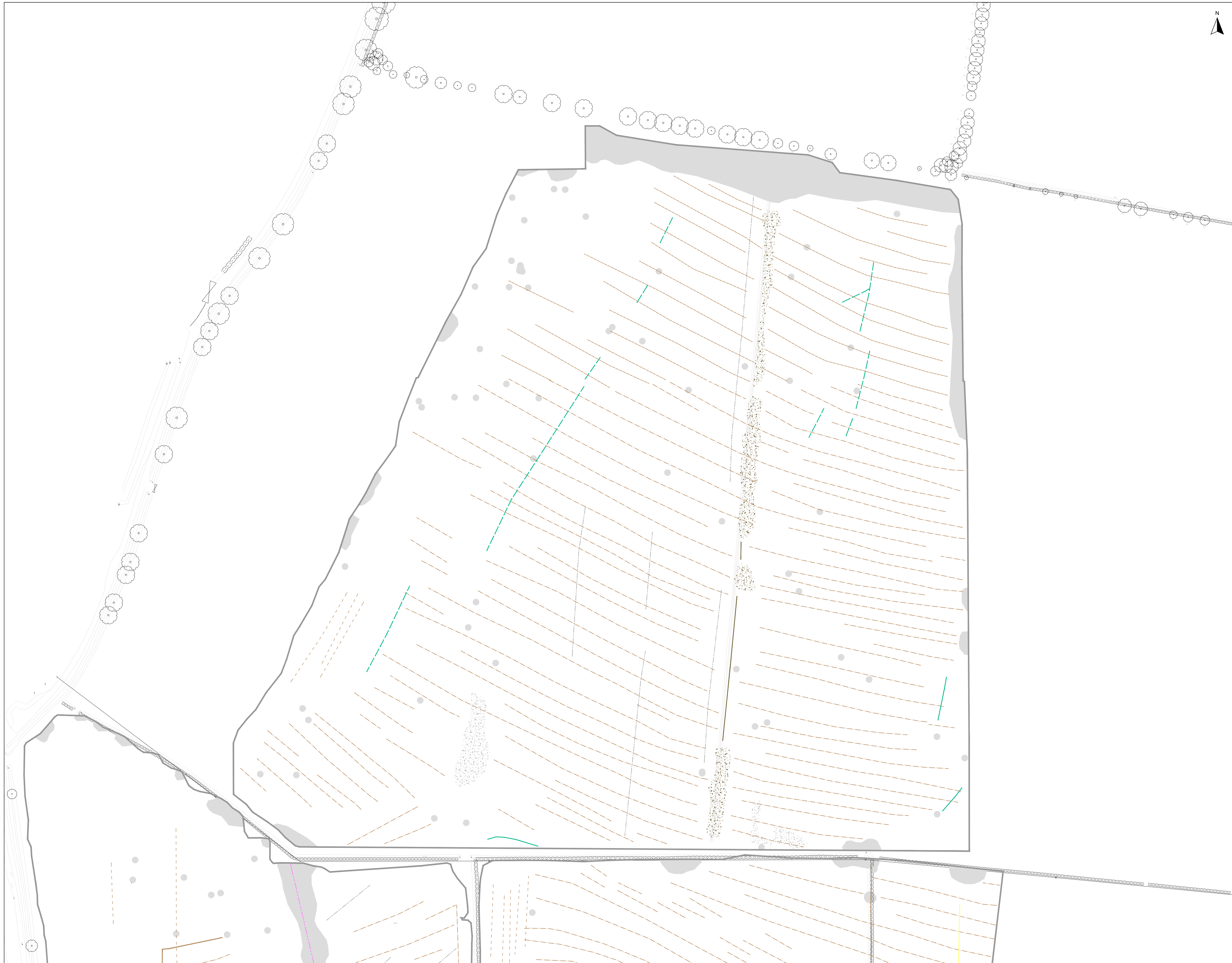
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Client: **OXFORD ARCHAEOLOGY EAST**

Project: **J10756 - GRANGE LANE, LITTLEPORT, CAMBRIDGESHIRE**

Scale: 1:1500 @ A1
0m 10 20 30 40 50 60 70 80 90m
Fig No: **05**



KEY

	Former field boundary (corroborated)
	Possible former field boundary
	Ridge and furrow
	Agriculture (e.g. ploughing)
	Trackway (ferrous/magnetic disturbance)
	Land drain
	Magnetic debris
	Service
	Ferrous
	Uncertain (positive/trend)

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Client: **OXFORD ARCHAEOLOGY EAST**

Project: **J10756 - GRANGE LANE, LITTLEPORT, CAMBRIDGESHIRE**

Scale: 1:1000 @ A1
 0m 10 20 30 40 50 60m Fig No: 06



KEY

	Former field boundary (corroborated)
	Possible former field boundary
	Ridge and furrow
	Agriculture (e.g. ploughing)
	Trackway (ferrous/magnetic disturbance)
	Land drain
	Magnetic debris
	Service
	Ferrous
	Uncertain (positive/trend)

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Client:
OXFORD ARCHAEOLOGY EAST

Project:
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Fig No:
07

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- Retrofit
- Setting Out
- Statutory Plan Collation
- Topographic
- Utility Mapping
- UXO Detection
- Void Detection



Appendix G OASIS REPORT FORM

Project Details

OASIS Number	Oxfordar3-276441		
Project Name	Grange Lane, Littleport		
Start of Fieldwork	23/01/2017	End of Fieldwork	06/01/2016
Previous Work	No	Future Work	Unknown

Project Reference Codes

Site Code	ECB4885	Planning App. No.	EIA
HER Number	ECB4885	Related Numbers	

Prompt	Pre-application Brief
Development Type	Housing, business units, shops
Place in Planning Process	Pre-application

Techniques used (tick all that apply)

- | | | |
|--|---|---|
| <input type="checkbox"/> Aerial Photography – interpretation | <input type="checkbox"/> Grab-sampling | <input type="checkbox"/> Remote Operated Vehicle Survey |
| <input type="checkbox"/> Aerial Photography - new | <input type="checkbox"/> Gravity-core | <input checked="" 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 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	Period	Object	Period
Ditches	Uncertain	Coin	Uncertain
Furrows	Post Medieval (1540 to 1901)	Pottery	Roman (43 to 410)
Pits	Post Medieval (1540 to 1901)	Pottery	Late Prehistoric (- 4000 to 43)
Postholes	Uncertain	Pottery	Medieval (1066 to 1540)
		Pottery	Post Medieval (1540 to 1901)

Project Location

County	Cambridgeshire	Address (including Postcode) Land North of Grange Lane, Littleport, CB6 1HW
District	East Cambridgeshire	
Parish	Littleport	
HER office	Cambridgeshire	
Size of Study Area	27.7ha	
National Grid Ref	TL 5560 8640	

Project Originators

Organisation	OA East
Project Brief Originator	Kasia Gdaniec, CCC HET

Project Design Originator	Tom Phillips, OA East
Project Manager	Tom Phillips, OA East
Project Supervisor	Stuart Ladd, OA East

Project Archives

	Location	ID
Physical Archive (Finds)	CCC	ECB4885
Digital Archive	OA East	ECB4885
Paper Archive	CCC	ECB4885

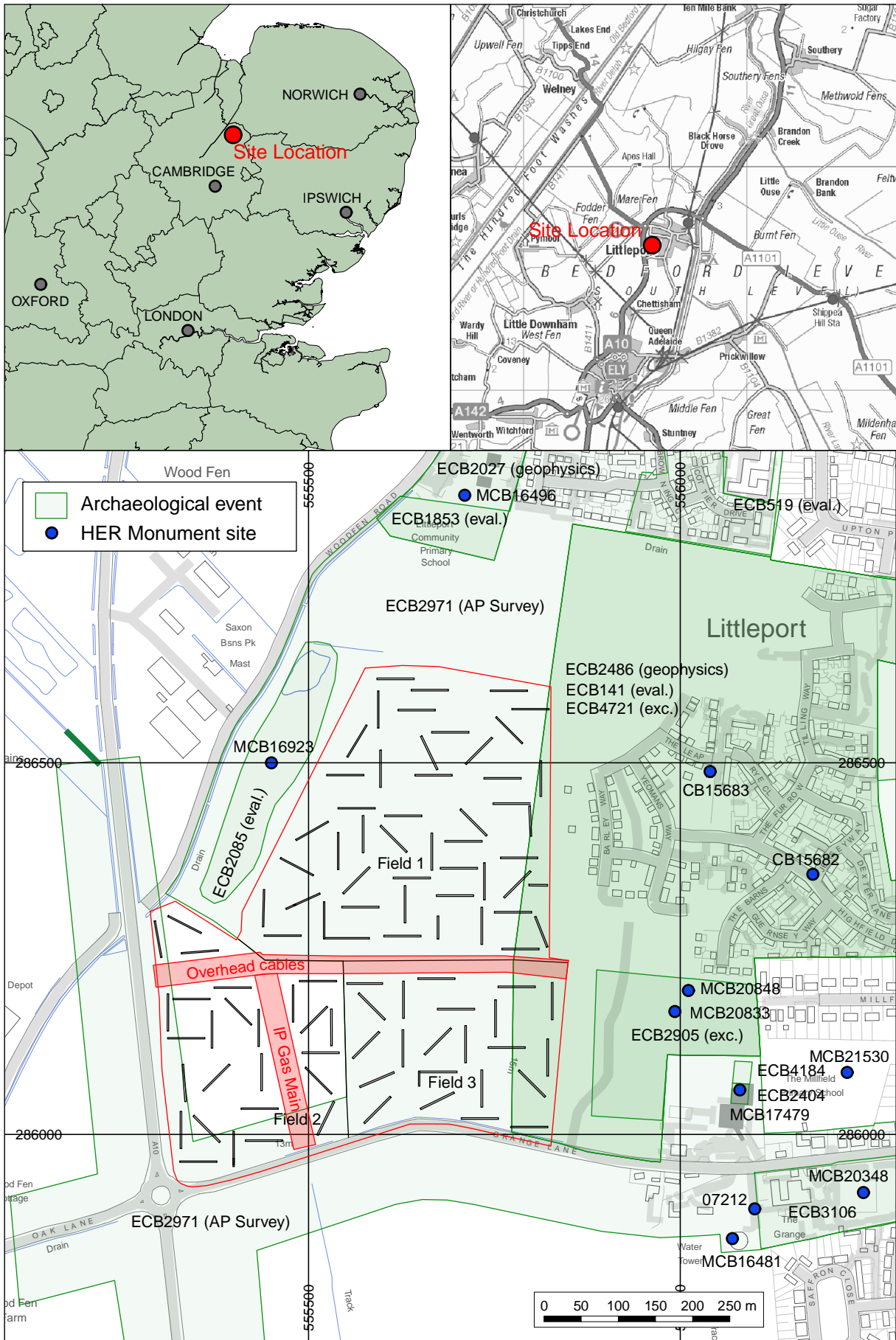
Physical Contents	Present?	Digital files associated with Finds	Paperwork associated with Finds
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Ceramics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Glass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human Remains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Leather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Survey	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Worked Bone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worked Stone/Lithic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Digital Media

Database	<input checked="" type="checkbox"/>
GIS	<input checked="" type="checkbox"/>
Geophysics	<input checked="" type="checkbox"/>
Images (Digital photos)	<input checked="" type="checkbox"/>
Illustrations (Figures/Plates)	<input checked="" type="checkbox"/>
Moving Image	<input type="checkbox"/>
Spreadsheets	<input checked="" type="checkbox"/>
Survey	<input checked="" type="checkbox"/>
Text	<input checked="" type="checkbox"/>
Virtual Reality	<input type="checkbox"/>

Paper Media

Aerial Photos	<input type="checkbox"/>
Context Sheets	<input type="checkbox"/>
Correspondence	<input type="checkbox"/>
Diary	<input type="checkbox"/>
Drawing	<input checked="" type="checkbox"/>
Manuscript	<input type="checkbox"/>
Map	<input type="checkbox"/>
Matrices	<input type="checkbox"/>
Microfiche	<input type="checkbox"/>
Miscellaneous	<input type="checkbox"/>
Research/Notes	<input type="checkbox"/>
Photos (negatives/prints/slides)	<input type="checkbox"/>
Plans	<input checked="" type="checkbox"/>
Report	<input checked="" type="checkbox"/>
Sections	<input checked="" type="checkbox"/>
Survey	<input type="checkbox"/>



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Figure 1: Site location showing evaluation trenches (black) in proposed development area (red) and HER data (green/blue).

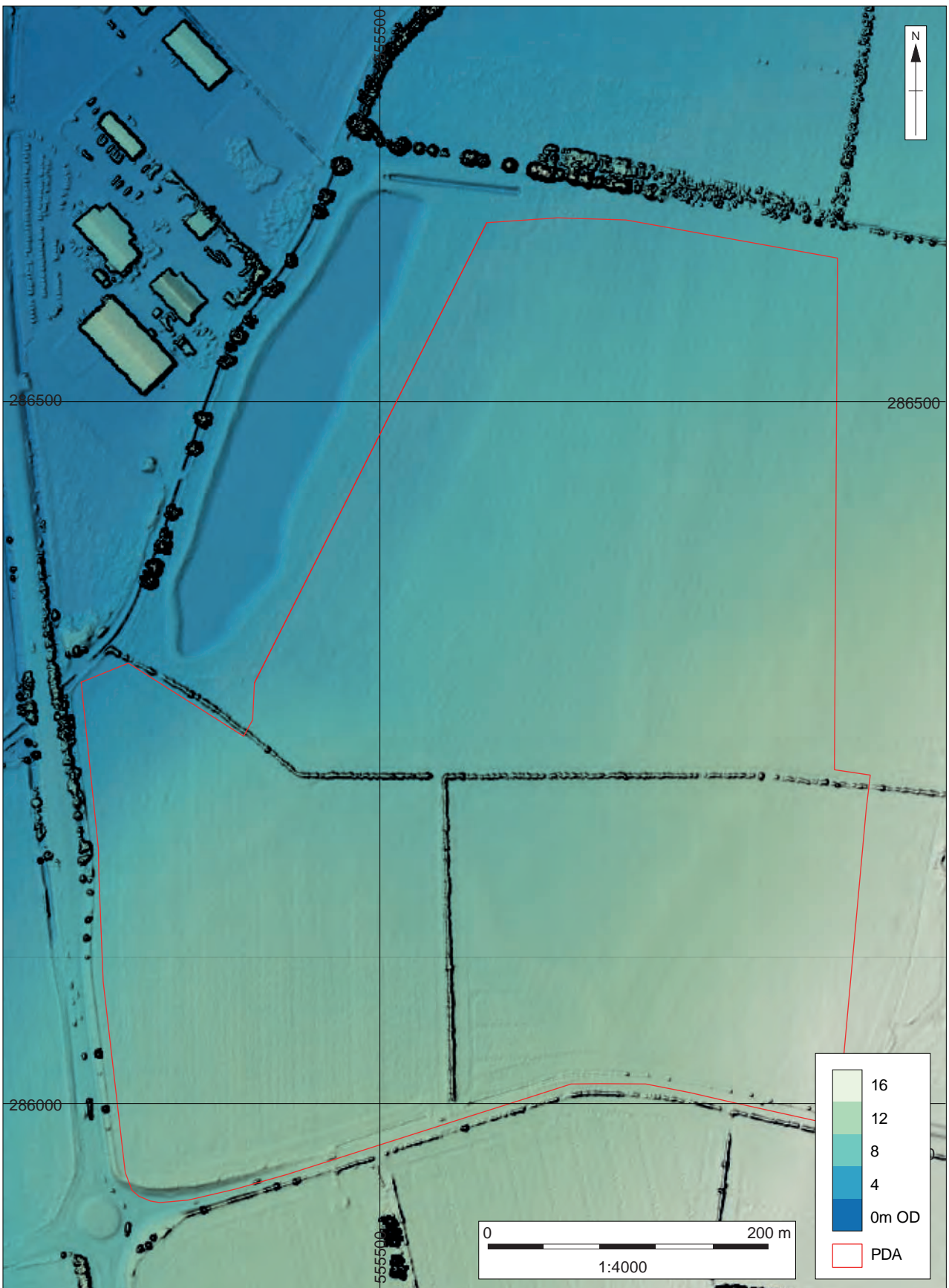


Figure 2: LIDAR Data showing proposed development area

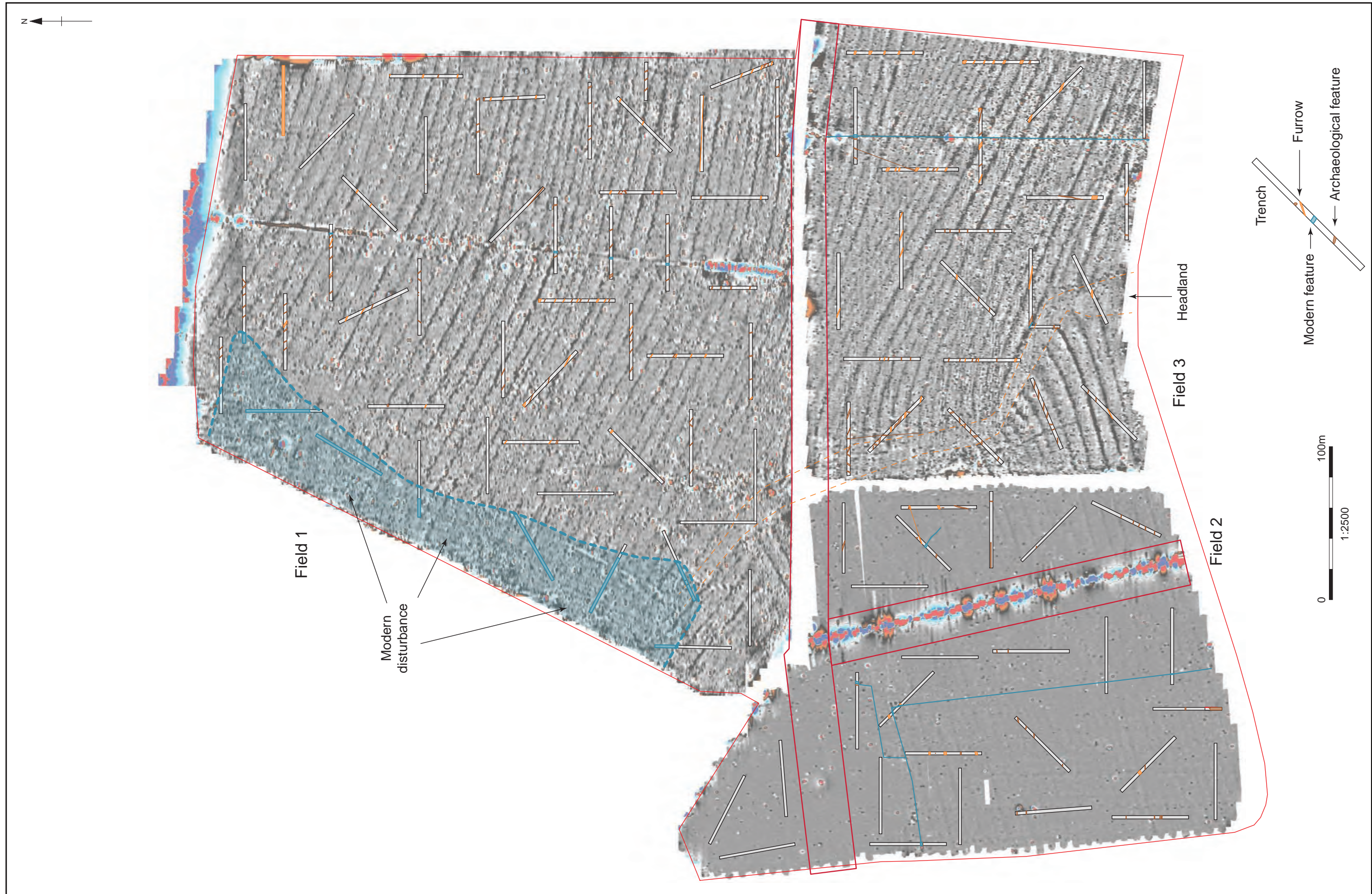


Figure 3: Geophysical survey in greyscale with all recorded evaluation features (after Gater 2017)

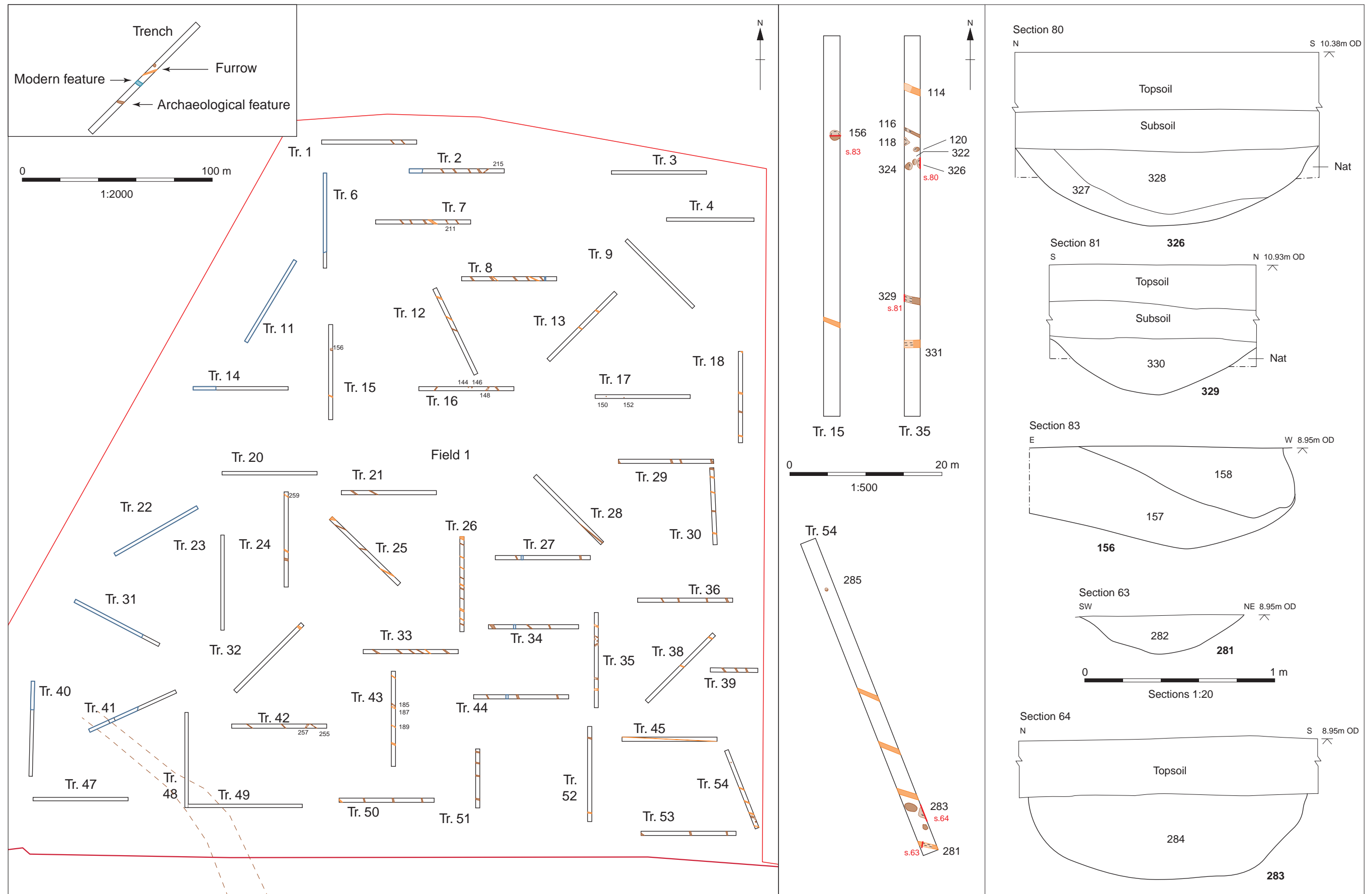


Figure 4: Field 1

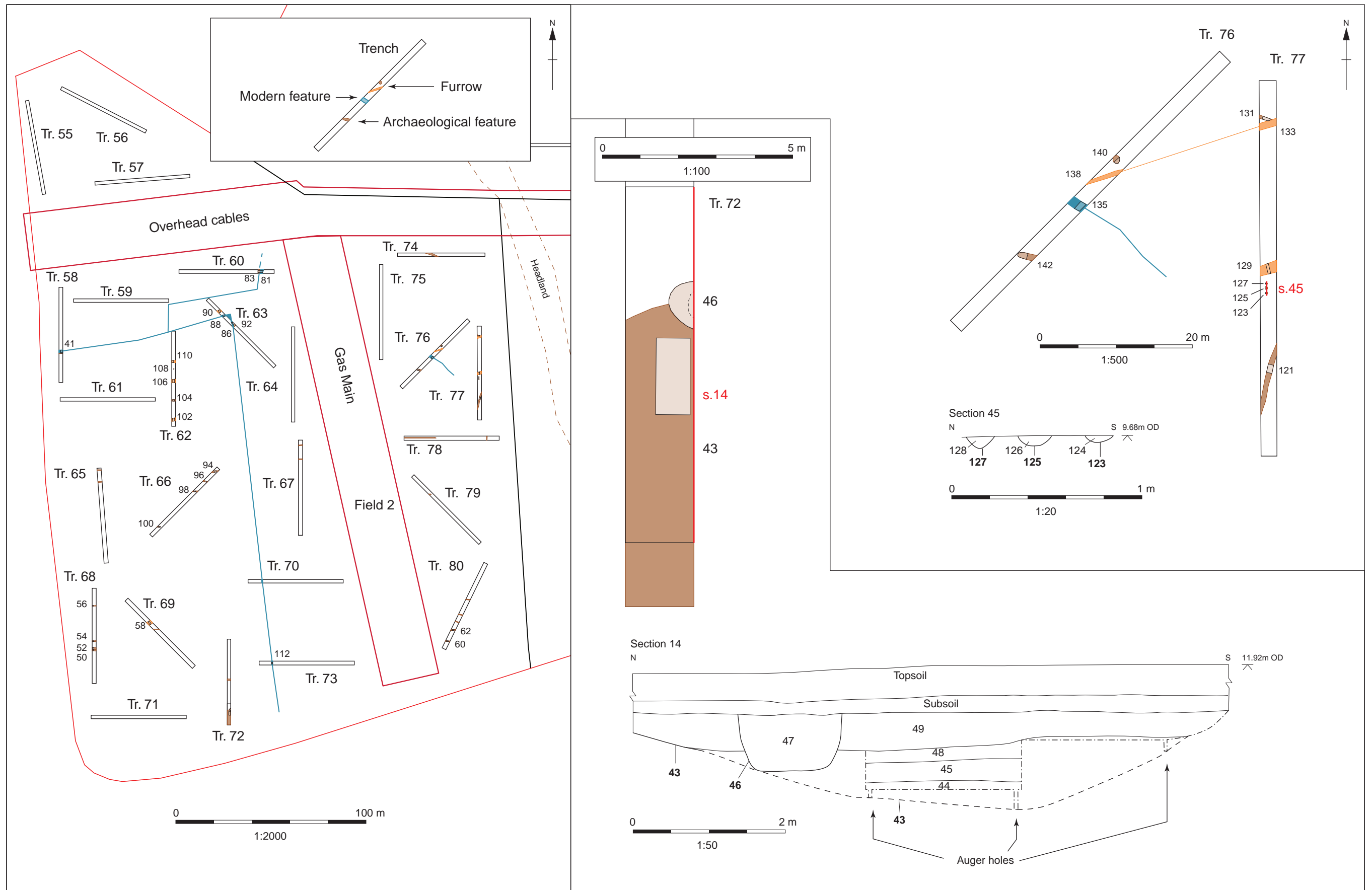


Figure 5: Field 2

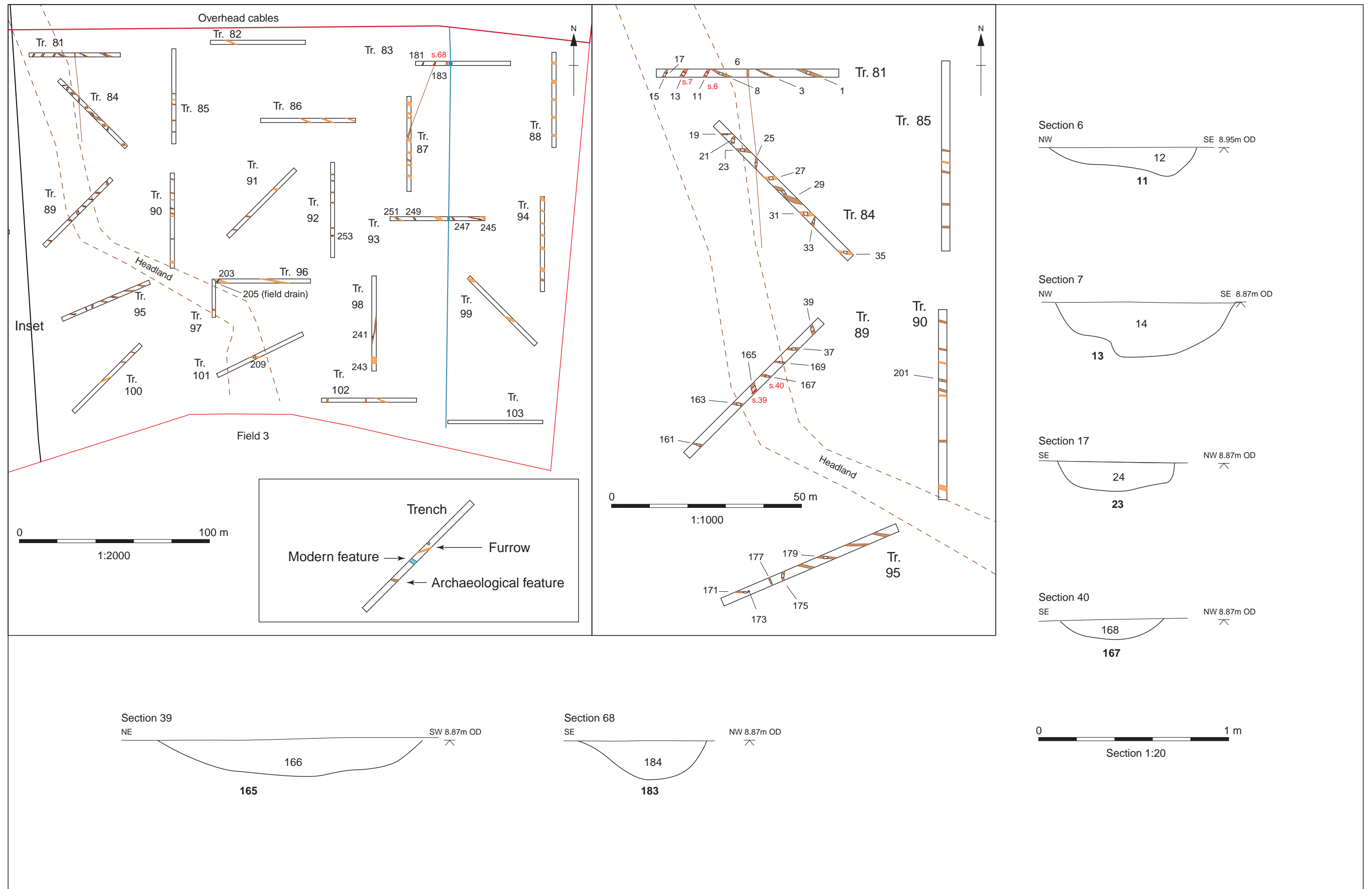


Figure 6: Field 3



Figure 7: 1810 Ordnance Survey Drawing 250 - Littleport
Showing approximate proposed development area.



Plate 1: Trench 1. View west.



Plate 2: Pit 156, Trench 15. View south.



Plate 3: Postholes **144** and **146**, Trench 16. View north.



Plate 4: Pits **322** and **324**, Trench 35. View West



Plate 5: Trench 54. View northwest.



Plate 6: Trench 62 showing Furrow 102. View north.



Plate 7: Hollow 43 cut by Pit 46, Trench 72. View southeast.



Plate 8: Trench 76. View northeast.



Plate 9: Postholes 127, 125, 123, Trench 77. View east.



Plate 10: Headland subsoil overlying features in Trench 81. View southwest.



Plate 11: Ditch **183**, Trench 83. View south.



Plate 12: Trench 91. View northeast.



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