LAND AT BARKING ROAD, NEEDHAM MARKET, SUFFOLK, IP6 8JF:

AN ARCHAEOLOGICAL EVALUATION

LOCAL PLANNING AUTHORITY: MID SUFFOLK DISTRICT COUNCIL

PLANNING REFERENCE: 3506/16

PCA REPORT NO: 12759

EVENT NUMBER/SITE CODE: ESF 24979

HER NUMBER: NDM 042

MARCH 2017

PRE-CONSTRUCT ARCHAEOLOGY

Land at Barking Road, Needham Market, Suffolk, IP6 8JF:

An Archaeological Evaluation

Local Planning Authority:	**Mid Suffolk District Council**
Planning Reference:	**3506/16**
Central National Grid Reference:	**TM 08707 54012**
Event Number:	**ESF 24979**
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Report No.	**R 12759**
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ABSTRACT

This report describes the results of an archaeological trial trench evaluation carried out by Pre-Construct Archaeology on land at Barking Road, Needham Market, Suffolk (NGR TM 08707 54012) between the 15th and the 23rd November 2016. The archaeological work was commissioned by CgMs Consulting Ltd, on behalf of Hopkins Homes, in response to an archaeological brief issued by Rachael Abraham of the Conservation Team of Suffolk County Council's Archaeological Service (SCCAS/CT). The aim of the work was to characterise the archaeological potential of the proposed development area.

The earliest activity on the site was evidenced by a Late Bronze Age- Early Iron Age boundary ditch present in the north of the site (Trenches 3, 5 and 6). This potentially delineates an area of activity concentrated on the higher ground to the north, beyond the limits of the current evaluation. Further features were identified in the northern part of the site, suggesting that this was the focus of activity in the later prehistoric period.

Iron Age features were also identified in the southern part of the site (Trenches 29 and 33) which may indicate the presence of second area of activity, or merely that activity throughout the site was relatively diffuse. The lack of finds, however, is indicative that the features present on the site are not located in close proximity to contemporary settlement areas.

The former site of the Sprites Hall dwellings was only identified by the presence of demolition rubble within the topsoil. The field boundaries associated with Sprites Hall, as seen on the 1842 Tithe Map, were still present on the site. These contained plentiful amounts of clearly modern artefacts, which were not retained.

1 INTRODUCTION

1.1 An archaeological trial trench evaluation was undertaken by Pre-Construct Archaeology Ltd (PCA) on Land at Barking Road, Needham Market, Suffolk, IP6 8JF (centred on Ordnance Survey National Grid Reference (NGR) TM 08707 54012) from the 15th to the 23rd November 2016 (Figure 1).

1.2 The archaeological work was commissioned by CgMs Consulting, on behalf of Hopkins Homes Ltd. The site is for proposed residential development (Planning Reference: 3506/16). This was the initial phase of the pre-determination evaluation with a subsequent evaluation to be undertaken post-consent.

1.3 The evaluation was carried out in accordance with a Written Scheme of Investigation (WSI) prepared by Taleyna Fletcher of PCA (Fletcher 2016) in response to a Brief for archaeological evaluation issued by Rachael Abraham (Abraham 2016) of the Conservation Team of Suffolk County Council's Archaeological Service (SCCAS/CT).

1.4 The aim of the evaluation was to determine the location, date, extent, character, condition and quality of any archaeological remains on the site, to assess the significance of any such remains in a local, regional, or national context, as appropriate, and to assess the potential impact of the development proposals on the site's archaeology.

1.5 A total of 35 40m x 2m trial trenches were proposed, but due to issues relating to access, it was agreed with SCCAS/CT that two trenches (Trenches 34 and 35) could be removed from this phase of works. A total of 33 trenches were excavated and recorded.

1.6 This report describes the results of the evaluation and aims to inform the design of an appropriate archaeological mitigation strategy.

1.7 The site archive will be deposited at SCCAS/CT archaeological stores.

2 GEOLOGY AND TOPOGRAPHY

2.1 Geology

2.1.1 The underlying geology of the site is of the Newhaven Chalk Formation, which formed approximately 71 to 86 million years ago in the Cretaceous Period, when the local environment was previously dominated by warm chalk seas (Website 1).

2.1.2 This was overlain by superficial deposits of Lowestoft Formation Diamicton. It is interesting that on geological maps of the area that the historic core of Needham Market is focused on the Lowestoft Formation Sands and Gravels to the east and north, these would have provided significantly better drainage.

2.1.3 The overlying soils of the site are described as being Lime-rich loamy and clayey soils with impeded drainage (Website 2). This expands north and westwards and flanks freely draining slightly acid loamy soils which are located to the east and north east.

2.2 Topography

2.2.1 The study site lies on the southwestern side of Needham Market.

2.2.2 The ground within the study site falls from a high point of c.37m AOD at the northern boundary of the study site to c.25m AOD towards the south and Barking Road. The River Gipping is located 1km to the east which flows north to south.

3 ARCHAEOLOGICAL BACKGROUND

3.1 Previous Archaeological Investigations

3.1.1 There are no records of any other archaeological investigations having being undertaken on the study site, however the site was subject to a Geophysical Survey (Gaul 2016; Appendix 5) which shall be discussed further below. Only 10 archaeological investigations have been undertaken within the Search Area, the majority of which were located towards the centre of Needham Market c.900m to the northeast (ESF19481, ESF20210, ESF22895, ESF22247, ESF23571, ESF23572, and ESF19271) or at the Bosmere Primary School c.500m to the north (ESF23205 and ESF21244) of the study site.

3.1.2 The B1113 Stowmarket to Great Blakenham pipeline skirts the western side of the Spriteshall Grove c.50m to the west of the study site. The construction of the pipeline revealed two sites of archaeological interest near to the Saxon Park and Brick Kiln Caravan Parks located on the higher ground c.900m to the northwest of the study site. These recorded part of a Prehistoric or Roman field system and a series of Medieval ditches and pits (BRK136). No archaeology was uncovered on the stretch nearest to the current study site.

3.2 Geophysical Survey

3.2.1 A geophysical survey of the study site was undertaken by GSB in April 2016 (Gaul 2016, Appendix 5). This survey identified an area of disturbed ground relating to the site of the Sprites Hall, and evidence of associated former field boundaries. No evidence of earlier archaeological remains were identified in the geophysical survey.

3.3 Archaeological Background

3.3.1 The site lies in an area of known archaeological significance, as recorded in the Suffolk Historic Environment Record (SHER). This archaeological and historical background has been drawn from the Desk- Based Assessment compiled by CgMs Consulting Ltd (Harrison 2016), the archaeological design brief (Abraham 2016) and the available 'grey literature' reports documenting

any nearby archaeological investigations.

3.4 Prehistoric

3.4.1 There are no entries on the HER of sites or finds of Prehistoric date located within the study site. Within the wider search area the occasional Prehistoric artefact has been uncovered within fields c.300m to the west of the study site although the majority of artefacts found here were mainly of Roman date (BRK 043 and BRK 046).

3.4.2 An assemblage of 232 worked flints was recovered from a trial trench across a ring ditch, located c. 1km to the north-west of the current site (CRM 027). The assemblage consisted of a number of flint blades with a high percentage of white/blue patinated flints, indicative of a Mesolithic assemblage.

3.4.3 At the northern extent of the search area (1km to the north of the study site) Mesolithic struck flints forming discrete concentrations were recovered from trial trenches near to The Pightle (NDM008). Further early Prehistoric activity is present in the area in the form of an isolated find of an Early Neolithic-Early Bronze Age flint axehead, which was discovered c. 450m to the south of the current site (BRK 014).

3.4.4 A number of Bronze Age cremations and an associated ring ditch were uncovered during excavations at the former Unilever site which was located c.900m to the north of the current site (NDM 033). These excavations also revealed further early Bronze Age ditches which demarcated early land divisions. An assemblage of Neolithic struck flint and pottery was also recovered from this site. The excavation was present between the 20-30m contour lines, situated within the free draining flood plains of the River Gipping, and as such would have been a particularly attractive location to prehistoric communities.

3.5 Roman

3.5.1 There are no entries on the HER of sites or finds of Roman date located within the study site. Within the wider search area a large concentration of artefacts has been uncovered during fieldwalking upon the higher ground c.300m to the west of the study site (BRK 44, BRK 45, BRK 046 and BRK

082). The artefacts recovered here form two clusters and were described as being located within dark soils. The occasional Bronze Age and Iron Age artefact were uncovered here and possibly suggest a site that has been in use throughout the Prehistoric period and utilised more intensively in the Roman period.

3.5.2 Roman activity within the wider search areas appears to be concentrated on the higher ground c.300m to the west and within the freer draining soils near to the River Gipping. Possible Roman field systems have also been uncovered on the higher ground c.800m to the northwest of the current site. There is a possibility that the site may have formed part of the agricultural hinterland of the activity 300m to the west.

3.5.3 An archaeological evaluation at The Pightle approximately 1km north of the current site, recorded a feature which contained Roman pottery (NDM 008), with further Roman pottery recovered during the construction of a small extension to the rear of Needham Market High Street (NDM 012).

3.5.4 Further Roman pottery and metalwork have been identified from fieldwalking and metal detecting in the wider vicinity of the study site (BRK 023, BRK 043, BRK Misc, and NDM 001).

3.6 Saxon and Medieval

3.6.1 There are no entries on the HER of sites or finds of Saxon or Medieval date located within the study site. The site sits within a larger field that has had a Medieval coin recovered from its topsoil (NDM 036) as well as situated 300m east of the findspot of a small number of Medieval artefacts recovered (BRK 043).

3.6.2 Within the wider search area two Early Saxon sunken-featured buildings were uncovered at the former Unilever building 1km to the north of the site, and within the known Medieval core of Needham Market (NDM 026).

3.6.3 No mention of Needham Market was made in the Domesday Survey of 1086, however during this period it was likely that it formed a hamlet within the parish of Barking along the road to Bury St Edmunds. A market was

granted to Needham Market in 1245 and a church was mentioned in the Index Elienisis in 1277 although this predates the fabric of the present church.

3.6.4 The church of St John the Baptist (Grade I Listed 436954) was re-built in the mid-15th century, and is located approximately 1km north west of the current site. The church would have formed the focus of the late Medieval settlement that centred along the High Street. In addition archaeological excavations along the High Street have revealed evidence of Late Medieval activity at The Pightle approximately 1km north of the site (NDM 008), 95 High Street (NDM 012) and 111 High Street (NDM 002).

3.7 Post-Medieval and Modern

3.7.1 There are no entries on the HER of sites or finds of post-medieval or Modern date located within the study site. The post-medieval and modern records recorded in the HER within the search area relate to buildings/monuments.

3.7.2 The study site was part of the Medieval agricultural hinterland of Needham Market as discussed above. The HLC identifies that the study site would have been enclosed pre-1800 and a cropmark of a post-medieval field boundary had been mapped to the north but within the same field as the current site suggesting it was enclosed between the medieval period and the earliest detailed maps of the area.

3.8 Cartographic Sources

3.8.1 The earliest detailed map of the study site is the tithe map of 1842. This shows the study site as split into three fields - within the corner of one towards the centre of the site is a structure. Two further enclosures at the south-eastern extent of the site line the edge of Barking Road. None of this detail is depicted on Surveyors Drawing of the site dated to 1820, although Colchester Barn (south of the study site) and other field boundaries are shown.

3.8.2 The structure at the centre of the site is referred to in the tithe apportionment as a cottage and Garden occupied by James Gooden and another, and owned by the Earl of Ashburnham. The enclosures lining Barking Road are

referred to as Ash Plantation (139) and Barn and Pasture Piece occupied and used by Henry Snell but owned by the Earl of Ashburnham. The two fields to the south of the cottage are referred to as First Six Acres (138) and Further Six Acres (139). The northern part of the study site forms the southern extent of a former field referred to as Spright's Hall Ley (141). All the fields are worked by Henry Snell and owned by the Earl of Ashburnham.

3.8.3 The western boundary of the current site is lined by Spright's Hall Grove (now Spriteshall Grove), whilst the extant Colchester Barn is shown in to the southwest of the study site.

3.8.4 The cottage at the centre of the site is situated within the corner of the southwestern field and appears to be situated in a triangle created by the junction of three fields. It is likely that they cottage was placed here in respect of the field boundaries and postdate them. The near trapezoidal enclosure which the cottage occupies has a division separating the plot into 1/3rd in the east and 2/3rds in the west. This suggests that the building was divided into two dwellings. The shape of the cottage enclosure and the field boundaries are visible on satellite imagery of the study site (GoogleEarth).

3.8.5 A cropmark of ditch depicted on the NMP data (Harrison 2016) supplied by the HER aligns with a field boundary depicted to the north of the study site and aligned east to west. It is likely that this cropmark is a former Post-Medieval field boundary depicted on the tithe and OS maps.

3.8.6 The first edition OS map (Harrison 2016) shows the site as unchanged from the tithe, although it does show the cottage in more detail and labels the cottage, rather grandly, as "Sprite's Hall". The building is depicted as aligned north south and split into two separate dwellings. The southern dwelling is roughly 'L' shaped with a small extension to the east at the southern extent, and a very small porch to the west of the northern end. The northern dwelling has a mirroring porch to the west at the southern extent. The cottages have footpaths extending to the west through Spriteshall Grove towards Barking, to the southeast towards Barking Road, and to the northeast towards Needham Market. A possible pond is depicted to the

south of the building.

3.8.7 The second edition OS map depicts the site as much the same. Sprite's Hall is depicted as much the same although a small extension is depicted to the east of the building at the point of the division.

3.8.8 The next mapping of the study site is not until 1958-68 and shows that Spite's Hall has been demolished. The enclosure within which the cottage once stood is still present, as is the pond to the south of the former building. The field boundaries within the study site survive and the footpaths are labelled, although depicted as defunct. New houses have been constructed along Barking Road to the northeast of the site and the Lodge has been constructed to the south of Colchester Barn. A building labelled Verona is depicted to the southeast of the site and Barking Road.

3.8.9 The next map is dated 2006 and shows the field boundaries removed and the site in its present day form. The housing off Foxglove Avenue to the north and east has been constructed and further housing has been built along Barking Road.

4 METHODOLOGY

4.1 Excavation and Sampling

4.1.1 The Written Scheme of Investigation for the evaluation proposed the excavation of 35 trial trenches, distributed across the site (Figure 2-3). However due to access issues Trenches 34 and 35 proposed alongside Barking Road were not excavated in this phase of evaluation.

4.1.2 Some trenches were located in order to target and investigate geophysical anomalies, with others being positioned in order to obtain a representative sample of the 'blank' spaces within the site (Gaul 2016; Appendix 5).

4.1.3 Ground reduction was carried out under archaeological supervision using a 21-ton tracked mechanical excavator fitted with a 2m-wide toothless ditching bucket. Topsoil and subsoil deposits were removed in spits down to the level of the undisturbed natural geological deposits where potential archaeological features could be observed and recorded. Exposed surfaces were cleaned by trowel and hoe as appropriate and all further excavation was undertaken manually using hand tools. Overburden deposits were set aside beside each trench and examined visually and with a metal-detector for finds retrieval.

4.1.4 Metal-detecting was carried out during the topsoil and subsoil stripping and throughout the excavation process. Archaeological features and spoilheaps were scanned by metal-detector as they were encountered/ created.

4.1.5 Field excavation techniques and recording methods are detailed in the PCA Fieldwork Induction Manual (Operations Manual I) by Joanna Taylor and Gary Brown (2009).

4.1.6 All features were investigated and recorded in order to properly understand the date and nature of the archaeological remains on the site and to recover sufficient finds assemblages to assess the chronological development and socio-economic character of the site over time.

4.1.7 Discrete features such as pits and postholes were at least 50% excavated and, where considered appropriate, 100% excavated.

4.2 Recording Methodology

4.2.1 The limits of excavations, heights above Ordnance Datum (m OD) and the locations of archaeological features and interventions were recorded using a Leica 1200 GPS rover unit with RTK differential correction, giving three-dimensional accuracy of 20mm or better.

4.2.2 Manual plans and section drawings of archaeological features and deposits were drawn at an appropriate scale (1:10, 1:20).

4.2.3 Deposits or the removal of deposits judged by the excavating archaeologist to constitute individual events were each assigned a unique record number (often referred to within British archaeology as 'context numbers') and recorded on individual pre-printed forms (Taylor and Brown 2009). Archaeological processes recognised by the deposition of material are signified in this report by round brackets (thus), while events constituting the removal of deposits are referred to here as 'cuts' and signified by square brackets [thus]. The record numbers assigned to cuts and deposits are entirely arbitrary and in no way reflect the chronological order in which events took place. All features and deposits recorded during the evaluation are listed in Appendix 2. Artefacts recovered during excavation were assigned to the record number of the deposit from which they were retrieved.

4.2.4 High-resolution digital photographs were taken at all stages of the evaluation process. Digital Photographs were taken of all archaeological features and deposits and black and white film photographs were taken when considered appropriate by the excavator and supervisor.

4.2.5 Artefacts and ecofacts were collected by hand and assigned to the record number of the deposit from which they were retrieved, receiving appropriate care prior to removal from the site (CIfA 2001; Walker 1990; Watkinson 1981).

5 ARCHAEOLOGICAL SEQUENCE

5.1 Introduction and Overview of Results

5.1.1 The trenches are described below in numerical order, with technical data tabulated. Features and deposits are subdivided into feature type, before being described from north to south or west to east within the trench.

5.1.2 The evaluation identified a boundary ditch of Iron Age date, present running between Trenches 3, 5 and 6 (Figure 5). This boundary ditch may represent the southern delineation of activity present beyond the limits of the evaluation.

5.1.3 Further Iron Age activity was identified in the southern part of the site, with Trench 29 containing one pit and a large pit or silted up hollow and Trench 33 containing a north-west to south-east aligned ditch.

5.1.4 Two deposits of colluvial material were identified on the site, of which one (Colluvium (103)) sealed the features on the site, for example in Trench 3 sealing Ditches [116] and [121]. The second deposit of colluvial material (Colluvium (104)) underlay (103), and was truncated in places by some of the features present on the site.

5.2 Trench 1 (Figure 3)

5.2.1 This trench was located to obtain a representative sample of the 'blank' spaces not covered by the geophysical survey.

5.2.2 Trench 1 contained no archaeologically significant features or deposits.

TRENCH 1	**Figures 2-3**		
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 40.45	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.02m	0.03m
Subsoil	(101)	0.29m	0.29m
Natural (max machined depth)	(102)	0.31m+	0.34m+
Summary Trench 1 was located close to the north-western boundary of the site.			

The trench contained no archaeologically significant features or deposits.

5.3 Trench 2 (Figure 3)

5.3.1 This trench was located to obtain a representative sample of the 'blank' spaces not covered by the geophysical survey.

5.3.2 The trench contained one ditch, aligned north to south, and two pits. No dating evidence was recovered from any of these features, although it is likely that these are associated with the Late Bronze Age- Early Iron Age ditch identified in Trench 3.

5.3.3 Pit [110] (Figure 5) was located towards the western end of the trench. It was circular in plan, measuring 0.62m long, 0.61m wide and 0.4m in depth. It had moderately sloping sides and a concave base. It contained a single fill (109) of dark grey-brown silty clay. No finds were recovered from this feature.

5.3.4 Ditch [108] (Figure 5; Plate 3) was located towards the eastern end of the trench extending beyond both limits of excavation. It was linear in plan, aligned north to south measuring 0.7m wide and 0.3m deep with steep sides and a concave base. It contained a single fill (107) of pale brown-grey silty clay. No finds were recovered from this feature.

5.3.5 Pit [106] (Figure 5) was located towards the eastern end of the trench, immediately to the east of Ditch [108]. It was circular in plan, measuring 0.27m in diameter and 0.04m in depth. It had moderately sloping sides and a concave base. It contained a single fill (105) of mid grey-brown silty clay. No finds were recovered from this feature.

5.3.6 These features are likely to be associated with the Late Bronze Age- Early Iron Age ditch identified in Trenches 3, 5 and 6, due to the fact that no other archaeological remains are present in this part of the site, and where later features are present they are immediately identifiable due to their distinctive fills. However without dating evidence this may be misleading.

TRENCH 2	**Figures 2-3, 5**	**Plate 2**
Trench Alignment: E-W	Length: 40m	Level of Natural (m OD): 36.16

Deposit	Context No.	Average Depth (m)	
		E End	W End
Topsoil	(100)	0.02m	0.04m
Subsoil	(101)	0.37m	0.31m
Natural (max machined depth)	(102)	0.38m+	0.34m+
Summary Trench 2 was located in the north-west of the site. There were three archaeological features in the trench: one ditch of probable Iron Age date and two pits.			

5.4 Trench 3 (Figure 3)

5.4.1 This trench was located to obtain a representative sample of the 'blank' spaces not covered by the geophysical survey.

5.4.2 The trench contained two ditches, both aligned east to west, and two small pits or post-holes.

5.4.3 Colluvium (103) was present throughout the trench sealing the archaeological features from the subsoil and topsoil. It was made up of mid orange-brown silty sand. No finds were recovered from this deposit.

5.4.4 Ditch [116] (Figure 5; Plate 4) was located at the northern end of the trench extending beyond both limits of excavation. It was linear in plan, aligned east to west measuring 3.14m wide and 0.82m deep with steep sides and a concave base. It contained three fills: a basal deposit (115) of orange brown silty clay, which contained no finds. This was overlain by deposit (114) consisting of a dark brown charcoal rich silty clay which contained crumbs of pottery tentatively dated to the Late Bronze Age- Early Iron Age (Morgan-Shelbourne pers. comm.), dating was tentative as the sherds were very delicate and fragmentary. The upper deposit (113) consisted of pale grey-brown silty clay, which contained no finds.

5.4.5 Pit [123] (Figure 5) was located midway along the trench immediately to the north of Ditch [121]. It was circular in plan, measuring 0.27m in diameter and 0.07m in depth. It had moderately sloping sides and a concave base. It

contained a single fill (131) of dark grey-brown silty clay. No finds were recovered from this feature.

5.4.6 Ditch [121] (Figure 5) was located at the southern end of the trench extending beyond both limits of excavation. It was linear in plan, aligned east to west measuring 0.58m wide and 0.15m deep with steep sides and a concave base. It contained a single fill (129) of mid grey brown silty clay. No finds were recovered from this feature. Ditch [121] was truncated by Pit [122] and was located immediately to the south of Pit [123].

5.4.7 Pit [122] (Figure 5) was located at the southern end of the trench. It was circular in plan, measuring 0.53m long, 0.48m wide and 0.14m in depth. It had moderately sloping sides and a concave base. It contained a single fill (130) of dark grey-brown silty clay. No finds were recovered from this feature. Pit [122] truncated Ditch [121] and is likely related to Pit [123] to the north.

5.4.8 Part of the ditch (Ditch [121]) identified in this trench was also observed in Trenches 5 and 6. It is plausible, given its location on the edge of the decline of the slope, that this ditch may form part of the delineation of activity or possible settlement. However any settlement is not likely to be in close proximity due to the lack of finds evidence.

TRENCH 3	**Figures 2-3, 5**		
Trench Alignment: E-W	Length: 40m	Level of Natural (m OD): 32.61	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.03m	0.04m
Subsoil	(101)	0.3m	0.28m
Colluvium	(103)	0.36m	0.57m
Natural (max machined depth)	(102)	0.7m+	0.83m+
Summary Trench 3 was located in the northern part of the site. The trench contained two ditches and two small pits or post-holes.			

5.5 Trench 4 (Figure 3)

5.5.1 This trench was located to obtain a representative sample of the 'blank' spaces not covered by the geophysical survey.

5.5.2 The trench contained no archaeologically significant features or deposits.

TRENCH 4	**Figures 2-3**		
Trench Alignment: E-W	Length: 40m	Level of Natural (m OD): 29.09m	
Deposit	**Context No.**	**Average Depth (m)**	
		E End	**W End**
Topsoil	(100)	0.03m	0.03m
Subsoil	(101)	0.28m	0.27m
Colluvium	(103)	0.40m	0.4m
Colluvium	(104)	0.14m	-
Natural (max machined depth)	(102)	0.96m+	0.7m+
Summary Trench 4 was located in the north-eastern part of the site. The trench contained no archaeologically significant features or deposits.			

5.6 Trench 5 (Figure 3)

5.6.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing.

5.6.2 The trench contained a large ditch, aligned north-east to south-west, which was also identified in Trenches 3 and 6.

5.6.3 Ditch [135] (Figure 5; Plate 6) was located at the eastern end of the trench extending beyond both limits of excavation. It was linear in plan, aligned north-east to south-west measuring 1.2m wide and 0.55m deep with steep sides and a concave base. It contained a single fill (134) of pale grey brown silty clay. No finds were recovered from this feature.

TRENCH 5	**Figures 2-3, 5**	**Plate 5**
Trench Alignment: E-W	Length: 40m	Level of Natural (m OD): 39.67
Deposit	**Context No.**	**Average Depth (m)**

		E End	W End
Topsoil	(100)	0.03m	0.04m
Subsoil	(101)	0.31m	0.27m
Natural (max machined depth)	(102)	0.34m+	0.32m+
Summary Trench 5 was located in the north-western part of the site. The trench contained a single ditch, aligned north-east to south-west, which was also identified within Trenches 3 and 6.			

5.7 Trench 6 (Figure 3)

5.7.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing.

5.7.2 This trench contained a single ditch, aligned north-east to south-west, which was also identified in Trenches 3 and 5. This ditch was not excavated in this trench as it was excavated in Trench 3, Ditch [121], and Trench 5, Ditch [135].

TRENCH 6	**Figures 2-3**		
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 36.37	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.04m	0.04m
Subsoil	(101)	0.34m	0.38m
Natural (max machined depth)	(102)	0.37m+	0.41m+
Summary Trench 6 was located in the north-western part of the site. The trench contained a single ditch, aligned north-east to south-west, which was also identified in Trenches 3 and 5.			

5.8 Trench 7 (Figure 3)

5.8.1 This trench was located in order to provide a representative sample of the

'blank' spaces in between anomalies identified in the geophysical survey (Gaul 2016; Appendix 5).

5.8.2 The trench contained one pit located midway along the trench.

5.8.3 Pit [112] (Figure 3) was located midway along the trench. It was sub-oval in plan extending beyond the southern limits of excavation, measuring 0.5m in diameter and 0.14m in depth. It had steep sloping sides and a concave base. It contained a single fill (111) of pale grey-brown silty clay. No finds were recovered from this feature.

TRENCH 7	**Figures 2-3**		
Trench Alignment: E-W	Length: 40m	Level of Natural (m OD): 33.09	
Deposit	**Context No.**	**Average Depth (m)**	
		E End	**W End**
Topsoil	(100)	0.03m	0.03m
Subsoil	(101)	0.31m	0.29m
Colluvium	(103)	0.18m	0.26m
Natural (max machined depth)	(102)	0.48m+	0.58m+
Summary Trench 7 was located in the northern part of the site. The trench contained a pit, from which no finds were recovered.			

5.9 Trench 8 (Figure 3)

5.9.1 This was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing.

5.9.2 The trench contained no archaeologically significant features or deposits.

TRENCH 8	**Figure 2-3**		
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 31.71	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.04m	0.02m

Subsoil	(101)	0.31m	0.24m
Colluvium	(103)	0.45m	0.41m
Colluvium	(104)	0.3m	0.1m
Natural (max machined depth)	(102)	0.98m+	0.78m+

Summary

Trench 8 was located in the north-eastern part of the site.
The trench contained no archaeologically significant features or deposits.

5.10 Trench 9 (Figure 3)

5.10.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing.

5.10.2 The trench contained no archaeologically significant features or deposits.

TRENCH 9	**Figures 2-3**		
Trench Alignment: E-W	Length: 40m	Level of Natural (m OD): 30.98	
Deposit	**Context No.**	**Average Depth (m)**	
		E End	**W End**
Topsoil	(100)	0.02m	0.06m
Subsoil	(101)	0.32m	0.32m
Colluvium	(103)	0.1m	0.25m
Natural (max machined depth)	(102)	0.42m+	0.55m+

Summary

Trench 9 was located in the north-eastern part of the site.
The trench contained no archaeologically significant features or deposits.

5.11 Trench 10 (Figure 3)

5.11.1 This trench was located in order to provide a representative sample of the 'blank' spaces present on the site.

5.11.2 The trench contained no archaeologically significant features or deposits.

TRENCH 10	**Figures 2-3**	

Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 40.32	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.03m	0.03m
Subsoil	(101)	0.33m	0.32m
Natural (max machined depth)	(102)	0.36m+	0.35m+
Summary Trench 10 was located in the north-western corner of the site. The trench contained no archaeologically significant features or deposits.			

5.12 Trench 11 (Figure 3)

5.12.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing.

5.12.2 The trench contained no archaeologically significant features or deposits.

TRENCH 11	**Figures 2-3**		
Trench Alignment: E-W	Length: 40m	Level of Natural (m OD): 38.44	
Deposit	**Context No.**	**Average Depth (m)**	
		E End	**W End**
Topsoil	(100)	0.04m	0.02m
Subsoil	(101)	0.33m	0.3m
Natural (max machined depth)	(102)	0.36m+	0.32m+
Summary Trench 11 was located in the north-western part of the site. The trench no archaeologically significant features or deposits.			

5.13 Trench 12 (Figure 3)

5.13.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing.

5.13.2 The trench no archaeologically significant features or deposits.

TRENCH 12	**Figures 2-3**		**Plate 7**	
Trench Alignment: N-S	Length: 40m		Level of Natural (m OD): 35.84	
Deposit	**Context No.**		**Average Depth (m)**	
			N End	**S End**
Topsoil	(100)		0.04m	0.02m
Subsoil	(101)		0.4m	0.41m
Natural (max machined depth)	(102)		0.42m+	0.42m+
Summary Trench 12 was located in the northern part of the site. The trench no archaeologically significant features or deposits.				

5.14 Trench 13 (Figure 3)

5.14.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing with the further anomaly of uncertain origin not identified within the trench.

5.14.2 No archaeologically significant features or deposits were present within the trench.

TRENCH 13	**Figures 2-3**			
Trench Alignment: E-W	Length: 40m		Level of Natural (m OD): 35.36	
Deposit	**Context No.**		**Average Depth (m)**	
			E End	**W End**
Topsoil	(100)		0.02m	0.02m
Subsoil	(101)		0.26m	0.26m
Natural (max machined depth)	(102)		0.26m+	0.27m+
Summary Trench 13 was located in the northern part of the site. The trench contained no archaeologically significant features or deposits.				

5.15 Trench 14 (Figure 3)

5.15.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing.

5.15.2 The trench contained no archaeologically significant features or deposits.

TRENCH 14	**Figures 2-3**		
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 33.05	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.02m	0.03m
Subsoil	(101)	0.31m	0.34m
Natural (max machined depth)	(102)	0.33m+	0.34m+
Summary Trench 14 was located in the eastern part of the site. The trench contained no archaeologically significant features or deposits.			

5.16 Trench 15 (Figure 3)

5.16.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing.

5.16.2 The trench contained a single pit/ post-hole.

5.16.3 Pit [124] (Figure 3) was located midway along the trench. It was circular in plan, measuring 0.18m in diameter and 0.07m in depth. It had moderately sloping sides and a concave base. It contained a single fill (132) of pale grey-brown silty clay. No finds were recovered from this feature.

TRENCH 15	**Figures 2-3**		
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 41.69	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**

Topsoil	(100)	0.02m	0.02m
Subsoil	(101)	0.32m	0.34m
Natural (max machined depth)	(102)	0.35m+	0.36m+
Summary Trench 15 was located in the western part of the site. The trench contained one small pit/ post-hole.			

5.17 Trench 16 (Figure 3)

5.17.1 This trench was located in order to provide a representative sample of the 'blank' spaces on the site.

5.17.2 The trench contained no archaeologically significant features or deposits.

TRENCH 16	**Figures 2-3**		
Trench Alignment: E-W	Length: 40m	Level of Natural (m OD): 39.15	
Deposit	**Context No.**	**Average Depth (m)**	
		W End	**E End**
Topsoil	(100)	0.02m	0.02m
Subsoil	(101)	0.4m	0.41m
Natural (max machined depth)	(102)	0.42m+	0.41m+
Summary Trench 16 was located in the central part of the site. The trench contained no archaeologically significant features or deposits.			

5.18 Trench 17 (Figure 3)

5.18.1 This trench was located in order to provide a representative sample of the 'blank' spaces on the site.

5.18.2 The trench contained no archaeologically significant features or deposits.

TRENCH 17	**Figures 2-4**		
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 36.70	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.02m	0.02m

Subsoil	(101)	0.28m	0.26m
Natural (max machined depth)	(102)	0.29m+	0.28m+

Summary

Trench 17 was located in the central part of the site.

The trench contained no archaeologically significant features or deposits.

5.19 Trench 18 (Figure 3)

5.19.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern field boundaries as well as a spread of demolition rubble present within the topsoil/subsoil.

5.19.2 Trench 18, in conjunction with Trench 22, formed an 'L-Shaped' Trench in order to fully investigate the suspected location of the former dwellings of Sprites Hall and associated boundary ditches.

5.19.3 The Trench contained a single post-medieval field boundary, present on the 1842 Tithe Map of the area (Figure 4). The trench contained no evidence for the former dwellings of Sprites Hall, as identified on the cartographic sources of the area, with the structures being completely robbed out following the disuse of the buildings. The anomaly of uncertain origin, identified at the southern end of the trench in the geophysical survey, was not uncovered within the trench.

5.19.4 Ditch [144] (Figure 6; Plate 9) was located midway along the trench extending beyond both limits of excavation. It was linear in plan, aligned east to west measuring 1.6m wide and 0.47m deep with steep sides and a flat base. It contained a single fill (145) of very dark grey brown/ black silty clay. Finds of clear post-medieval/modern date were recovered but not retained.

TRENCH 18	**Figures 2-4, 6**		**Plate 8**	
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 34.71		
Deposit		**Context No.**	**Average Depth (m)**	
			N End	**S End**

Topsoil	(100)	0.07m	0.01m
Subsoil	(101)	0.32m	0.47m
Natural (max machined depth)	(102)	0.38m+	0.47m+

Summary

Trench 18 was located in the central part of the site.
The trench contained a single post-medieval field boundary, present on the 1842 Tithe Map of the area.

5.20 Trench 19 (Figure 3)

5.20.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing.

5.20.2 The trench contained no archaeologically significant features or deposits.

TRENCH 19	**Figures 2-3**		
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 29.88	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.06m	0.04m
Subsoil	(101)	0.42m	0.37m
Natural (max machined depth)	(102)	0.47m+	0.39m+

Summary

Trench 19 was located in the eastern part of the site.
The trench contained no archaeologically significant features or deposits.

5.21 Trench 20 (Figure 3)

5.21.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing, as well as one pertaining to an area of geology.

5.21.2 The trench contained a single burnt pit which truncated the lower colluvial

deposit (104) and was sealed by an upper colluvial deposit (103).

5.21.3 Pit [117] (Figure 7; Plate 11) was located midway along the trench. It was circular in plan, measuring 0.55m in diameter and 0.2m in depth. It had steep sloping sides and a flat base. It contained a single fill (118) of mottled dark grey-brown silty clay and pale orange brown silty sand. No finds were recovered from this feature.

TRENCH 20	**Figures 2-4, 7**		**Plate 10**	
Trench Alignment: E-W	Length: 40m		Level of Natural (m OD): 26.16	
Deposit	**Context No.**		**Average Depth (m)**	
			E End	**W End**
Topsoil	(100)		0.04m	0.03m
Subsoil	(101)		0.28m	0.32m
Colluvium	(103)		0.64m	0.1m
Colluvium	(104)		0.1m	-
Natural (max machined depth)	(102)		1.04m+	0.42m+
Summary Trench 20 was located in the eastern part of the site. The trench contained a single burnt pit.				

5.22 Trench 21 (Figure 3)

5.22.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern field boundaries as well as modern ploughing.

5.22.2 The Trench contained a single post-medieval field boundary, present on the 1842 Tithe Map of the area (Figure 4). This was not excavated in this trench as it had been fully characterised in Trenches 18 and 22.

TRENCH 21	**Figures 2-4**		
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 40.43	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.04m	0.02m

Subsoil	(101)	0.25m	0.26m
Colluvium	(103)	0.05m	0.03m
Natural (max machined depth)	(102)	0.33m+	0.32m+

Summary

Trench 21 was located in the western part of the site.

The trench contained a single post-medieval field boundary, present on the 1842 Tithe Map of the area.

5.23 Trench 22 (Figure 3)

5.23.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern field boundaries as well as a spread of demolition rubble present within the topsoil/subsoil.

5.23.2 Trench 22, in conjunction with Trench 18, formed an 'L-Shaped' Trench in order to fully investigate the suspected location of the former dwellings of Sprites Hall and associated boundary ditches.

5.23.3 The Trench contained four post-medieval field boundaries, at least one of which was present on the 1842 Tithe Map of the area (Figure 4). The anomaly of uncertain origin and the possible burning, identified at the western end of the trench in the geophysical survey, was not uncovered within the trench. Also there was no evidence for the former dwellings of Sprites Hall, as identified on the cartographic sources of the area, with the structures being completely robbed out following the disuse of the buildings.

5.23.4 Ditch [146] (Figure 6) was located at the western end of the trench extending beyond the southern limit of excavation. It was linear in plan, aligned north-west to south-east measuring 0.72m wide and 0.09m deep with moderately sloping sides and a concave base. It contained a single fill (147) of dark grey brown/ black silty clay. Finds of clear post-medieval/modern date were recovered but not retained.

5.23.5 Ditch [138] (Figure 6; Plate 13) was located midway along the trench extending beyond both limits of excavation. It was linear in plan, aligned

north-east to south-west measuring 2.63m wide and 0.6m deep with steep sides and a flat base. It contained two fills: a basal deposit (137) of dark grey brown clay silt and an upper deposit (136) consisting of very dark grey-brown/ black silty clay. Finds of clear post-medieval/modern date were recovered from this feature but were not retained. Ditch [138] truncated Ditches [141] and [143].

5.23.6 Ditch [141] (Figure 6; Plate 13) was located midway along the trench extending beyond both limits of excavation. It was linear in plan, aligned north-east to south-west measuring 0.8m+ wide and 0.35m deep with moderately sloping sides and a flat base. It contained two fills: a basal deposit (140) of pale grey brown clay silt and an upper deposit (139) consisting of mid grey brown silty clay. Finds of clear post-medieval/modern date were recovered from this feature but were not retained. Ditch [141] was truncated by Ditches [138] and [143].

5.23.7 Ditch [143] (Figure 6; Plate 13) was located midway along the trench extending beyond both limits of excavation. It was linear in plan, aligned north-east to south-west measuring 0.58m+ wide and 0.25m deep with moderately sloping sides and a concave base. It contained a single fill (142) consisting of mid grey silty clay. Ditch [143] was truncated by Ditch [138] and truncated Ditch [143].

TRENCH 22	**Figures 2-4, 6**		**Plate 12**	
Trench Alignment: E-W	Length: 40m		Level of Natural (m OD): 32.32	
Deposit	**Context No.**		**Average Depth (m)**	
			E End	**W End**
Topsoil	(100)		0.04m	0.08m
Subsoil	(101)		0.24m	0.36m
Natural (max machined depth)	(102)		0.27m+	0.42m+
Summary Trench 22 was located in the central part of the site. The trench contained four post-medieval field boundaries.				

5.24 Trench 23 (Figure 3)

5.24.1 This trench was located in order to investigate a series of anomalies

identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing.

5.24.2 The trench contained no archaeologically significant features or deposits. One modern furrow was excavated and recorded to provide a representative sample of their form.

5.24.3 Furrow [119] (Figure 3; Plate 13) was located at the northern end of the trench extending beyond both limits of excavation. It was linear in plan, aligned north-west to south-east measuring 0.82m wide and 0.13m deep with shallow sloping sides and a concave base. It contained a single fill (120) consisting of pale grey brown silty clay.

TRENCH 23	**Figures 2-3**		**Plate 14**	
Trench Alignment: N-S	Length: 40m		Level of Natural (m OD): 26.54	
Deposit	**Context No.**		**Average Depth (m)**	
			N End	**S End**
Topsoil	(100)		0.02m	0.04m
Subsoil	(101)		0.27m	0.3m
Colluvium	(103)		0.53m	0.42m
Natural (max machined depth)	(102)		0.82m+	0.76m+
Summary Trench 23 was located in the south-eastern part of the site. The trench contained no archaeologically significant features or deposits. One modern furrow was excavated and recorded to provide a representative sample of their form.				

5.25 Trench 24 (Figure 3)

5.25.1 This trench was located in order to provide a representative sample of the 'blank' spaces.

5.25.2 The trench contained no archaeologically significant features or deposits.

TRENCH 24	**Figures 2-3**			
Trench Alignment: E-W	Length: 40m		Level of Natural (m OD): 37.51	
Deposit	**Context No.**		**Average Depth (m)**	
			E End	**W End**

Topsoil	(100)	0.02m	0.04m
Subsoil	(101)	0.37m	0.32m
Natural (max machined depth)	(102)	0.37m+	0.36m+
Summary			
Trench 24 was located in the south-western part of the site.			
The trench contained no archaeologically significant features or deposits.			

5.26 Trench 25 (Figure 3)

5.26.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern field boundaries as well as a spread of demolition rubble present within the topsoil/subsoil.

5.26.2 Trench 25, in conjunction with Trenches 18 and 22, was also positioned in order to fully investigate the suspected location of the former dwellings of Sprites Hall and associated boundary ditches.

5.26.3 The trench contained one post-medieval boundary ditch, which was not excavated as they had been fully characterised in other trenches in the area. No evidence for Sprites Hall, as identified on the cartographic sources of the area, was identified within the trench. The former dwellings were completely robbed out following the disuse of the buildings.

TRENCH 25	**Figures 2-4, 6**		
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 33.96	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.02m	0.03m
Subsoil	(101)	0.46m	0.38m
Natural (max machined depth)	(102)	0.47m+	0.41m+
Summary			
Trench 25 was located in the southern part of the site.			
The trench contained one post-medieval boundary ditch, which was not excavated as they had been fully characterised in other trenches in the area.			

5.27 Trench 26 (Figure 3)

5.27.1 This trench was located in order to investigate a series of anomalies

identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern field boundaries.

5.27.2 The trench contained one post-medieval boundary ditch, which was not excavated as they had been fully characterised in other trenches in the area.

TRENCH 26	**Figures 2-3**		
Trench Alignment: NE-SW	Length: 40m	Level of Natural (m OD): 29.37	
Deposit	**Context No.**	**Average Depth (m)**	
		NE End	**SW End**
Topsoil	(100)	0.02m	0.03m
Subsoil	(101)	0.3m	0.41m
Natural (max machined depth)	(102)	0.31m+	0.42m+
Summary Trench 26 was located in the south-eastern part of the site. The trench contained one post-medieval boundary ditch, which was not excavated as they had been fully characterised in other trenches in the area.			

5.28 Trench 27 (Figure 3)

5.28.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing.

5.28.2 The trench contained no archaeologically significant features or deposits.

TRENCH 27	**Figures 2-3**		
Trench Alignment: E-W	Length: 40m	Level of Natural (m OD): 38.04	
Deposit	**Context No.**	**Average Depth (m)**	
		E End	**W End**
Topsoil	(100)	0.02m	0.03m
Subsoil	(101)	0.35m	0.36m
Natural (max machined depth)	(102)	0.37m+	0.39m+
Summary Trench 27 was located in the south-western part of the site. The trench contained no archaeologically significant features or deposits.			

5.29 Trench 28 (Figure 3)

5.29.1 This trench was located in order to provide a representative sample of the 'blank' spaces.

5.29.2 The trench contained no archaeologically significant features or deposits.

TRENCH 28	**Figures 2-3**		
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 35.80	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.02m	0.03m
Subsoil	(101)	0.32m	0.3m
Natural (max machined depth)	(102)	0.32m+	0.34m+
Summary Trench 28 was located in the south-western part of the site. The trench contained no archaeologically significant features or deposits.			

5.30 Trench 29 (Figure 3)

5.30.1 This trench was located in order to provide a representative sample of the 'blank' spaces.

5.30.2 The trench contained one pit and a large ditch/hollow which contained Iron Age pottery.

5.30.3 Pit [128] (Figure 8; Plate 18) was located towards the western end of the trench, c. 2.0m to the west of Ditch [126]. It was sub-oval in plan, measuring 1.4m+ in length, 1.0m wide and 0.18m in depth. It had moderate to steep sloping sides and a concave base. It contained a single fill (129) of pale grey-brown silty. No finds were recovered from this feature.

5.30.4 Ditch/Hollow [126] (Figure 8; Plate 17) was located towards the western end of the trench, c. 2.0m to the east of Pit [128]. It was not possible to ascertain the full extents of the feature within the confines of an evaluation trench. It measured 2.0m+ in length, 6.0m wide and 0.5+m in depth. It had steep sloping sides and a concave base. It contained a two fills: a lower fill (125) of mid to dark grey-brown silty clay which contained 4 sherds (33g) of Middle Iron Age pottery as well as one sherd of Roman pottery (Anderson pers.

comm.), and an upper fill (133) consisting of mid grey brown clay silt, which contained no finds.

TRENCH 29	**Figures 2-3, 8**		**Plate 16**
Trench Alignment: E-W	Length: 40m	Level of Natural (m OD): 30.33	
Deposit	**Context No.**	**Average Depth (m)**	
		E End	**W End**
Topsoil	(100)	0.02m	0.03m
Subsoil	(101)	0.4m	0.47m
Natural (max machined depth)	(102)	0.41m+	0.49m+
Summary Trench 29 was located in the southern part of the site. The trench contained one pit and a large ditch/hollow which contained Iron Age pottery.			

5.31 Trench 30 (Figure 3)

5.31.1 This trench was located in order to investigate a series of anomalies identified in the geophysical survey as well as to provide a representative sample of the 'blank' spaces (Gaul 2016; Appendix 5). These anomalies were related to modern ploughing.

5.31.2 The trench contained no archaeologically significant features or deposits.

TRENCH 30	**Figures 2-3**		
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 28.11	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.04m	0.03m
Subsoil	(101)	0.41m	0.46m
Natural (max machined depth)	(102)	0.42m+	0.47m+
Summary Trench 30 was located in the south-eastern part of the site. The trench contained no archaeologically significant features or deposits.			

5.32 Trench 31 (Figure 3)

5.32.1 This trench was located in order to provide a representative sample of the 'blank' spaces.

5.32.2 The trench contained no archaeologically significant features or deposits.

TRENCH 31	**Figures 2-3**		
Trench Alignment: E-W	Length: 40m	Level of Natural (m OD): 33.15	
Deposit	**Context No.**	**Average Depth (m)**	
		E End	**W End**
Topsoil	(100)	0.01m	0.03m
Subsoil	(101)	0.31m	0.28m
Natural (max machined depth)	(102)	0.3m+	0.31m+
Summary			
Trench 31 was located in the south-western part of the site.			
The trench contained no archaeologically significant features or deposits.			

5.33 Trench 32 (Figure 3)

5.33.1 This trench was located in order to provide a representative sample of the 'blank' spaces.

5.33.2 The trench contained no archaeologically significant features or deposits.

TRENCH 32	**Figures 2-3**		
Trench Alignment: N-S	Length: 40m	Level of Natural (m OD): 31.34	
Deposit	**Context No.**	**Average Depth (m)**	
		N End	**S End**
Topsoil	(100)	0.04m	0.03m
Subsoil	(101)	0.33m	0.31m
Natural (max machined depth)	(102)	0.36m+	0.34m+
Summary			
Trench 32 was located in the south-western part of the site.			
The trench contained no archaeologically significant features or deposits.			

5.34 Trench 33 (Figure 3)

5.34.1 This trench was located in order to provide a representative sample of the 'blank' spaces.

5.34.2 The trench contained one ditch, aligned north-west to south-east, which contained no dating evidence.

5.34.3 Ditch [148] (Figure 8; Plate 20) was located towards the eastern end of the trench extending beyond both limits of excavation. It was linear in plan, aligned north-west to south-east measuring 1.49m wide and 0.64m deep with steep sloping sides and a concave base. It contained two fills: a basal

deposit (149) consisting of mid reddish brown silty sand, and an upper deposit (150) of dark grey brown silty clay. No finds were recovered from this feature.

TRENCH 33	**Figures 2-3, 8**		**Plate 19**	
Trench Alignment: E-W	Length: 40m		Level of Natural (m OD): 27.78	
Deposit		**Context No.**	**Average Depth (m)**	
			E End	**W End**
Topsoil		(100)	0.03m	0.02m
Subsoil		(101)	0.41m	0.33m
Natural (max machined depth)		(102)	0.43m+	0.35m+
Summary Trench 33 was located in the southern part of the site. The trench contained one ditch, aligned north-west to south-east, which contained no dating evidence.				

5.35 Trench 34

5.35.1 Trench 34 was not excavated due to problems regarding access.

5.36 Trench 35

5.36.1 Trench 35 was not excavated due to problems regarding access.

6 THE FINDS AND ENVIRONMENTAL EVIDENCE

6.1 Prehistoric Pottery

By Lawrence Morgan-Shelbourne

Methodology

6.1.1 All the prehistoric pottery has been fully recorded following the recommendations laid out by the Prehistoric Ceramic Research Group (2010). After a full inspection of the assemblage, fabric groups were devised on the basis of dominant inclusion types, their density and modal size.

6.1.2 Sherds from all contexts were counted, weighed (to the nearest whole gram) and assigned to a fabric group (sherds broken in excavation were refitted and counted as single entities). Sherds weighing less than 1g were classified as crumbs and were recorded by context and weight in the catalogue, but do not form part of this analysis. Sherd type was recorded, along with technology (wheel-made or handmade), evidence for surface treatment, decoration, and the presence of soot and/or residue.

6.1.3 All pottery was subject to sherd size analysis. Sherds less than 4cm in diameter were classified as 'small'; sherds measuring 4-8cm were classified as 'medium' and sherds over 8cm in diameter were classified as 'large'.

Discussion

6.1.4 The evaluation produced a very small (4 sherds and crumbs, total weight 35g) assemblage of pottery, all were from fill (125) of feature [126]. This context contained a further sherd that dated to the Roman period (K. Anderson pers. Comm.), that is not included in this analysis. The remaining assemblage comprised crumbs (2g) from fill (114) of Ditch [116]. The assemblage contained no decorated sherds or diagnostic sherds and was generally in a poor condition, with a low mean sherd weight (MSW) of 7g and only one sherd being classified as larger than small (<4cm). In line with the low MSW, three of the sherds displayed slight abrasion to their surfaces.

6.1.5 The assemblage contained three separate fabric types (Table 1). Two of the sherds were of fabric Q1, with one example of each of the remaining fabrics

being present. The crumbs, as far as can be ascertained were of a similar fabric to QF1, although the flint temper was more abundant.

QF1	QF1- Moderate to common well sorted sand <1mm, rare to sparse poorly sorted flint 2-8mm.
Q1	Q1- Moderate to common well sorted sand <1mm
GQ1	GQ1- Moderate to common medium grog (1-2mm), moderate to common well sorted sand <1mm

Table 1: Pottery fabric series

6.1.6 Due to its small size, poor condition and lack of diagnostic forms, assigning a date to the assemblage can only be done based on fabric type. Within the region, fabrics containing only sand (Q) commonly date to the Middle Iron Age (West 1990), while flint (F) tempered fabrics have a wider range, being present from the Early Neolithic through to the Middle Iron Age (Gibson 2002).

6.1.7 The well fired sand and flint tempered sherd in this assemblage is more characteristic of a date towards the end of this range, in the Early to Middle Iron Age.

6.1.8 The use of grog as a temper is relatively rare in the Early and Middle Iron Age, and is more commonly associated with Late Iron Age pottery, often of 'Belgic' wheel made type, although the overall appearance of this sherd does not resemble the usually well executed thinner pottery of these wares (Thompson 1982).

6.1.9 Due to the limits of relying on fabric as a dating type, this assemblage can only be broadly dated to the Iron Age (800-100 BC), although the combination of fabrics tentatively suggest a focus in the Middle Iron Age (400/350-100 BC).

6.1.10 The crumbs of pottery recovered from Ditch [116] contained greater quantities of calcined flint temper, and as such may be of Late Bronze Age-Early Iron Age date (1150-400 BC). It is likely that the date will be towards to latter half of this range, a slightly earlier date than the rest of the assemblage.

6.2 Plant Macrofossils

By Kate Turner

Introduction and Method Statement

6.2.1 This report summarises the findings of the rapid assessment of four bulk samples taken during excavations on land at Barking Road, Needham Market. These samples were taken from two pits and two boundary ditches, the context information for which is given in Table 2.

Context No.	Associated environmental sample	Feature No.	Category	Description
109	1	110	Pit	Fill of pit
114	2	116	Ditch	Cut of Iron Age boundary ditch
118	3	117	Pit	Cut of burnt pit
150	4	148	Ditch	Cut of boundary ditch

Table 2: Sample information

6.2.2 The aim of this assessment is to:

1. Give an overview of the contents of the assessed samples;

2. Determine the environmental potential of these samples;

3. Establish whether any further analysis is necessary.

Methodology

6.2.3 Four bulk samples were processed using the flotation method; material was collected using a 300µm mesh for the light fraction and a 1mm mesh for the heavy residue. The heavy residue was then dried, sieved at 1mm, 2mm and 4mm and sorted to extract artefacts and ecofacts. The abundance of each category of material was recorded using a non-linear scale where '1' indicates occasional occurrence (1-10 items), '2' indicates occurrence is fairly frequent (11-30 items), '3' indicates presence is frequent (31-100 items) and '4' indicates an abundance of material (>100 items). The results

for this stage of the assessment are presented in Table 3.

6.2.4 The light residue (>300 µm), once dried, was scanned under a low-power binocular microscope in order to quantify the level of environmental material, such as seeds, chaff, charred grains, molluscs and charcoal. Abundance was recorded as above. A note was also made of any other significant inclusions, for example roots and modern plant material. The results of this assessment are shown in Table 4.

Results and Discussion

Residues

6.2.5 The heavy residues were relatively poor in environmental material; samples <1> and <3> were completely barren, and samples <2> and <4> contained only small fragments of wood charcoal and broken shell. Charcoal concentrations were relatively low; sample <4> contained less than 10 fragments, and sample <2> between 40 and 60 small pieces. The majority of the specimens were of an unsuitable size for species to be determined, however a low concentration (<10) over 2mm thick were found in sample <2>. A small quantity (<30 fragments) of broken shell, likely to belong to terrestrial molluscs, was also discovered in both samples.

Sample number	Context number	Feature number	Volume (l)	Residue				
				Charcoal	Seeds	Grain	Shells	Other
1	109	110	9					NO ENVIRO FINDS
2	114	116	28	4			Broken shell (2)	
3	118	117	6					NO ENVIRO FINDS
4	150	148	8	1			Broken shell (2)	

Table 3: Assessment of the residues

Key: 1- Occasional, 2- fairly frequent, 3- frequent, 4- abundant

Flots

6.2.6 All of the processed samples produced flots, ranging in volume from 8ml to 35ml. Wood charcoal was present throughout the assemblage in varying concentrations (Table 4); Sample <2> contained the greatest abundance,

with between 30 and 100 fragments over 1mm in length. As with the heavy residues, none of the material was of a suitable magnitude for species identification, therefore further assessment is not recommended.

6.2.7 Additionally, Samples <2>, <3> and <4> contained a small number of un-burnt seeds; generally concentrations were low (<10 specimens) with the exception of Sample <2>, which contained between 10 and 30 individual examples. Chenopodium album (fat-hen) was the most common species, though individual seeds of Betula spp. (birch) and Rumex spp. (docks/sorrels) were identified in Samples <3> and <4>. Sample <2> also yielded a single charred cereal grain, though this was too heavily carbonised to be identified.

6.2.8 Land molluscs were present across the sample set, both the highest concentration and species diversity being identified in Sample <4>, which contained over one hundred intact specimens of both adult and juvenile shells. Terrestrial species made up 100% of the assemblage, the most prevalent being Cecilioides Acicula and Carychium tridentatum, the former characteristic of un-wooded calcareous areas, and the latter relatively moist, sheltered environments. The presence of Cecilioides acicula in the sample set could be an indicator of bioturbation, as this snail is subterranean species and, when found in historical deposits, is often interpreted as evidence of modern burrowing activity. In addition to these types, Sample <4> also contained between 30 and 100 shells from the genus Vallonia, which includes the species Vallonia excentrica, Vallonia pulchella and Vallonia costata. High concentrations (>100 fragments) of broken shell were also discovered in Samples <2> and <4>, both of which were taken from the fills of boundary ditches, and a small number of snail eggs were found in Sample <3>, the fill of a burnt pit of un-known age (Table 2). A preliminary key of the snails identified in this assemblage is provided in Appendix 1.

6.2.9 In addition to the mollusca, all four of the assessed samples contained small numbers of disarticulated insect remains and/or eggs. Concentrations did not exceed 10 specimens in any one sample, and therefore further sampling for this type of material is not recommended.

6.2.10 Varying amounts of modern root material and/or grasses were also found throughout the flot residues, which, as with the modern snail remains, indicates the potential for post-depositional disturbance.

6.2.11 A full account of the environmental material identified in the Needham Market samples is shown in Table 4.

Sample number	Context number	Feature number	Vol (ml)	Flot						
						Seeds				
				Charcoal >1mm	Charcoal <1mm	Un-burnt	Burnt	Grain	Mollusca	Other
1	109	110	16	2	3				Land (2)	Roots (3) Insect remains (1) Insect eggs (1)
2	114	116	35	3	4	1		1	Land (2)	Roots (1) Modern grass (1) Insect eggs (1) Broken shell (4)
3	118	117	8	1	2	1			Land (2)	Roots (1) Insect remains (1) Insect eggs (1) Snail eggs (1) Straw (1)
4	150	148	7	1	2	2			Land (4)	Roots (1) Straw (1) Insect remains (1) Broken shell (4)

Table 4: Assessment of flots

Key: 1- Occasional, 2- fairly frequent, 3- frequent, 4- abundant

Conclusion and Recommendations

6.2.12 A rapid assessment of the samples from Needham Market has shown that, with the exception of terrestrial molluscs, the preservation of environmental remains is generally poor. No additional analysis is recommended for the archaeobotanical assemblage in particular, due to the paucity of identifiable material.

7 DISCUSSION & CONCLUSIONS

7.1 Later Bronze Age-Iron Age Activity

7.1.1 The evaluation identified the potential for peripheral Late Bronze Age- Early Iron Age activity. This is evidenced by a boundary ditch, present running through Trenches 3, 5 and 6. However it is worth the caveat that this evidence was in the form of a few crumbs of Late Bronze Age- Early Iron Age pottery (see Morgan-Shelbourne, Section 6.1). This ditch may be delineating any activity or settlement present on the higher ground to the north of the current site. Due to the lack of finds it is unlikely, however, that this activity was extensive with the likelihood that this boundary ditch was located at some distance from contemporary settlement areas.

7.1.2 It is likely that the features present in the northern part of the site are broadly contemporary to this Ditch [116], as where later features were identified they contained highly distinctive fills, and contained large finds assemblages.

7.1.3 Further Iron Age activity was present in the southern part of the site, in Trenches 29 and 33. This consisted of one pit, a ditch and a large ditch/hollow, which contained four sherds of Iron Age pottery (see Morgan-Shelbourne, Section 6.1) as well as an intrusive sherd of Roman pottery (Anderson pers. comm.). This indicates that there is prehistoric activity on the site, with the potential for further settlement related activity to be located nearby.

7.1.4 Residual early Prehistoric flintwork was extremely scarce on the site, with none recovered from features and only extremely unconvincing fragments present within the topsoil/subsoil. This suggests that it was likely that there was little earlier prehistoric activity on the site prior to the Later Bronze Age-Iron Age.

7.1.5 At least two deposits of colluvial material were identified on the site, of which one (Colluvium (103)) sealed the prehistoric features, for example in Trench 3 sealing Ditch [116]. However the second deposit of colluvial material (Colluvium (104)) underlay (103). This deposit was truncated in places by the features present on the site.

7.1.6 Although this prehistoric activity was localised to trenches in the northern and southern parts of the site, the relatively limited sample of the site investigated in the trial trenches means that it would be unsafe to rule out further features surviving elsewhere. This is further extenuated by the fact that the geophysical survey, although by and large accurate, did not take in the whole of the site, with the boundary ditch identified in Trenches 3, 5, and 6 being outside of the survey area. However the features within Trenches 29 and 33 were not identified in this survey, likely due to the depth of overburden, meaning it is possible further archaeological features are present within the apparent 'blank' spaces on the site.

7.2 Post-medieval Activity

7.2.1 The evaluation also identified a series of post-medieval field boundary ditches, present on the 1842 Tithe Map of the area and picked up in the geophysical survey of the site. These features were related to the site of the former Sprites Hall dwellings, with these ditches forming a triangular plot of land around the hall. These features were still visible on the 1985 OS Map of the area (Website 3).

7.2.2 No evidence for Sprites Hall remains in-situ, with no foundations or wall footings surviving. This likely suggests that the building was deliberately and systematically demolished following its disuse. The only evidence for its location on site was ploughed-out demolition rubble present within the topsoil in the area.

7.2.3 Aside from these post-medieval-modern field boundaries the only other features present on the site were furrows, which shared their alignments with the modern furrows, indicating they are likely to date to this period. Where visible these furrows truncated the colluvial deposits on the site.

7.3 Conclusions

7.3.1 The trial trench evaluation has identified features reflecting two periods of activity on the site: one Later Bronze Age-Iron Age and one post-medieval/modern.

7.3.2 The archaeological features and deposits showed evidence for extensive

plough damage, with the likelihood that further evidence for archaeological features has been lost. In some trenches features were overlain by deep colluvial deposits potentially protecting further archaeological features and deposits. In general the Trenches on the higher ground were more heavily disturbed than the Trenches which were located within the natural hollows on the site. These hollows and their deeper overburden deposits provided better protection from plough damage.

7.3.3 The apparent low densities of archaeology in the northern and southern parts of the site may be misleading, especially when viewed alongside the limited sample of the site's area provided by the trenching and loss of features through plough truncation, this apparent lack of features in the central areas of the site may not be 'real'. However, conversely, it could also be argued that due to the paucity of finds and the lack of ploughsoil it could be said that there is not a wealth of missing archaeology.

8 ACKNOWLEDGEMENTS

8.1 Pre-Construct Archaeology Ltd would like to thank CgMs Consulting Ltd for commissioning the work and LK Plant Hire for operating the excavator. PCA are also grateful to Rachael Abraham of the Conservation Team of Suffolk County Council's Archaeological Service for her advice and for monitoring the work. The author would like to thank Taleyna Fletcher for managing the project. The author would also like to thank the project team: Zoë Richardson, Bethan Gray, David Curry, Hannah Finn and Larry Morgan-Shelbourne for their hard work, and finally Charlotte Faiers of PCA's CAD department for preparing the figures.

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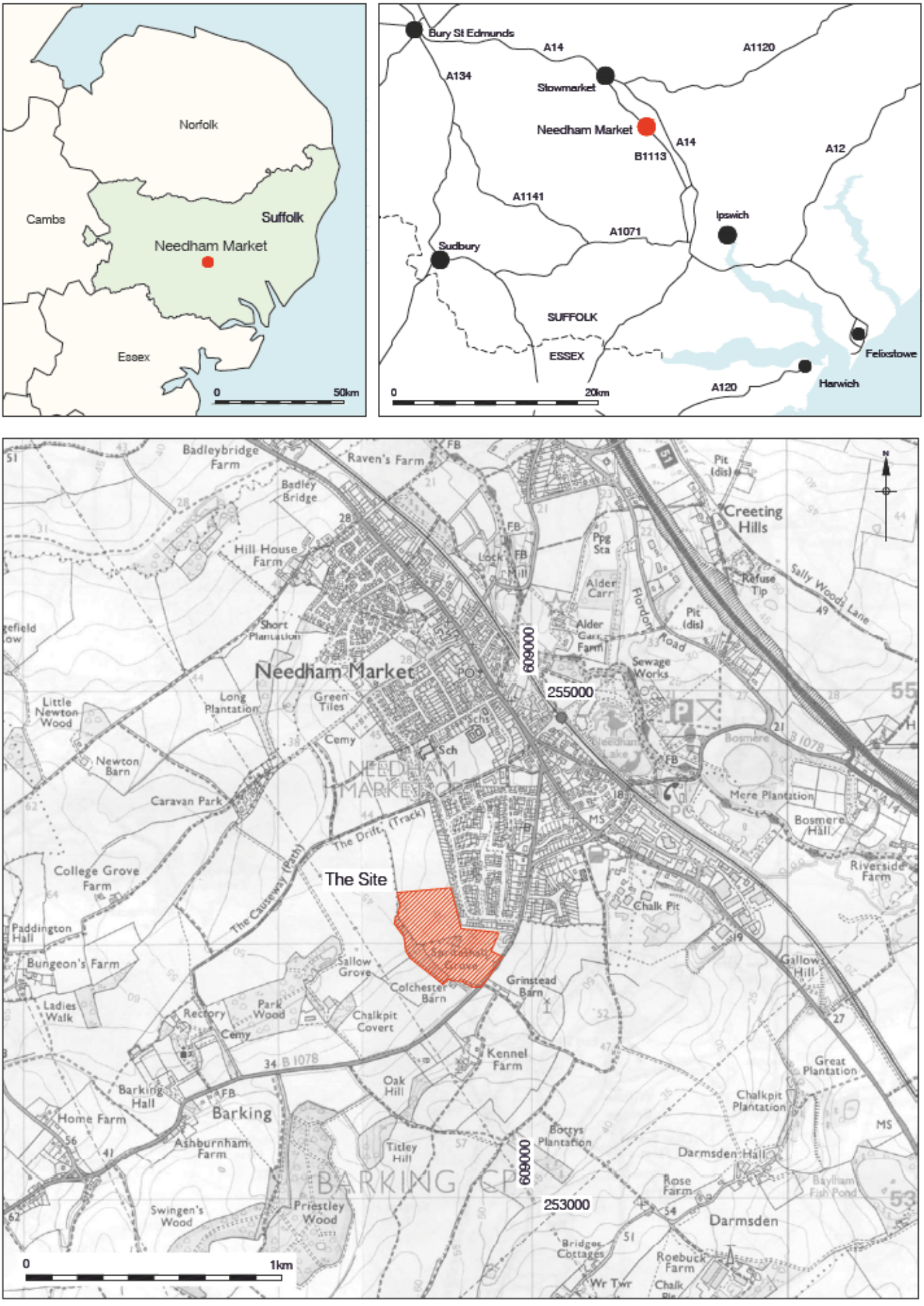
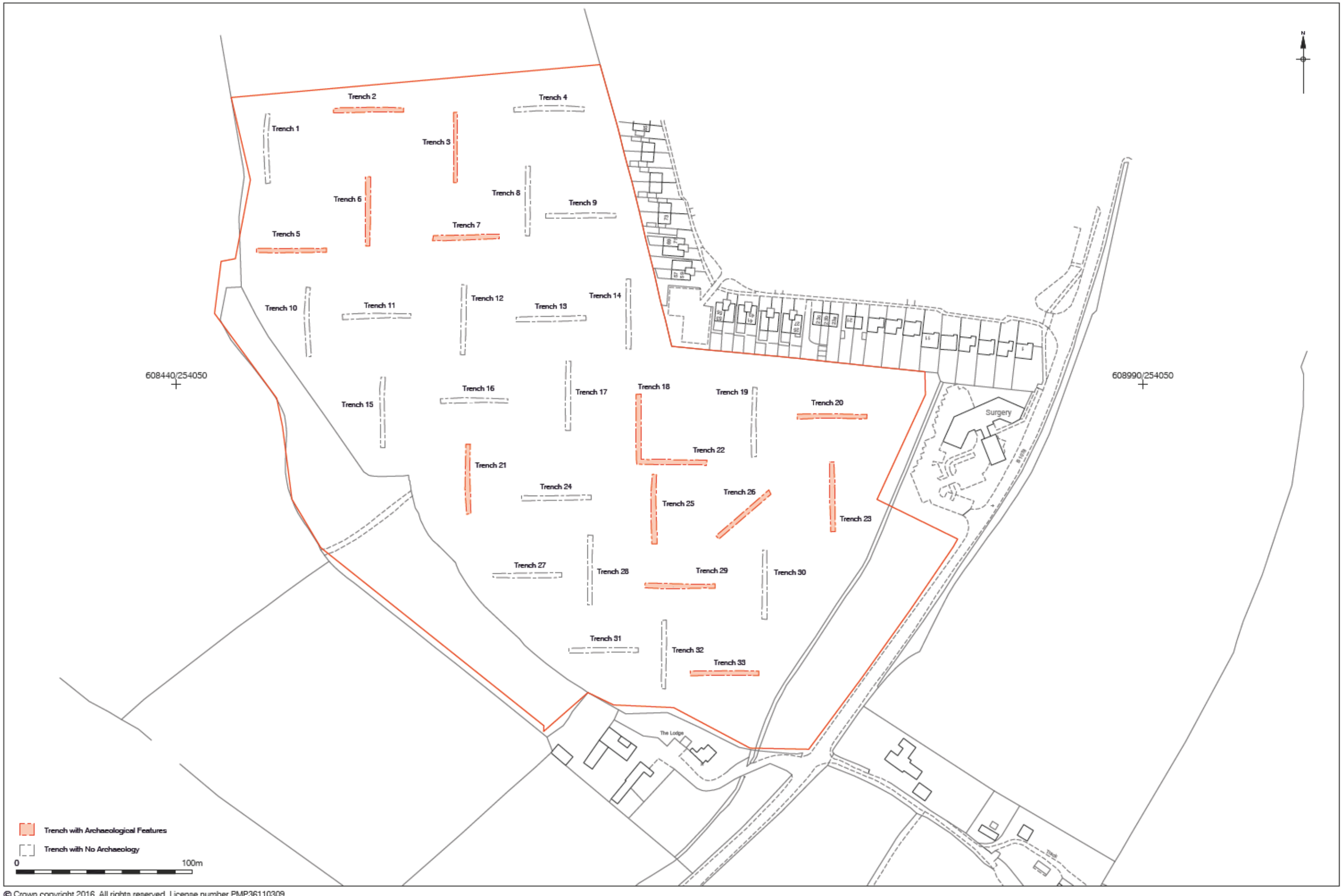


29/11/16 CF

Figure 1
Site Location
1:2,000,000; 500,000 and 20,000 at A4

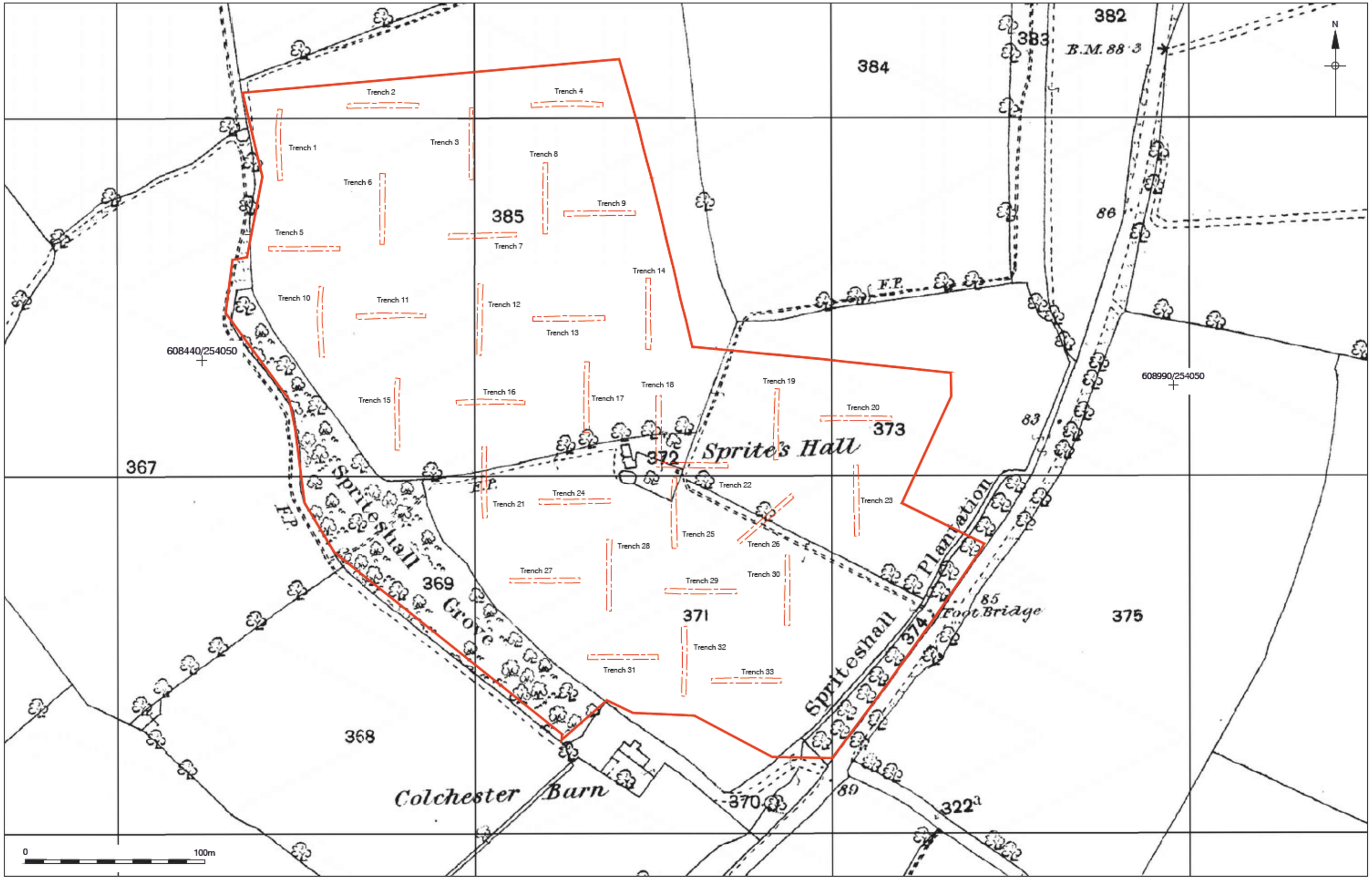
29/11/16 CF

Figure 2
Trench Locations with Geophysics
1:2,000 at A3



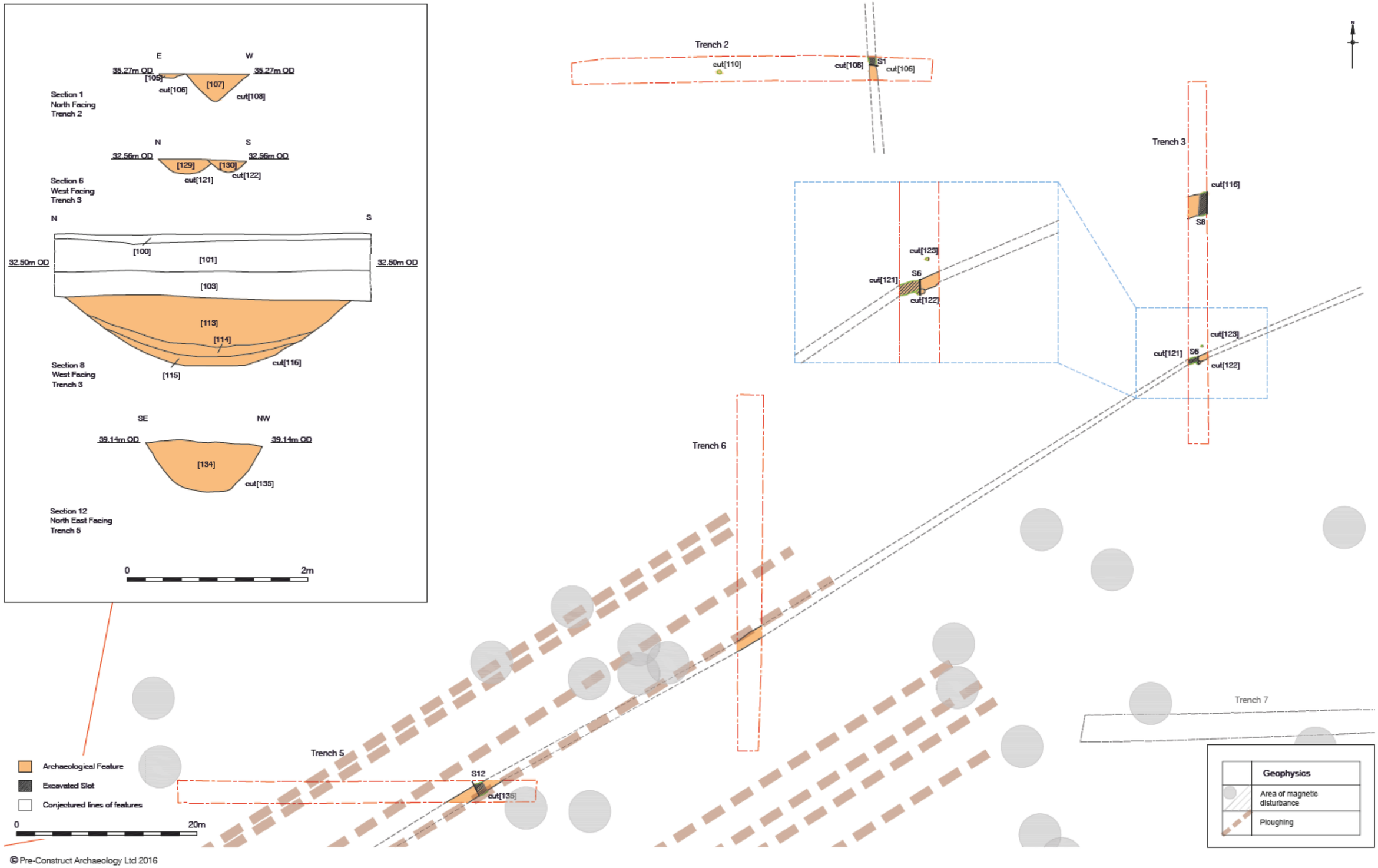
30/11/16 CF

Figure 3
Trench locations and location of archaeology
1:2,000 at A3



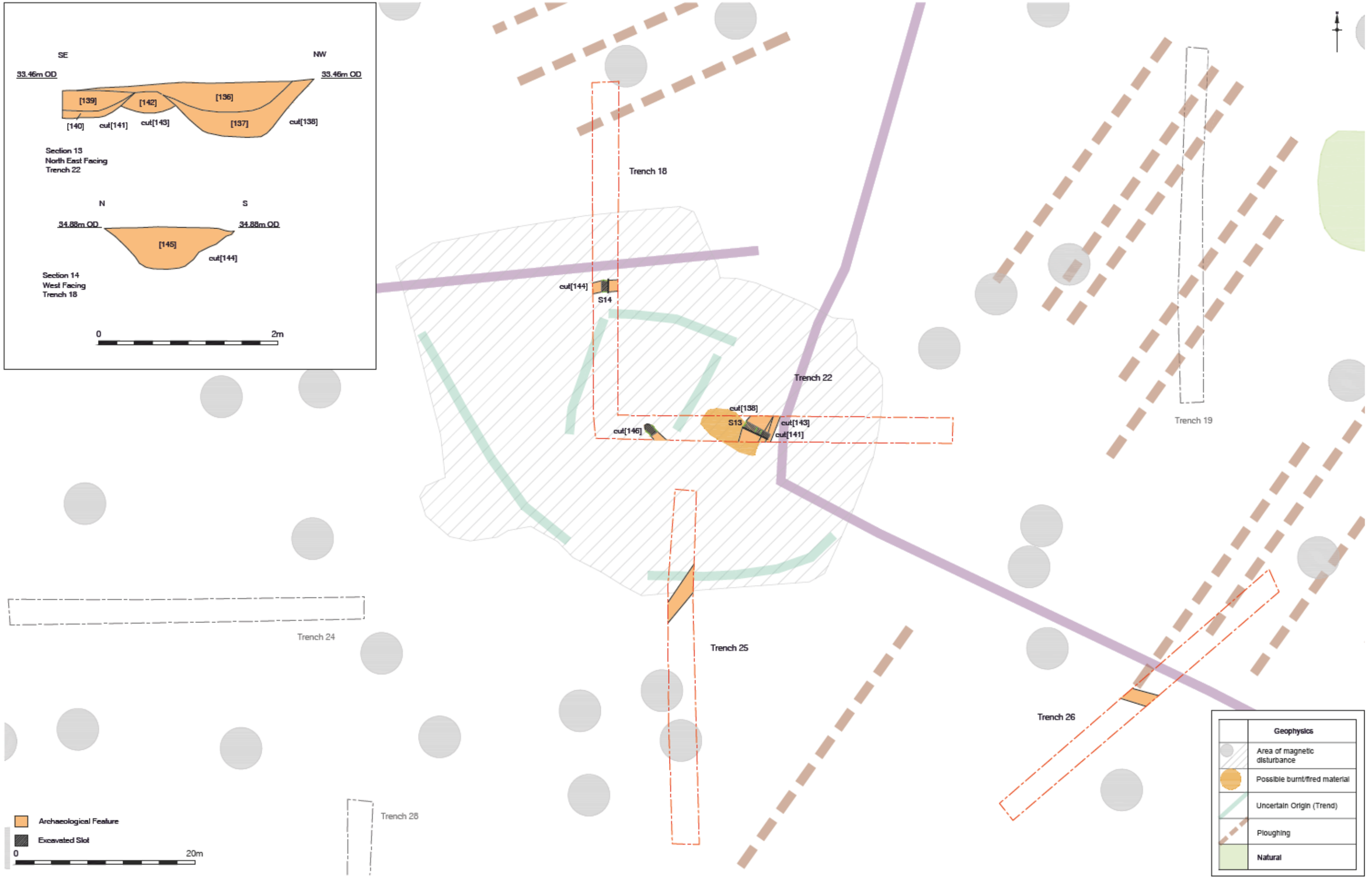
29/11/16 CF

Figure 4
Trenches overlain on First Edition Ordinance Survey 1884
1:2,000 at A3



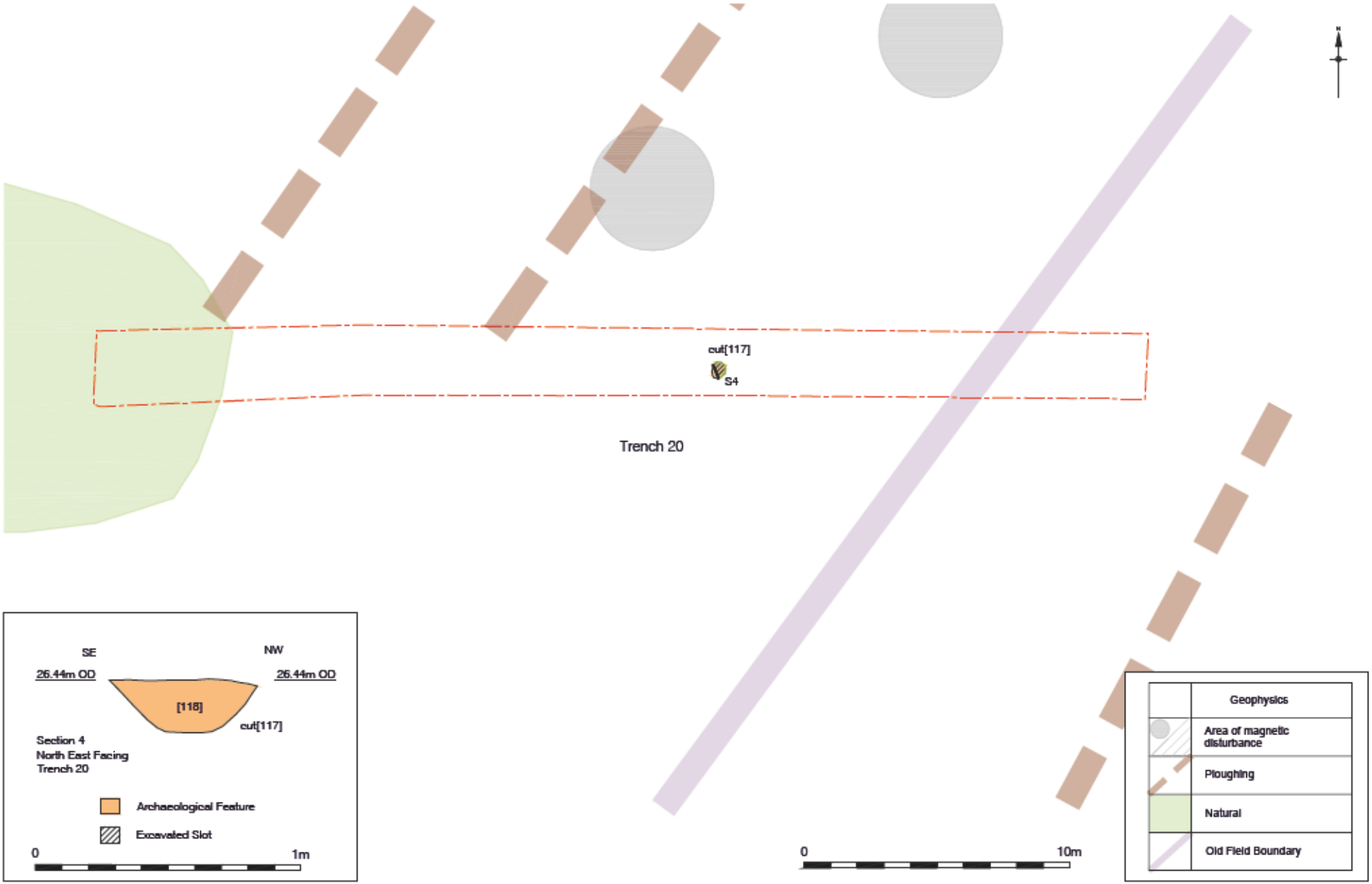
28/11/16 CF

Figure 5
Trenches 2, 3 and 5 and Sections 1, 6, 8 and 12
Sections at 1:40, Plan at 1:400, Inset Plan at 1:200 at A3



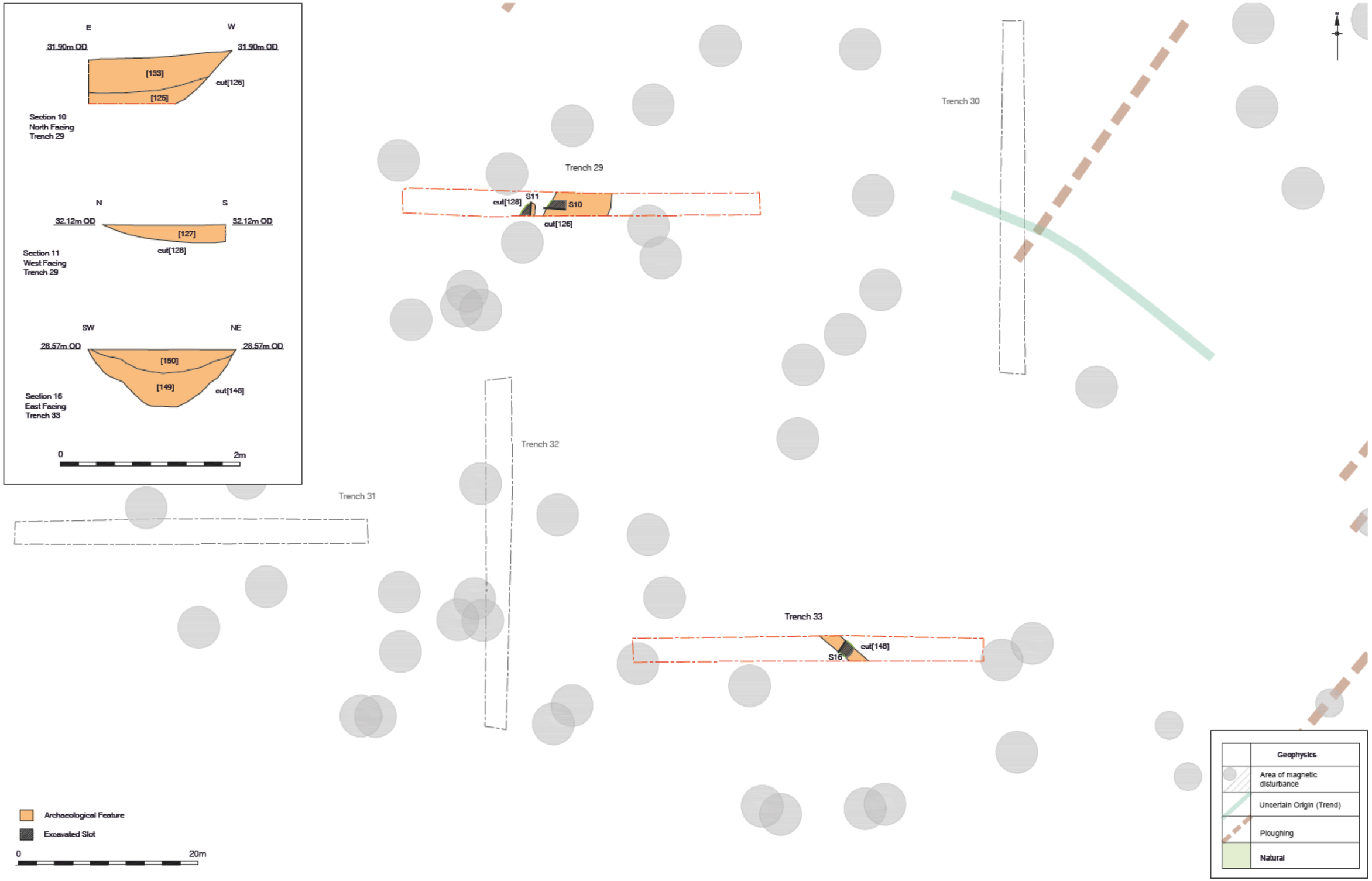
30/11/16 CF

Figure 6
Trenches 18, 22, 25 and 26 and Sections 13 and 14
Sections at 1:40, Plan at 1:400 at A3



29/11/16 CF

Figure 7
Trench 20 and Section 4
1:20 and 1:200 at A4



30/11/16 CF

Figure 8
Trenches 29 and 33 and Sections 10,11 and 16
Sections at 1:40, Plan at 1:400 at A3

10 APPENDIX 1: PLATES

Plate 1: Site view south-east

Plate 2: Trench 2, view west showing Ditch [108] mid-excavation

Plate 3: Trench 2, view north showing Ditch [108]

Plate 4: Trench 3 Ditch [116] underwater

Plate 5: Trench 5, view west

Plate 6: Trench 5, view west showing Ditch [135]

Plate 7: Trench 12, view south showing flooding

Plate 8: Trench 18, view north

Plate 9: Trench 18, view east showing Ditch [144]

Plate 10: Trench 20, view west

Plate 11: Trench 20, view west showing Pit [117]

Plate 12: Trench 22, view west

Plate 13: Trench 22, view south showing Ditches [143], [141] & [138]

Plate 14: Trench 23, view north

Plate 15: Trench 23 view west showing Furrow [119]

Plate 16: Trench 29, view west

Plate 17: Trench 29 view south showing Ditch/Hollow [126]

Plate 18: Trench 29 view east showing Pit [128]

Plate 19: Trench 33 view west

Plate 20: Trench 33 view east showing Ditch [148]

11 APPENDIX 2: CONTEXT INDEX

Context Number	Cut	Trench	Type	Category	Interpretation
100	0	0	Layer	Topsoil	
101	0	0	Layer	Subsoil	
102	0	0	Layer	Natural	
103	0	0	Layer	Colluvium	
104	0	0	Layer	Colluvium	
105	106	2	Fill	Pit	
106	106	2	Cut	Pit	
107	108	2	Fill	Ditch	Boundary
108	108	2	Cut	Ditch	Boundary
109	110	2	Fill	Pit	
110	110	2	Cut	Pit	
111	112	7	Fill	Pit	
112	112	7	Cut	Pit	
113	116	3	Fill	Ditch	Iron Age Boundary
114	116	3	Fill	Ditch	Iron Age Boundary
115	116	3	Fill	Ditch	Iron Age Boundary
116	116	3	Cut	Ditch	Iron Age Boundary
117	117	20	Cut	Pit	Burnt Pit
118	117	20	Fill	Pit	Burnt Pit
119	119	23	Cut	Furrow	Post-medieval furrow
120	119	23	Fill	Furrow	Post-medieval furrow
121	121	3	Cut	Ditch	Boundary
122	122	3	Cut	Pit	
123	123	3	Cut	Pit	
124	124	15	Cut	Pit	
125	126	29	Fill	Ditch	Iron Age Ditch/Hollow
126	126	29	Cut	Ditch	Iron Age Ditch/Hollow
127	128	29	Fill	Pit	
128	128	29	Cut	Pit	
129	121	3	Fill	Ditch	Boundary
130	122	3	Fill	Pit	
131	123	3	Fill	Pit	
132	124	15	Fill	Pit	
133	126	29	Fill	Ditch	Iron Age Ditch/Hollow
134	135	5	Fill	Ditch	Iron Age Boundary
135	135	5	Cut	Ditch	Iron Age Boundary
136	138	22	Fill	Ditch	Post-medieval Boundary
137	138	22	Fill	Ditch	Post-medieval Boundary
138	138	22	Cut	Ditch	Post-medieval Boundary
139	141	22	Fill	Ditch	Post-medieval Boundary
140	141	22	Fill	Ditch	Post-medieval Boundary

141	141	22	Cut	Ditch	Post-medieval Boundary
142	143	22	Fill	Ditch	Post-medieval Boundary
143	143	22	Cut	Ditch	Post-medieval Boundary
144	144	18	Cut	Ditch	Post-medieval Boundary
145	144	18	Fill	Ditch	Post-medieval Boundary
146	146	22	Cut	Ditch	Post-medieval Boundary
147	146	22	Fill	Ditch	Post-medieval Boundary
148	148	33	Cut	Ditch	Boundary
149	148	33	Fill	Ditch	Boundary
150	148	33	Fill	Ditch	Boundary

12 APPENDIX 3: PLANT MACROFOSSILS

Sample Number		1	2	3	4
Uncharred seeds					
Betula spp.	Birch				1
Chenopodium album	Fat-hen		1	1	1
Rumex spp.	Docks/sorrels			1	
Charred Grain					
Too charred for identification			1		
Mollusca					
Clausilia spp.	Terrestrial				1
Carychium tridentatum	Terrestrial		2		3
Cecilioides acicula	Terrestrial	1	1	2	1
Discus rotundatus	Terrestrial		1		
Punctum pygmaeum	Terrestrial		1		
Vallonia spp.	Terrestrial				3
Vertigo pygmaea	Terrestrial				1
Miscellaneous juvenile shells		1			3

Key: 1- Occasional, 2- fairly frequent, 3- frequent, 4- abundant

13 APPENDIX 4: OASIS FORM

OASIS ID: preconst1-267855

Project details	
Project name	Evaluation at Barking Rd, Needham Market, Suffolk
Short description of the project	Archaeological evaluation comprising 1400m of trenches made up of 35no. 40x1.8m.
Project dates	Start: 14-11-2016 End: 23-11-2016
Previous/future work	No / Not known
Any associated project reference codes	ESF 24979 - Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Cultivated Land 3 - Operations to a depth more than 0.25m
Monument type	DITCH Late Bronze Age
Monument type	DITCH Iron Age
Monument type	PIT Uncertain
Monument type	POSTHOLE Uncertain
Monument type	DITCH Post Medieval
Significant Finds	POTTERY Late Bronze Age
Significant Finds	POTTERY Iron Age
Significant Finds	POTTERY Post Medieval
Methods & techniques	"Geophysical Survey","Sample Trenches","Targeted Trenches"
Development type	Rural residential
Prompt	Planning condition
Position in the planning process	Not known / Not recorded

Project location	
Country	England
Site location	SUFFOLK MID SUFFOLK NEEDHAM MARKET Barking Road, Needham Market
Postcode	IP6 8JF
Study area	8.5 Hectares
Site coordinates	TM 08707 54012 52.144386672221 1.05061602606 52 08 39 N 001 03 02 E Point

Height OD / Depth	Min: 27.78m Max: 40.45m
Project creators	
Name of Organisation	Pre-Construct Archaeology Ltd.
Project brief originator	Suffolk County Council's Archaeological Officer
Project design originator	Taleyna Fletcher
Project director/manager	Taleyna Fletcher
Project supervisor	Matthew Jones
Type of sponsor/funding body	Consultancy
Name of sponsor/funding body	CgMs Consulting Ltd
Project archives	
Physical Archive recipient	Suffolk County Council
Physical Archive ID	ESF 24979
Physical Contents	"Ceramics"
Digital Archive recipient	Suffolk County Council
Digital Archive ID	ESF 24979
Digital Contents	"none"
Digital Media available	"Database","Geophysics","Images raster / digital photography","Survey","Text"
Paper Archive recipient	Suffolk County Council
Paper Archive ID	ESF 24979
Paper Contents	"none"
Paper Media available	"Context sheet","Diary","Drawing","Photograph","Plan","Report","Section","Survey ","Unpublished Text"
Project bibliography 1	
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Entered by	Matt Jones (MJones@pre-construct.com)

Written Scheme of Investigation for a Program of Archaeological Evaluation on land at Barking Road, Needham Market, Suffolk

November 2016

PCA

PRE-CONSTRUCT ARCHAEOLOGY
HER: NDM 042
EVENT NUMBER: ESF 24979

Written Scheme of Investigation for a Program of Archaeological Evaluation at Barking Road, Needham Market, Suffolk

Local Planning Authority:	**Mid Suffolk District Council**
Planning Reference:	**3506/16**
HER Number:	**NDM 042**
Event Number:	**ESF 24979**
OASIS Number:	**preconst1- 267855**
Central National Grid Reference:	**TM 08707 54012**
Written and researched by:	**Taleyna Fletcher** **Pre-Construct Archaeology Ltd**
Project Manager:	**Taleyna Fletcher**
Commissioning Client:	**CgMs Consulting on behalf of Hopkins Homes Ltd.**
Contractor:	**Pre-Construct Archaeology Ltd** **Central Office** **The Granary, Rectory Farm** **Brewery Road, Pampisford** **Cambridgeshire** **CB22 3EN**
Tel:	**01223 845522**
E-mail:	**tfletcher@pre-construct.com**
Website:	**www.pre-construct.com**

November 2016

CONTENTS

1 INTRODUCTION

1.1 General Background

1.1.1 Pre-Construct Archaeology (PCA) has been commissioned by CgMs Consulting on behalf of their client Hopkins Homes Ltd to undertake a program of archaeological evaluation at the proposed development at Barking Road, Needham Market, Suffolk (TM 08707 54012). This was in response to an archaeological brief issued by Rachael Abraham of the Conservation Team of Suffolk County Council's Archaeological Service (SCCAS/CT).

1.1.2 The 9.96 hectare site is for proposed residential development (Planning Reference 3506/16). The work is to be carried out pre-consent and based on the evaluation Brief requiring archaeological investigation due to the high archaeological potential of the proposed development.

1.1.3 In negotiations between CgMs Consulting and SCCAS/CT a 2.5% sample of the site will be investigated as a first stage, with further investigation to be undertaken post-consent (subject to a separate WSI). The requirement for a full metal detector survey across the entire site has also been removed to be replaced by a scheme of thorough detecting of all trench locations and spoil heaps.

1.1.4 This document comprises a Written Scheme of Investigation (WSI) for an archaeological evaluation and conforms to the SCCAS/CT Requirements for Archaeological Evaluation 2012 Ver 1.1.

1.2 Archaeological Background

1.2.1 The following archaeological background has been taken from the Desk Based Assessment for the site (Harrison 2016).

Previous Archaeological Investigations

1.2.2 There are no records of any other archaeological surveys or investigations having being undertaken on the study site itself. There have been 10 archaeological investigations within the Search Area, the majority of which

are located near to the centre of Needham Market c.900m to the northeast (ESF19481, ESF20210, ESF22895, ESF22247, ESF23571, ESF23572, and ESF19271) or at the Bosmere Primary School c.500m to the north (ESF23205 and ESF21244) of the study site.

1.2.3 The B1113 Stowmarket to Great Blakenham pipeline skirts the western side of the Spriteshall Grove c.50m to the west of the study site. The construction of the pipeline revealed two sites of archaeological interest near to the Saxon Park and Brick Kiln Caravan Parks upon higher ground c.900m to the northwest of the study site. Here, part of a Prehistoric or Roman field system and a series of Medieval ditches and pits (BRK136). No archaeology was uncovered on the stretch near to the study site.

Geophysical Survey

1.2.4 A geophysical survey of the study site was undertaken by GSB in April 2016 (Gaul 2016, Appendix 2). The survey identified an area of disturbed ground relating to the site of the Sprites Hall dwelling, and evidence of associated former field boundaries. No evidence of earlier archaeological remains was identified.

Archaeological and Historical Background

Prehistoric

1.2.5 There are no entries on the HER of sites or finds of Prehistoric date located within the study site. Within the wider search area the occasional Prehistoric artefact has been uncovered within fields c.300m to the west of the study site although the majority of artefacts found here were of Roman date (BRK043 and BRK046).

1.2.6 At the northern extent of the search area (1km to the north of the study site) Mesolithic struck flints forming discrete concentrations were recovered from trial trenches near to The Pightle (NDM008) and Bronze Age cremations and a ring ditch were uncovered during excavations at the former Unilever site (NDM033). The excavations also revealed early Bronze Age ditches which

mark early land divisions as well as a residual assemblage of Neolithic struck flint and pottery. The landscape here lies between the 20-30m contour lines, but is situated (in contrast to the development site) within the free draining flood plains of the River Gipping, and would have been attractive to past peoples.

Roman

1.2.7 There are no entries on the HER of sites or finds of Roman date located within the study site. Within the wider search area a large concentration of artefacts has been uncovered during fieldwalking upon the higher ground c.300m to the west of the study site (BRK44, BRK45, BRK046 and BRK082). The artefacts recovered here form two clusters and were described as being located within dark soils. The occasional Bronze Age and Iron Age artefact were uncovered here and possibly suggest a site that has been in use through the Prehistoric period and utilised more intensively in the Roman period.

1.2.8 An archaeological evaluation at The Pightle approximately 1km north of the Application Site, recorded a feature which contained Roman pottery (NDM008) TM08885513), whilst Roman pottery was recovered during development of a small extension to the rear of Needham Market High Street (NDM012).

1.2.9 Roman pottery and metalwork have been identified from fieldwalking and metal detecting in the wider vicinity of the study site (BRK023, BRK043, BRKMisc, and NDM001).

1.2.10 Roman activity within the wider search areas appears to be concentrated upon the higher ground c.300m to the west and within the free draining soils near to the River Gipping 1km to the north of the study site. Possible Roman field systems have also been uncovered on the higher ground c.800m to the northwest of the study site. The study site is therefore considered to have a low potential for significant Roman remains although there is a possibility that the site may have formed part of the agricultural hinterland of the activity

300m to the west.

Saxon and Medieval

1.2.11 There are no entries on the HER of sites or finds of Saxon or Medieval date located within the study site. The site sits within a larger field that has had a Medieval coin recovered from its topsoil (NDM036 TM08965499) as well as situated 300m east of the findspot of a small number of Medieval artefacts recovered (BRK043 TM08255385). These sparse findings are more representative of the manuring of fields rather than of settlement activity.

1.2.12 Within the wider search area two Early Saxon sunken-featured buildings were uncovered at the former Unilever building 1km to the north of the site, and within the known Medieval core of Needham Market (NDM026 TM0884 5500).

1.2.13 No mention of Needham Market was made in the Domesday Survey of 1086, however during this period it was likely that it formed a hamlet within the parish of Barking along the road to Bury St Edmunds. A market was granted to Needham Market in 1245 and a church was mentioned in the Index Elienisis in 1277 although this predates the fabric of the present church.

1.2.14 The church of St John the Baptist (Grade I Listed 436954 TM087755177 – not intervisible with the study site) was re-built in the mid-15th century approximately 1km north west of the study site. The church would have formed the focus of the late Medieval settlement that centred along the High Street. In addition archaeological excavations along the High Street have revealed evidence of Late Medieval activity at The Pightle approximately 1km north of the site (NDM008 TM08885513), 95 High Street (NDM012 TM08785510) and 111 High Street (NDM002 TM08705515).

Post-Medieval and Modern

1.2.15 There are no entries on the HER of sites or finds of Post-Medieval or Modern date located within the study site. The Post-Medieval/Modern records

recorded in the HER within the search area relate to buildings/monuments.

1.2.16 The study site was part of the Medieval agricultural hinterland of Needham Market as discussed above. The HLC identifies that the study site would have been enclosed pre-1800 and a cropmark of a Post-Medieval field boundary had been mapped to the north but within the same field as the study site suggesting it was enclosed between the Medieval period and the earliest detailed maps of the area.

1.2.17 The earliest detailed map of the study site is the tithe map of 1842. This shows the study site as split into three fields - within the corner of one towards the centre of the site is a structure. Two further enclosures at the southeastern extent of the site line the edge of Barking Road. None of this detail is depicted on Surveyors Drawing of the study site (Stowmarket http://www.bl.uk/) dated to 1820, although Colchester Barn (south of the study site) and other field boundaries are shown.

1.2.18 The structure at the centre of the site is referred to in the tithe apportionment as a cottage and Garden occupied by James Gooden and another, and owned by the Earl of Ashburnham. The enclosures lining Barking Road are referred to as Ash Plantation (139) and Barn and Pasture Piece occupied and used by Henry Snell but owned by the Earl of Ashburnham. The two fields to the south of the cottage are referred to as First Six Acres (138) and Further Six Acres (139). The northern part of the study site forms the southern extent of a former field referred to as Spright's Hall Ley (141). All the fields are worked by Henry Snell and owned by the Earl of Ashburnham.

1.2.19 The western boundary of the study site is lined by Spright's Hall Grove (now Spriteshall Grove), whilst the extant Colchester Barn is shown in to the southwest of the study site.

1.2.20 The cottage at the centre of the study site is situated within the corner of the southwestern field and appears to be situated in a triangle created by the junction of three fields. It is likely that they cottage was placed here in respect of the field boundaries and postdate them. The near trapezoidal

enclosure which the cottage occupies has a division separating the plot into 1/3rd in the east and 2/3rds in the west. This suggests that the building was divided into two dwellings. The shape of the cottage enclosure and the field boundaries are visible on satellite imagery of the study site (GoogleEarth).

1.2.21 A cropmark of ditch depicted on the NMP data (Harrison 2016, Figure 4) supplied by the HER aligns with a field boundary depicted to the north of the study site and aligned east to west. It is likely that this cropmark is a former Post-Medieval field boundary depicted on the tithe and OS maps.

1.2.22 The first edition OS map (Harrison 2016, Figure 7) shows the site as unchanged from the tithe, although it does show the cottage in more detail and labels the cottage, rather grandly, as "Sprite's Hall". The building is depicted as aligned north south and split into two separate dwellings. The southern dwelling is roughly 'L' shaped with a small extension to the east at the southern extent, and a very small porch to the west of the northern end. The northern dwelling has a mirroring porch to the west at the southern extent. The cottages have footpaths extending to the west through Spriteshall Grove towards Barking, to the southeast towards Barking Road, and to the northeast towards Needham Market. A possible pond is depicted to the south of the building.

1.2.23 The second edition OS map depicts the site as much the same. Sprite's Hall is depicted as much the same although a small extension is depicted to the east of the building at the point of the division.

1.2.24 The next mapping of the study site is not until 1958-68 and shows that Spite's Hall has been demolished. The enclosure within which the cottage once stood is still present, as is the pond to the south of the former building. The field boundaries within the study site survive and the footpaths are labelled, although depicted as defunct. New houses have been constructed along Barking Road to the northeast of the site and the Lodge has been constructed to the south of Colchester Barn. A building labelled Verona is depicted to the southeast of the site and Barking road.

1.2.25 The next map is dated 2006 (Figure 1) and shows the field boundaries removed and the site in its present day form. The housing off Foxglove Avenue to the north and east has been constructed and further housing has been built along Barking Road.

2 GEOLOGY AND TOPOGRAPHY

2.1 Geology

2.1.1 The British Geological Survey (BGS) 1:50,000 records the geology within the study site as Newhaven Chalk Formation. (www.bgs.ac.uk).

2.1.2 Within the study site, superficial deposits overlying the bedrock are recorded as Lowestoft Formation Diamicton. It is noticeable on the geology maps that the historic core of Needham Market focuses in the Lowestoft Formation Sands and Gravels to the east and north of the site which would have provided better drainage.

2.1.3 The Cranfield Soil and Agrifood Institute describe the soils of the site as Lime-rich loamy and clayey soils with impeded drainage (http://www.landis.org.uk/soilscapes). This expands north and westwards and flanks freely draining slightly acid loamy soils which are located to the east and north east. The settlement at Needham Market to the north east of the study site is located on the free draining soils.

2.2 Topography

2.2.1 The study site lies on the southwestern side of Needham Market.

2.2.2 The ground within the study site falls from a high point of 37m AOD at the northern boundary of the study site to 25m AOD towards the south and Barking Road. The River Gipping is located 1km to the east which flows north to south.

3 AIMS AND OBJECTIVES

3.1 Broad Aims

3.1.1 The broad aims of the evaluation are to identify, excavate and record the location, extent, date, character and state of preservation of any archaeological remains on the site which are likely to be threatened by the proposed development, and to identify their significance in a local, regional and national context, as appropriate, with reference to the East Anglian regional research agendas:

-Research and Archaeology: A Framework for the Eastern Counties: 1. Resource Assessment (Glazebrook 1997)

-Research and Archaeology: A Framework for the Eastern Counties: 2. Research Agenda and Strategy (Brown and Glazebrook 2000)

-Regional Research Framework for the Eastern Region (Medlycott and Brown 2008)

-Research and Archaeology Revisited: A Revised Framework for the East of England (Medlycott 2011)

3.1.2 The evaluation will aim to provide sufficient information to enable the formulation of a suitable management/investigation strategy for the site's heritage assets, in light of the current redevelopment proposals.

3.1.3 The evaluation will provide a predictive model of any archaeological remains likely to be present on the site and will characterise and include an appraisal of the remains significance.

3.1.4 The evaluation's trial trenches will cover an adequate representative sample of the proposed development area in order to fully understand and characterise the archaeology on the site.

4 METHODOLOGY

4.1.1 All aspects of the investigation shall be conducted in accordance with the Chartered Institute for Archaeologists' Code of Conduct, the Standard and Guidance for Archaeological Excavation (CIfA 2014), the Suffolk County Council Requirements of Archaeological Evaluation (SCCAS 2011) and Standards for Field Archaeology in the East of England (EAA Occasional Paper 14, 2003).

4.2 Machining and Site Planning

4.2.1 This initial pre-consent stage of the scheme will comprise the investigation of thirty-five x 40m x 2m trenches, providing a 2.5% sample of the site (Figure 1). The proposed trenches have been positioned to provide a good distributed sample across the site and also to target the potential features as identified by the geophysical survey (Figures 2 and 3 and Appendix 2),

4.3 Excavation

4.3.1 Within each trench the topsoil, subsoil or man-made made ground deposits will be machine stripped by a 21 ton mechanical excavator with a 2m toothless ditching bucket down to the archaeological horizon or geological horizon, whichever comes first. Upon encountering any archaeological features the procedure followed is detailed below.

4.3.2 Exposed archaeological features and deposits will be cleaned as necessary to define them using hand tools.

4.3.3 Metal-detecting will be carried out within the area of each trench prior to excavation, of any stripped deposits and archaeological features as well as spoil heaps. The metal detector will not be set to discriminate against iron.

4.3.4 Limits of excavation of all trenches, pre-excavation and post-excavation plans of archaeological features and heights above Ordnance Datum (m OD) will be recorded using a Leica 1200 Global positioning System (GPS) rover unit with RTK differential correction, giving three-dimensional accuracy of 20mm or better.

4.4 Recording and Sampling

4.4.1 Field excavation techniques and recording methods are detailed in the PCA Fieldwork Induction Manual (Operations Manual I) by Joanna Taylor and Gary Brown (2009).

4.4.2 All features will be investigated and recorded in order to properly understand the date and nature of the archaeological remains on the site and to recover sufficient finds assemblages to assess the chronological development and socio-economic character of the site over time.

4.4.3 Drawn records will be in the form of survey plans, drawn plans and section drawings of all archaeological features at an appropriate scale (1:10, 1:20, 1:50) while all individual deposits and cuts will be recorded as written records on PCA pro-forma context sheets.

4.4.4 Linear features will be investigated by means of slots excavated across their width and measuring at least 1m in length, positioned to avoid areas of intercutting/ disturbance in order to provide uncontaminated finds assemblages. If stratigraphic relationships between features are not visible in plan, slots will also be positioned to determine inter-feature relationships.

4.4.5 Discrete features such as pits and postholes will be at least 50% excavated and when considered appropriate 100% excavated.

4.4.6 Significant features such as structural remains (e.g. eaves drip gullies, sunken feature buildings and beam slots), industrial features (kilns, ovens, domestic hearths, metalworking furnaces) and burials (cremation and inhumation) will be left in situ for further work. This will be subject to review during the monitoring meeting/s.

4.4.7 High-resolution digital photographs will be taken at all stages of the evaluation. Digital photographs will be taken of all archaeological features and deposits and black and white film photographs will be taken when considered appropriate by the excavator and supervisor.

4.4.8 Artefacts and ecofacts will be collected by hand and retained, receiving

appropriate care prior to removal from site (CIfA 2014; Walker 1990; Watkinson 1981).

4.4.9 Bulk samples, 40 litres in volume, will be taken by the excavator and in consultation with the project's environmental specialist where practicable, in order to recover micro- and macro-botanical environmental remains. The broad aim of such sampling is to recover evidence relating to the past environment and agricultural economy of the site, and how these changed over time under both natural and anthropogenic influence.

4.4.10 Buried soils and associated deposits will be inspected on site by the PCA project manager in consultation with the PCA geoarchaeologist whose advice will be sought as to whether soil micromorphology or other analytical techniques will enhance understanding of depositional processes and transformations at the site.

4.4.11 Environmental sampling will make reference to the following guideline documents:

- English Heritage, 2011, Environmental Archaeology: A Guide to the Theory and Practice of Methods from Sampling and Recovery to Post-excavation (second edition).

- Association for Environmental Archaeology, 1995, Environmental archaeology and archaeological evaluations. Recommendations concerning the environmental archaeology component of archaeological evaluations in England. Working Papers of the Association for Environmental Archaeology 2, 8 ff. York: Association for Environmental Archaeology;

- Dobney, K., Hall, A., Kenward, H. and Milles, A., 1992, A working classification of sample types for environmental archaeology. Circaea 9.1 (1992 for 1991), pg. 24-26;

- Murphy, P.L. and Wiltshire, P.E.J., 1994, A guide to sampling

archaeological deposits for environmental analysis.

4.5 Monitoring

4.5.1 PCA / the client will notify SCCAS/CT of the proposed start date at least 1 week in advance, allowing sufficient notice to arrange a monitoring meeting.

4.5.2 SCCAS/CT and the client will be kept regularly informed about developments and any significant discoveries during both the site works and subsequent post-excavation phase.

4.6 Treasure

4.6.1 All finds defined as Treasure will be removed to a safe place and reported to the local coroner according to the procedures outlined in the Treasure Act 1996 (as amended by the Treasure Designation Order 2002 No. 2666). Where removal cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft. Any finds that could be considered treasure under the terms of the Act made during the process of fieldwork will be immediately reported to the Finds Liaison Officer, so that it is properly reported to the appropriate Coroner within 14 days of discovery in line with the Treasure Act.

4.7 Human Remains

4.7.1 If human remains are encountered, SCCAS/CT and the client will be informed. No further excavation will take place until removal becomes necessary, and will only be carried out in accordance with all appropriate Environmental Health regulations and only after a Ministry of Justice license has been obtained. Excavation may be required where the remains are under imminent threat or dating/preservation information is required for costing purposes. Due to the wide range of variables, costs of excavation, removal and analysis of human remains are not included in any statement of costs accompanying or associated with this specification.

5 ACCESS AND SAFETY

5.1.1 Access to the site will be arranged by the client. The client will secure safe access to the site for archaeological personnel and provide suitable welfare provision. The client will also ensure that all deep excavations are adequately shored, conforming to current health and safety regulations and that the archaeological investigations are enabled through the provision and operation of adequate water extraction/pumping equipment.

5.1.2 Any costs incurred to secure access, or incurred as a result of withholding of access will not be PCA's responsibility. The costs of any delays as a result of withheld access will be passed on to the client in addition to the project costs already specified.

5.1.3 All relevant health and safety legislation, regulations and codes of practice will be respected. The Health and Safety policies will be those of Pre-Construct Archaeology Ltd. and in accordance with all statutory regulations. A Health & Safety Risk Assessment for the site will be produced and made available to all staff.

5.1.4 There is a duty of care for the client to provide all information reasonably obtainable on contamination and the location of live services before site works commence.

6 TIMETABLE AND STAFFING

6.1 Timetable

6.1.1 The duration of the evaluation will be 10 days.

6.1.2 Working days are based on a 5-day working week, Monday to Friday.

6.2 Staffing and Support

6.2.1 The project will be managed and led by Taleyna Fletcher, Project Manager of PCA Central who will ensure all staff are familiarised with the site, the archaeological background of the area and the ground conditions to maximise the effectiveness of the monitoring programme.

6.2.2 Key team members will include Taleyna Fletcher, Project Manager of PCA Central and a PCA Supervisor. Additional Site Assistants will be drawn from a pool of qualified and experienced staff if required.

6.2.3 The following staff will form the project team:

1x Project Manager
1x Supervisor
4x Site Assistant
1x Survey Supervisor
1x Finds Supervisor
1x Finds Assistant
1x Illustrator for post-excavation work.

6.2.4 Specialists will be employed for consultation and analysis during post-excavation work as necessary. Specialists will be approached to carry out analysis as required from the list in Appendix 1.

7 REPORTING

7.1.1 The site will use the HER Number NDM045 and the Event Number ESF24979. This reference will be used to identify the archive.

7.1.2 Post-excavation tasks and report writing will take approximately 4 weeks following the end of fieldwork. Specialists will be employed for consultation and analysis as necessary

7.1.3 PCA will provide the client with a copy or copies of the report (following completion). PCA will provide one digital copy and one paper copy of the report to SCCAS/CT.

7.1.4 If substantial remains are recorded during the project, it may be necessary to undertake a full programme of analysis and publication in accordance with the guidelines contained in Historic England's Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide (Historic England 2015).

7.1.5 Further to its acceptance the contractor will supply an additional copy for inclusion into the Suffolk Historic Environment Record (SHER). Contingency will be made for the publication of results. The minimum requirement will be for an appropriate note to be made available in the Archaeology in Suffolk section of the Proceedings of the Suffolk Institute of Archaeology and History. This summary should be included in the project report, or submitted to SCCAS/CT by the end of the calendar year in which the work takes place, whichever is the sooner.

8 OWNERSHIP OF FINDS, STORAGE AND CURATION OF ARCHIVE

8.1.1 To assist with the creation and curation of the project's archive, the Project Manager will contact the SHER office to obtain an Event Number at the outset of the project. SHER use this number as a unique identifier linking all physical and digital components of the archive. The unique event number will be clearly indicated on this specification once received for this project. It will be shown on all paperwork created on site (context forms and plans etc), on relevant ensuing reports and on the OASIS data collection form. The Event Number will also be used as the unique Site Code for the site.

8.1.2 All artefactual material recovered will be held in storage by PCA Central and ownership of all such archaeological finds will be given over to the relevant authority to facilitate future study and ensure proper preservation of all artefacts. In the unlikely event that artefacts of significant monetary value are discovered, and if they are not subject to treasure act legislation separate ownership arrangements may be negotiated.

8.1.3 PCA will recommend that ownership of all such archaeological finds will be given over to the relevant authority to facilitate future study and ensure proper preservation of all artefacts. In the unlikely event that artefacts of significant monetary value are discovered, and if they are not subject to treasure act legislation separate ownership arrangements may be negotiated.

8.1.4 The project archive shall be compiled in accordance with SCCAS/CT guidelines (SCCAS Conservation Team 2014 Archaeological Archives in Suffolk. Guidelines for preparation and deposition) and the advice contained in Guidelines for the Preparation of Excavation Archives for Long Term Storage (UKIC 1990), and Standards in the Museum Care of Archaeological Collections (Museum and Galleries Commission 1992).

8.1.5 A copy of the report will accompany the archive when it is deposited with the SCCAS/CT archaeological stores.

8.1.6 The Suffolk Historic Environment Record is registered with the Online

Access to Index of Archaeological Investigations (OASIS) project. PCA will provide appropriate details relating to this project by completing the OASIS form at http://ads.ahds.ac.uk/project/oasis, in accordance with the guidelines provided by English Heritage and the Archaeology Data Service.

9 FURTHER CONSIDERATIONS

9.1 Insurance

9.1.1 Pre-Construct Archaeology Ltd is covered by Public and Employer's Liability Insurance. Professional Indemnity £5,000,000 RSA (Saturn) P8531NAECE/1026, Public & Products Liability £10,000,000 Aviva & Towergate Underwriting, 24765101CHC/000133, EOL001198/0104, Employers Liability £10,000,000 Aviva 24765101CHC/000133.

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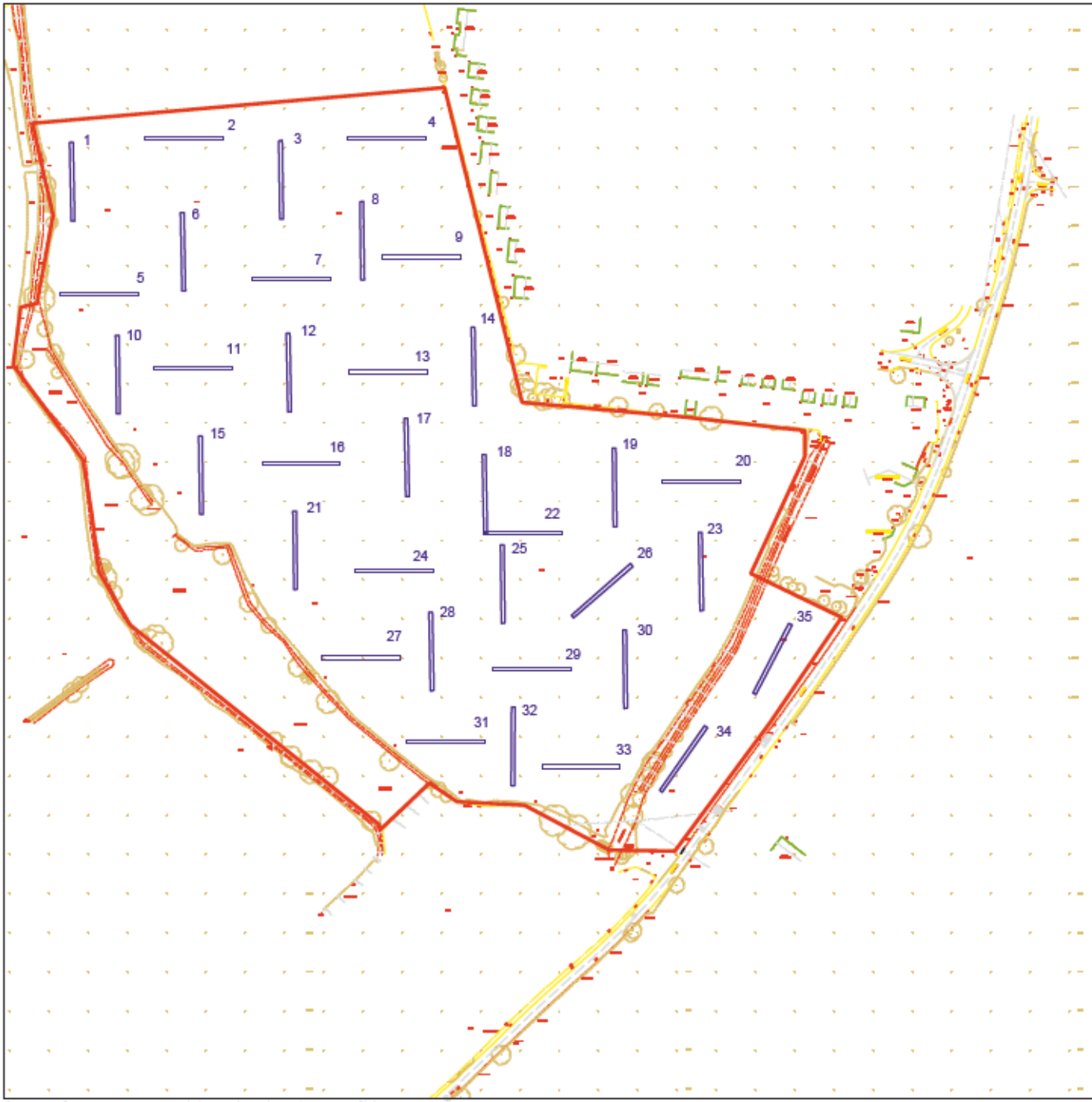
Requirements for Archaeological Evaluation 2012 Ver 1.1 (Suffolk County Council Archaeology Service Conservation Team)

DRAWN BY/ MF. 7.11.2016



CgMs CONSULTING
Planning • Heritage

Site Boundary

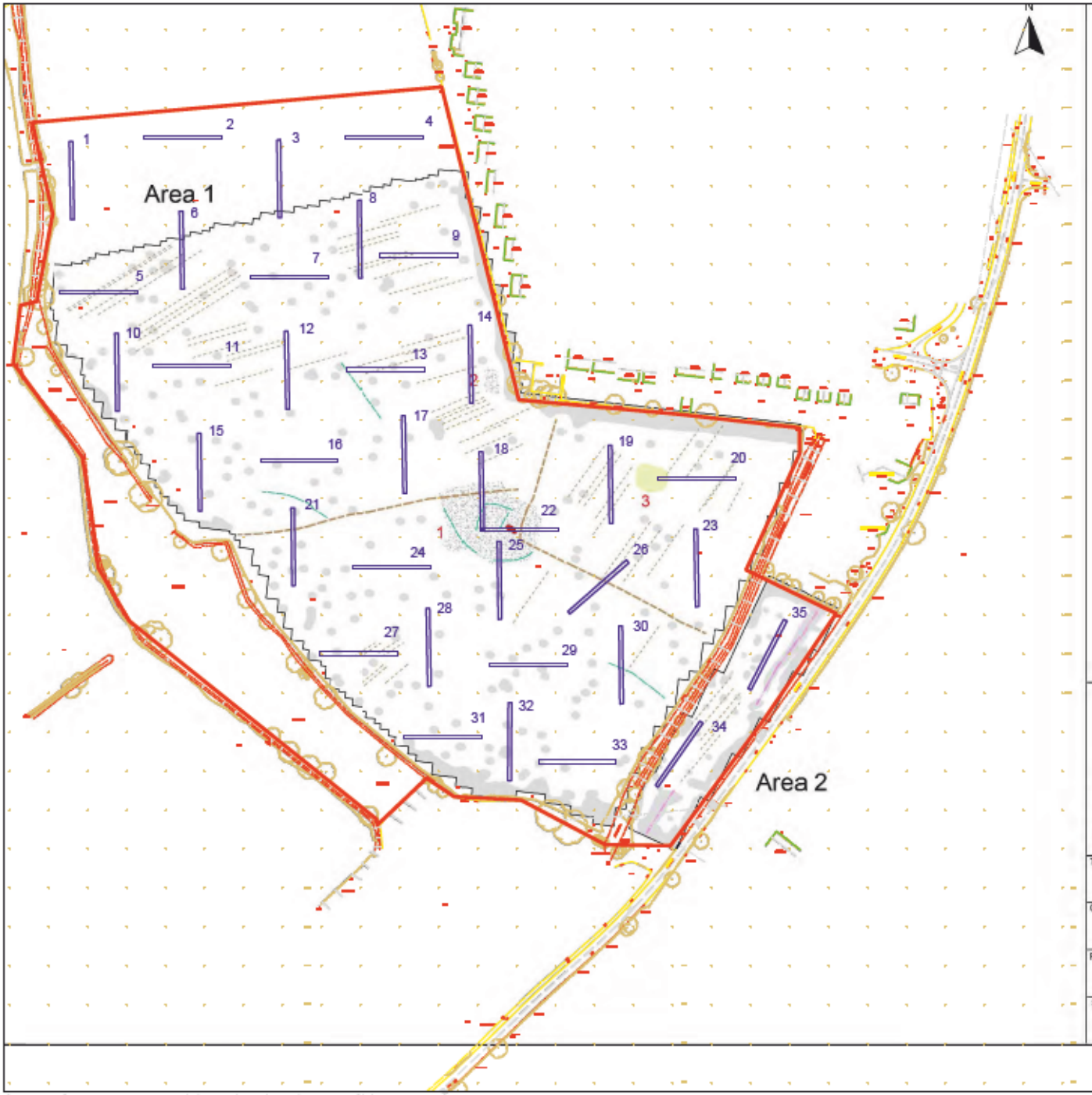
40m Trial Trench

N

Not to Scale:
Illustrative Only

Indicative
TRIAL TRENCH
Layout (2.5%)

DRAWN BY/ MF, 7.11.2016



Area of Magnetic Disturbance

Possible Burnt / Fired Material

Uncertain Origin (Trend)

Old Field Boundary

Ploughing

Natural

Pipe

Ferrous

CgMs CONSULTING
Planning • Heritage

Site Boundary

40m Trial Trench

N

GSB PROSPECTION Ltd

sumo Survey Services

GSB Prospection Ltd

www.gsbprospection.com

Title: Magnetometer Survey Interpretation

Client: CgMs Consulting Ltd

Project: G1629 Needham Market

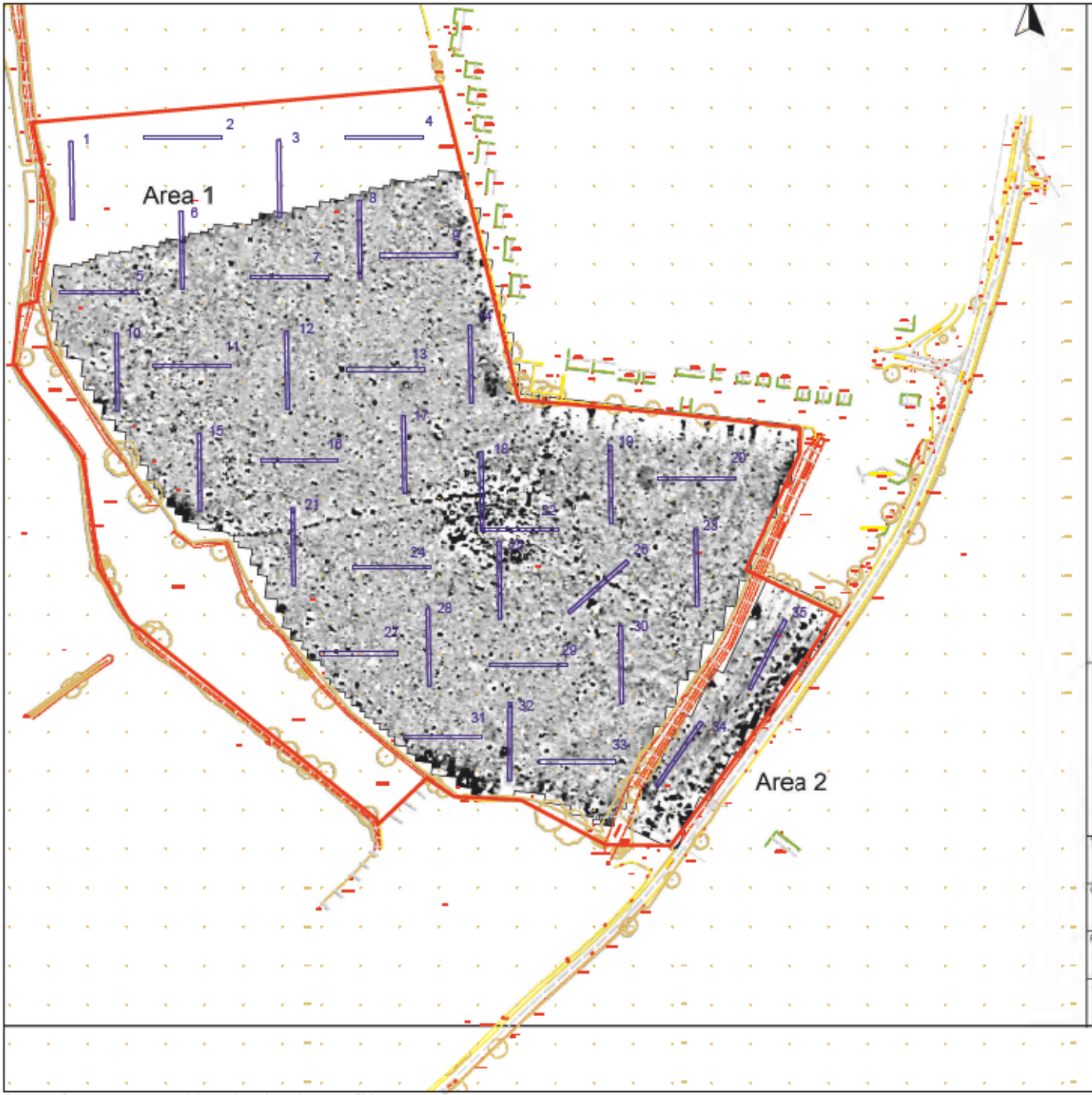
Scale: 0 metres 80
1:2000 @ A3

Fig No: 4

Not to Scale: Illustrative Only

Indicative TRIAL TRENCH Layout (2.5%)

DRAWN BY/ MF, 7.11.2016



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CgMs
CONSULTING
Planning • Heritage

Site Boundary

40m Trial Trench

N

GSB
PROSPECTION Ltd

GSB Prospection Ltd

Title: Magnetometer Survey Greyscale Plots

Client: CgMs Consulting Ltd

Project: G1629 Needham Market

Scale: 0 metres 80
1:2000 @ A3

Fig No: 3

Not to Scale:
Illustrative Only

Indicative
TRIAL TRENCH
Layout (2.5%)

APPENDIX 1: FINDS, ENVIROMENTAL AND OTHER SPECIALIST SERVICES

Prehistoric Pottery: Sarah Percival, Louise Rayner, Jon Cotton, Mike Seager Thomas

Roman Pottery: Katie Anderson, Jo Mills (samian), Gwladys Monteil (samian), Joanna Bird (decorated samian), Margaret Darling (North), Brenda Dickinson (samian stamps), Kay Hartley (mortaria), David Williams (amphora)

Post-Roman Pottery: Chris Jarrett (in house), Berni Seddon (in house), Luke Barber (Sussex)

Clay Tobacco Pipe: Chris Jarrett (in house)

CBM: Berni Seddon (in house), Kevin Hayward (in house) ,Su Pringle, Ian Betts

Stone & Petrological Analysis: Kevin Hayward (in house), Mark Samuel (moulded stone)

Glass: John Shepherd, Medieval and Post-medieval Glass, Hugh Wilmott, Medieval Window Glass, Jill Channer

Coins: James Gerrard (in house), Nina Crummy, Mike Hammerson

Inscriptions & Graffiti: Roger Tomlin

Animal Bone: Kevin Rielly (in house), Philip Armitage, Robin Bendrey

Lithics (inc Palaeolithic): Barry Bishop

Osteology: Aileen Tierney

Timber: Damian Goodburn, Nigel Nayling (Wales),

Leather: Quita Mould

Small Finds: Nina Crummy (prehistoric- post Roman) Marit Gaimster (post Roman) (in house), James Gerrard (Roman)(in house), Hilary Major (Roman), Ian Riddler (esp worked bone)

Metal slag: Lynne Keys, David Starley

Textiles: Penelope Walton Rogers

Conservation: Karen Barker, Stefanie White (Colchester Museums), Emma Hogarth (Colchester Museums)

Dendrochronology: Ian Tyers

Archaeomagnetic dating: Mark Noel

Environmental: Val Fryer, QUEST, University of Reading

Documentary Research: Guy Thompson (in house), Chris Phillpotts, Frederick

Hamond (NI), Gillian Draper, Jeremy Haslam, Roger Leech

Industrial Archaeology: David Cranstone

Finds Illustration: Cate Davies (in house), Helen Davies (in house), Mark Roughley (in house)

APPENDIX 2: GEOPHYSICS REPORT

GEOPHYSICAL SURVEY REPORT G1629

Geophysical Survey Report
Barking Road,
Needham Market
Suffolk

GSB PROSPECTION Ltd

Celebrating over 25 years at the forefront of Archaeological Geophysics

sumo Survey Services

Client:

CgMs CONSULTING

On Behalf Of:

HOPKINS HOMES

GEOPHYSICAL SURVEY REPORT

Project name:	Barking Road, Needham Market, Suffolk
Job ref:	G1629
Client:	CgMs Consulting Ltd.
Survey dates:	12 April – 13 April 2016
Report date:	19 April 2016
Field Co-ordinator:	Alistair Galt BA MSc PCIfA
Field team:	Tiago do Pereiro BA MSc
Report written by:	Alistair Galt BA MSc PCIfA
CAD illustrations by:	Alistair Galt BA MSc PCIfA
Report approved by:	Jon Tanner BSc MSc PCIfA
Project Director:	Dr John Gater MCIfA FSA
Version number and issue date:	V2: 1 July 2016 V3: 22 July 2013
Amendments:	V2: Appendices C and D added. Refs. to MS and DBA added. V3: Minor typological corrections to 4.1 and 4.2

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SUMO Survey Services
SUMO Group Member

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DIGITAL CONTENT (CD)

- Minimally Processed Greyscale Images and XY Trace Plots in DWG format
- DWG Viewer
- Digital Copies of Report Text and Figures (both PDF and native formats)

1 SUMMARY OF RESULTS

The former Sprite's Hall was located as an area of magnetic disturbance due to demolition rubble. Weak trends within and around the disturbance may represent external walls and other divisions. Former field boundaries were detected, as were recent ploughing, anomalies of natural origin and a pipe.

2 INTRODUCTION

2.1 Background synopsis

GSB Prospection Ltd. 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 **CgMs Consulting Ltd** on behalf of **Hopkins Homes Ltd**.

2.2 Site Details

HER Parish Code	NDM 040
HER Event Number	ESF23797
OASIS ref. No.	Gsbprosp1-247096 (see Appendix D)
NGR / Postcode	TM 087 540 / IP6 8JF
Location	The site is located *c.*1km south-west from the centre of Needham Market, and is bounded to the south-east by the B1078 Barking Road. Properties on Foxglove Avenue form the eastern boundary.
HER/SMR	Suffolk
District	Mid-Suffolk
Parish	Needham Market CP
Topography	Moderate slopes down from plateau in centre of survey area.
Current Land Use	Young crop (wheat).
Weather Conditions	Sunny spells with occasional thunderstorms.
Soils	Ludford (571x) association deep well drained fine loamy, coarse loamy and sandy soils, locally flinty and in places over gravel. Slight risk of water erosion (SSEW 1983).
Geology	Bedrock - White Chalk Subgroup - Chalk. Superficial deposits - glacial sand and gravel (BGS 2016).
Archaeology	None known within the application area. Sprite's Hall is visible on historic OS mapping in the approximate centre of the survey area. Refer to the Desk-Based Assessment (CgMs 2016).
Survey Methods	Detailed magnetometer survey (fluxgate gradiometer).
Study Area	7ha

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 (EH 2008) (then English Heritage) and the Chartered Institute for Archaeologists (IfA 2002 & CIfA 2014).

3.2 Survey methods

Detailed magnetic survey was used as an efficient and effective method of locating archaeological anomalies.

Technique	Instrument	Traverse Interval	Sample Interval
Magnetometer	CARTEASY^{N} cart system (Bartington Grad 601 sensors)	0.75m	0.125m

More information regarding this technique is included in Appendix A.

This project was carried out in accordance with a Method Statement submitted to Suffolk CC (Appendix C).

3.3 Data Processing

Data processing was performed as appropriate using a commercial software package CARTEASY^{N} as outlined below.

Magnetic Data – CART
Zero Mean Traverse, Gridding

3.4 Presentation of results and interpretation

The presentation of the data for each site involves a greyscale plot of processed data. Magnetic anomalies have been identified, interpreted and plotted onto the 'Interpretation' drawings. The minimally processed data is provided as a greyscale image on the CD together with an XY trace plot in CAD format. A CAD viewer is also provided.

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 An area of magnetic disturbance [**1**] in Area 1 probably represents demolition rubble as it corresponds to the location of Sprite's Hall as shown on early edition OS mapping. The building is absent by 1955, but a pond is shown on the 1958 Edition OS map and a surrounding enclosure is depicted as late as 1985. This may be represented by weak responses classified as *Uncertain Trends*. Other trends are visible within the magnetic disturbance; however, they do not correspond to the mapped position of the Hall and could simply be due to debris being drawn out by ploughing, and they have also been classified as *Uncertain Trends*.

4.2 Within the magnetic disturbance [**1**] a very strong response was recorded. This could be a large ferrous object, or it may be due to the presence of burnt or fired material.

4.3 A second area of magnetic disturbance [**2**] does not correspond to any mapped feature and is likely to be of relatively modern origin.

4.4 Three former field boundaries converging on the site of Sprite's Hall and recorded on historic mapping, were identified.

4.5 Several weak trends are visible in the dataset. Whilst possibly natural, these may result from past agricultural activity.

4.6 A relatively magnetically weak and poorly-defined response [**3**] is of natural origin.

4.7 Relatively modern ploughing evidenced in the form of closely spaced linear anomalies, barely visible above the magnetic background.

4.8 A pipe was detected in Area 2.

4.9 Ferrous responses adjacent to boundaries are due to fences, gates and adjacent buildings. Smaller scale ferrous anomalies ("iron spikes") are present throughout the data, and their form is best illustrated in the XY trace plots. These responses are characteristic of small pieces of ferrous debris in the topsoil and are commonly assigned a modern origin. The most prominent of these are highlighted on the interpretation diagram.

5 DATA APPRAISAL & CONFIDENCE ASSESSMENT

5.1 Historic England (then English Heritage) Guidelines (EH 2008) Table 4 states that the average response chalk is generally good. The presence of anomalies due to the former field boundaries and features associated with Sprite's Hall suggests that the survey would have detected any archaeological features, if present.

5.2 Site conditions were generally acceptable for survey.

6 CONCLUSION

6.1 The location of the former Sprite's Hall was identified as a spread of magnetic disturbance. The surrounding enclosure and possible internal divisions may be visible as trends, and possible burnt or fired material was detected, although these are tentative interpretations.

6.2 Former field boundaries were located, and past ploughing was recorded.

6.3 An anomaly of natural origin and a pipe were detected.

7 REFERENCES

BGS 2016 British Geological Survey *website*: (http://www.bgs.ac.uk/opengeoscience/home.html?Accordion1=1#maps) Geology of Britain viewer. [Accessed 19/04/2016]

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IfA 2002 *The Use of Geophysical Techniques in Archaeological Evaluations*, IFA Paper No 6, C. Gaffney, J. Gater and S. Ovenden. Institute for Archaeology, Reading

SSEW 1983 *Soils of England and Wales. Sheet 4, Eastern England.* Soil Survey of England and Wales, Harpenden.

Site Location

N

Title:

Site Location Plan

Client:

CgMs Consulting

Project:

G1629 Barking Road, Needham Market, Suffolk

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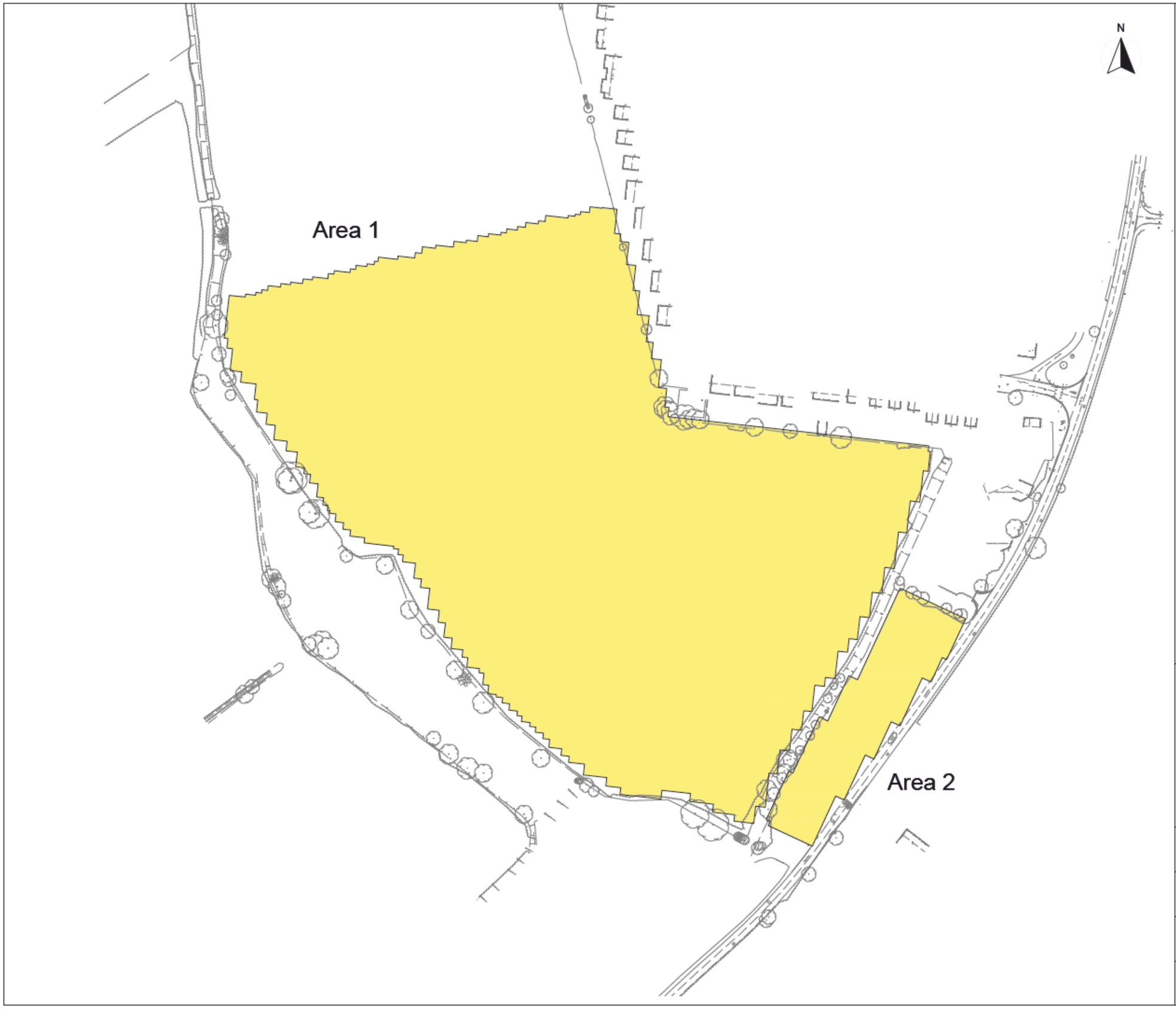
Scale: 0 metres 2000

1:50000 @ A4

Fig No: 1



Location of Survey Areas

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Title: Location of Survey Areas

Client: CgMs Consulting Ltd

Project: G1629 Needham Market

Scale: 0 metres 80
1:2000 @ A3

Fig No: 2

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Title:
Magnetometer Survey
Greyscale Plots

Client:
CgMs Consulting Ltd

Project:
G1629 Needham Market

Scale:
0 metres 80
1:2000 @ A3

Fig No:
3

Area of Magnetic Disturbance

Possible Burnt / Fired Material

Uncertain Origin (Trend)

Old Field Boundary

Ploughing

Natural

Pipe

Ferrous

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Title: Magnetometer Survey Interpretation

Client: CgMs Consulting Ltd

Project: G1629 Needham Market

Scale: 0 metres 80
1:2000 @ A3

Fig No: 4

Appendix A - Technical Information: Magnetometer Survey Method

Grid Positioning

For hand held gradiometers the location of the survey grids has been plotted together with the referencing information. Grids were set out using a Trimble R8 Real Time Kinematic (RTK) VRS Now GNSS GPS system.

For CARTEASY^{N} collected data each data point had its position recorded using a Trimble R10 Real Time Kinematic (RTK) VRS Now GNSS GPS system. The geophysical survey area is georeferenced relative to the Ordnance Survey National Grid.

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. This results in an accuracy of around 0.01m.

Technique	Instrument	Traverse Interval	Sample Interval
Magnetometer	Bartington Grad 601-2	1m	0.25m
Magnetometer	CartEasy^{N} cart system (Bartington Grad 601 sensors)	0.75m	0.125m

Instrumentation: Bartington *Grad*601-2 / GSB CARTEASY^{N} Cart system

Both the Bartington and CARTEASY^{N} instruments operate in a gradiometer configuration which comprises fluxgate sensors mounted vertically, set 1.0m apart. The fluxgate gradiometer suppresses any diurnal or regional effects. The instruments are carried, or cart mounted, with the bottom sensor approximately 0.1-0.3m from the ground surface. At each survey station, the difference in the magnetic field between the two fluxgates is measured in nanoTesla (nT). The sensitivity of the instrument can be adjusted; for most archaeological surveys the most sensitive range (0.1nT) is used. Generally, features up to 1m deep may be detected by this method, though strongly magnetic objects may be visible at greater depths. The Bartington instrument can collect two lines of data per traverse with gradiometer units mounted laterally with a separation of 1.0m. The CARTEASY^{N} system has four gradiometer units mounted at 0.75m intervals across its frame – rather than working in grids, the cart uses an on-board survey grade GNSS for positioning. The cart system allows for the collection of topographic data in addition to the magnetic field measurements.

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.
Interpolation	When geophysical data are presented as a greyscale, each data point is represented as a small square. The resulting plot can sometimes have a 'blocky' appearance. The interpolation process calculates and inserts additional values between existing data points. The process can be carried out with points along a traverse (the x axis) and/or between traverses (the y axis) and results in a smoother greyscale image.

Display

XY Trace Plot	This involves a line representation of the data. Each successive row of data is equally incremented in the Y axis, to produce a stacked profile effect. This display may incorporate a hidden-line removal algorithm, which blocks out lines behind the major peaks and can aid interpretation. The advantages of this type of display are that it allows the full range of the data to be viewed and shows the shape of the individual anomalies. The display may also be changed by altering the horizontal viewing angle and the angle above the plane.
Greyscale 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.

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.

Probable Archaeology	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.
Possible Archaeology	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.
Industrial / Burnt-Fired	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.
Former Field Boundary (probable & possible)	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.
Ridge & Furrow	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.
Agriculture (ploughing)	Parallel linear anomalies or trends with a narrower spacing, sometimes aligned with existing boundaries, indicating more recent cultivation regimes.
Land Drain	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.
Natural	These responses form clear patterns in geographical zones where natural variations are known to produce significant magnetic distortions.
Magnetic Disturbance	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.
Service	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.
Ferrous	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.
Uncertain Origin	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 *Possible Archaeology* and *Possible Natural* or (in the case of linear responses) *Possible Archaeology* and *Possible Agriculture*; 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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Barking Road, Needham Market, Suffolk
Geophysical (Magnetometer) Survey - Method Statement

1.0 Background Information

This document has been produced to describe the Archaeological Geophysical Survey required at Barking Road, Needham Market, Suffolk (NGR TM 087 540). The site of approximately 7ha is located at the southern edge of Needham Market, and is bounded to the south-east by the B1078 Barking Road. Properties on Foxglove Avenue form the eastern boundary.

The geophysical survey forms part of a wider archaeological assessment being carried out by CgMs Consulting. The work will be carried out with two objectives: to confirm the presence or absence of previously recorded sites (from working maps supplied to GSB) and to attempt to identify additional sites of archaeological potential not previously recorded.

Bedrock geology within the survey area consists of White Chalk Subgroup - chalk …
Superficial deposits are Glacial sand and gravel (BGS 2016).

Soils are Ludford (571x) association deep well drained fine loamy, coarse loamy and sandy soils, locally flinty and in places over gravel. Slight risk of water erosion (SSEW 1983)

2.0 Prior to Survey

GSB cannot commence survey until the following information has been received from the client/consultant:

- A written instruction for GSB to start works (an email is sufficient).

- Any site specific documentation where necessary; e.g. Section 42 licence.

- Mapping showing the site location and areas to be surveyed. At least one of the maps provided should be suitable for subsequent use in the production of the report i.e. *digital OS georeferenced vector map data in dxf or dwg format*. This can be either native OS vector data, or client generated site survey map data that is georeferenced to the OS national grid. Files that are backwardly compatible with AutoCAD versions 2002 or 2004 would be appreciated. If required, please advise of any client specific copyright notices that should appear on the completed diagrams.

- Confirmation that access to the site has been agreed between the client/consultant and all other relevant parties (e.g. landowners, tenant farmers). The client/consultant should clearly state whether or not vehicular access onto site is permitted. (If this can be arranged - e.g. in the case of a pasture or stubble field - it is greatly appreciated as it helps to speed up survey). An email is sufficient for this purpose, but if there are specific access routes that should be used mapping showing these would be needed.

- Confirmation that ground conditions are suitable for survey. This implies the absence of tall or dense vegetation, mature crop and other obstructions or unsafe conditions. In the case of gradiometer survey, the presence of ferrous objects and microwave sources within or immediately adjacent to, the survey area will produce magnetic disturbance and this will compromise the quality of the data. GSB can advise as to what constitutes 'suitable' conditions,

but please note that this advice relies on an *accurate and up to date* description of the site provided by the client/consultant.

3.0 Commencement of Project

One member of staff is designated as Project Co-ordinator (PC). All PCs will have minimum of three years fieldwork experience specifically in archaeological geophysics. The PC has the responsibility of overseeing the project from commencement of fieldwork to completion of the report. This includes:

Ensuring that all the necessary equipment and paperwork, mapping etc. is assembled prior to leaving the office (there is a checklist!).

Acting as main point of liaison in the field (NB on long projects the PC may not always be in the field in which case another member of staff will be the field contact).

Where necessary, decide on appropriate survey strategy (e.g. if the brief called for "targeted resistance survey based on the magnetic results", the decision on target areas would ultimately rest with the PC).

Keeping the office/director regularly updated on field progress and in particular of any problems that might arise.

Overseeing the production of the report. All members of staff collaborate on report production but the PC will usually take primary responsibility for the interpretation of the results and the accompanying report text.

An OASIS reference number has been obtained (gsbprosp1-247096). Prior to commencement of fieldwork, a Suffolk HER event number will be obtained.

4.0 Field Survey

4.1 Detailed Recorded Survey - Grid Establishment / Relocation Data

All recorded survey data are collected with reference to a site survey grid or survey baselines. For gradiometer survey this grid consists of individual 20mx20m or 30mx30m squares.

A broader grid is sufficient if using a cart based system with an RTK GPS feed: all recorded survey data are collected with reference to survey baselines. Data are collected along regularly spaced traverses between baselines set out at *c.*100m centres

The survey grid is marked out by means of red plastic tent-pegs or brightly coloured/flagged canes and grid nodes are set out with a positional accuracy of at least 10cm (0.1m) as per EH guidelines.

As standard the survey grid will be established using Real Time Kinematic (RTK) differential GPS equipment. On rare occasions where this is not practicable, a combination of Total Station, optical square, ranging rods and tape measures may be used.

For all techniques data are collected along regularly spaced traverses within the grid. These traverses are marked by "intermediate" plastic pegs or canes, set out using tape measures.

Either at this stage, or after data collection is complete, measurements will be taken which allow the re-location of the survey area. This is necessary for the production of maps in the report and for any subsequent re-establishment of the survey grid by other workers. Tie-in measurements are made to clear features (such as boundaries and buildings) *which appear on the mapping*.

If required, markers (pegs, canes, stakes or fluorescent spray-paint) can be left *in situ* at boundaries to mark grid baselines and assist in the subsequent re-establishment of the grid. The client should advise of any special arrangements/preferences in advance of survey.

On completion of the survey (i.e. when all data have been collected, downloaded to computer, visually examined, and backed up to an external device) all pegs/canes and any other temporary markers will be removed from the evaluation area, with the exception of any baseline markers specifically requested by the client (see above).

The survey methodology, report and any recommendations will comply with guidelines outlined by English Heritage (Geophysical Survey in Archaeological Field Evaluation, Research and Professional Services Guidelines No 1, compiled by A David, April 2008), the (then) Institute for Archaeologists (The Use of Geophysical Techniques in Archaeological Evaluations, IFA Paper No 6, C Gaffney, J Gater and S Ovenden, 2002) and Standard and Guidance for Archaeological Geophysical Survey (CIfA 2014).

4.2 Data Collection

Data may either be collected using hand-held instruments, or using cart-mounted sensors.

4.2.1 Detailed Recorded Survey - Data Collection: Gradiometer Survey

Standard Instrument: Bartington Grad 601-2
Standard sample interval (along traverse): 0.25m
Standard traverse interval: 1.00m
Total data points: 1600 readings per 20m x 20m grid square (3600 per 30m x 30m).

- Data are stored within the instrument's memory.
- For optimum data quality, it is imperative that the operator is able to walk at an even pace whilst holding the instrument steady. It is for this reason that the survey area needs to be free of obstructions such as dense vegetation.
- Data are typically displayed as greyscale or colourscale images (where a given palette is applied to a defined range of data values) or XY trace plots (where each traverses is plotted as a continuous line with data values represented by a vertical offset from the centreline).

4.2.1 Detailed Recorded Survey - Data Collection: Cart Gradiometer Survey

Standard cart CARTEASY^{N} Mk 1
Standard Instrument: Bartington Grad 601-2 sensors
Standard sample interval (along traverse): 10Hz (approx. 0.125m)
Standard traverse interval: 0.75m

- All data points are located using RTK GPS to a sub-10cm accuracy.
- Data are stored within the instrument's memory.
- Data are typically displayed as greyscale or colourscale images (where a given palette is applied to a defined range of data values) or XY trace plots (where each traverses is plotted as a continuous line with data values represented by a vertical offset from the centreline).

Data are stored remotely using cloud computing

5.0 Data Storage - All techniques

While in the field, the data are regularly transferred from the instrument onto a laptop computer using the appropriate software. Magnetic and resistance results are viewed using a combination of Geoplot 3 and GSB in-house software. All data are copied to an external storage medium (RW disc or USB stick) as a back-up. This is kept by the PC and held separately from the laptops.

With the cart system, data are stored remotely using cloud computing.

6.0 Post-Fieldwork (Report Stage)

6.1 General Data Handling

All data files (survey data and grid tie-in data) are transferred to the GSB server immediately upon returning to the office. Nightly off-site backups are made of all project work in progress. On completion of a project the entire archive is written to two CDs and an external hard disk drive, held at separate off-site locations.

6.2 Data Processing and Analysis

The results are analysed using a combination of commercial and in-house software. All data processing is kept to a minimum and any processed data files are stored in a separate directory or with different filenames. Thus the raw data are always available for reference when interpreting the results. Any processing which has been carried out, such as de-staggering or interpolation, is clearly stated in the report.

The interpretation is based on a variety of plotting formats and a range of data displays; it is undertaken by the PC. Wherever possible, account is taken of the nature of the prevailing archaeological, pedological, geological, and land use conditions. These interpretations are independently checked by either the Senior Geophysicist or the Director.

In-house templates and guidelines and standard reference texts (e.g. English Heritage Thesaurus of Monument Types) are used to assist in the analysis of results.

6.3 Project Report

A standard GSB project report will be printed and bound and will contain the following sections: report text; list of figures; report figures; appendix detailing technical information. A CD is affixed to the inside front cover of the report. This will contain a pdf version of the printed report, additional reference plots of data in pdf format and the tie-in information. Depending on the client's specifications, AutoCAD (dwg or dxf) versions of the report figures may also be included.

The report text will:

- Describe the site and situation of a survey area and the prevailing local topography, land use, soils and geology.

- Provide a brief description of any known archaeological remains in the vicinity, and their relevance to the survey results, will be made as necessary.

- State the aims and objectives of the survey.

- List and explain the display formats adopted.

- Describe any general factors or complications which must be considered when viewing the data. These include any local factors which may hinder the collection or interpretation of the results.

- Assess the results in accordance with the aims of the survey. In the majority of cases, the anomalies are interpreted from the perspective of their archaeological potential.

- Provide the names of the project co-ordinator and all project assistants together with the dates of the survey and report.

All reports are proof read by at least two other qualified members of staff to ensure: completeness and quality of data interpretation, clarity and accuracy of expression; consistency of format; good spelling and grammar; that references to figures and tables are complete, and that any external references are as full as possible.

The report figures will present the results of the survey accurately positioned on the site mapping. They are produced in AutoCAD and will include:

- A diagram showing the location of the survey areas (with key, scale and north arrow).

- Greyscale or colour plot(s) of the data-set(s) (with plotting levels, scale and north arrow).

- Digitised interpretation(s) of the results (with key, scale and north arrow).

The scale of the above printed figures will vary depending on survey size but the scale of the data plots and interpretations will not exceed 1:2500.

The reference data plots on the CD are not positioned on the mapping and are presented at a scale of 1:500 unless otherwise indicated. For magnetic data these will include at least one XY trace plot and one greyscale image of raw data for each complete survey area/data-set.

The report will include the OASIS reference number and the Suffolk HER event reference number obtained before survey commencement (see 3.0 above). A copy of the online OASIS record will be included as an appendix to the report, together with a copy of the approved MS.

6.4 Data Archiving

GSB follows normal industry practice and maintains both hard and digital copies of all reports and survey data. All data files (survey data and grid tie-in data) are transferred to the GSB server immediately upon the return of a survey team to the office. Nightly off-site backups are made of all project work in progress. On completion of a project the entire archive is written to two CDs and held at separate off-site locations: all data is automatically backed-up nightly to a remote facility. All GSB reports include an "Archive CD" containing all report documents in both PDF and their native formats, and the reference plots. Copies of survey reports will be issued to the respective Local Authority Planning Archaeologist / HER by the client, together with all relevant archaeological documents, at the appropriate stage

A digital copy of the report will be submitted to the OASIS database.

6.5 Staffing

The survey will be carried out by two or three suitably experienced surveyors.

7.0 Health & Safety

High Visibility vests & clothing/footwear appropriate for the specialist nature of a magnetic survey will be worn at all times.

It should be noted that we cannot wear or carry any metal objects whatsoever as these affect the instruments used on survey.

Several staff members are qualified First Aid representatives and at least one will be a member of the survey team for this project.

A Risk Assessment will be carried out for every project, in addition to the GSB Generic Risk Assessment. The former is in part informed by a Questionnaire sent to the client (or commissioning body) before commencement. It identifies potential hazards & the control measures required to minimize the potential for harm to our personnel. The Risk Assessment will be issued to the survey team and they will be briefed on its contents prior to the start of works. A Dynamic Risk Assessment proforma is provided with the Project Information Sheet, which all team members are required to read and sign their acknowledgment.

All GSB field personnel hold current CSCS Health & Safety Passports.

Welfare

Surveyors will make use of local amenities if there are no welfare facilities on site. The location of the nearest toilet facilities will be identified in a Project Information Sheet provide to the field team for every project, every week.

Emergency Procedures

In the event of an accident, the Geophysical survey team will follow the procedure established for the site. Any accident or near miss is to be reported as soon as possible to the Director or Office Manager, GSB Prospection Ltd. Details will be entered in GSB's Accident Book.

Several staff members are qualified First Aid representatives and at least one will be a member of the survey team for this project. A first aid kit will be carried in the vehicles & made available at all times whilst out on survey in the event of a minor injury.

The nearest accident and emergency department will be identified in a Project Information Sheet provide to the field team for every project, every week.

References

BGS (2016) British Geological Survey, n.d., website: (http://www.bgs.ac.uk/opengeoscience/home.html?Accordion1=1#maps) Geology of Britain viewer. [Accessed 30/03/2016]

English Heritage (2008) *Geophysical Survey in Archaeological Field Evaluation.* Research and Professional Services Guideline AML/EH, London.

Gaffney, C., Gater, J. and Ovenden, S. (2002) *The use of geophysical techniques in archaeological evaluations*. Institute of Field Archaeologists Paper 6.

Schmidt, A. (2001) *Geophysical Data in Archaeology: A Guide to Good Practice,* Archaeology Data Service

Site Location

N

Title:

Site Location Plan

Client:

CgMs Consulting

Project:

G1629 Barking Road, Needham Market, Suffolk

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www.gsbprospection.com

Scale: 0 metres 2000

1:50000 @ A4

Fig No: 1

Survey area

N

Title:
Location of Survey Area

Client:
CgMs Consulting

Project:
G1629 Barking Road, Needham Market, Suffolk

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Scale: 0 metres 200
1:5000 @ A4

Fig No: 2

OASIS DATA COLLECTION FORM: England

List of Projects | Manage Projects | Search Projects | New project | Change your details | HER coverage | Change country | Log out

Printable version

OASIS ID: gsbprosp1-247096

Project details

Project name	Barking Road, Needham Market, Suffolk
Short description of the project	Geophysical survey
Project dates	Start: 13-04-2016 End: 14-04-2016
Previous/future work	Not known / Not known
Any associated project reference codes	G1629 - Contracting Unit No.
Type of project	Field evaluation
Site status	None
Current Land use	Cultivated Land 1 - Minimal cultivation
Monument type	NONE None
Monument type	NONE None
Significant Finds	NONE None
Significant Finds	NONE None
Methods & techniques	"Geophysical Survey"
Development type	Housing estate
Prompt	Planning condition
Position in the planning process	Not known / Not recorded
Solid geology	CHALK (INCLUDING RED CHALK)
Solid geology (other)	White Chalk Subgroup - Chalk
Drift geology	GLACIAL SAND AND GRAVEL
Techniques	Magnetometry

Project location

Country	England
Site location	SUFFOLK MID SUFFOLK NEEDHAM MARKET Barking Road, Needham Market, Suffolk
Postcode	IP6 8JF
Study area	7 Hectares
Site coordinates	TM 08 54 52.144547003678 1.04029040964 52 08 40 N 001 02 25 E Point
Lat/Long Datum	Unknown
Height OD / Depth	Min: 0m Max: 0m

Project creators

Name of Organisation	GSB Prospection Ltd
Project brief originator	Consultant
Project design originator	CgMs
Project director/manager	GSB Prospection Ltd
Project supervisor	GSB Prospection Ltd
Type of sponsor/funding body	Developer
Name of sponsor/funding body	unkown

Project archives

Physical Archive Exists?	No
Digital Archive recipient	GSB Prospection Ltd
Digital Contents	"Survey"
Digital Media available	"Geophysics","Survey"
Paper Archive recipient	GSB Prospection Ltd
Paper Contents	"Survey"
Paper Media available	"Drawing","Report","Unpublished Text"

Entered by	GSB Prospection Ltd (info@gsbsumo.com)
Entered on	31 March 2016

OASIS:

Please e-mail Historic England for OASIS help and advice

GSB PROSPECTION Ltd

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