



**A Written Scheme of Investigation for Archaeological Mitigation on
Phase 1
Northstowe
Cambridgeshire**

1 BACKGROUND

1.1 Site Location

The core area of the new town of Northstowe is focused on land to the north and east of Longstanton village and to the north of Oakington village. Phase 1 of the development principally concerns land to the north of Rampton Road, which crosses the site from southwest to northeast between TL 402 665 and TL 413 674. Most of this area is currently occupied by The Cambridge Golf Course. The former RAF Oakington airfield lies on land to the south of Rampton Road. Also within the Phase 1 works is an area to the southwest of Longstanton village, adjacent to the B1050 (centred on TL 392 693).

The geology of the broader area is complex with several underlying bedrocks ranging from clay through gravel to alluvium. North of Rampton Road a ridge of 2nd and 3rd terrace gravels rises above a plain of Ampthill clay. The upper part of the ridge, topped with alluvium, is some 2-3m higher than the plain and forms a distinct, if low level, ridge.

1.2 Archaeological Mitigation

Following several phases of detailed archaeological evaluation (see below for references), and based on discussions between the Cambridgeshire Heritage Environment Team (HET), Terence O'Rourke Ltd. and the Cambridge Archaeological Unit, a mitigation strategy has been defined as part of the updated Environmental Impact Assessment. This identified the areas to be the focus of further archaeological excavation (see figures). This WSI has been written to provide detail of that scheme.

1.3 Project History

Following Desktop Assessment in 2002 and 2007 (Evans & Dickens 2002; Appleby 2007) detailed evaluation was carried out in three main phases in 2004, 2005 and 2006 (Evans & Mackay 2005, Evans *et al* 2006, 2007; Johnson 2004a, 2004b, 2005, 2006a, 2006b). The Phase 1 Areas were trenched in the 2004 and 2005 evaluations, with extensive geophysical survey in 2006. An earlier phase of trenching was carried out in this area when the golf course was developed in 1991/2 (Evans 1991; Gdaniec 1992).

1.4 Archaeological Background

Site Nomenclature

In the evaluation stage the sites were designated by Roman numerals (I – XLII). Given the number of sites that were subsequently identified this is now felt to be somewhat cumbersome. The numbering sequence has been retained but the Roman numeral has been changed for an Arabic number prefixed by 'S'. The Roman numeral is used here only in the first reference to a site.

Evaluation ID	Site Type/Date	New ID
III	Prehistoric 'ring ditch', possible Bronze Age	S3
VIII	Small Middle/late Iron Age enclosure	S8
X	Large rectangular Iron Age enclosure within area of S19.	S10
XI	Iron Age linears and enclosures	S11
XIII	Middle to Late Iron Age and Early Roman features	S13
XIX	Large Roman settlement complex	S19
XXXVII	Dense series of Roman sub-rectangular enclosures	S37
XXXVIII	Middle/late Iron Age enclosures	S38

Table: Site Nomenclature Phase 1 Sites

General Background

By the nature of evaluation archaeology is often expressed in terms of 'sites'. It is important, however, not to lose sight of the larger landscape in which those sites sit. This landscape contains a gravel ridge surrounded by a clay plain and the relationship between the archaeological remains on and off the ridge will be critical to its understanding. The concept of 'landscape transects', both physical in terms of exploration and conceptual in terms of understanding will be a repeated theme.

There is evidence of earlier, Mesolithic, activity close to the A14, but locally the occupation sequence in the area appears to commence in the later Bronze/Early Iron Ages. A significant site of this period excavated on Striplands Farm (Evans & Patten 2011) to the northwest of the Phase 1 area, proved to be a fairly typical settlement of the period. The geology of the site resulted in waterlogged conditions and the site produced a wealth of worked wood and superb environmental data.

The most frequent site type recovered during the 2004-2006 evaluation programme were Middle/late Iron Age settlement enclosures (15 were identified) and these appear to represent the main *colonization horizon* within this landscape (Evans *et al* 2008: 179). In general these were relatively small (0.2 - 0.5ha) consisting of organic combinations of interlinked sub rectangular and sub-circular ditched compounds. The distribution is not uniform across the area and they appear to lie c. 250 - 500m apart, a little closer together on the gravels compared to on the clays. Two settlements appear 'distinguished'. Site **S12** (XII) is outside the Phase 1 area but site **S38** (XXXVIII), extending over c. 2.3ha on the clay to the east of the gravel ridge, seems to include two banjo-like enclosures (see below for more detail).

However viewed (see Evans *et al* 2008: 179 for discussion) the Romano British sites are fewer in number, but significantly larger in extent than those of the preceding period. They are not distributed throughout the landscape but concentrate in two areas: three along the southwestern margin of the wider area and, more significantly for the Phase 1 works, a dense series

along the spine of the gravel ridge. The ridgeway sites maintain a 250 - 400m interval, comparable to that of the Iron Age. This is despite their much greater size and suggests that their associated 'agricultural support lands' must have extended out onto the clays. Three of these Roman sites could be assigned the interpretation of 'major farmsteads' (including site **S37** (XXXVII), in the Phase 1 area), however three others cannot be so defined and are not typical. Sites **S27** (XXVII), and **S15/18** (XV/XVIII), the latter three times larger in extent than Roman Cambridge, lie outside the Phase 1 area. Site **S19** (XIX), however, provisionally interpreted as a quasi-nucleated village, is largely within the Phase 1 boundary (see below for more detail).

Work beyond the boundaries of Northstowe has found evidence of Saxon, medieval and post-medieval activity. These periods were not generally represented inside the boundary and are less likely to be encountered in the Phase 1 works.

In summary the work has demonstrated that this large area, one that didn't register on the antiquarian agenda of earlier researchers such as Cyril Fox, is in fact densely populated with the archaeological remains of past periods.

Phase 1 Sites

The investigations revealed extensive archaeological remains, summarized below.

The Phase 1 areas have been divided into six zones determined by a combination of the importance of the archaeological resource and the level of impact upon that resource by the proposed development.

- **Zone 1:** Negligible archaeological potential – no further work
- **Zone 2:** Known archaeological sites undisturbed by proposed development – preservation *in situ*.
- **Zone 3:** Primary investigation routes along proposed roads and swales – to provide initial evaluation or landscape transects between the gravel ridge and clay plain outside the known archaeological site areas.
- **Zone 4:** The 'landscape zone' between sites **S19** and **S37**, currently of unknown potential. Findings from Zone 3 areas to aid level of area to strip for excavation.
- **Zone 5:** Dense concentration of archaeology present requiring full excavation prior to development commencing.
- **Zone 6:** Areas of low archaeological potential on the clay plain between the Zone 3 strips – findings from Zone 3 will aid determination of level of required mitigation.

Primary Development Area North of Rampton Road

Seven sites were identified in this area, an eighth (**S39**; XXXIX) was subsequently removed from the list as being modern. A further 'Landscape Zone' has been identified, dealt with under (8) below. The 'designations' are those determined by lengthy discussion with HET.

(1) Site S3 (III)

Ambiguous prehistoric 'ring-ditch', possibly a Bronze Age ritual monument or later Iron Age compound (TL 4001 6690); the outline of the 'circle' can just be distinguished on a geophysical plot, though its register cannot be said to be definite (the area is extensively disturbed by golf course features); the

adjacent, putative 'early' cropmark fieldsystem setting at this point (see Evans & Mackay 2004: fig. 28) is probably the by-product of ridge-and-furrow agriculture (Johnson 2006b).

Designation: Zone 2 - Preservation *in situ*

(2) Site **S8** (VIII)

A small Middle/late Iron Age enclosure (TL 408 671) investigated at the same time as Site **S7** (VII). Possibly stock-related and contemporary (but subsidiary to Site **S7**), laying on clay geology, few archaeological artefacts or finds were recovered suggesting a paucity of direct settlement activity (Evans & Mackay 2004: 129).

Designation: Largely outside Phase 1 area; eastern extent to be tested in Zone 3 landscape transect.

(3) Site **S10** (X)

Settlement features, including a large rectangular enclosure, clearly identifiable on both geophysical and aerial photographic surveys (TL 404 672), assigned to the Iron Age on the basis of morphology (Evans & Mackay 2004: 185). 'Within' and to be investigated as part of the Site **S19** investigations.

Designation: Zone 5 - Full excavation

(4) Site **S11** (XI)

A series of linear anomalies within the area of the windmill mound-sealed Iron Age settlement first identified along the western side of the development zone in 1991 (centred TL 408 664; Evans 1991) and, subsequently, assigned as Site **S11**. Originally only distinguished south of the trackway, geophysical survey showed that it extended upwards of 60m north of this boundary. Although certainty is not possible, the indications are that we are seeing a sub-rectangular 'enclosure', c. 35 x 100m. As attested to by the irregularity of its perimeter, this probably consists of a series of conjoining 'cells' and it is, in fact, possible that another such 'unit' conjoins with its eastern side (Johnson 2006b). The surveys also detected two sub-square/-trapezoidal settings immediately south of the main site. Thought possibly to be some manner of 'regularisation' of a 'palaeochannel-type' feature, these can only be considered of ambiguous status.

Designation: Zone 2 - Preservation *in situ*

(5) Site **S19**

Also including what are probably two Iron Age enclosures within its bounds (Sites **S9** and **S10**), this large Roman settlement complex (centred TL 408 664) was identified through aerial photography, and was first tested through limited trial trenching in 1991 (Evans 1991). A Luftwaffe aerial photograph of the area details cropmarks of the southern end of this site. A single trench was excavated in 2004 along the western edge of the golf course to investigate the site's archaeology and revealed a large number of Roman settlement features with dates ranging from the 2nd – 4th century (Evans & Mackay 2004: 115-129). In 2005, trial trenching was undertaken to further test this complex (Evans *et al.* 2006: 178-87), and in 2006 a geophysical survey confirmed and extended the extent of the settlement, detailing the

arrangement of the interconnecting paddocks along the settlement's western side, and further defining the site's eastern half, effectively, doubling the size of the settlement to around 11ha overall (Johnson 2006b). This work confirmed the impression from the 1991 trenching that the site extended much further east than was apparent from its aerial photographic register. However at that time (1991) the main focus of the layout seemed to be the very regular, straight, multiple-ditch boundary that framed its western edge and returned eastward along its northern side. The geophysical survey, however, entirely recasts that arrangement. It is clear that the 'great' c. 20.00m wide, ditch-flanked drove (probably better termed a road) evident on aerial photographic plots, actually continues northward through the settlement and that, essentially, it was symmetrically arranged on either side of this route. Continuing for c. 100m beyond the road, the eastern edge of the settlement appears to quite tightly follow the edge of the clay/gravel divide and the edge of the terrace.

The layout of the site is fan-like, with the arrangement of its paddocks only being 'straight' (vs. quasi-radial) across its central portion. The settlement's main axis suggests that, in the western half, there is a central, ditch-defined, rectangular 'block', on either side of which the boundaries appear to splay. In the south, the main area of settlement within the western half appears to end in a double-ditch boundary as in the north, with features continuing beyond the investigated area. This western rectangular 'core' would seem to be mirrored in the arrangement of the eastern half, at which point the central roadway is also double-ditched. No paddocks appear to extend north of the eastern 'core-zone', whereas, to the south, they continue in a more quasi-radial fashion. This outlines only the most basic principles of the settlement's complex layout, for which an element of phased development/expansion is suggested by a north-south ditch which runs through the central and northern swathe of its western half, possibly indicating the settlement's original linear organisation. While the settlement was clearly very dense, and may have had relatively high population levels, it has not thus far produced any indicators of particularly high status and that, essentially, it was probably a quasi-nucleated farming 'hamlet/village', but which also surely included both industrial and ritual activity (the location of a possible small shrine in its southern end being suggested by metal-detector finds; Evans & Mackay 2004: fig. 42, 123 & 129). Finally, though the double-/triple-ditch boundary that appears to border the western side of this complex does appear to extend southwards, based on geophysical survey, the settlement does not continue much beyond its known western extent.

The 2004 evaluation trench, located along the southern boundary of the Phase 1 area, revealed a number of graves (Evans & Mackay 2004: 115-116). The numbers (at least four individual burials) suggest the potential for the presence of a cemetery. The extent of this cemetery is not known, but it is unlikely to be the only one present in the wider landscape whether associated directly with site **S19** or not. Given the density of exploitation, particularly of the ridge, there is a high potential for the presence of cemeteries or more isolated burial/cremations of several periods.

The area to be excavated inside the Phase 1 boundary extends across c. 7.6ha.

Designation: Zone 5 - Full Excavation inside the Phase 1 boundary.

(6) Site S37

This site (centred TL 397 673) consists of a relatively dense series of sub-rectangular enclosures, two of which show evidence of having distinctly rounded corners. The extent was confirmed by geophysical survey of the golf course following the limited trenching in 1991 and also some watching brief monitoring in 1992. (Evans 1991, Gdaniec 1992, Johnson 2006b). The enclosures appear to have two separate orientations, which is suggestive of a degree of phased-realignment. However, given their layout as a whole, and also what is known of the archaeology in this area generally, they are all probably of Romano-British attribution. The density and 'character' of this system would seem indicative of settlement. Features probably associated with the same settlement also occurred within the southern end of the Striplands Farm excavations (Patten & Evans 2005; Evans & Patten 2011).

The excavation area extends over c. 5.3ha.

Designation: Zone 5 - Full Excavation

(7) Site S38

Located on the Ampthill clay plain (centred TL 405 674), 150m northeast of the main Site XIX complex, the site was discovered during the 2006 geophysical survey programme. The plan morphology suggests it to be of Middle/late Iron Age date. It consists of two components: 1) a 'keyhole-shaped' enclosure (20-25 x 40m; with the line of a double-ditch driveway/'corridor' running off of the north-eastern perimeter) that conjoins with a large and more irregular field/enclosure system on its north-western side with what is probably a c. 12m diameter roundhouse within the latter; and, 2), c. 80m southwest of '1', a roughly parallel pair of boundary ditches running sinuously, 20-30m apart. These continue for at least 120m (and possibly a further 50m north-westward). At the eastern end the ditches cross over what appears to be a 'banjo-type' enclosure consisting of a c. 7-8.00m wide 'corridor' linked to a c. 14.00m diameter 'circle' which may represent a large/'elaborated' roundhouse. At the northwestern end of this larger setting, a further ditch-defined 'corridor' of similar size also crosses the main boundary ditches. However, at that point the main ditch-line is wider and more 'square' in its arrangement, and this may represent a settlement enclosure (Evans et al. 2007: 15).

The excavation area extends over c. 3.9ha.

Designation: Zone 5 - Full excavation

(8) Landscape Zone

Lying in the zone northwest of site **S19** and northeast of site **S37** is an extensive area (roughly 13ha) that, whilst it does not appear to be settlement *per se*, does contain archaeological features as evidenced by aerial photographs and limited trenching in 1991. This area does not have a formal site designation, but is recognized as being the landscape zone on the gravels between the two defined sites. This area will be stripped and excavated, but at a density to be determined by the nature of the archaeology that is revealed. Should it be shown that there are formal sites currently unrecognised in this zone, they will be excavated by the same criteria adopted for the main sites.

The stripping area extends over c. 11ha.

Designation: Zone 4 - Full excavation at an intensity appropriate to the nature of archaeology revealed by stripping.

Phase 1 Infrastructure Area adjacent B1050

Two sites were identified in the Phase 1 infrastructure area. Of these site **S31** (XXXI) is of both low priority and outside the area of disturbance, therefore it will not be further considered.

(1) Site S13 (XIII)

Evaluation trenching revealed a moderate concentration of features (centred on TL 384 642), the majority belonging to the Middle to Late Iron Age and Early Roman periods, with the remainder Medieval and post-Medieval ridge-and-furrow. The Iron Age features consisted of a series of linear features, possibly forming settlement or livestock enclosures (Evans & Mackay 2004). Further excavation immediately to the east of the site revealed no further archaeological features (Evans et al. 2006: 35).

The excavation area extends across c. 0.70ha.

Designation: Zone 5 - Full Excavation within the development boundary

2 AIMS AND OBJECTIVES

2.1 Research Design

The principal objective of the programme is to mitigate impact upon archaeological remains by means of “preservation *in situ*” or “preservation by record”. This document is principally concerned with those sites to be excavated.

In general terms the work will seek to investigate 'sites' identified during evaluation and attempt to determine the relationship of those sites with the broader archaeological landscape around them. An attempt will also be made to highlight any relevant research issues within a regional and national research framework. The broad research guidelines for the region are those outlined and discussed in Glazebrook 1997 and Brown & Glazebrook 2000, and recently updated (Medleycott 2011).

A major directive in this project is the exploration of the long-term history of clay plain vs gravel terrace: - when did clearance take place; to what extent were gravels recognized/known in the pre Iron Age (as inland terrace rather than river valley archaeology); and when do the gravels become a landscape corridor through the clays?

Outside the zones of formal excavation the infrastructure roads and swales etc. will be used as ‘landscape transects’ to provide an in depth evaluation of, specifically, the lower lying clay part of the area. The results from these ‘transects’ will determine whether further investigation is required in the clay areas. As well as prospecting for feature based remains these will provide a means by which to consider different environmental sequences across the wider landscape.

2.2 Period Specific Research Objectives

Bronze Age

- 2.2.1 The one site that may be of earlier date is **S3** with its undated 'ambiguous prehistoric 'ring-ditch', possibly a Bronze Age ritual monument'. This site will be preserved *in situ*. However, it must be born in mind that a substantial – and obviously permanent/year-round – later Bronze Age settlement was excavated on the slightly higher terrace lands, just north of the development area, at Striplands Farm, so the presence of Bronze Age remains at other locations cannot be discounted (Evans & Patten 2011).

Iron Age

- 2.2.2 Seventeen Iron Age sites were identified in the wider Northstowe evaluations, of which seven lie in the Phase 1 area. Aside from the Site **S38** compounded/conjoined enclosures these are quite small, with most being less than a hectare. The area wide density of these sites is equally noteworthy; up on the main ridgeway terrace gravels, at least locally, they lie only c. 300m apart, whereas to the south of Longstanton and Oakington their interval is somewhat greater - c. 600-800m. These sites are, in the main, of Middle/late Iron Age attribution and date to after c. 400-300 BC.

- 2.2.3 A number of major research themes arise in relationship to the many Middle/late Iron Age settlements found:

1) *Colonisation*: Do these sites mark an 'arrival horizon' in the local landscape during the Middle Iron Age or were they the direct off-spring of the later Bronze/Early Iron Age groups in the area? Related to this is the question of whether during the Middle Iron Age the area's heavy clay soils were actively sought out for the purposes of arable production.

2) *Economy*: What was the basis of the Iron Age economy? Was it a matter of mixed farming regimes or were some groups/households predominantly pastoral? Indeed, in terms of the possibility of the latter, were all of its enclosures permanently inhabited or were some only seasonally utilised? Fortunately, in this regard, the area's heavy soils will ensure good environmental preservation, both of macro-plant remains and, too, pollen, so that we should be able to achieve a sound basis to address these issues.

3) *Social Structure and Hierarchy*: How do we consider the social relationships between these sites? Were they all broadly equivalent individual household-type enclosure-compounds or were some 'distinguished', suggesting a degree of social hierarchy? While, thus far, none seem particularly elevated on the basis of their finds assemblages, the plan-form of Site **S38** could hint at some 'difference'.

4) *Chronology*: Are the sites directly contemporary or were some occupied longer than others? Equally, does the occurrence of Iron Age enclosures within the axes of the subsequent, main Roman settlements (e.g. Sites **S9** and **S10**) imply direct continuity of settlement until Roman times, or was their situation simply fortuitous/accidental? In order to adequately address these issues it will be imperative that substantial pottery assemblages are achieved from all of the sites, as it is likely that the index/ratio of hand- to wheel-turned pottery will be the best gauge of their chronology/duration.

Roman

- 2.2.4 As was stressed in the final evaluation report (Evans *et al* 2007), given the number of Roman sites that have been discovered, and their range of

archaeology/settlement functions, it is crucial that this landscape is not just approached as some sort of hinterland adjunct of the fen-land/-edge, but as a swathe of fully Romanised countryside (i.e. non-marginal lands). What seems quite extraordinary is that the major site of the period, **S19** and that at Site **S37** were evidently strung out along the ridge of the gravel terrace and set at only an interval of c. 300-400m apart.

- 2.2.5 In the northwestern corner Site **S37** (probably part of the same Roman site excavated at the southern end of Striplands Farm) may represent an equivalent settlement-type.
- 2.2.6 Though difficult to adequately characterise, the larger Site **S19** Roman complex would seem to differ from the 'major farm' settlements (e.g. **S37**); its settlement *per se* being more dense and being apparently enclosed by a multiple-ditch system (possibly an embankment) along the western and part of the northern sides. The impression gained is that this site reflects some manner of quasi-nucleated, more 'hamlet/village' configuration (an apparently similar site has recently been discovered from aerial photographs near Swavesey - Rog Palmer pers comm.). Certainly, the determination of just what characterises its settlement must be among the main research aims of the project's Roman landscape studies.
- 2.2.7 Many major research issues arise in relationship to the area's Roman sites, amongst these are:

1) *Chronology/Continuity*: To what degree are we seeing direct continuity of settlement between the Late Iron Age and Early Roman times on these sites? The sites being excavated in Phase 1 do not provide the best potential for this question, but the relationship between the Iron Age **S9**, **S10** and the overlying Roman features of **S19** may go somewhat towards it.

2) *Communication/Transportation Routes*: What was the layout of the track/roadway system within this landscape? If, as it appears, a northwest – southeast route passed through Site **S3** (possibly the off-set line of the Cambridge/Godmanchester Road), did it continue southeast to the next complex? Equally, was it, in turn, met by the road running north-east up through Site **S18** (XVIII) (outside the Phase 1 area), itself with a crossroads continuing north-west and possibly joining the central Site **S19** 'way' (itself running north-west towards Site **S20** (XX) to the north?

3) *Economy and Land-use*: Which of the area's settlements were food producers (e.g. Site **S37** and which consumers (Site **S19**)? Equally, given the area of the terrace-ridge taken up with settlement, and in the light of what must have been the size of the local population at that time, to what extent did their attendant fieldsystems continue off of the terrace gravels and onto the surroundings claylands?

Post Roman

- 2.2.8 Remarkably little post-Roman archaeology, Saxon/Early Medieval, has been recovered. Aside from the excavations at Striplands Farm north of the main development area only one/two sherds of Saxon pottery were found in the southern end of Roman Site **S19**, though it remains possible that Saxo-Norman features may extend east into the area of Site **S37** and into the eastern margins of the Golf Course area). However, given the extent of trial trenching, this does not preclude the possibility that some degree of Saxon occupation might still be found within the axes of the main Roman complex upon the terrace-ridge (Site **S19**).

3. METHODS STATEMENT

All elements of the project will be carried out in accordance with the Institute for Archaeologists (IfA) *Code of Conduct and Standards and Guidance for Archaeological Excavations* (revised 2008) and *Standards for Field Archaeology in the East of England* (Gurney 2003). The CAU is a Registered Organisation of the IfA.

3.1 Programme

3.1.1 Survey

Detailed survey will be required to locate the areas accurately on the ground and tie them in to the OS grid. A combination of total station and rectified GPS will be used to achieve this. TBMs will be established within each area so that levels can be determined manually with a “dumpy” level as required. The site grid will be set in using a total station EDM.

The site grid will be set directly on the OS grid, therefore “site” north will be OS north. The grid points will be the last four figures of the 6-figure easting and northing plus two decimal places to give a location to the nearest centimeter (e.g. 5432.12 / 2345.23).

Base planning will be carried out following stripping using a TPS total station. Printed working base plans will be produced at a scale of 1:50.

3.1.2 Timescale

This phase of archaeological work is anticipated to commence in the second half of 2012. After stripping the excavation of each site/zone is estimated to last as follows:

Site **S37** – 3-6 months

Site **S38** – 3-6 months

Sites **S10/S19** – 12-18 months

Site **S13** – 1-3 months

‘Landscape zone’ (Zone 4) – 3-6 months

‘Landscape transects’ (Zone 3) – 2-4 months

These timings will be refined in relation to the overall timetable when known.

3.1.3 It should be noted that **S19** extends beyond the boundary of the Phase 1 area. The opportunity to fully investigate the southern portion of this site will come forward in a future phase of Northstowe.

3.2 General

3.2.1 Before the commencement of work a Safety Method Plan will be drawn up which will include a full risk assessment. Any Safety, Health and Environmental rules in force for the project will be strictly adhered to. CAU field staff hold the recognised CSCS card qualification in health & safety. As part of any project briefing all staff will be made aware of specific site hazards. All archaeological personnel will be made fully aware of the archaeology specific and any other safety related documentation or requirements.

- 3.2.2 A significant health and safety issue in this project is the possibility of the presence of unexploded ordnance. Whilst the data currently available indicates that the focus of this is the airfield itself, the presence of UXO outside that area cannot be entirely discounted. Work can only proceed on the basis of an "all clear" from the Developer. Any restriction placed on archaeological activity due to the presence of ordnance will be the subject of ongoing discussion between CAU, the Consultant, the Developer and HET.
- 3.2.3 Detailed issues relating to services will be addressed in consultation with the Developer. Any live services in excavation areas will either be made safe prior to commencement or avoided.
- 3.2.4 No personnel will work in deep or unsupported excavations. Parts of the excavation may require stepping or battering to enable safe access in certain cases. Any deep areas will be fenced off with "deep excavation" signs displayed.
- 3.2.5 PPE will be worn at all times (see below for exceptions). This will comprise high visibility jacket, steel toe-capped boots, hard-hat, and gloves. Safety glasses and ear protection may be required for specific tasks. Provided it accords with any wider site rules it may be permissible for archaeological staff to remove hard hats when in open areas without plant activity following revision of the risk assessment.
- 3.2.6 The archaeologists will not enter an area under machine excavation without alerting the machine driver. The archaeologists will remain alert at all times in proximity to machines.
- 3.2.7 Topsoil will be stripped and stored separately to subsoil. Spoil storage areas and methodology will be identified in consultation with the Developer.
- 3.2.8 Appropriate fencing will be used to define areas in which no machine or vehicle movement is permitted.
- 3.2.9 CAU will provide suitable accommodation for staff to shelter in poor weather and during breaks. Hand washing and toilet facilities will be provided.
- 3.2.10 All finds of potential treasure will be removed to a safe place and the coroner informed immediately in accordance with the Treasure Act 1996. The definition of treasure is given in pages 3-5 of the Code of Practice of the above act. This refers primarily to gold and silver.
- 3.2.11 CAU will comply fully with the operational requirements of the Developer or the appointed Principal Contractor should they be present on the site.
- 3.2.12 The work will be monitored by the County Council Heritage Environment Team (HET).

3.3 Wider Site Management and Control of Ancillary Works

- 3.3.1 A detailed site management plan will be developed prior to the start of works specifically in relation to control of ancillary works, off-site works, vehicular movements, material storage etc.
- 3.3.2 Clear routeways and temporary and permanent 'no-go' areas in the landscape will be determined so as to avoid accidental damage to sites designated for preservation *in situ* or prior to their excavation.
- 3.3.3 The location and nature of spoil movement and storage will be carefully considered so as to comply with the requirements of the soil specialist, the

long-term destination of the material and so as to avoid damage to what lies beneath.

- 3.3.4 The mechanical means of soil movement will be agreed by all parties prior to commencement (i.e. the developer, the archaeologists, the soil specialist and the contractor) so as to avoid the use of inappropriate machinery, specifically drag lines or box scrapers).

3.4 Basic Procedures

- 3.4.1 Machining will use tracked 360 excavators with a minimum 2m wide ditching bucket with large (20T) dumper trucks to remove and stack spoil. The scale of the operation may mean that several machines may be in operation at the same time.
- 3.4.2 The order and progression of stripping sites and areas will be determined in relation to the overall timetable in consultation with the Consultant and the Developer. In principle, however, infrastructure routeways (roads, swales etc) *within* designated site areas will be stripped first on the understanding that when complete those areas may be handed back ahead of the main site excavation.
- 3.4.3 All machining will be under the close observation of an experienced archaeologist, to the top of archaeological deposits, or natural subsoil, whichever is exposed first (note that in some areas, specifically site **S19**, the strip will be a two part process to allow examination of the subsoil horizon). The lower levels of topsoil/subsoil will be removed in spits of no more than 0.15m to cleanly expose the surface of the natural subsoil. Where necessary provision will be made for hand cleaning of the machined surface.
- 3.4.4 Significant archaeological deposits will not be removed by machine unless sanctioned by the HET Officer.
- 3.4.5 During machining spoil and surfaces will be scanned by metal-detector.

3.5 Excavation

- 3.5.1 All archaeological contexts and artefacts exposed or examined will be cleaned, planned, appropriately excavated and recorded. Discrete features will be minimum 50% sampled; linear features will be sampled in 1m wide segments at intervals relevant to their associations or context (e.g. settlement vs. not settlement). Intersections will be excavated where required to determine chronological and stratigraphic relationships; butt ends would also be excavated as priority areas.
- 3.5.2 Where stripped areas are identified as being of 'low density' the sampling strategy may be of a lesser intensity. Determination of both 'low density' and the appropriate sampling strategy will be made on site by discussion with the Consultant and HET and will take into account the character, density and complexity of the archaeology and how the exposed features add to the understanding and interpretation of the site.
- 3.5.3 All sectioned and excavated archaeological features will be drawn at a scale of 1:20 or 1:10. All sections will be leveled to Ordnance Datum.
- 3.5.4 Deep features will be excavated according to safe working methods detailed in the SCAUM Health and Safety in Field Archaeology Manual (2010), where open excavation may persist to a depth of 1.2m and thereafter stepping or shoring would become necessary to complete the excavation. 1.2m should be

considered a rough guide only as actual depth will be determined by soil cohesion and prevailing ground conditions.

- 3.5.5 Where human remains are encountered an appropriate Ministry of Justice license will be required for their removal and the Coroner will be notified prior to their excavation. Appropriate detailed recording will be carried out of all excavated human remains under the guidance of the CAU human remains specialist and as detailed in the Site Manual.

3.6 Sampling Strategies

- 3.6.1 As noted above more than straightforward excavation will be required to extract data by which this landscape will be understood. This is particularly relevant on sites **S19** and **S37** where the potential for a horizontal dimension to the archaeology is highest.

- 3.6.2 Strategies to be employed in this area may include:

- Bucket sampling of top and subsoil for artefact and ecofact recovery at 100m intervals. This is intended to evaluate broader landuse rather than for artefact densities per se, and to enable comparisons with other landscapes such as river valley (e.g. Earith) and island (e.g. Isle of Ely).
- Phased stripping of the site (i.e. topsoil followed by subsoil) in order to permit metal detection and artefact survey at the topsoil/subsoil interface.
- Geophysical survey at the topsoil/subsoil interface. This would be intended to attempt to identify ephemeral features such as buildings so as to refine the stripping strategy for the lower part of the strip.
- Intensive gridded sampling of buried soils should any be revealed.
- Bulk environmental samples from site straddling features (e.g. long ditches) at an interval to be determined (in addition to the environmental strategy outlined below) with pollen samples at the extremities.
- Systematic magnetic susceptibility and phosphate sampling to test areas of potential settlement focus.
- Magnetic susceptibility in any areas of potential industrial activity.

- 3.6.3 The implementation of these sampling strategies would be refined in discussion with HET and the Consultant.

3.7 Environmental Sampling

- 3.7.1 The environmental potential of the site will be assessed from material taken from a sample of features across the site. These will initially be processed and assessed in-house at CAU.

- 3.7.2 Contexts appropriate for environmental sampling will include those visibly rich in plant remains (seed/chaff), charcoal, contain dumped domestic deposits or are waterlogged. As well as a background sampling strategy, a targeted sampling policy will be employed, ensuring that the potential for environmental information is matched by the significance and interpretability of the archaeological features in the field. Advice will be taken from the CAU environmental specialist.

- 3.7.3 In addition samples will be taken from locations selected to contribute to the broader landscape analysis. This will include bulk and pollen samples.

- 3.7.4 Based on the prevailing geology and the results from the nearby site at Striplands Farm, waterlogged features are likely to be found. Where encountered, they will be sampled for their environmental evidence and pollen preparation made to determine its presence or absence in the deposits. In the event of preserved organic remains being found they will be dealt with immediately to prevent deterioration caused by their exposure to aerobic conditions.
- 3.7.5 The English Heritage Regional Archaeological Science Advisor will be consulted during fieldwork to allow for an opportunity to comment on, and observe in the field, the proposed strategy for scientific sampling.

3.8 Recording

- 3.8.1 The site will be recorded using the CAU Extensive Site Recording System, which allows 2D and 3D distributional plotting, and analysis to be carried out readily, whilst recording context specific data.
- 3.8.2 All archaeological features, layers or deposits will be recorded on CAU pro-forma recording sheets detailing: character, contextual relationships, a detailed description, associated finds, interpretation and cross referencing to the drawn, photographic and finds records.
- 3.8.3 On-site matrices will be compiled during the excavation such that the results of the written stratigraphical records may be fully analysed and phased.
- 3.8.4 Any archaeological features, layers or deposits will be allocated unique context numbers prior to any hand excavation including contexts for which there is no archaeological interpretation or definition.

3.9 Artefact Recovery

- 3.9.1 All artefacts will be collected, stored and processed in accordance with standard methodologies and national guidelines.
- 3.9.2 All artefacts will be collected and retained unless agreed otherwise with HET.
- 3.9.3 Small finds (called 'Special Finds' in the CAU system) will be given a unique number and their location recorded three dimensionally. Bulk finds will be collected and recorded by a unique context number.
- 3.9.4 The site archive and finds will receive immediate conservation as part of the excavation process. Any further conservation needs will be discussed following the fieldwork phase.

4 PUBLIC PRESENTATION

- 4.1 Given that this is a large excavation in an important landscape it anticipated that there will be a significant public interest in the project. Subsequently it is envisaged that at least one Public Open Day per major site will occur during the excavation programme.
- 4.2 A level of community involvement is anticipated, the details of which will be defined as each archaeological zone progresses. This involvement could include artefact processing and excavation opportunities as well as guided tours, lectures and exhibitions.
- 4.3 Public art will play a significant role in the Northstowe development, and it is proposed that some of this relates to aspects of the archaeology. Ideas would include installations in the school grounds either marking the location of

significant finds or pulling together discoveries from the wider area. Seating or outside teaching areas mimicking the shape of the many anticipated roundhouses is one suggestion to be considered.

- 4.4 It is anticipated that the archaeological project will have a significant web presence allowing wide dissemination of discoveries (perhaps along the lines of the recent CAU excavations at Ham Hill in Somerset; see www.hamhillfort.info). It may be feasible to co-operate with the locally based group/website focused on the history of the Longstanton area in this enterprise (see <http://www.longstantonvillage.org>).
- 4.5 The increasing availability of electronic data and the means to disseminate it could be very usefully exploited in the project both in the short and longer term. Ideas to be developed include:
- Erecting temporary displays on hoardings around the excavation areas to be periodically updated.
 - Encouraging residents to join an excavation twitter account that gave them weekly updates
 - Developing a phone app, podcast or bluetooth download that would provide a guide to walks around the development area.
 - Developing a heritage walk, for example in relation to the medieval earthworks at Nether Grove off Long Lane, in conjunction with residents and the local history group.
 - Enabling the local parish newsletter to carry a barcode tag once a month linking to the excavation blog and video diary.
 - Exploring the possibilities for an archaeological ‘headquarters’ at the heart of the project. This would provide both a physical focus for the archaeological operation, but also provide a venue for residents to participate in related activities (Finds washing, environmental processing etc.).
- 4.6 Local and national level press coverage can also be anticipated.

5 POST-EXCAVATION ASSESSMENT

- 5.1 The project will follow the principles of the current English Heritage MoRPHE Guidelines (Lee 2006). This requires that a detailed post-excavation assessment be made prior to determining the requirements for detailed analysis and publication.
- 5.2 The post-excavation assessment will evaluate the potential for further analysis of the various categories of data recovered from the sites (i.e. contextual, artefactual and environmental), and will be integrated with an Updated Project Design for subsequent post-excavation work and publication, which will incorporate and modify where necessary the objectives outlined in this document.
- 5.3 All artefact, faunal and environmental assessments will be made by suitably qualified specialists either in-house at CAU or externally as appropriate. Specialists may include:
- | | |
|---------------------|-------------------|
| Prehistoric pottery | M. Knight (CAU) |
| Iron Age Pottery | M. Brudenell |
| Roman Pottery | K. Anderson (CAU) |

Medieval/post-medieval pottery	D. Hall
Flint	L. Billington (CAU)
Faunal remains	V. Rajkovaca (CAU)
Environmental samples	A. de Vareilles (CAU)
Human remains	N. Dodwell (CAU)

- 5.4 The site archive and finds will receive immediate conservation as part of the excavation process.
- 5.5 The principal aim of the assessment would involve a basic ordering of the contextual archive with computer tabulated summaries including provisional stratigraphic/phasing information; this would then form the basis of preliminary analyses against artefactual and environmental data (see below) as well as outlining the potential for further work on issues of chronology and development, following the objectives outlined above.
- *Sites, chronology and layout*: a provisional chronology based on key stratigraphic relations and associated finds will be drawn out and the potential for more detailed chronological analyses will be assessed.
- 5.6 Finds cleaning and processing
- *Ceramics*: basic quantifications by sherd count and weight; provisional, quantified phasing of the assemblages; a description of the range of forms and fabrics in relation to existing type series.
 - *Metalwork*: full quantification (by count) according to context; basic identification by object type and material, conservation needs.
 - *Building materials (e.g. brick, tile, worked stone)*: full quantification (by count or weight as appropriate) according to context.
 - *Burnt Clay*: full quantification (by weight) according to context; basic characterisation (i.e. daub, artefact).
 - *Lithics*: full quantification and basic characterisation of worked flint by count and burnt flint by weight, according to context. Likely only to occur residually.
 - *Other (e.g. slag, leather, wood, clay tobacco pipe)*: full quantification (by count or weight as appropriate) according to context. A sample of slag will be X-rayed.
 - *Conservation*: Items will be selected in consultation with the appropriate specialists: metalwork, slag etc. will be prioritised for X-ray (the intention would be eventually to X-ray the remainder of the material at the post-excavation analysis stage). All conservation and storage will be carried out in accordance with UK institute of conservators' guidelines.
- 5.7 The environmental data recovered from the sites are likely to fall into three main categories: animal bone, bulk samples (for charred plant remains, insects, molluscs and other preserved macrofossils) and column samples (for pollen). The level of assessment analysis that will be done on these is as follows:
- *Animal Bone*: quantification (by count and weight) of assemblages by context; basic species identification (quantified) where possible and description of the condition of the bone. This information will form the basis of assessing the potential for more detailed analyses.

- *Bulk samples*: samples will be processed and sorted with quantified summaries of the range of plant and other species present, giving an indication of the value of data recoverable from the site.
- *Column samples*: selected profiles will be sub-sampled and processed, sorted and assessed for pollen species counts, giving an indication of the value of data recoverable from the columns.

5.8 On completion of the report an OASIS form will be submitted.

6 ANALYSES AND PUBLICATION

6.1 The Post-excavation Assessment Report will be accompanied by an Updated Project Design (UPD) in accordance with MoRPHE and other relevant national guidelines.

6.2 The Updated Project Design shall set out the further analytical and reporting works, if any, that are required to achieve the research objectives identified in the post-excavation assessment report.

6.3 An outline of the publication and place of publication should be included in the updated project design, to be agreed with HET/CHER. If the assessment process identifies that no further work is required the updated Project Design should clearly state that this is the case.

6.4 It is anticipated that the work will be published as a monograph volume in the *CAU New Archaeologies of the Cambridge Region* series.

7 RESOURCES AND PROGRAMMING

7.1 Staffing and Budget

7.1.1 The precise makeup of the field team has yet to be determined, but all site work will be carried out by professional archaeologists from CAU. Overall project management for CAU will be by Alison Dickens MIFA. The survey team consists of two people.

7.1.2 The field team will range in size dependant upon the phasing of the work.

7.1.3 All staff employed by the CAU are professional archaeologists and will have a minimum of three months experience. Most have 6-12 months minimum.

7.1.4 Academic support for the project (the 'Academic Committee') is defined in the EIA statement

7.1.5 A budget will be agreed with the Client sufficient to adequately fund the proposed programme through to publication, including an appropriate contingency.

7.2 Programme

7.2.1 Fieldwork

Work is anticipated to commence in the second part of 2012.

7.2.2 Post-Excavation

Post-excavation assessment will commence following completion of all the fieldwork. A brief site summary statement will be produced within six weeks of the completion of each of the sites.

An assessment report will be produced for each site in 6-8 months following completion of the fieldwork together with specialist assessments of the further research potential of all artefact assemblages and environmental samples

Following completion of a post-excavation assessment of all materials, a review of the post-excavation programming will be held in consultation with HET and the relevant specialists. At this review stage, a timetable including a Critical Path Analysis and the aims of specialist research presented in an Updated Project Design will be identified and agreed. This timetable will also contain agreed monitoring points.

Final analysis and publication will follow on from completion of the site assessments and UPD and is estimated to take up to 2 years.

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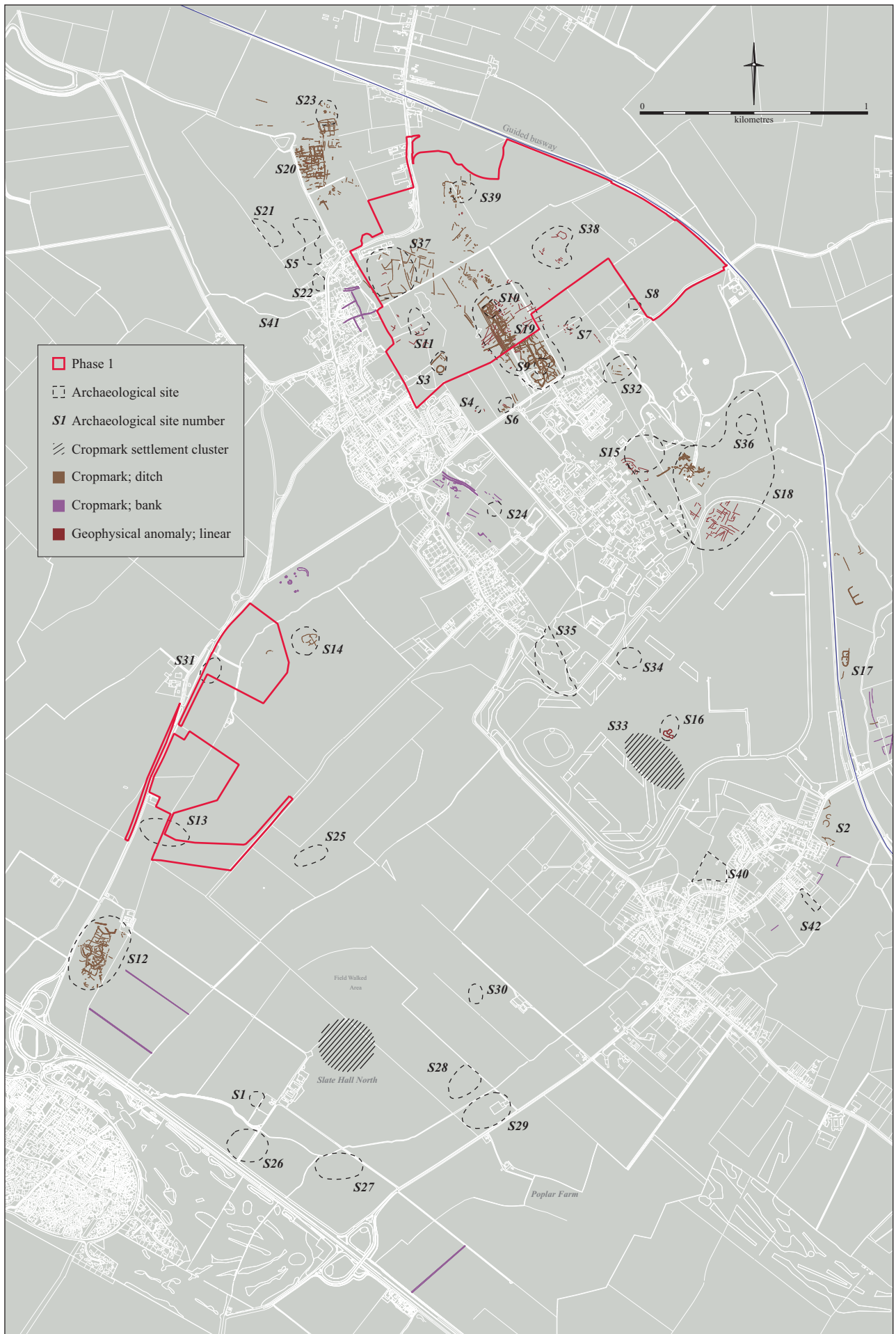


Figure 1. Phase 1 areas

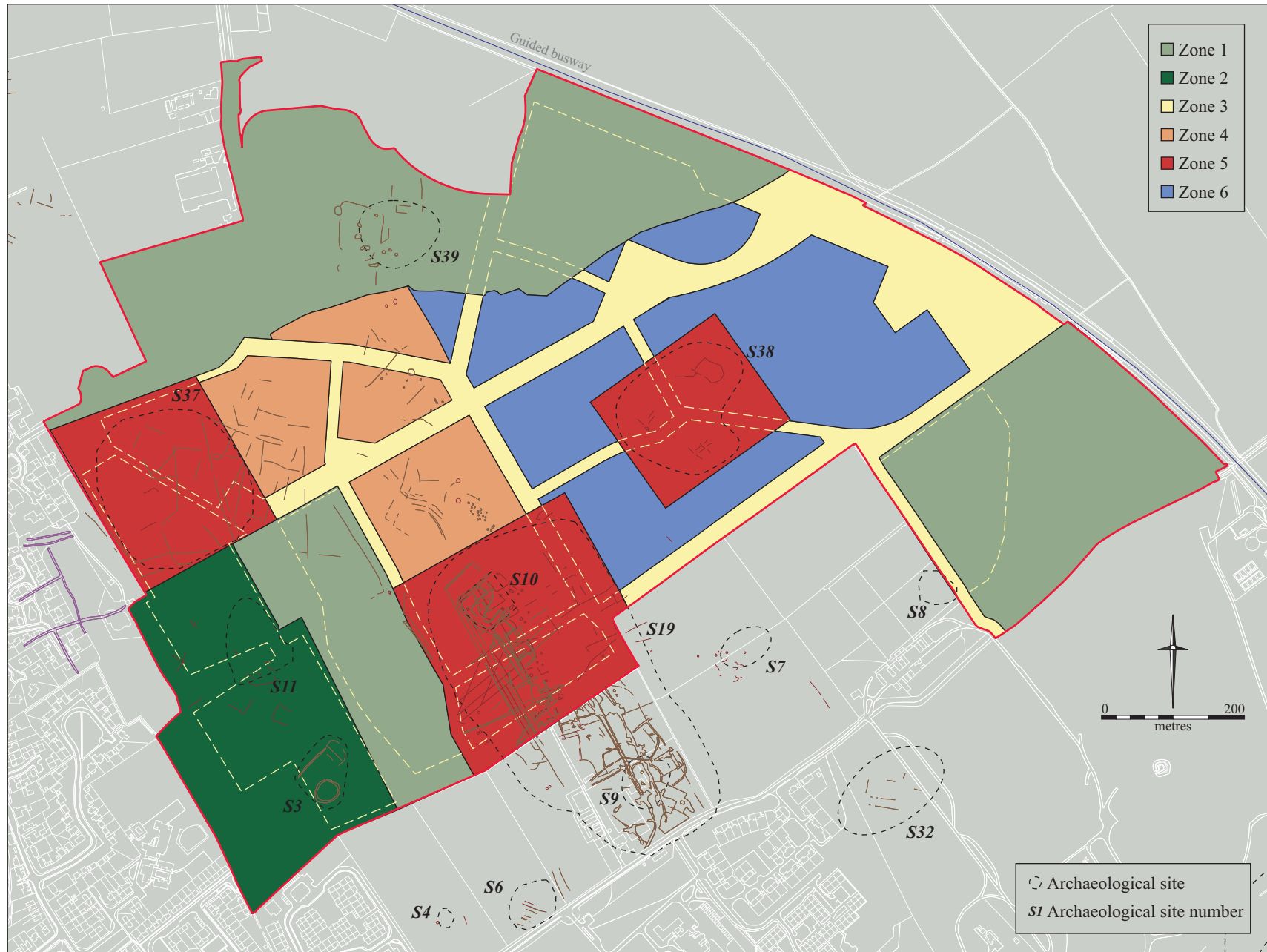


Figure 2. North of Rampton Road

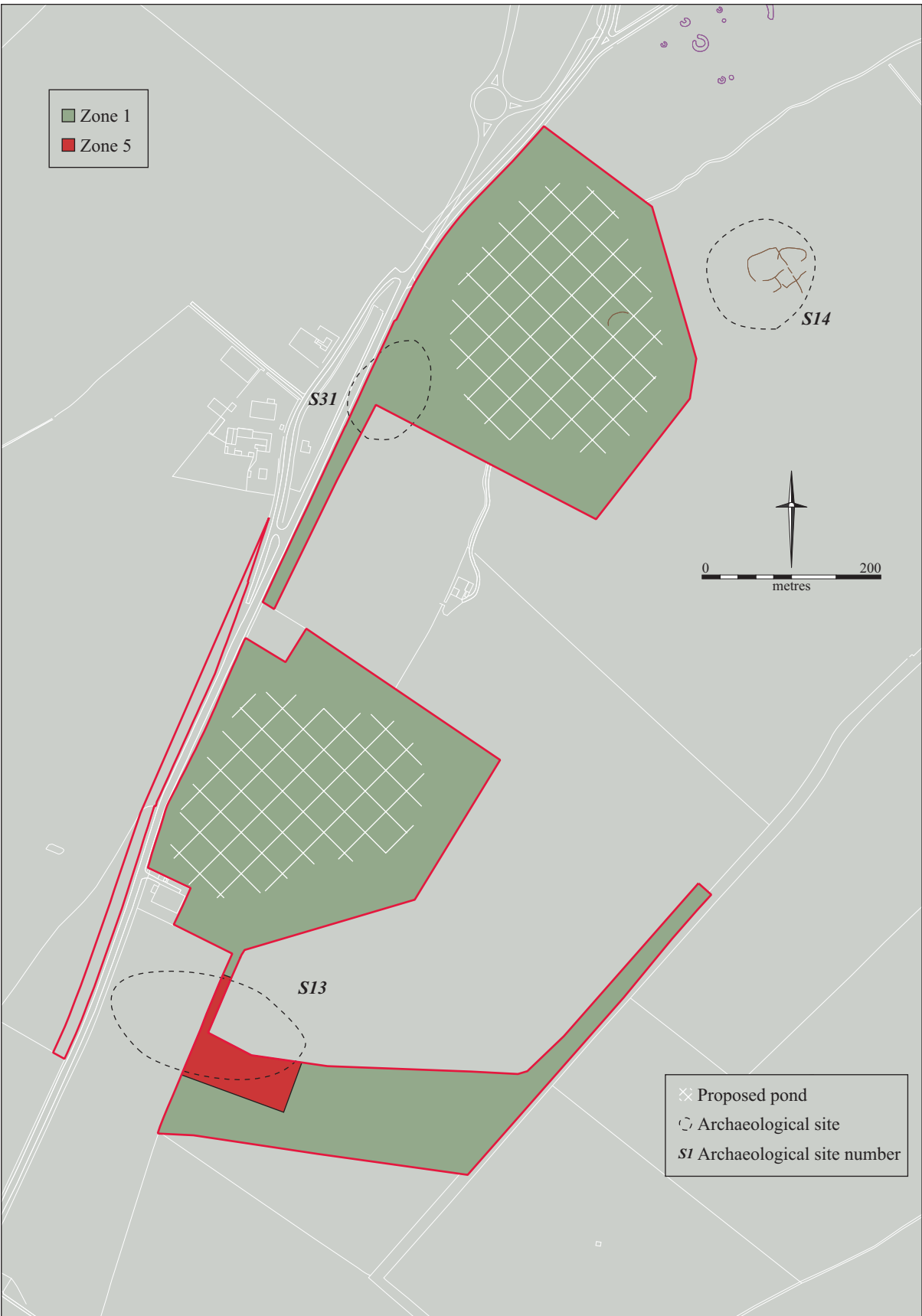


Figure 3. Adjacent to B1050