

**A Geoarchaeological Desk Based Assessment of Land at Ford
Airfield, Ford, West Sussex**

**Archaeological Desk-Based Assessment
(Heritage Statement)**

**Prepared for
Terence O'Rourke Ltd**

NGR: 9944 0334

SU 994033

Project No. 200155

Report No. 2020090

By Letty Ingrey

**A Geoarchaeological Desk Based Assessment of Land at Ford
Airfield, Ford, West Sussex**

**Archaeological Desk-Based Assessment
(Heritage Statement)**

**Prepared for
Terence O'Rourke Ltd**

**NGR: 9944 0334
SU 994033**

**Project No. 200155
Report No. 2020090**

By Letty Ingrey

April 2020

Prepared by:	Letty Ingrey	Geoarchaeologist	
Reviewed and approved by:	Andy Margetts	Project Manager	
Date of Issue:	April 2020		
Revision:	1		

**Archaeology South-East,
Units 1 & 2
2 Chapel Place
Portslade
East Sussex BN41 1DR
Tel: 01273 426830
Fax: 01273 420866
fau@ucl.ac.uk
www.ucl.ac.uk/archaeologyse**

Summary

Site investigation logs were used to create a lithostratigraphic model of deposits on site. Based on the descriptions of deposits and their position on the Lower Coastal Plain of West Sussex the assessment has reached the following conclusions.

- The site has been shown to have c. 3–4m of surviving Quaternary deposits overlying chalk at depth.
- At the base of the sequence is a sand, thought to be marine in origin and likely part of the Pagham or Brighton-Norton raised beach.
- An alluvial deposit containing organic fragments is mapped in the north east of the site, this is of unknown age but should be considered to have high geoarchaeological potential.
- A fine-grained head or ‘brickearth’ deposit overlies the site, the geoarchaeological potential of this deposit is unknown on the basis of current information and the unit requires further assessment.
- Deposits may require further geoarchaeological assessment through a program of test pitting in order to more accurately model the sequence and fully evaluate their geoarchaeological potential.

CONTENTS

- 1.0 Introduction
 - 2.0 Site Topography and Geology
 - 3.0 Planning Background
 - 4.0 Geoarchaeological Background
 - 5.0 Deposit Model and Results of Geotechnical Investigation
 - 6.0 Assessment of Heritage Potential and Significance
 - 7.0 Previous Impacts on Heritage Potential
 - 8.0 Impact of Proposed Development
 - 9.0 Conclusions
 - 10.0 Preliminary Recommendations
- Acknowledgments
- References
- Figures

LIST OF ILLUSTRATIONS

Figure 1: Site Location

Figure 2: Site plan including geotechnical test pits and boreholes.

Figure 3: All geotechnical interventions on the site, viewed from the south-east.

Figure 4: Transect 1 north-south strip logs down west of site.

Figure 4: Transect 2 north-south strip logs down centre of site.

Figure 6: Transect 3 north-south strip logs down east of site.

1.0 INTRODUCTION

- 1.1 Archaeology South-East (ASE) has been commissioned by Terence O'Rourke Ltd. to carry out a geoarchaeological desk based assessment on land at Ford Airfield, Ford, West Sussex, hereafter referred to as 'the site' (NGR: 994033; Figure 1). The appraisal comprises a deposit model created on the basis of geotechnical records and supporting research.
- 1.2 This report follows the recommendations set out by the Chartered Institute for Archaeologists in their *Standards and Guidance for archaeological desk-based assessment* (CIfA 2017). The aim of this assessment is to present a synthesis of readily available archaeological and site investigation data relating to the site and its environs, in order to identify the potential impact on geoarchaeologically significant deposits. This information has been used, where possible, to ascertain the location, extent, date, character, condition and significance of any identified heritage assets and to consider the likely impact of the proposed development upon them.
- 1.3 The site is centred on National Grid Reference 499436,103348 (Figure 1). For the purposes of this assessment, the extents of the site have been taken to be those identified in the plans provided by Enzygo Ltd. (Figure 2). For the purposes of the geoarchaeological deposit model and assessment site investigation records supplied by Enzygo Ltd. alongside borehole data from the immediate area held by the British Geological Survey (BGS 2020) have been considered to place the site within its wider landscape context.
- 1.4 The site is currently unoccupied and comprises an area of concrete hardstanding and several buildings associated with the former airfield and former concrete works.
- 1.5 In compiling this geoarchaeological desk-based assessment, cartographic and documentary sources and archaeological data relating to the study area were obtained from the Historic Environment Record (HER) held by West Sussex County Council made available via *heritagegateway.com*. Relevant sources held within the Archaeology South-East library were utilised, and appropriate on-line databases interrogated. These included: Heritage Gateway, National Heritage List for England, and the Magic website, which holds government digital data on designated sites (Scheduled Monuments, Registered Historic Parks and Gardens and Registered Historic Battlefields) in GIS map form. It should be noted that other material may be held in other collections.
- 1.6 It should be noted that this form of non-intrusive appraisal cannot be seen to be a definitive statement on the presence or absence of archaeological remains or geoarchaeologically significant deposits within any area but rather as an indicator of the area's potential based on existing information. Further non-intrusive and intrusive investigations such as surface artefact collection surveys, geophysical surveys, boreholes, geoarchaeological test-pits or machine-excavated trial trenching may be needed to conclusively define the presence/absence, character and quality of any archaeological or palaeoenvironmental remains.

2.0 SITE TOPOGRAPHY AND GEOLOGY

2.1 Location and Topography

2.1.1 The site is situated just to the west of the village Ford, off Rodney Crescent on the former Ford Topblock concrete works. The site is broadly flat at about 7m OD and is situated less than 1 km to the west of the River Arun.

2.2 Geology

2.2.1 According to the BGS at 1:50,000 scale the solid geology at the site is chalk. Superficial geologies are also mapped as being present. At 1:50,000 the BGS maps river terrace deposits directly on the site with raised beach deposits existing just to the east of the site. According to the BGS at 1:625,000 scale the superficial geology of the site is 'brickearth' with alluvial deposits to the east of the site.

2.2.2 Several geological boreholes have previously been excavated in the immediate area. Two directly to the south of the current site SU90SE2 and SU90SE18 showed a sandy clay deposit (brickearth) overlying chalk. To the east of the current site SU90SE37 a borehole encountered deposits described in the logs as a raised beach.

2.2.3 Two phases of geotechnical work at the site comprising of test pits and boreholes have shown there to be c.4m of superficial deposits overlying chalk at depth. The chalk appears to form a fairly flat platform with some evidence of downcutting. The superficial deposits consist of sands overlying the chalk, sometimes slightly gravelly with rounded gravel, and fine grained sandy clays, again sometimes slightly gravelly. The sequence is capped by variable made ground. The results of the geotechnical work will be discussed in further detail below.

3.0 PLANNING BACKGROUND

National Planning Policy

3.1 National Planning Policy Framework (NPPF)

- 3.1.1 The revised National Planning Policy Framework was published in February 2019 and sets out the government's planning policies for England and how these are expected to be applied. This revised Framework replaces the previous National Planning Policy Framework published in March 2012. Government policies relating to planning are given in the National Planning Policy Framework. Section 16 (paragraphs 184 – 202) of the Framework (*Conserving and enhancing the historic environment*) outlines policies relating to the historic environment and the key role it plays in the Government's definition of sustainable development, the principle which underpins the document.
- 3.1.2 The NPPF requires that local planning authorities *should set out in their Local Plan 'a positive strategy for the conservation and enjoyment of the historic environment'*, recognising that *'heritage assets are an irreplaceable resource'* and should be conserved *'in a manner appropriate to their significance'* (Section 16, paragraphs 184-185)¹.
- 3.1.3 The NPPF requires that planning applicants should *'describe the significance of any heritage assets affected'* by their application, *'including any contribution made by their setting'* (Section 16, paragraph 189)².
- 3.1.4 The NPPF is supported by Planning Practice Guidance, launched in April 2014². In specific relation to historic environment issues, further guidance is provided by Historic Environment Good Practice Advice in Planning Notes 1 to 3, issued by Historic England and the Historic Environment Forum³.

¹ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>, accessed 25th July 2018

² <https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment>, accessed 25th July 2018

³ <http://historicengland.org.uk/advice/planning/planning-system/>, accessed 25th July 2018

4.0 GEOARCHAEOLOGICAL BACKGROUND

4.1 Introduction

- 4.1.1 The following section summarises the known information relating to Pleistocene and early Holocene deposits and archaeology within the area and the wider landscape.

4.2 Pleistocene and Early Holocene context

Raised beaches

- 4.2.1 While there is no raised beach deposit currently mapped on the site, the West Sussex Coastal Plain is known to have a complex succession of raised beaches. These are generally split into two groups the Upper Coastal Plain and the Lower Coastal Plain. With those on the Upper Coastal Plain older and generally more rich in archaeology.

The Upper Coastal Plain

- 4.2.2 The Upper Coastal Plain contains the older raised beach deposits and is defined by the Goodwood-Slindon raised beach and the Aldingbourne raised beach (Bates et al. 2010). The Goodwood-Slindon raised beach is known for deposits against a degraded cliff line, including a sequence of marine sands, and also silts associated with marine regressions. These deposits are known to date from an interglacial period, MIS13, at around half a million years ago. The deposits have produced abundant palaeoenvironmental material and archaeological remains, including undisturbed Palaeolithic land surfaces, and are probably best known for the site of Boxgrove. (Roberts and Pope 2009).

- 4.2.3 South of the Goodwood-Slindon raised beach is the Aldingbourne raised beach, generally outcropping at 17.5m – 27.4 m OD (Bates et al. 1997) and consisting of deposits of marine sands and gravels. The Aldingbourne raised beach deposits have been shown to be complex and seem to be associated with at least two separate episodes of deposition. It is thought to possibly date from MIS11, MIS9 or MIS7 (Bates et al. 2010) and has produced Palaeolithic archaeology.

The Lower Coastal Plain

- 4.2.4 Two more raised beach sequences are known to exist on the Lower Coastal Plain, south of a buried cliff line along the A27. Here there is very little surface topography, giving little evidence of the underlying sequence (Bates et al 2010). These are less well mapped being less exposed, less quarried, and often existing below the water table. The two marine sequences known here are the Brighton-Norton raised beach and the Pagham raised beach. Unlike on the Upper Coastal Plain, these are more difficult to differentiate. The Lower Coastal Plain is also crossed by shallow valleys filled with Holocene alluvium.

- 4.2.5 The Brighton-Norton raised beach backs onto the cliff line along the A27 and extends southwards, possibly far enough to underlie the current site. Generally present over 5m OD, deposits consist of fine sands and silts, along with a buried soil above the marine deposits (Bates et al. 2010). Faunal evidence and dating suggest these deposits are from late MIS 7 as the climate was cooling at the end of the interglacial. It has produced much lower quantities of artefacts than the beaches further to the north. This is a period when human occupation of Britain is thought to have been decreasing before apparent complete depopulation at the end of MIS7.

- 4.2.6 The Pagham raised beach is the youngest of the raised beaches and thought to have formed during the last interglacial, MIS5e. It is not known to have produced any artefacts and in fact there is little to no evidence of human occupation in Britain at this time. Deposits of the Pagham raised beach have, however, been known to produce important palaeoenvironmental evidence (Bates et al. 2010).

Fluvial and alluvial deposits

- 4.2.7 While the site is close to the River Arun, there are no fluvial or alluvial deposits mapped as extending into it. Terraces associated with the River Arun are only known further north of the site and are not mapped at all in the immediate area (Bates and Briant 2009). The large fluvial system in the area is that of the Solent, however, terraces of the Solent are not known to extend into the area of the site (Bates and Briant 2009). Despite this the BGS mapping (BGS 2020) suggests deposits thought to be related to river terraces may be present on the site, possibly relating to undocumented terraces of the River Arun. It is also possible that alluvial deposits from the River Arun extend into site, despite not being mapped this far west.

Head deposits

- 4.2.8 There are also extensive 'brickearth' deposits along the south coast of Britain. These may be formed of primary and redeposited loess, alluviums, and colluviums and are all likely hold a complex sequence of deposition. These fine grained deposits from the area are also known to sometimes preserve buried soils. A significant example of this is the Allerød Soil (Allen 2008), known closer to the A27, preserved in a sequence of fine grained deposits.

4.3 Finds detailed on the HER

- 4.3.1 The West Sussex HER details certain finds from the area that are relevant to the geoarchaeological potential of the site.

Palaeolithic

- 4.3.2 Although more abundant Palaeolithic material is generally known from the Upper Coastal Plain, some Palaeolithic material is known from close to the site. 'Palaeolith's' are recorded as coming from Ford, although no description or location is recorded (HER ref MWS6292). Further to this a handaxe is recorded as being found in a field to the west of Ford church (Woodcock 1981), which would place it close to the current site.

Mesolithic

- 4.3.3 While no Mesolithic material is known from the immediate vicinity of the site, and is generally rare on the West Sussex Coastal Plain, some likely Mesolithic material has been recovered from the wider area. A concentration of early Mesolithic and Bronze Age flintwork has been recovered during a watching brief on a pipeline at Climping (HER refs MWS6779 and MWS6778) and further Mesolithic material was recovered on the other side of the Arun north-west of Littlehampton (HER ref MWS3463).

5.0 DEPOSIT MODEL AND RESULTS OF GEOTECHNICAL INVESTIGATION

5.1 Introduction

- 5.1.1 Two phases of site investigation have been carried out on the site by Enzygo Ltd (Enzygo 2015; 2018). An original phase in 2015 consisted of 8 boreholes and 15 test pits, and a phase in 2018 consisted of a further 9 boreholes. The logs produced during both phases of investigation have been assessed by a geoarchaeologist with knowledge of the deposits in the wider area. The details have then been fed into the Rockworks deposit modelling software in order to create a preliminary lithostratigraphic model of the site. This model can then be used in order to assess the presence and possible age of superficial deposits on site. From this model sections have been extracted to enable assessment of the thickness/cover of the deposits across the site.
- 5.1.2 The geotechnical report described up to 4.5m of superficial deposits across the site. Deposits were separated into units and recorded in terms of colour, lithology and coarse component.
- 5.1.3 The deposits have been divided into broad units on which to base the deposit model. These units are informed by knowledge of the geology of the area and the components of geological deposits. Creating a geoarchaeological deposit model and assessment on the basis of geotechnical records is not exact. Geotechnical records are only minimally descriptive and by their nature do not always record specific features that will be relevant to a geoarchaeological assessment. It is highly probable that far greater variation exists within the deposits. Some of the logs did record variation within these broad deposits, however, as this did not appear to be consistent much of the variation has been removed for the purposes of creating a functional deposit model.

5.2 Units included in deposit model (Figures 3–6)

Made ground

- 5.2.1 The entire site is covered in made ground deposits between 0.5m and 2m thick. According to the logs this generally consists of concrete at ground level with a made ground deposit of sandy gravel below this.

Fine grained head

- 5.2.2 Below the made ground was a deposit of fine grained head. This is possibly comprised of several units, however, it was not possible to entirely differentiate them in the geotechnical logs. For the deposit model they have been classed as one unit. Generally described as orange brown sandy clay. The upper part is sometimes described as having black mottles, possibly from contamination from above, rooting, or mineral staining. For the most part this deposit is described as an orange brown sandy clay, generally stone free but with occasional slightly gravelly beds. When present, gravel is described as sub-angular. Towards the base of this unit it is sometimes recorded as sandier or softer, and possibly could correlate with either the sands or alluvial deposit.
- 5.2.3 This fine grained ‘brickearth’ deposit could hide a significant amount of structure and could be related to colluvial, alluvial, or aeolian deposition. The presence of possible mineral staining may suggest an alluvial origin for some of this deposit. While the presence of sub-angular gravel within some levels in this deposit suggests redeposition through solifluction or fluvial actions (Hopson 2009). While no structure

was recorded during the site investigation work, it is possible that this deposit is highly structured and could contain buried land surfaces.

Sands and gravel

- 5.2.4 Across the majority of the site a very sandy unit was recorded overlying the chalk. This unit was sometimes described as slightly gravelly with rounded gravel. This deposit is interpreted as being either fluvial or a raised beach deposit. Based on the description it is considered highly likely that this is in fact a raised beach deposit due to the rounded nature of the clasts where recorded. This deposit appeared to be formed of two units in several of the geotechnical logs; a medium sand directly overlies the chalk and a sand with some gravel in turn overlies this. Due to the minimal descriptions in some of the geotechnical logs it was not possible to reliably map these as separate units in the deposit model.

Alluvium

- 5.2.5 In the north of the site a soft unit mottled dark grey and containing organic fragments was recorded overlying the chalk. It is not currently known how this unit relates to the possible raised beach deposits. It is possible that this deposit is formed of silts related to marine transgression, alternatively this deposit could be an alluvial deposit related to the River Arun. The deposit appears to underlie a thick deposit of 'brickearth' and is possibly Pleistocene in origin.

Chalk

- 5.2.6 Chalk was generally encountered at a depth of c.3-4m below ground level.

5.3 Results of the Deposit Model

- 5.3.1 On the basis of the geotechnical logs it was possible to map deposits across the site. These have been illustrated in Figures 3–6. Figure 3 illustrates a 3D model of the strip logs for each intervention, Figures 4–6 illustrate stratigraphic sections through the site. Three stratigraphic sections have been produced, each running north-south through the site, one to the west, one through the centre, and one in the eastern part of the site.
- 5.3.2 The model shows a chalk platform to exist at around 4m OD across the site. This seems to be broadly flat, albeit with some boreholes showing it is possibly a little lower at some points. Overlying the chalk platform across the majority of the site is a deposit of sands and gravel, likely to relate to a raised beach deposit (as discussed above). In the northeast part of the site no sands and gravels are recorded, instead an alluvium deposit exists (discussed above). It must not be discounted that this deposit occurs over a greater proportion of the site and was unrecorded due to the coarseness of the geotechnical records. Overlying this is the fine grained Head deposit ('brickearth'), a significant thickness < 3m is seen to exist across the entire site. Modelling of any structure within this unit was not possible based on the currently available records. At the top of the sequence is made ground covering the entire site.
- 5.3.3 This deposit model is a first stage iteration and should not be considered to be a definitive model of the deposits present on the site. However, while the crudeness of the model does not allow very detailed evaluation of the deposits it does show the survival of 3–4m of Quaternary deposits across the entire site.

6.0 ASSESSMENT OF HERITAGE POTENTIAL AND SIGNIFICANCE

- 6.1 It is considered that there is the potential for as yet unknown heritage assets of geoarchaeological interest (i.e. below-ground archaeological and palaeoenvironmental remains) to be present within the site.
- 6.2 The geotechnical records and deposit modelling exercise have shown there to be a surviving 3–4m sequence of likely Quaternary deposits present on site.
- 6.3 Deposits directly overlying the chalk, and likely extending across the majority of the site are thought to relate to one of the Lower Coastal Plain raised beaches. Based on the chalk platform being at 4m OD and some distance from the Brighton-Norton cliffline it is expected to be the Pagham raised beach. Dated elsewhere, the Pagham raised beach is thought to be from MIS5e, the previous interglacial period and a period where there is no uncontested human occupation in Britain. However, the position of the beach allows the possibility that these deposits actually equate to the Brighton-Norton raised beach, deposited in late MIS 7 during a period of declining human population in Britain. Both MIS5e and Late MIS7 are periods with questions over human occupation in the area, and while these deposits, particularly those of the Pagham raised beach, have a moderate to low archaeological potential, any *in situ* artefacts would be of very high significance. Further to this, deposits may have a moderate to high potential for palaeoenvironmental and faunal remains, and allow environmental and landscape reconstruction of the area.
- 6.4 The fine grained deposits with organics, described as alluvium, in the north east of the site should be considered as having high geoarchaeological potential. It is not known whether this is a marine, fluvial, or other deposit, but its potential to preserve organic remains is clear. The fact that it is buried below several metres of fine grained Head deposit ('brickearth'), also suggests an early Holocene or Pleistocene date for the deposit.
- 6.5 The fine grained Head or 'brickearth' should currently be considered to have moderate geoarchaeological potential and needs further investigation in order to ascertain its nature and structure. Any buried land surfaces within the deposit would be considered as having a high geoarchaeological potential.
- 6.6 A desk-based assessment can generally only consider the potential of a site in principle. Its conclusions usually require testing by fieldwork in order to confirm whether remains are actually present and, if this is the case, to establish their character, condition and extent and thus indicate the weight that ought to be attached to their preservation. It must always be acknowledged that remains of a type for which there is no prior evidence may be found on a site by fieldwork.
- 6.7 The significance of any heritage assets that may exist on the site cannot be determined in advance of confirmatory fieldwork, but the available evidence from the wider study area would suggest that any buried deposits present are most likely to be of local or regional significance.

6.8 Research Frameworks

- 6.8.1 Deposits present on site have the potential to address needs outlined in regional and national research frameworks outlined below.
- 6.8.2 SERF: South East Research Framework (Pope et al. 2019) outlines the following needs for the South-East of Britain that may be relevant for deposits on site.

Raised beaches

- Improved mapping, sub-surface deposit modelling and dating of raised beach deposits.
- Modelling of raised beach deposit zones/types more likely to contain undisturbed or minimally disturbed remains and biological remains
- Relationship of Sussex raised beach sequence with fluvial terrace systems?

Colluvial/solifluction/aeolian deposits

- Identification of areas of colluvial/solifluction deposits that may contain undisturbed or minimally disturbed concentrations of Palaeolithic remains (cf Red Barns)
- More attention to "brickearth", and characterisation as colluvial or aeolian (or fluvial)
- Mapping and dating of loessic sediments, and modelling of likelihood of any contained Palaeolithic remains

6.8.3 The Research and Conservation Framework for the British Palaeolithic (Pettit et al. 2008) identifies the following research needs relevant to the site.

- What effect did Pleistocene climate change have upon British environments and faunal communities?
- How much of Pleistocene time saw the presence of hominins in Britain or on the adjacent continental shelf?
- Did a significant population crash occur over Lower Palaeolithic/Middle Pleistocene time?
- Does Late-glacial archaeology indicate any changes in hominin demography or land-use patterns?
- How did the marine transgression after the LGM create systematic changes in hominin use of the continental shelf and the coastal zone?

Strategic Research And Conservation Themes

- The use of geomorphological and sedimentological modelling to understand the taphonomic processes that determine the significance of many Palaeolithic remains
- Investigating different landscapes – where are the campsites?
- Use of OSL and AAR to further investigate periods in which human populations appear to have collapsed, e.g. MIS 7.
- Recognition of the potential impact of development and other land-use change in order to protect and conserve the diminishing Palaeolithic resource.

6.8.4 Items in the Mesolithic Research and Conservation Framework (Blinkhorn and Milner 2014) potentially relevant to the site include:

- T3.1: Did people occupy Britain during the Younger Dryas, the last cold snap of the Lateglacial?
- S2.2: Broader use of fieldwalking, test-pitting and other low-impact techniques is needed, especially within a developer-led context.
- S2.6: Predictive/deposit modelling should be explored further to help understand the contexts in which Mesolithic archaeology is found.
- S2.12: Similarly, features containing palaeoenvironmental information should be targeted to complement archaeological information, especially where the two datasets can be demonstrated to be contemporary or relevant for investigating landscape use and development through the Early Holocene.

- S3.2: Dating linked to lithic assemblage types is essential to underpin the development of typochronologies that can then be applied to lithic assemblages where no directly datable material survives. This should be accompanied by precision in typological description and appropriate illustration to engender confidence in lithics assessments (see Saville 2009).
- S3.18: The archaeological and palaeoenvironmental potential of Lateglacial and Postglacial landscape features such as kettle-holes, palaeochannels and areas of waterlogged deposits should be recognised and targeted.

7.0 PREVIOUS IMPACTS ON HERITAGE POTENTIAL

- 7.1 It is unclear to what extent the site has been impacted on by modern construction and made ground. Several buildings are seen to be present on site and the foundations of these may have locally impacted upon buried deposits. Similarly, the excavation for any services present on site is likely to have impacted deposits. The entire site is also covered with made ground in the form of gravel and concrete. It is not known whether ground reduction occurred prior to this, or the extent of ground reduction, but this could have truncated later deposits. Excavation of foundations and ground reduction could also have caused contamination to deposits with paleoenvironmental potential even below the impact depth.
- 7.2 Deeper sediments are likely to have been impacted by natural processes only. Marine, fluvial, colluvial, and solifluction processes all have the potential to erode and rework deposits along with artefacts and palaeoenvironmental proxies. On the basis of this assessment it is not possible to ascertain which, if any, of these processes deposits may have been affected by.

8.0 IMPACT OF PROPOSED DEVELOPMENT

- 8.1 In considering the potential impact of the proposed development on any heritage assets that are present, it is necessary to understand both the significance of the asset and the likely degree/magnitude of impact. At the time of writing no details are currently available of the proposed development and the extent of impacts of any development at the site are not known
- 8.2 Impact on geoarchaeological heritage assets on the site will generally be dependent on impact depth. However, impacts may also disrupt the hydrology and chemistry of sediments leading to processes such as decalcification on deeper deposits and disrupting the potential of deposits to preserve ecofacts and palaeoenvironmental evidence.
- 8.3 On the basis of this assessment deposits that may have geoarchaeological potential often exist within 0.5m of the current land surface. The fine grained Head could potentially hold late Pleistocene or Holocene buried soil profiles quite close to the surface. Deposits with clear potential such as the 'alluvium' are also present within 1.5m of the surface and could potentially be impacted upon with only minimal ground reduction. Raised beach deposits are also present at as little as 1.5m depth. On the basis of this any process involving excavation or ground reduction could potentially impact on heritage assets.

9.0 CONCLUSIONS

- Site investigation logs and a subsequent lithostratigraphic model have demonstrated the site to have c. 3–4m of surviving Quaternary deposits overlying chalk at depth.
- At the base of the sequence is a sand, thought to be marine in origin and likely part of the Pagham or Brighton-Norton raised beach. While this has a low to moderate archaeological potential, any *in situ* finds would be of high significance. The palaeoenvironmental potential of the raised beach deposits should be considered to be moderate to high.
- An alluvial deposit containing organic fragments is mapped in the north-east of the site, this is of unknown age but should be considered to have high geoarchaeological potential.
- The fine grained head or ‘brickearth’ deposit overlying the site has only been minimally recorded and the geoarchaeological potential is currently unknown. Any buried land surfaces present in this deposit would have high geoarchaeological potential.
- Any development at the site will likely truncate elements of Quaternary geoarchaeological sequences and affect preservation. Due to the limited detail in the deposit model and the possibility of unrecorded or locally variable deposits the excavation of a series of geoarchaeological test pits is suggested. This will allow more detailed recording and assessment of deposits.
- As part of further geoarchaeological work, deposits could be assessed for the presence of archaeological artefacts and samples could be collected and assessed for palaeoenvironmental proxies, such as pollen, microfossils, plant macrofossils, soil micromorphology, and dating. On the basis of this further work may be necessary to mitigate the effects of development at the site.

10.0 PRELIMINARY RECOMMENDATIONS FOR FURTHER WORK

- 10.1 The assessment has outlined the geoarchaeological potential of the site and examined the effects of existing impacts, and as far as possible, the effects of the proposed impacts upon that potential. This assessment is based on a desk-based survey of existing information, and cannot therefore be considered to be a definitive statement on the presence or absence of geoarchaeological deposits in any given area. This section offers a suggested programme of further fieldwork which will confirm the presence or absence of deposits with geoarchaeological potential. It should be stressed that these recommendations are for information only and represent the professional opinion of Archaeology South-East. The requirement for and scope of any further archaeological work, will be determined by the Local Planning Authority and their archaeological advisors.
- 10.2 This assessment and deposit model has shown several metres of possibly geoarchaeologically significant deposits to exist across the site. It is suggested that a series of geoarchaeological test pits are undertaken to properly evaluate the nature of these deposits, assess the extent of preservation, and to map them in detail across the site. Test pitting would allow deposits to be assessed for the potential to contain artefacts, ecofacts, and palaeoenvironmental material and inform whether further work would be required before development.
- 10.3 Should geoarchaeological remains be present and assuming that they are of low (local) to moderate (regional) significance and a design solution cannot be implemented to ensure their preservation *in situ*, further mitigation works such as a programme of archaeological excavation and recording, along with post-excavation paleoenvironmental assessment and dating, may be required to ensure the preservation by record of any threatened remains.

ACKNOWLEDGMENTS

Archaeology South-East would like to thank the following for their help and advice in the preparation of this report:

John Trehy, Terence O'Rourke Ltd

REFERENCES

Allen, M.J. 2008. Late Upper Palaeolithic (Area 3): Environmental evidence for the former environment and possible human activity, in Fitzpatrick et al *Archaeological Excavations on the Route of the A27 Westhampnett Bypass, West Sussex, 1992. Volume 1: the Late Upper Palaeolithic--Saxon*, Salisbury, Wessex Archaeology Report 21, 30-61.

Bates, M.R., Parfitt, S.A. and Roberts, M.B., 1997. The chronology, palaeogeography and archaeological significance of the marine Quaternary record of the West Sussex Coastal Plain, Southern England, UK. *Quaternary Science Reviews*, 16(10), pp.1227-1252.

Bates, M.R. and Briant, R.M. 2009 Quaternary sediments of the Sussex/Hampshire Coastal Corridor. 21 – 41. In: Briant, R.M., Bates, M.R., Hosfield, R.T. and Wenban-Smith, F.F. (eds.) *The Quaternary of the Solent Basin and West Sussex Raised Beaches. Field Guide*. Quaternary Research Association: London.

Bates, M.R., Briant, R.M., Rhodes, E.J, Schwenninger, J.L. and Whittaker, J.E. 2010. A new chronological framework for Middle and Upper Pleistocene landscape evolution in the Sussex/Hampshire Coastal Corridor. *Proceedings of the Geologists' Association* 121, 369 – 392.

BGS, 2020. British Geological Survey, Geology of Britain Viewer, <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

Blinkhorn, E. and Milner, N. 2014. *Mesolithic Research and Conservation Framework 2013*. Council for British Archaeology: York.

ClfA, 2017. (Revised Ed.). *Standards and Guidance for archaeological desk-based assessment*. Chartered Institute for Archaeologists.

Enzygo 2015, Geo-environmental report: Ford Arundel, for Grundon Waste Management Ltd. (*unpublished grey literature report*).

Enzygo 2018, Factual report: Ford Arundel, for Grundon Waste Management Ltd. (*unpublished grey literature report*).

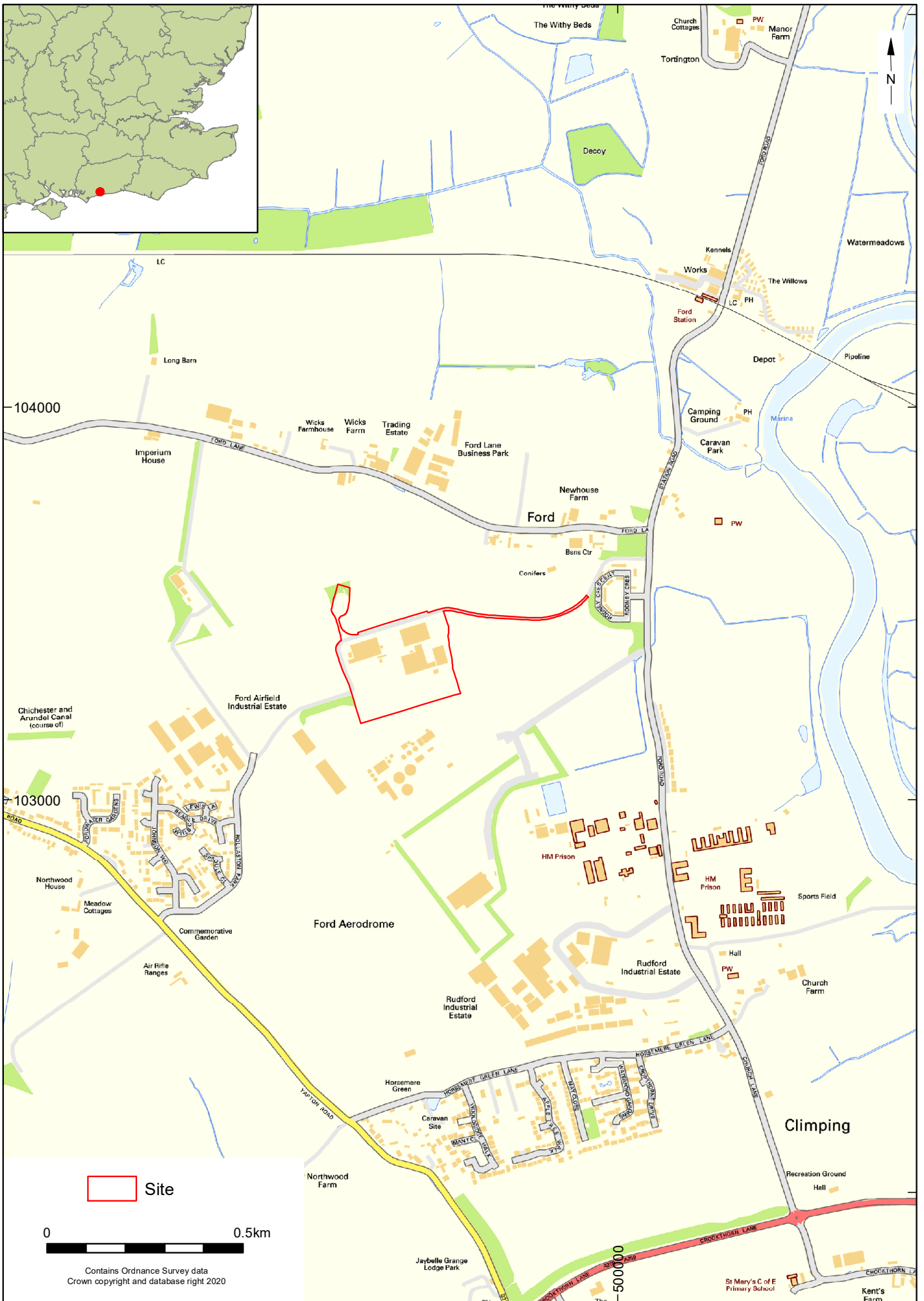
Hopson, P.M. 2009. The geological setting of the coastal fringes of West Sussex, Hampshire, and the Isle of Wight. *The Quaternary of the Solent Basin and West Sussex Raised Beaches. Field Guide* Quaternary Research Association, London, pp1-20.

P. Pettitt, C. Gamble, J. Last (Eds.) 2008, *Research and Conservation Framework for the British Palaeolithic*, The Prehistoric Society and English Heritage

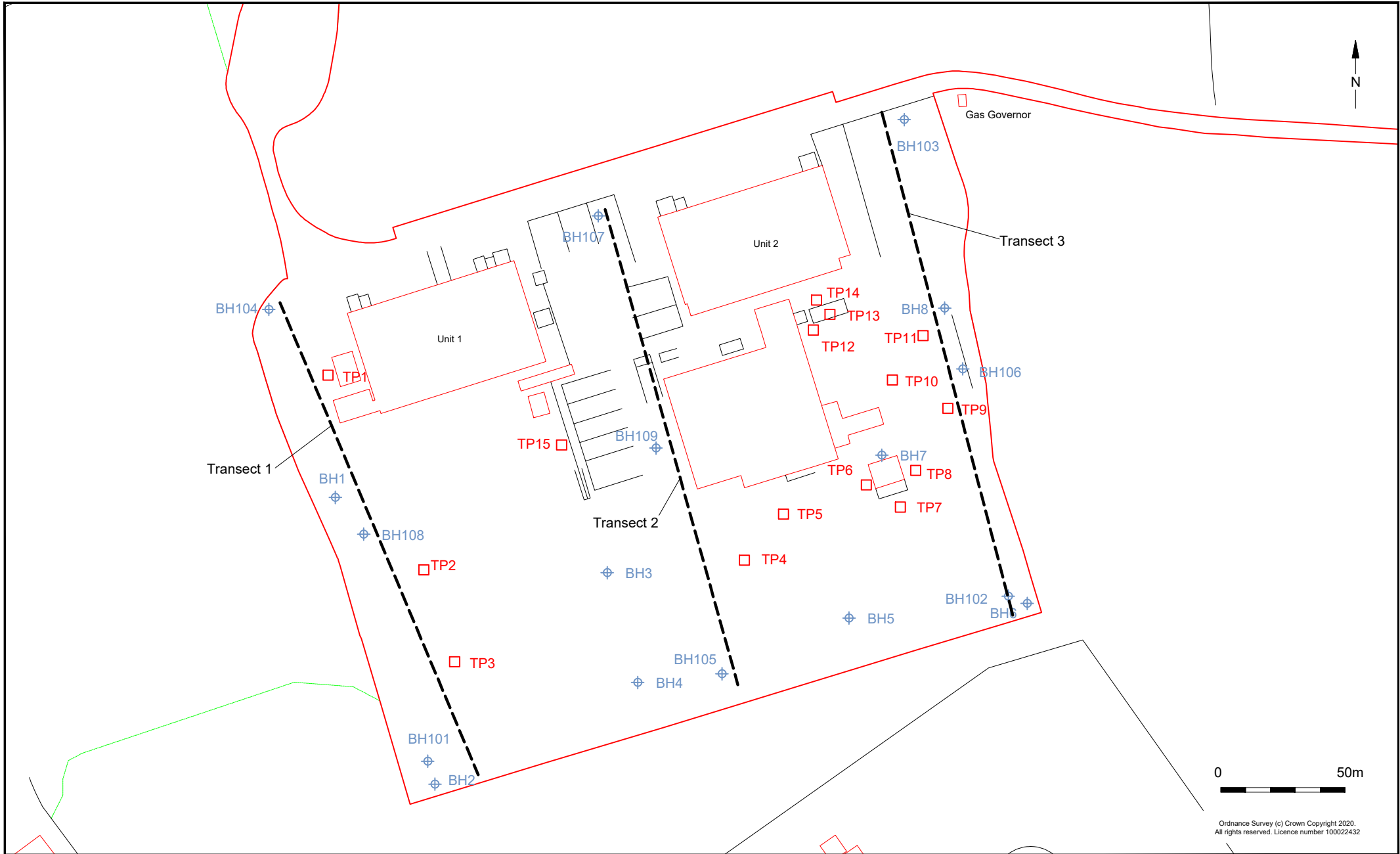
Pope, M., Wells, C., Scott, B., Maxted, A., Haycon, N., Farr, L. Branch, N. and E. Blinkhorn 2019. The Upper Palaeolithic and Mesolithic Periods, in South East Research Framework

Roberts, M.B., Pope, M.I., 2009. The archaeological and sedimentary records from Boxgrove and Slindon. In: Briant, R.M., Bates, M.R., Hosfield, R.T., Wenbansmith, F.F. (Eds.), *The Quaternary of the Solent Basin and West Sussex Raised Beaches. Field Guide* Quaternary Research Association, London, pp. 96–122.

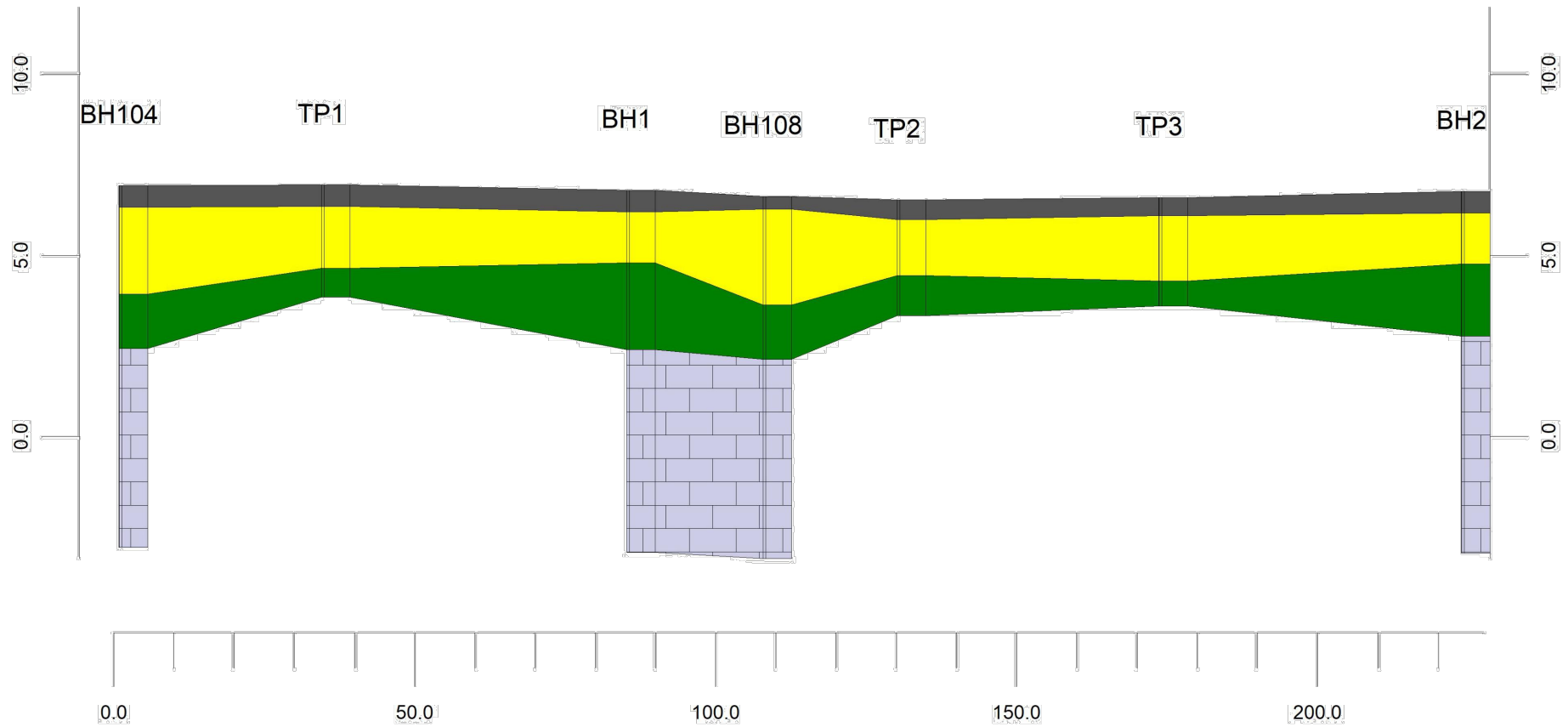
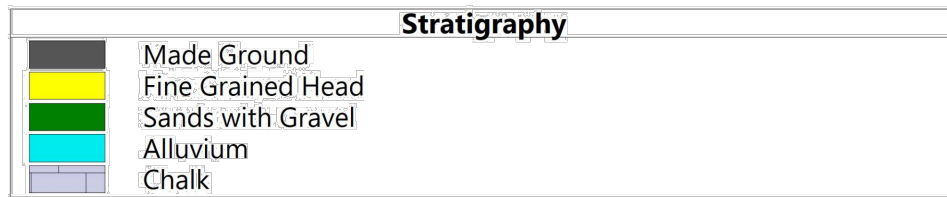
Woodcock A. 1981. The Lower and Middle Palaeolithic Periods in Sussex.

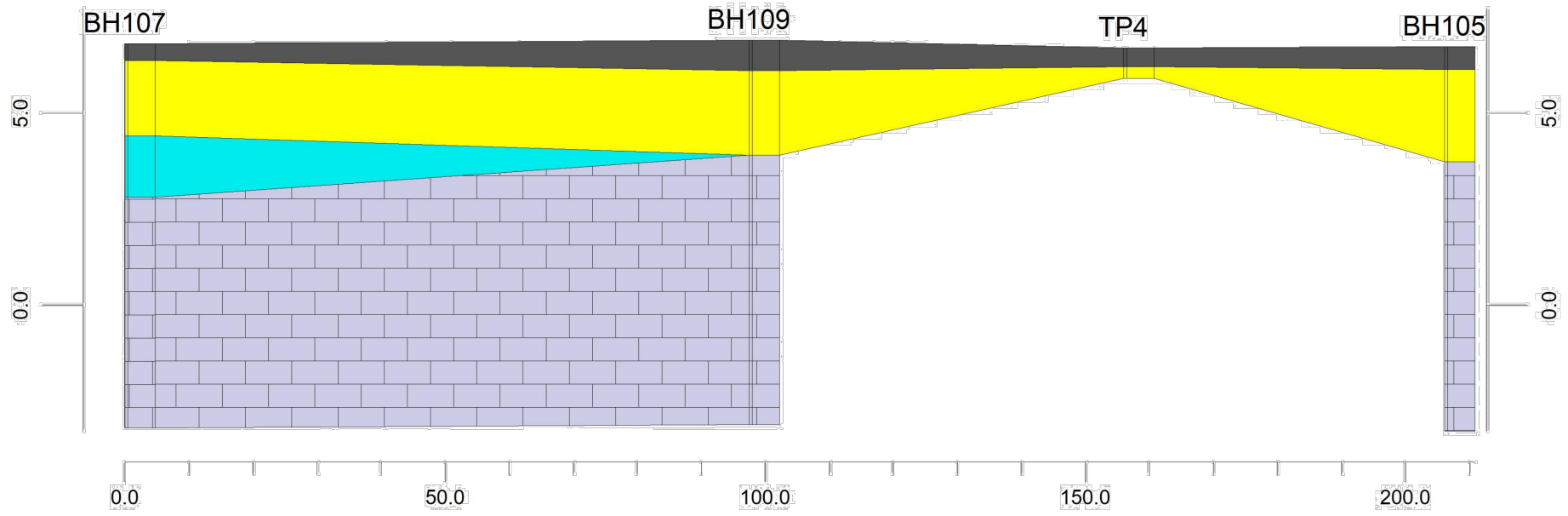
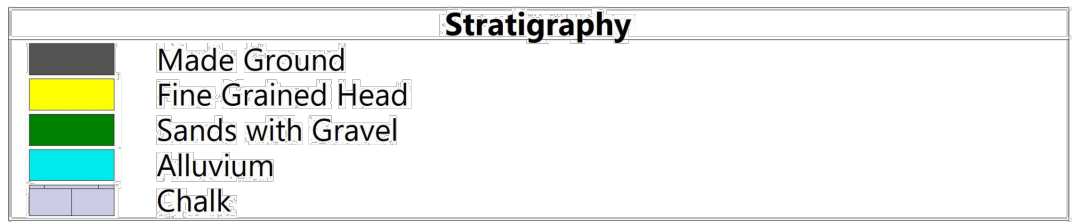


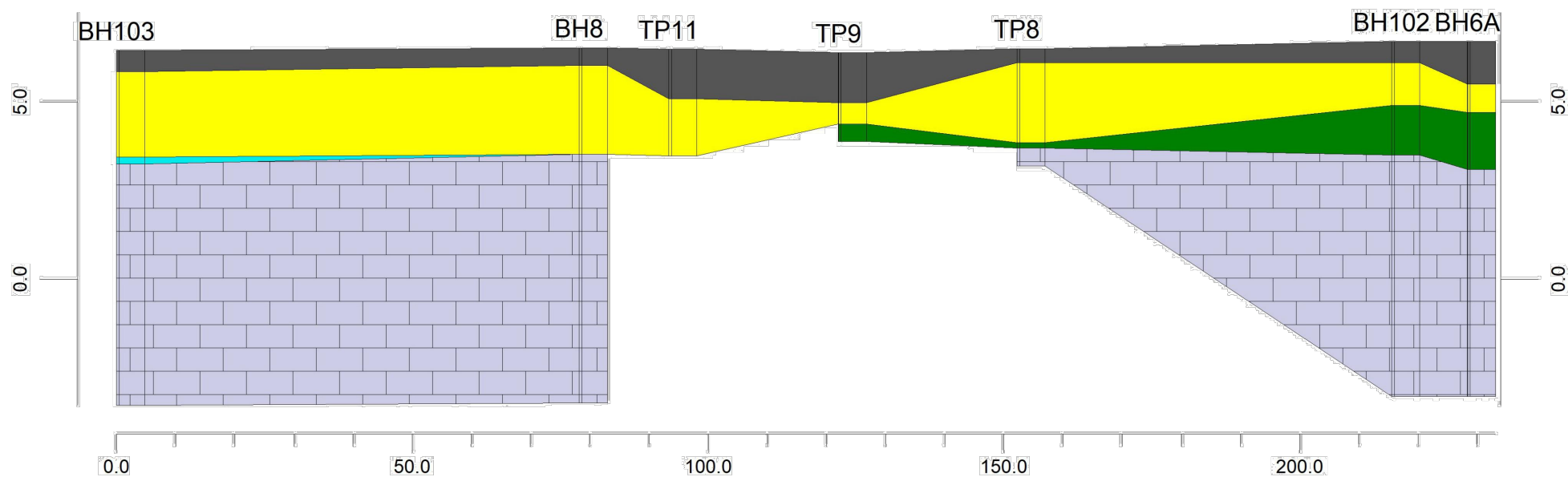
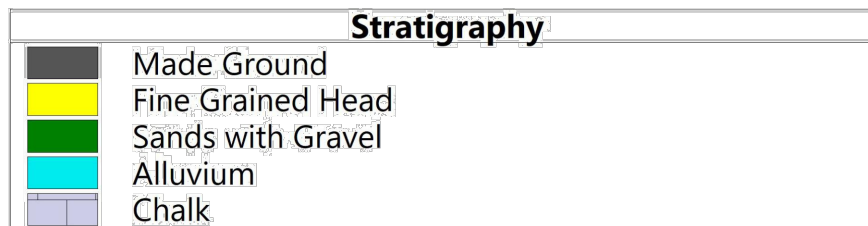
© Archaeology South-East		Ford Airfield	Fig. 1
Project Ref: 200155	April 2020	Site location	
Report Ref:	Drawn by: JR		



© Archaeology South-East		Ford Airfield, Ford, West Sussex	Fig. 2
Project Ref: 200155	April 2020	Site plan including geotechnical test pits and boreholes	
Report Ref: 2020090	Drawn by: JR		







Sussex Office

Units 1 & 2
2 Chapel Place
Portslade
East Sussex BN41 1DR
tel: +44(0)1273 426830
email: fau@ucl.ac.uk
www.archaeologyse.co.uk

Essex Office

27 Eastways
Witham
Essex
CM8 3YQ
tel: +44(0)1376 331470
email: fau@ucl.ac.uk
www.archaeologyse.co.uk

London Office

Centre for Applied Archaeology
UCL Institute of Archaeology
31-34 Gordon Square
London WC1H 0PY
tel: +44(0)20 7679 4778
email: fau@ucl.ac.uk
www.ucl.ac.uk/caa

