Highsted Park
Land West of Teynham, Kent

Geoarchaeological Desk Based Assessment and Deposit Model

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Summary

Wessex Archaeology was commissioned by Quinn Estates (the Client) to produce a Geoarchaeological Desk Based Assessment (GDBA) and deposit model to in advance of the proposed development at Highsted Park, land to the west of Teynham, Kent, centred on National Grid Reference (NGR) 593971, 163278.

This assessment has been prepared to inform a planning application submitted to Swale Borough Council for a proposed development which will comprise the construction of residential development, commercial areas, public open space and access.

The Site comprises an irregular parcel of land of approximately 98.82 ha, located to the north of Highsted Park and to the east of Sittingbourne, and including villages of Bapchild, Radfield, and Teynham. The Swale is located approximately 3.1 km north of the northern site boundary and a series of creeks that drain into the Swale are present immediately north of the Site.

The assessment and modelling have demonstrated that Pleistocene deposits occur within the Site that have significant Middle and Late Upper Palaeolithic archaeological and geoarchaeological potential. The Pleistocene deposits consist of Head-Brickearth, deposited through colluvial, aeolian and/or alluvial processes, and chalky Coombe deposits, formed through solifluction and/or fluvial processes. The Holocene deposits consist of alluvium with creeks draining into the Swale.

Immediately to the south of the Site, Head-Brickearth and Coombe deposits have previously produced significant Middle and Late Upper Palaeolithic archaeology (Dines 1929). A single Middle Palaeolithic Levallois flake was also recovered from Head-Brickearth to the west of the Site (ASE 2019). To the west of the Site, a mammalian assemblage comprising fossilised mammoth and woolly rhino remains has also been recovered from the Head-Brickearth.

Deposit modelling has been used to create a Geoarchaeological Landscape Characterisation (GLC) for the Site. This provides a framework for more precisely determining the archaeological and geoarchaeological potential of the Site at a scale which can most effectively inform future decision making, management, evaluation and mitigation of proposed impacts on the buried archaeological and geoarchaeological resource. The GLC divides the Site into four Geoarchaeological Characterisation Zones (GCZs), in which the archaeological and geoarchaeological potential of the superficial deposits has been assessed.

As the GLC has demonstrated that deposits with significant Palaeolithic archaeological and geoarchaeological potential are present within the Site, Palaeolithic archaeological and geoarchaeological field evaluation will be required. Recommendations and priority for targeted Palaeolithic archaeological and geoarchaeological evaluation works in each GCZ are provided.

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Highsted Park
Land to the West of Teynham, Kent

Geoarchaeological Desk Based Assessment and Deposit Model

1 INTRODUCTION

1.1 Project Background

1.1.1 Wessex Archaeology was commissioned by Quinn Estates ('the Client'), to produce a Geoarchaeological Desk Based Assessment (GDBA) and deposit model for land at Highsted Park, land to the west of Teynham, Kent (hereafter referred to as 'the Site'; **Figure 1**). This Site is centred on National Grid Reference (NGR) 593971, 163278 (TQ 93971 63278).

1.1.2 This assessment has been prepared to inform a planning application submitted to Swale Borough Council for a proposed development which will comprise the construction of residential development, commercial areas, public open space and access.

1.2 Location, topography and geology

1.2.1 The Site comprises an irregular parcel of land of approximately 98.82 ha, located to the west of Teynham and to the east of Sittingbourne.

1.2.2 The Site is currently under arable cultivation comprising areas of orchard, crop and woodland. The Site is bisected by Hempsted Lane and Lomas Road and includes Hempsted Farm. The western part of the Site is part of the Stones Farm development. The area of the Stones Farm development within the Site is to be retained as green space. To the north of this the Site crosses Lomas Road and extends north to join an existing roundabout at Great Easthill Way.

1.2.3 The northern part of the Site is bordered by the railway line, Lower Road and arable land. The southern extent of the Site lies adjacent to the A2 and connecting properties which front it. The western part of the Site is bordered by agricultural land and a housing development.

1.2.4 The Swale is located approximately 3.1 km to the north of the site boundary and a series of creeks exist immediately north of the Site around Tonge. The Site is low-lying, with the elevation ranging from 4.0 m OD to the north and rising to 17.0 m OD at the southern boundary adjacent to the A2.

1.2.5 Historical mapping records relatively few previous development impacts within the Site, except for the north-east of the Site where late nineteenth and early 20th century mapping records evidence of brickearth and small-scale chalk extraction (WA 2021).

1.2.6 The bedrock geology across the Site is mapped by the British Geological Survey (BGS) as chalk representative of the Seaford Chalk Formation, which formed approximately 84–90 MA during the Cretaceous period. Chalk bedrock is directly overlain by sand, silt and clay of the Thanet Formation, which formed in a shallow marine environment during the Palaeogene period (56–59 MA) (**Figure 2**).

1.2.7 Superficial deposits are recorded across the Site, comprising Pleistocene Head overlain by Holocene alluvium within a south bank tributary of the Swale which dissects the centre of the Site (**Figure 3**).

1.3 Scope of Document

1.3.1 The GDBA and deposit model produced for this study forms part of a staged approach to determine the potential impacts of the proposed development on the archaeological and geoarchaeological resource. The work follows on from an archaeological Desk Based Assessment (WA 2021) that forms part of the baseline for an Environmental Statement Chapter.

1.3.2 This GDBA and deposit modelling report outlines the sub-surface superficial deposits underlying the Site and provides an initial assessment of their archaeological and geoarchaeological potential. It provides a suitable baseline within which to inform the need for and scope of any subsequent intrusive archaeological and geoarchaeological evaluation works.

1.3.3 In format and content, this deposit model and GDBA conforms to current best practice, as well as to the guidance in *Deposit modelling and archaeology: guidance for mapping buried deposits* (HE 2020).

2 AIMS AND OBJECTIVES

2.1.1 The aims of geoarchaeological deposit modelling were to:

- Use available Ground Investigation (GI) data to characterise the principal superficial deposits underlying the Site;
- Assess the archaeological and geoarchaeological potential of the superficial deposits underlying the Site;
- Identify the extent of superficial deposits with archaeological and/or geoarchaeological potential, and
- Make suitable suggestions for further work at the Site, if appropriate.

2.1.2 These aims were addressed by achieving the following objectives:

- Collation of relevant geotechnical and geoarchaeological data;
- Production of a series of outputs to model the vertical and lateral extent of deposits across the Site;
- Interpretation of the sediments in their local and regional geoarchaeological context;
- Production of an initial Geoarchaeological Landscape Characterisation (GLC) for the Site, dividing it into different Geoarchaeological Characterisation Zones (GCZs) of varying sub-surface archaeological and geoarchaeological potential, and;
- Provision of recommendations for field evaluation, where appropriate.

3 ARCHAEOLGOICAL AND GEOARCHAEOLOGICAL BACKGROUND

3.1 Introduction

3.1.1 The archaeological and historical background to the Site was assessed in a prior Desk-based Assessment (WA 2021). The following section expands on this previous review and provides a summary of the known archaeological and geoarchaeological records for the Site and the surrounding landscape. This is focussed on information relevant to assessing the archaeological and geoarchaeological potential of Quaternary deposits that may be present within the Site.

3.1.2 Where age estimates are available for deposits these are expressed in millions of years (Ma), thousands of years (Ka) and within the Holocene epoch as either years Before Present (BP), Before Christ (BC) and Anno Domini (AD). Where radiocarbon dates and included, they are quoted as calibrated (cal.) BC or AD. These dates are supplemented where relevant with the comparable Marine Isotope Stages (MIS) where odd numbers indicate an interglacial period and even numbers a glacial period.

3.2 Previous Investigations

1920s (Dines 1929)

3.2.1 In 1927 Palaeolithic implements were identified from a gravelly deposit underlying brickearth in a pit located to the west of Haywood Farm, Bapchild (**Figure 4**). Following this discovery, a small chalk quarry had developed within a brick pit exposing sections through Head-Brickearth and underlying Chalky Coombe deposits from which hundreds of Palaeolithic artefacts were recovered.

3.2.2 Excavations were later undertaken in 1928 on either side of a dry valley which runs northeast between Bapchild and Tonge. To the west of this dry valley, large fresh and slightly abraded flint artefacts were extracted from Coombe deposits underlying up to 3.00m of Head-brickearth (**WA03;** see **Appendix 1**). The artefacts included material produced using the Levallois technique and were identified as Middle Palaeolithic. These Coombe deposits were constrained to the western side of the dry valley. Faunal material, including mammoth teeth, were also recovered from the Coombe deposits.

3.2.3 A second lithic assemblage (now considered to be Late Upper Palaeolithic – see below) was recovered from Head-Brickearth on the east side of the dry valley (**WA 04**; see **Appendix 1**). At the base of the Head-Brickearth, a deposit described as a 'gravelly wash' contained a third collection of Palaeolithic artefacts, also thought to be Upper Palaeolithic in date.

Palaeolithic test pitting evaluation at East Hall Farm (Oxford Archaeology 2011)

3.2.4 In 2011 Oxford Archaeology South undertook a Palaeolithic test pitting evaluation at East Hall Farm, which is located immediately north-west of the Site. A total of five test pits were excavated through a sequence comprised of Pleistocene gravels overlain by Head-brickearth. Head-brickearth in this area had previously undergone brickearth extraction, and in situ deposits were only identified in one test pit. No Palaeolithic artefacts were identified during this evaluation, however, five flakes identified as Mesolithic were extracted from the interface between the in situ Head-Brickearth and underlying gravel.

Geoarchaeological evaluation at Stones Farm (Archaeology South East 2019)

3.2.5 A geoarchaeological evaluation was undertaken in 2018 at Stones Farm. The evaluation area partially extended into the western section of the Site. A total of 35 geoarchaeological test pits were excavated. Based on the results of the evaluation, this site was divided into 5

geoarchaeological priority zones. Two areas in the northwest and south of this site were regarded as geoarchaeologically significant, with fine-grained Head-brickearth overlying geliflucted sediments (Coombe deposits) and coarse-grained fluvial sediments.

3.2.6 Some 24 lithic artefacts were recovered from Head-Brickearth, one of which was identified as a Middle Palaeolithic Levallois flake. The remaining artefacts comprised 18 flakes, a "blade-like flake", a piece of irregular "waste" and three "modified pieces"; these were considered to date from the Neolithic to Early Iron Age.

3.3 Geoarchaeological background

3.3.1 BGS mapping and previous investigations in the vicinity of the Site indicate that superficial sediments comprising Coombe deposits (potential including fluvial gravels), Head-Brickearth and alluvium may be present in the Site (**Figure 3**).

3.3.2 The absolute age of these superficial deposits is undetermined, however may include Late Middle Pleistocene (240–130 Ka) and/or Upper Pleistocene (130–11.7 Ka) sediments, as well as Holocene (11.7 Ka–present) deposits. The Pleistocene and Holocene epochs form the Quaternary, a period covering the last 2.6 Ma, and defined by repeated fluctuations between cold (glacial) and warm (interglacial) climate stages (**Table 1**).

Table 1 British Quaternary chronostratigraphy

Geological Period	Chronostratigraphy		Age (Ka)	Marine Isotope Stage (MIS)
Holocene	Holocene interglacial		11.7 – present	1
Late Pleistocene	Devensian Glaciation	Loch Lomond Stadial	11.7 – 12.9	2 – 5d
		Windermere Interstadial	12.9 – 15	
		Dimlington Stadial	15 – 26	
		Upton Warren Interstadial	40 – 43	
		Early Devensian	60 – 110	
	Ipswichian interglacial		115 – 130	5e
Middle Pleistocene		Unnamed cold stage	130-374	6
		Avery interglacial		7
		Unnamed cold stage		8
		Purfleet interglacial		9
		Unnamed cold stage		10
	Hoxnian interglacial		374 – 424	11
	Anglian glaciation		424 – 478	12
	Cromerian Complex		478 - 780	13 – 19

3.3.3 These Quaternary deposits and their geoarchaeological potential are outlined below.

Coombe deposits

3.3.4 The earliest Quaternary deposits likely to be present in the Site are basal Pleistocene deposits beneath Head-Brickearth found in the dry valleys which run through the Site. These basal sediments comprise fine-grained weathered chalk and flint gravels referred to as 'Coombe deposits' (Dines 1929).

3.3.5 Collectively, these sediments can be deposited downslope under (cold-climate) solifluction or fluvial processes. Equivalent deposits have been recorded at the base of the dry valley in the centre of the Site (BGS borehole: TQ96SW23), with 1.7 m of brown chalky clay, representing a Coombe deposit, overlain by 1.5m of sandy clay interpreted as Head-Brickearth. Coombe deposits within the immediate vicinity of the Site have been shown to contain Middle Palaeolithic archaeology and sporadic mammalian faunal remains (**WA03**; see below)

Head-Brickearth

3.3.6 Deposits interpreted as Head are widely mapped by the BGS across the Site and surrounding area (**Figure 3**). This is recorded within the dry valleys and capping interfluves between them.

3.3.7 Head can be formed by a range of depositional processes including aeolian, colluvial, alluvial and solifluction and may consist of material deposited during consecutive or more than one period. These deposits are generally considered to be Pleistocene, but deposits mapped as Head can contain Mesolithic archaeology, indicative of an early Holocene date.

3.3.8 Where present, fine-grained units in Head are often collectively referred to as 'Brickearth'. The chronological and sedimentological properties of brickearth remains uncertain, with deposits possibly containing multiple units suggesting various stages of deposition.

3.3.9 The geoarchaeological potential of Head-Brickearth is generally poorly understood, however, within the immediate vicinity of the Site it has been shown to contain Middle and Upper Palaeolithic as well as Mesolithic artefacts (Dines 1929, OA 2011, ASE 2019). This material can be reworked within colluvial deposits in the Head-Brickearth or include in situ material associated with stable horizons/landsurfaces. It is likely that at least some of the Upper Palaeolithic material from these deposits was in situ/minimally disturbed, forming a lithic scatter (**WA04;** see below).

3.3.10 Head-Brickearth sequences may also contain windblown (or aeolian) loessic sediments, including *Limons a Doublet* (or 'paired silts') which reflect periods of primary loess deposition, sandwiched between periods of stabilisation without loess being deposited. During the latter, clay translocation forms alternating clay silt horizons. *Limons a Doublet* are geoarchaeologically important as they demonstrate episodic fine grained aeolian deposition, whilst stabilisation horizons often associated with soil formation within such sequences have the potential to preserve horizons containing minimally disturbed archaeology.

3.3.11 Where calcareous deposits occur, Head-Brickearth can preserve mammalian and mollusc faunas with significant paleoenvironmental potential. Immediately to the west of the Site, at Bunce's Farm brick pit, Head-Brickearth deposits containing calcareous sediments have been recorded which, during the removal of the Head-Brickearth, produced mammoth and woolly rhino remains (**WA05;** see **Appendix 1**).

Alluvium

3.3.12 Alluvium described as clay, silt, sand, and gravel has been widely mapped within a south bank tributary of the Swale which bisects the Site to the west. Alluvium is a generalised term encompassing unconsolidated sediments transported by water in a non-marine environment (e.g. lakes and rivers). These deposits are likely Holocene in date. Such alluvial deposits can contain peat, suitable for palaeoenvironmental assessment (e.g. pollen, plant macrofossils) or radiocarbon dating. Minerogenic Holocene alluvium typically has a low palaeoenvironmental potential but can contain or mask archaeological features or layers.

3.4 Archaeological background

3.4.1 The archaeological and historical background to the Site was assessed in a prior Desk-based Assessment (WA 2021), which considered evidence from a 10 km Study Area. This section reviews evidence for archaeology associated with the sediments outlined in section 3.3. This material is Palaeolithic and Mesolithic in date. Findspots are illustrated in **Figure 4** and listed in **Appendix 1**.

Palaeolithic (970,000–10,700 kya)

3.4.2 The Site lies immediately north of areas where significant Palaeolithic archaeology has been documented. Quarrying has produced Palaeolithic archaeology from two sites located to the east and west of Haywood and southeast of Bapchild (**WA03** and **WA04**; **Figure 4**). These findspots were located on opposite sides of a dry valley

3.4.3 The earliest Palaeolithic assemblage comprised approximately 400 Middle Palaeolithic artefacts from Coombe deposits, collected during chalk extraction on the west side of the valley (**WA03**; Dines 1929). The assemblage included material produced using the Levallois technique, indicating a Middle Palaeolithic date. These artefacts were restricted to Coombe deposits 1.2 m to 3 m thick infilling channels and fissures in the chalk, sealed by up to 3.0 m of Head-Brickearth. Fauna, including mammoth remains, was also recovered from these Coombe deposits.

3.4.4 Although much of the material collected from this findspot has been lost, artefacts recovered by Williams, Mount, Jessup and Cook survive in several museums (Beccy Scott pers. comm.).

3.4.5 This assemblage from the solifluction deposits comprises Levallois flakes, cores, waste flakes, some flake tools and a handaxe roughout (Beccy Scott pers. comm.). Although fresh material is referred to by Dines (1929), the entire extant assemblage is both heavily abraded and edge damaged, many artefacts bearing “chatter marks” (incipient cones of percussion) on flaked surfaces, attesting to heavy battering during movement through fluvial or solifluction processes (Beccy Scott pers. comm.). This suggests that the assemblage includes material in secondary context, having been reworked from elsewhere within the matrix of the gravels.

3.4.6 The material recovered from Bapchild represents one of the largest undated Middle Palaeolithic Levallois assemblages from Britain. Levallois material is generally equated to the early Middle Palaeolithic (~337-190 kya), however, this conclusion is based largely on evidence from fluvial sequences, primarily in the Thames Valley. Establishing the age and more detailed contextual associations for the historic material from Bapchild may have important implications for understanding the Middle Palaeolithic settlement history of southeast England.

3.4.7 The second significant assemblage of Palaeolithic material to the south of the Site was recovered from the quarry on the eastern side of the same valley (**WA04**), from approximately 0.30m above the base of Head-brickearth deposits. The material is technologically Upper Palaeolithic in character, in fresh condition and patinated pale blue in colour, and includes blades, blade cores, endscrapers and burins (Beccy Scott pers. comm.). The industrial attribution of this material is, however, unclear. Two convex backed blades held in Maidstone Museum (Dines 1929, fig 7a and e) may indicate Federmesser affinities (Jacobi 1982); where dated, such industries generally occur around 10.7 Ka.

3.4.8 An additional third assemblage was collected from a "gravely wash" at the bottom of this sequence (Dines 1929) on the eastern side of the valley and described by Dines as "Late Levallois" (ibid, 16). This would suggest a Middle Palaeolithic date. However, the material is in fact similar to that from the overlying Head-brickearth and is Upper Palaeolithic in technological character (Beccy Scott pers. comm). Although technologically similar, the artefacts from the gravel are in a different condition to those from the overlying Head-Brickearth, being slightly abraded (Beccy Scott pers. comm.).

3.4.9 The recovery of mammoth and woolly rhino remains from an area of Head-Brickearth within Bunce's Farm brick field, Tonge, located to the west of the Site (**WA05**; **Figure 4**) indicate that fossiliferous Head-Brickearth are present in proximity to the Site. These deposits at Bunce's Farm brick field continue into the north-west part of the current Site. Faunal remains from Head-Brickearth are typically rare, however where documented, have the potential to recreate landscapes and environments associated with Middle and Upper Palaeolithic activity.

3.4.10 A Palaeolithic test pitting evaluation was recently undertaken at the western margin of the Site, during which a Middle Palaeolithic Levallois flake was recovered from a Head-Brickearth sequence (**WA08**; **Figure 4**). Two isolated finds comprising Palaeolithic handaxes were also recovered from Rodmersham in areas where Head-Brickearth is mapped (**WA01** and **WA02**; **Figure 4**). Although the specific context of these artefacts is unknown, they indicate the wider potential of areas where Head-Brickearth deposits are present across the Site.

3.4.11 Late Upper Palaeolithic flint long blade debitage was also found at West Ridge, approximately 1.6 km southwest of the Site (**WA06**; **Figure 4**).

Mesolithic (8500–4000 BC)

3.4.12 Artefacts dating to the Mesolithic are known from localities surrounding the Site (**WA07**, **WA09**–**WA011**; **Figure 4**).

3.4.13 A small number of Mesolithic flint artefacts have been identified at East Hall Farm, immediately north of the north-west section of the Site. This material was recovered at the interface between Head-Brickearth and the underlying gravels during a Palaeolithic test pitting evaluation (OA 2011).

3.4.14 Two Mesolithic axes, along with other lithic artefacts, are recorded on the HER from a "Shell mound" in the Bapchild area (**WA07**), whilst an early Mesolithic tranchet axe is recorded from Haywood to the south of the Site, and a Mesolithic pick from further to the south at Rodmersham (Wessex Archaeology and Jacobi 2014). The specific context of these pieces is undetermined but could have originated from within the Head-Brickearth sequence.

4 METHODOLOGY

4.1 Introduction

4.1.1 Deposit modelling has been used to create a Geoarchaeological Landscape Characterisation (GLC) for the Site. This provides a framework for more precisely determining the archaeological and geoarchaeological potential of the Site at a scale which can most effectively inform future decision making, management, evaluation and mitigation of proposed impacts on the buried archaeological and geoarchaeological resource.

4.1.2 The GLC divides the Site into five Geoarchaeological Characterisation Zones (GCZs), within which the archaeological and geoarchaeological potential of the superficial deposits has been assessed.

4.2 Deposit modelling

4.2.1 Deposit modelling was required to map the lateral extent and depth of superficial deposits across the Site, providing data for the subsequent GLC, following the guidance in *Deposit modelling and archaeology: guidance for mapping buried deposits* (HE 2020).

4.2.2 To create the deposit model for the Site, 70 deposit records were reviewed (**Figure 5**). These comprise GI data within the Site (28 records; Ecologia 2020) and GI, geoarchaeological, archaeological and BGS borehole from the surrounding area (42 records). Specifically, the model incorporates data collated and interpreted as part of a previous geoarchaeological deposit model and desk based assessment for a Site located immediately to the south of the current deposit modelling area (see **Figure 4**–**5**).

4.2.3 The different lithologies recorded in the deposit records were entered into industry standard software (Rockworks™ 17) and assigned to a stratigraphic unit.

4.2.4 The Rockworks data was utilised to illustrate the distribution/thickness of relevant stratigraphic units, and to produce representative transects of the subsurface topography beneath the Site.

4.3 Geoarchaeological Landscape Characterisation

4.3.1 The GLC works on the same principles as a Historic Landscape Characterisation (English Heritage 2004) and Landscape Character Assessment (Natural England 2014), however, in this case largely considers the shallow buried and outcropping superficial geological elements of the landscape.

4.3.2 The GLC involves breaking down the Site into defined zones called Geoarchaeological Character Zones (GCZs). The GCZs are based primarily on variation in superficial geological characteristics linked to an assessment of the archaeological and geoarchaeological potential of the deposits.

5 RESULTS

5.1 Stratigraphy

5.1.1 The stratigraphy encountered across the area of the deposit model is divided into seven main units, which are listed and described below:

- Thanet Formation (Palaeogene)

- Possible Head or Thanet Formation (Pleistocene/Palaeogene)
- Coombe deposits (Pleistocene):
  - Chalk gravel
  - Flint Gravel
- Head-Brickearth (Pleistocene)
- Alluvium (Holocene)
- Made Ground and modern soil profiles (Recent)
- Chalk (Cretaceous)

Solid geology

5.1.2 Generally, Quaternary deposits were underlain by Thanet Formation bedrock, which will in turn overlie Chalk. In the west of the Site, near Snipeshill, the Thanet Formation is largely absent and Quaternary sediments directly overly Chalk bedrock (e.g. in BH15A-2020; **Figure 9**).

Possible Head-Brickearth or Thanet Formation

5.1.3 Where the Thanet Formation is present in interventions across the Site, it is not always possible to distinguish bedrock from overlying Head-Brickearth sequences based on lithology in GI logs alone. This is typically the case where Head-Brickearth is described as clayey sands, characteristic of deposits of the Thanet Formation, or reworked material from the Thanet Formation. For the 14 interventions where sediments could not be distinguished, deposits have been assigned as Possible Head-Brickearth or Thanet Formation.

Coombe deposits

5.1.4 Two distinct gravels, both ascribed to Coombe deposits, were identified in GI, including chalky gravels and flint gravels. The depositional processes forming these deposits cannot be definitively established from lithological descriptions in GI logs; however, they likely include both soliflucted sediments deposited through seasonal-freeze thaw processes under periglacial conditions and fluvial sediments deposited through water flow. The flint gravels are described as consisting of sub-angular clasts, which is consistent with fluvial deposition.

5.1.5 Coombe deposits were generally recorded beneath Head-Brickearth. The single exception was in BHADD5-2020, where Head-Brickearth is absent, and the modern soil profile directly overlies Coombe deposits comprised of chalk gravel.

Head-Brickearth

5.1.6 Deposits characterised by silty sands and silty clays and interpreted as Head-Brickearth were recorded in 58 interventions across the Site. In some instances, these Head-Brickearth sequences included gravelly units. In BH100-2020, Head-Brickearth was recorded outcropping at the surface; however, in most instances Head-Brickearth was stratigraphically situated beneath made ground and modern soil profiles. The deposit ranged in thicknesses of between 0.1 m (GTP28) and 4.0 m (BHADD6-2020) with thicker units (3.0 to 4.0 m) observed in the west and relatively thinner deposits (<1.0 to 2.0 m) documented in the east of the Site (**Figure 6**).

Made ground/modern soil profile

5.1.7 Made ground was recorded in 13 interventions across the Site, and where present, generally lies at the surface. However, these deposits are occasionally situated beneath modern soil profiles (e.g. GTP14 and GTP28). Made ground ranges in thicknesses of between 0.1 and 2.0 m.

5.1.8 In a total of 56 interventions, a modern soil profile was recorded at shallow depths with a maximum thickness of 0.6 m.

5.2 Deposit modelling

5.2.1 The deposit modelling comprised a series of modelled outputs, including three distribution/thickness maps and LIDAR data (**Figures 6–7**) and three transects (**Figures 8–10**).

5.2.2 The distribution/thickness maps show the location and thickness of key stratigraphic units identified in the GI data, whilst the associated LIDAR data demonstrates the relationship between major topographic features.

5.2.3 The transects are composed of two-dimensional vertical visualisations of the stratigraphic records, along lines drawn through interventions with and surrounding the Site. These transects model the possible make-up of the deposits between these individual deposit records, drawn as horizontal lines between the upper and lower surfaces of the stratigraphic units.

5.2.4 Data coverage within the Site is patchy (see **Figure 5**) and, in some cases, very sparse. However, the data is considered sufficient to provide a baseline assessment of the distribution of Quaternary deposits within the Site.

LIDAR (Figure 5)

5.2.5 The LIDAR data for the Site demonstrates that the topography is dominated by two major south-to-north orientated valley systems, one located in the west of the Site and the other running through the centre of the Site. That running through the centre is same valley which to the south, to the east and west of Haywood, contained deposits preserving Middle and Upper Palaeolithic archaeology (**WA03** and **WA04**; see **Figure 4**).

Distribution/thickness of Coombe deposits – chalk and flint gravel (Figure 6)

5.2.6 These gravels collectively form Coombe deposits. Their distribution in the GI interventions demonstrates that they were encountered in areas within and on the margins of the dry valley running through the centre of the Site.

5.2.7 The chalk gravels were primarily recorded in the east of the Site, along the valley edge, whereas flint gravels were predominantly identified to the central section of the Site, in the base of this dry valley (e.g. TP10Bapchild-2020).

5.2.8 South of the Site, this dry valley produced Middle Palaeolithic archaeology from the Coombe deposits (**WA03**; Dines 1929). The gravels within and on the margins of this valley within Site are likely to be part of the northward continuation of these same Coombe deposits.

Distribution/thickness of Head-Brickearth (Figure 7)

5.2.9 GI data coverage is sufficient to broadly characterise the distribution/thickness of Head-Brickearth across the Site.

5.2.10 Head-brickearth deposits are widely present across the Site, with the exception of the north-west where it is absent in several interventions. This is high ground above the dry valley systems, where Thanet Formation bedrock is typically overlain by either made ground and modern soil profiles.

5.2.11 The thickness of Head-Brickearth varies across the Site. Within the base of the two dry valley systems up to 4.0 m of Head-Brickearth has been recorded, whilst on the interfluves thinner sequences occur, typically between <1.0 and 2.0 m thick.

Transect 1 (Figure 8)

5.2.12 Transect 1 is a west to east orientated transect that traverses the Site. Head-Brickearth sequences are recorded within and on the interfluves above the two dry valleys systems. In the eastern valley Coombe deposits are recorded. The Coombe deposits and Head/Brickearth in this valley are the continuation of deposits within the same valley south of the Site that have produced Middle and Upper Palaeolithic archaeology (**WA03** and **WA04**; see **Figure 4**). Coombe deposits are not recorded in the western part of the Site, however the limited number of datapoints means that no firm conclusions can currently be drawn from this.

5.2.13 The eastern part of the transect is in an area of late 19th and early 20th century brickearth extraction, the edges of the deepest workings evident on LIDAR images. Historic mapping also records some chalk extraction in these pits. The data demonstrates that, although some of the Head-Brickearth may have been removed from the areas surrounding these deepest areas of extraction, at least the lower parts of the Head-brickearth sequence and the underlying Coombe deposits are still extant. Unfortunately no data points are available for the areas of deepest extraction shown on the LIDAR data, and the extent of survival of Quaternary deposits in these areas is unknown.

Transect 2 (Figure 9)

5.2.14 Transect 2 is a south-west to north-east cross section through deposits within the dry valley in the centre and east of the Site. It demonstrates that extensive Head-Brickearth deposits are present in this valley (>2.0 m deep), and further demonstrates that although brickearth and chalk extraction has impacted on Quaternary deposits in the east of the Site, the lower part of the Head-Brickearth and underlying Coombe deposits are still extant in this area.

Transect 3 (Figure 10)

5.2.15 Transect 3 is a west to east cross section through the dry valley in the west of the Site. It demonstrates that on high ground west of the valley Quaternary deposits are shallow or absent, with Thanet Formation bedrock outcropping close to the surface. Within the valley, and along its eastern margins, sequences of Head more than 2.0 m thick occur.

5.3 Geoarchaeological Landscape Characterisation

5.3.1 Based on the deposit modelling, the Site has been divided into five Geoarchaeological Character Zones (**Figure 11**). These zones are summarised in **Table 2** and discussed below.

Table 2 Geoarchaeological Character Zones (GCZs)

Geoarchaeological Character Zone	Principal Quaternary deposits
1	Head-Brickearth
	Coombe deposits

2	Head-Brickearth
	Coombe deposits
3a	Unknown
3b	Unknown
4	Head-Brickearth
5	Possible Head-Brickearth

GCZ 1

5.3.2 GCZ 1 is defined by the dry valley system running through the centre of the Site. Although data coverage is relatively sparse, the available GI demonstrates up to 1.5 m of Coombe deposits overlain by Head-Brickearth with some sequences extending to 4.0 m in thickness. The Coombe deposits and Head-Brickearth in this zone are the northern continuation of deposits that in the area south of the Site produced Middle and Upper Palaeolithic archaeology (**WA03** and **WA04**; see **Figure 4**).

GCZ 2

5.3.3 This zone forms the interfluve east of the dry valley in GCZ 1. Deposits in this zone may have been impacted on by late 19th and early 20th century brickearth extraction. However, GI records Coombe deposits, which range up to 1.5 m in thickness, overlain by up to 2.0 m of Head deposits.

GCZ 3a and 3b

5.3.4 GCZ 3a and 3b are defined by quarry edges visible on LIDAR data. No GI is available for these areas, and it is unclear whether any Quaternary deposits survive in these zones. As historic mapping records chalk extraction here (WA 2021), it may be that no Quaternary deposits are present.

GCZ 4

5.3.5 The dry valley running through the western part of the Site defines this zone. Data coverage within the valley is relatively limited, however the few GI records available demonstrate Head-Brickearth deposits of up to 3.0 to 4.0 m in thickness (e.g. BH14A-2020, GTP36). The thickest Head-brickearth sequences occur within the base of the valley and along its eastern margin. Towards the north-west section of this zone, high ground representing the valley edge reaches up to 15.5 m OD (e.g. GTP16). In this area, GI records show Thanet Formation bedrock overlain by made ground.

5.3.6 In contrast to the valley in GCZ 1, no Coombe deposits are recorded in this zone. Although data coverage is not sufficient to establish absence of these deposits with certainty, the data suggests that phases of deposition, and potentially the age of the deposits, in these two valleys may differ.

GCZ 5

5.3.7 No GI interventions are available for GCZ 5 and therefore the Quaternary stratigraphy of this zone is currently unknown. However, Head-Brickearth sediments are known from Bunce's Farm brick pit, located immediately to west of this zone, which produced mammoth and woolly rhino remains (**WA05;** see **Figure 4**). Consequently, Head-brickearth may occur in GCZ 5**.**

5.3.8 Palaeolithic evaluation carried out in the area north of the zone during 2011 at East Hall Farm (OA 2011) identified both in situ Head-Brickearth and material disturbed and

redeposited through brickearth extraction. It is possible therefore that Head-Brickearth in GCZ 5 may have been previously impacted on; however, the extent of brickearth extraction and the depth of its impacts in this area is currently uncertain.

6 ASSESSMENT OF PALAEOLITHIC ARCHAEOLOGICAL AND GEOARCHAEOLOGICAL POTENTIAL

6.1 Introduction

6.1.1 Examination of GI logs, BGS mapping and previous archaeological and geoarchaeological reports has revealed the presence of Quaternary deposits across the Site. These units may have archaeological and/or paleoenvironmental potential. This potential has been assessed for each deposit in each GCZ.

6.1.2 Such assessments consist of consideration of the potential of Pleistocene deposits to preserve archaeology and preserve palaeoenvironmental and dating evidence. A '*potential*' rating has been assigned to each set of deposits representing a measure of probability. This has been determined via the application of professional judgement, informed by the evidence from the site itself and equivalent deposits in the surrounding study area. '*Potential'* is expressed on a four-point scale, assigned in accordance with the following criteria:

- **High** Situations where evidence is known or strongly suspected to be present.
- **Moderate** Includes cases where there are grounds for believing that evidence may be present, but for which conclusive evidence is not currently available.
- **Low** Circumstances where the available information indicates that evidence is unlikely to be present.
- **Unknown** Cases where currently available information does not provide sufficient evidence on which to provide an informed assessment with regard to the potential for material to be present.

6.1.3 The relative '*Significance'* of known and potential archaeological assets has also been assessed. This has been determined in accordance with the criteria set out in **Table 4.** These criteria are related to national (EH 2008) and regional (SERF 2019) research themes and priorities.

Table 3 Generic schema for classifying the significance of archaeological assets (based on HE 2015)

Significance	Categories
Very High	World Heritage Sites (including nominated sites) Assets of recognised international importance Assets that contribute to international research objectives
High	Scheduled Monuments Non-designated assets of national importance Assets that contribute to national research agendas
Moderate	Assets that contribute to regional research objectives

Significance	Categories
Low	Assets compromised by poor preservation and/or poor contextual associations Assets with importance to local interest groups
Negligible	Little or no archaeological or geoarchaeological interest
Unknown	The importance of the asset has not been ascertained from available evidence

6.2 Areas of archaeological and geoarchaeological potential

6.2.1 The archaeological and geoarchaeological potential of the deposits in each GCZ is summarised in **Table 4**.

Table 4 Geoarchaeological Landscape Characterisation Framework for the Site

GCZ	Principal Quaternary deposits present	Archaeological potential of deposits	Paleoenvironmental and dating potential of deposits	Archaeological and geoarchaeological significance
1	Coombe deposits Head-Brickearth	Moderate-High Moderate-High	Moderate Moderate	Moderate-High Moderate-High
2	Coombe deposits Head-Brickearth	Moderate Moderate	Moderate Moderate	Moderate-High Moderate-High
3a	Unknown	Possibly low	Possibly low	Unknown
3b	Unknown	Possibly low	Possibly low	Unknown
4	Head-Brickearth	Unknown	Unknown (palaeoenvironmental) Moderate (dating)	Unknown
5	Possible Head-Brickearth	Moderate	Moderate-High	Moderate-High

GCZ 1

6.2.2 Coombe deposits and Head-Brickearth are present in this zone. These deposits are broadly equivalent with those located south of the Site which have produced Middle and Upper Palaeolithic archaeology (**WA03** and **WA04**; see **Figure 4**).

6.2.3 The Middle Palaeolithic archaeology was recovered from the Coombe deposits. The specific age of this archaeology is uncertain as is the depositional context. The condition of extant material in museum collections suggests some reworking (Beccy Scott pers com.), however fresh, potentially less disturbed material is described in publications (e.g. Dines 1929). These artefacts represent one of the largest, but poorly understood, Middle Palaeolithic artefacts collections from Britain, and better understanding of this archaeology may have significant implications for regional and national Palaeolithic settlement history. Based on the associations between the Coombe deposits in this zone with broadly equivalent deposits located to the south containing this Middle Palaeolithic archaeology, their archaeological potential has been assessed as moderate to high.

6.2.4 The Coombe deposits also produced mammalian faunal material and being calcareous, could also preserve molluscs. These deposits may contain material suitable for Amino Acid Racemisation (AAR) dating (molluscs) and sediments suitable for luminescence dating. As

a result, the paleoenvironmental and dating potential of the Coombe deposits in GCZ 1 has been classed as moderate to high.

6.2.5 Archaeological and geoarchaeological material from these Coombe deposits may contribute to regional and/or national Palaeolithic research agendas. The significance has therefore been assessed as moderate to high.

6.2.6 Similarly, Head-Brickearth deposits in the zone are a continuation of those which south of the Site are known to contain archaeology, in this case of Upper Palaeolithic date. This includes fresh artefacts which occurred in a discrete concentration, suggestive of a lithics scatter. Consequently the archaeological potential of the Head-brickearth in this zone has been assessed as moderate to high.

6.2.7 The specific palaeoenvironmental potential of these deposits is currently uncertain, however, Head-Brickearth in these areas has produced molluscs, whilst the sediments themselves are suitable for luminescence dating. The palaeoenvironmental and dating potential has therefore ben defined as high.

6.2.8 Upper Palaeolithic archaeology, such as that from the area south of this zone, has the potential to contribute to regional and, possibly national, Palaeolithic research themes and agendas. Consequently, the significance on any archaeology from the Head-Brickearth in GCZ 1 may be moderate to high.

GCZ 2

6.2.9 GCZ 2 forms an interfluve adjacent to the valley in GCZ 1. The same range of deposits are present in both zones, and the deposits in GCZ 2 have been assessed as having potential for the same range of archaeology and geoarchaeological evidence. Based on this the archaeological, palaeoenvironmental and dating potential of the deposits in this zone has been assessed as moderate.

GCZ 3a and 3b

6.2.10 GCZ 3a and 3b have been impacted on by previous brickearth and chalk extraction, which may have removed all Quaternary sediments. However, no data is available from these zones, which means that the extent of survival of Quaternary deposits is uncertain. Based on current knowledge, the archaeological, paleoenvironmental and dating potential has been defined as Possibly Low.

GCZ 4

6.2.11 Head-brickearth deposits are present in the dry valley in this zone. These deposits are separate from those with Palaeolithic archaeological and geoarchaeological potential to the east in GCZ 1, whilst the relationship between these deposits and those to west at Bunce's Farm brick pit that have produced Pleistocene mammalian fauna is uncertain. Furthermore, they are undated. Consequently, there is no available information with which to accurately assess the archaeological and paleoenvironmental potential of the Head-Brickearth in this valley and this zone. The deposits would be suitable for luminescence dating.

GCZ 5

6.2.12 No GI data is available for GCZ 4 and thus the sequence of Quaternary deposits and their archaeological and geoarchaeological potential is unknown.

6.2.13 Immediately west of the Site at Bunce's Farm brick pit, a Head-Brickearth sequence containing calcareous sediments also produced mammoth and woolly rhino remains

(**WA05**; see **Figure 4**). This suggests that GCZ 4 may contain Head-Brickearth deposits with archaeological and geoarchaeological potential.

6.3 Research themes and context

6.3.1 The Quaternary sediments present in the Site have been identified to principally have Palaeolithic archaeological and geoarchaeological potential. The deposits present could contain material which could contribute to the following national and regional Palaeolithic research themes and priorities:

Research and Conservation Framework for the British Palaeolithic (EH 2008)

1. Hominin Environments and Climate Drivers:

- 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?
- What were the specific environmental and climatic tolerances of hominins in Britain?
- How did hominin subsistence, technical and social strategies respond to climate change over the long-term?

2. Hominin Demographies: the Palaeoecology of Hominin Colonisation and Settlement Processes:

- How did Pleistocene faunal communities change over time, and what was the pattern of human interaction with and impact on these?
- Did a significant population crash occur over Lower Palaeolithic/Middle Pleistocene time?
- What were the biological relationships between British Pleistocene populations and those of neighbouring regions?

3. How We Became Human: Social, Cultural and Economic Change:

- What technical innovations can be observed within the British Middle Palaeolithic?
- Why were the Neanderthals so successful for so long in British latitudes? What particular challenges and opportunities did they face in dealing with the British landscape and climate?
- How do we compare enclosed (cave and rockshelter) and open-site archaeology in terms of settlement systems?
- How closely were British Magdalenian populations culturally connected to those of the Continent?

South-East Region Research Framework: Early Palaeolithic (SERF 2019)

Colluvial/solifluction/aeolian deposits

- Identification of areas of colluvial/solifluction deposits that may contain undisturbed or minimally disturbed concentrations of Palaeolithic remains;
- 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.

7 CONCLUDIONS AND RECOMMENDATIONS

7.1 Conclusions

7.1.1 Through deposit modelling, the GDBA has characterised Quaternary deposits across the Site, and assessed their lateral and horizontal extent. The Site has been divided into five Geoarchaeological Character Zones (GCZs), within which the archaeological, paleoenvironmental and dating potential of these deposits has been assessed, and the significance of any archaeological and geoarchaeological evidence that they may contain has been considered in relation to national and regional research themes and priorities (EH 2008; SERF 2019).

7.1.2 Quaternary deposits have been identified within two valley systems running through the Site, as well as on the interfluves above these valleys. Pleistocene deposits with Palaeolithic archaeological and geoarchaeological potential have been identified in two zones (GCZ 1 and GCZ 2) that include the continuation of Coombe deposits and Head-Brickearth that to south of the Site have produced regionally and nationally significant Middle and Upper Palaoelithic archaeology, along with sporadic paleoenvironmental finds (Dines 1929).

7.1.3 A separate sequence of Head-Brickearth was identified in a third zone (GCZ 3), the archaeological and geoarchaeological potential of which is uncertain. No data is currently available to establish the Quaternary stratigraphy in the remaining two zones. However one (GCZ 5) is situated adjacent to an area where Pleistocene faunal material was recovered during brickearth extraction; this brickearth extraction may have impacted on Quaternary deposits in this zone.

7.1.4 The final zone is defined by areas on historic mapping and LIDAR data as associated with previous brickearth and chalk extraction (GCZ 3a and 3b), which may have entirely removed any Quaternary sediments, although the lack of data points in these areas means that there is some uncertainty about the extent of survival.

7.2 Recommendations

7.2.1 As Quaternary deposits with the potential to preserve significant Palaeolithic archaeological and geoarchaeological material occur within the Site, and there is uncertainty regarding the potential of deposits in other areas, field evaluation will be required.

7.2.2 As the Quaternary deposits occur at depths of up to 4.0 m bgl, the most appropriate and effective means of evaluating these deposits is through a program of archaeological and geoarchaeological test pitting, including specialist Palaeolithic assessment. Based on the results of this assessment, consideration has been given to the differing order of priority for evaluation in the GCZs (**Table 5**).

Table 5 Priority for archaeological and geoarchaeological evaluation

GCZ	Principal Quaternary deposits	Priority for evaluation
1	Coombe deposits Head Brickearth	**High** **High**
2	Coombe deposits Head Brickearth	**High** **High**
3a	Unknown	Low
3b	Unknown	Low
4	Head Brickearth	Moderate
6	Possible Head-Brickearth	Moderate

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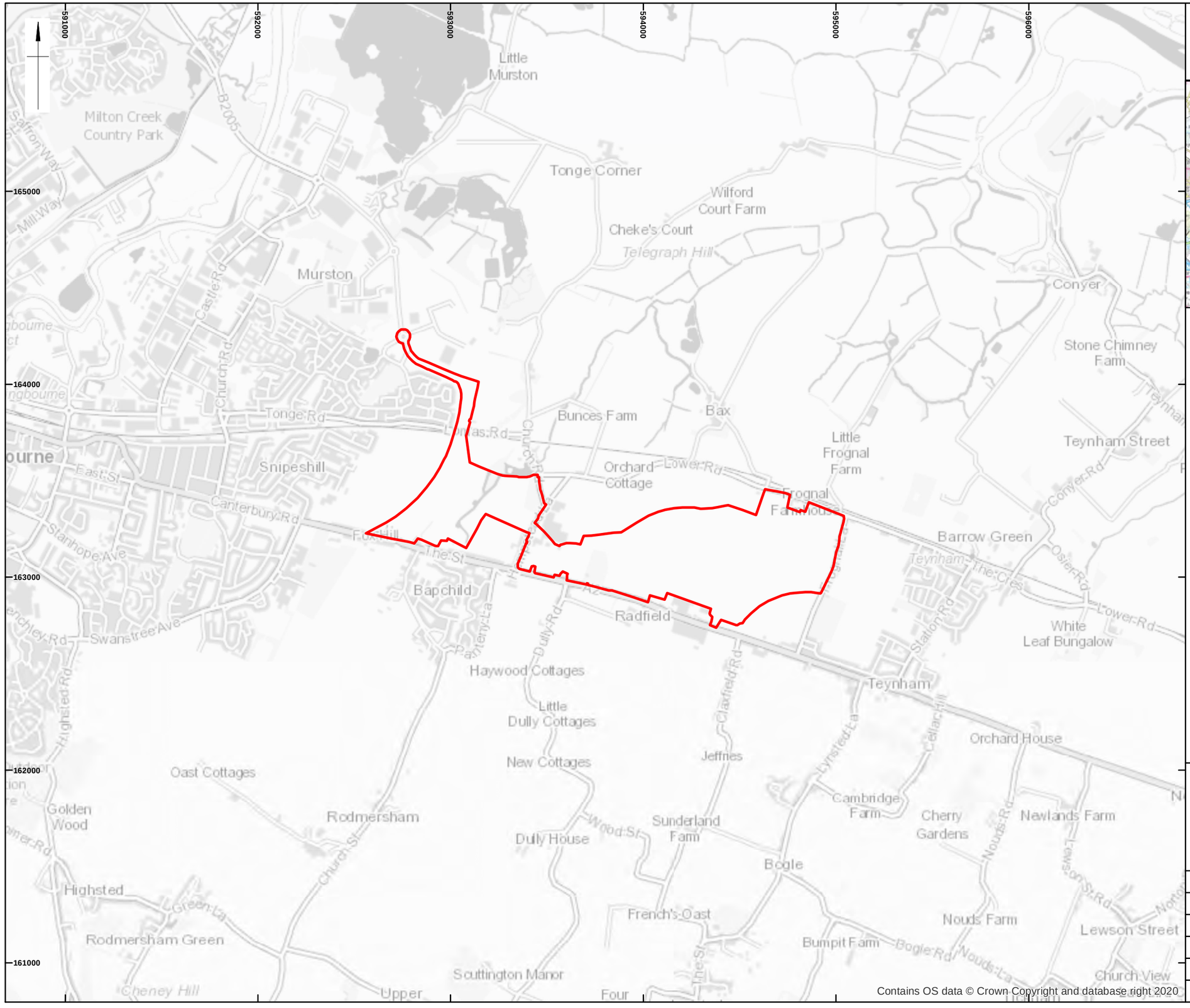
Appendix 1: Palaeolithic and Mesolithic Gazetteer

WA.no	MonUID	Record Type	PrefRef	Name	MonType	Period	Easting	Northing
WA01	MWX20852	FS	TQ 96 SW 225	Rodmersham area, Palaeolithic handaxe find of unknown provenance	FINDSPOT	Lower Palaeolithic to Middle Palaeolithic	592500	161500
WA02	MWX20853	FS	TQ 96 SW 226	Rodmersham Green, Palaeolithic handaxe find near College Wood	FINDSPOT	Lower Palaeolithic to Middle Palaeolithic	591500	161300
WA03	MWX20958	MON	TQ 96 SW 228	Middle Palaoelithic lithics from Coombe deposits under brickearth, pit west of Haywood, Bapchild	FINDSPOT	Middle Palaeolithic	593215	162510
WA04	MWX20952	MON	TQ 96 SW 227	Upper Palaeolithic lithics from brickearth at Bapchild - pit east of Haywood	FINDSPOT	Upper Palaeolithic	593800	162410
WA05	MKE91549	PFS	TQ 96 SW 1249	Bunce's Farm brick field, Tonge, Sittingbourne: mammoth and woolly rhino bones	FINDSPOT	Palaeolithic	592880	163900
WA06	MKE91553	FS	TQ 86 SE 305	Sittingbourne, 6 West Ridge - surface find of flint Long Blade debitage (final Upper Palaeolithic)	FINDSPOT	Upper Palaeolithic	589953	163020
WA07	MKE3615	MON	TQ 96 SW 38	Mesolithic and Neolithic material	SHELL MIDDEN; SHELL MIDDEN	Early Mesolithic to Late Neolithic	593000	163000
WA08	N/A	N/A	N/A	Levallois flake from Head-Brickearth	FINDSPOT	Middle Palaeolithic	592657	163725
WA09	MKE97507	MON	TQ 86 SE 224	Prehistoric features and flints	PIT?	Early Mesolithic to Late Neolithic	589953	161869
WA10	MKE78713	FS	TQ 96 SW 259	Flint core, Vincent Road	FINDSPOT	Early Mesolithic to Late Neolithic	592191	163383
WA11	MKE3643	FS	TQ 96 SW 68	Mesolithic pick	FINDSPOT	Mesolithic	592000	162000
WA12	MWX17240	FS	TQ 96 NW 1000	Palaeolithic flint artefacts, surface finds from Tonge Hill, Murston	FINDSPOT	Lower Palaeolithic to Middle Palaeolithic	593500	165000

WA13	MKE91550	PFS	TQ 96 SW 150	Murston, "near engine house": discovery of mollusc-bearing deposits with numerous large-mammal fossils	FINDSPOT	Palaeolithic	592880	164790
WA14	MKE20486	MON	TQ 96 SW 221	Residual Mesolithic and early Neolithic activity from East Hall Wood, Sittingbourne	FINDSPOT	Mesolithic to Neolithic	592630	164790
WA15	MKE80582	FS	TQ 96 SW 276	Mesolithic and Neolithic flints, East Hall Farm	FINDSPOT	Mesolithic to Neolithic	592891	163976



Coordinate system: OSGB36

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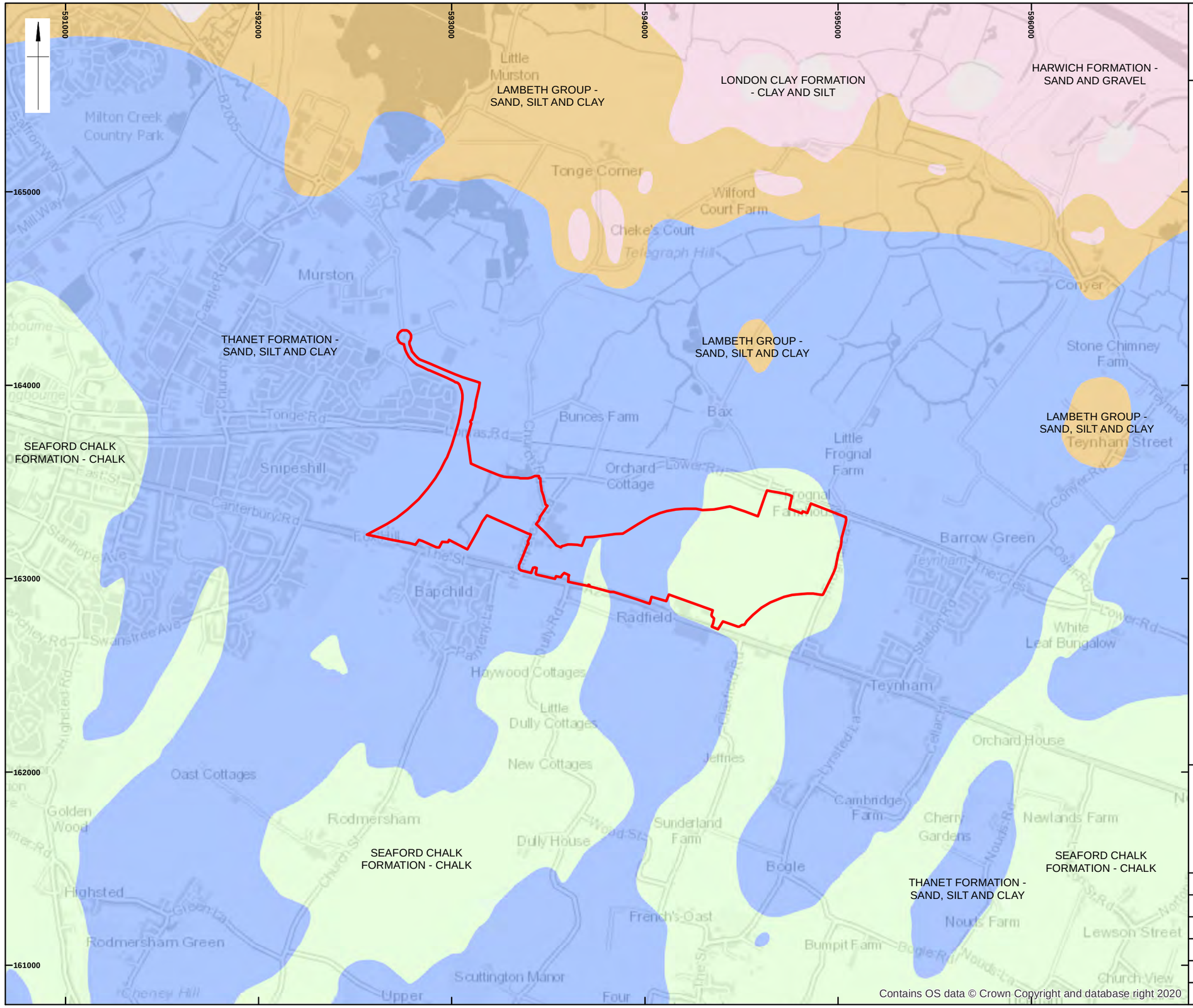
Revision Number:	0
Scale:	1:20,000 at A3
Illustrator:	AW
Path:	X:\Projects\232022\GIS\
	FigsMXD\2022_03_01

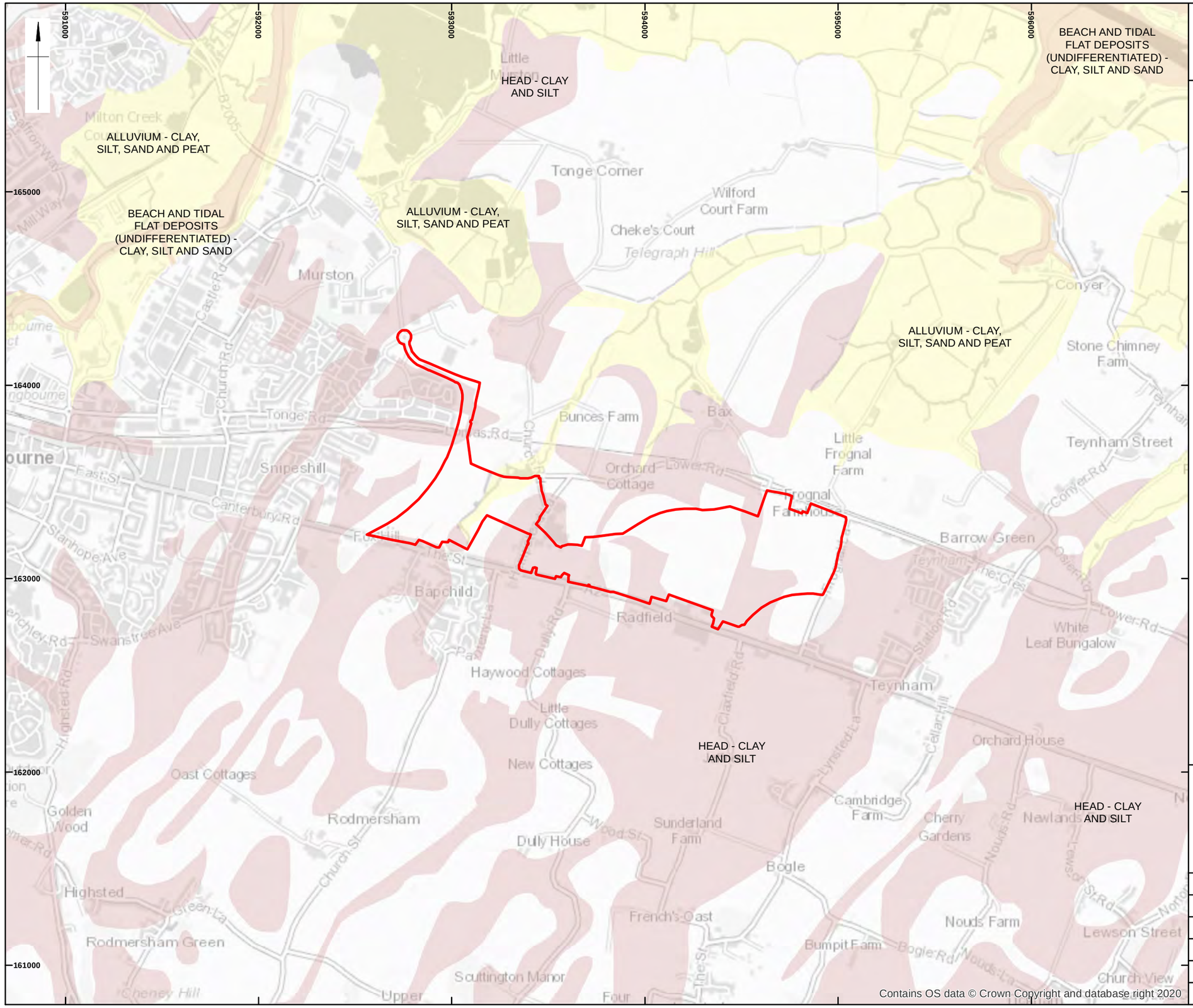
Site location and plan

Figure 1



Site plan and underlying solid geology mapped by the BGS

Figure 2



Site Boundary

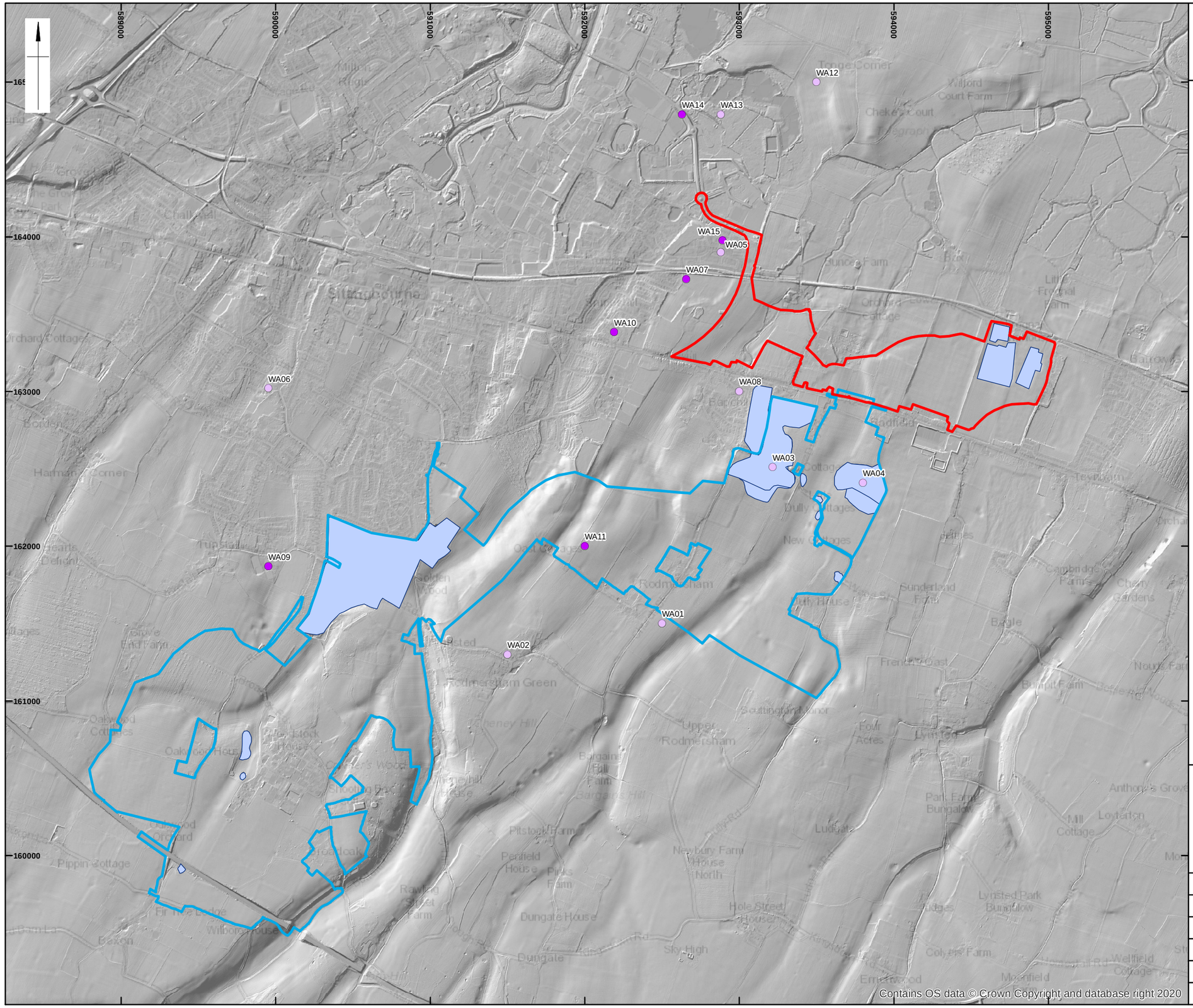
0 1,000 m

Coordinate system: OSGB36

Date:	01/03/2022
Revision Number:	0
Scale:	1:20,000 at A3
Illustrator:	AW
Path:	X:\Projects\232022\GIS\FigsMXD\2022_03_01

Site plan and underlying superficial geology mapped by the BGS

Figure 3



Site Boundary

Southern Site Boundary

Findspots

Mesolithic

Palaeolithic

Areas of brickearth extraction identifiable on LIDAR

Hillshade (m)

High : 0.997818

Low : -0.670604

0 1,000 m

Coordinate system: OSGB36

Date:	17/03/2022
Revision Number:	0
Scale:	1:25,000 at A3
Illustrator:	AW
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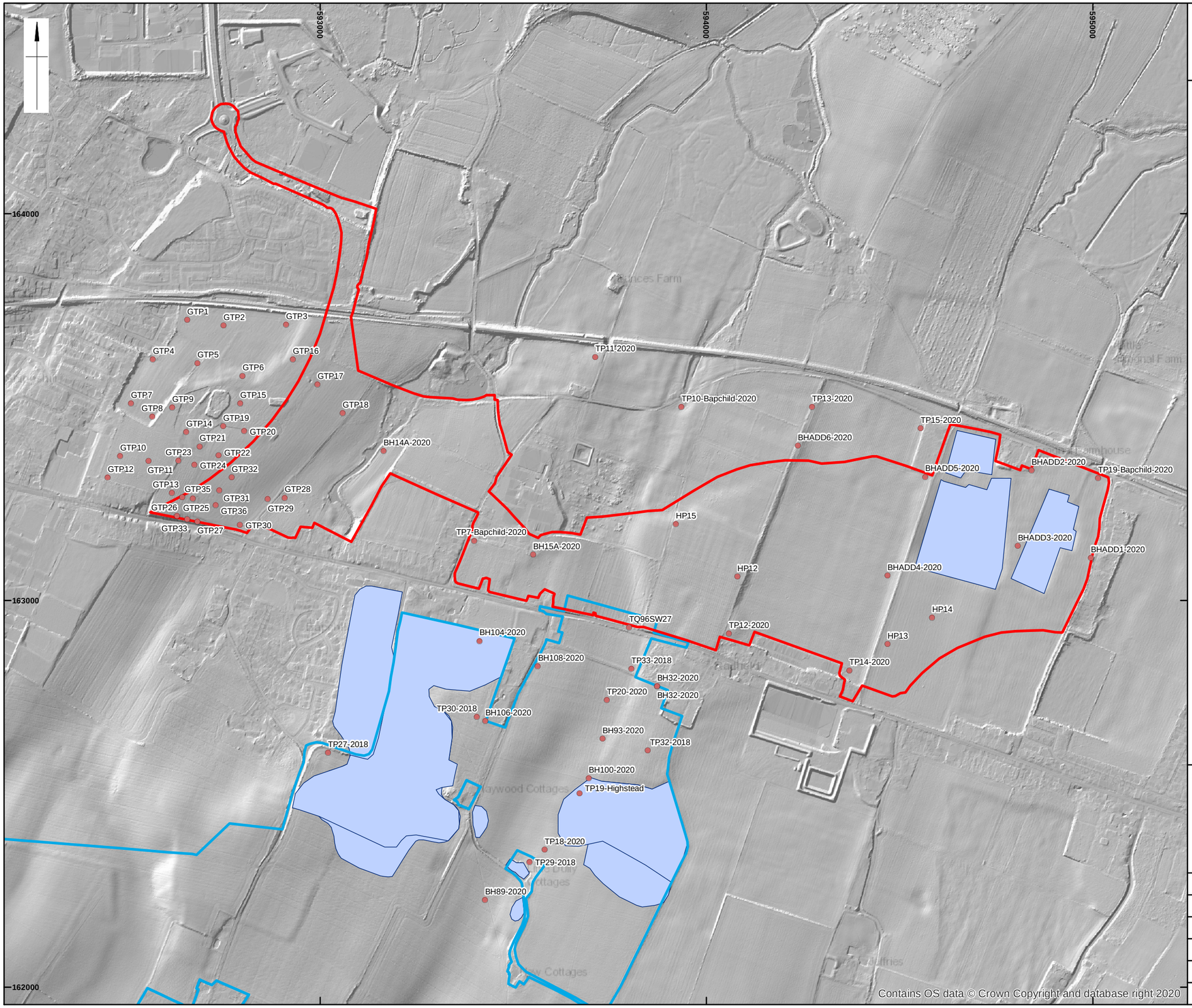
Palaeolithic and Mesolithic findspots recorded on Historic Environment Record (HER) within 1 km radius of the Site

Figure 4



Site Boundary

Southern Site Boundary

GI Locations

Areas of brickearth extraction identifiable on LIDAR

Hillshade (m)

High : 0.99989

Low : -0.653229

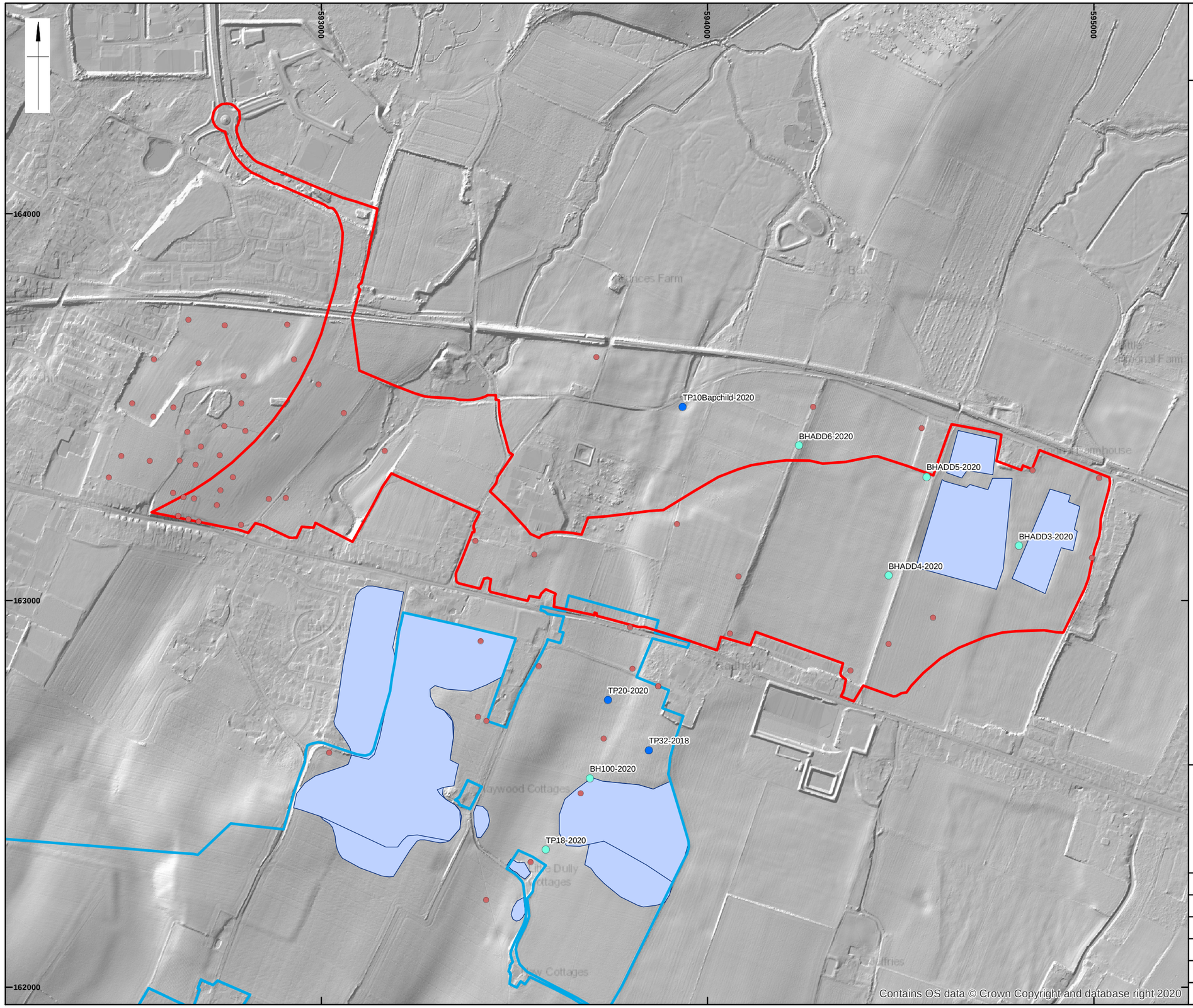
0 500 m

Coordinate system: OSGB36

Date:	16/03/2022
Revision Number:	0
Scale:	1:10,000 at A3
Illustrator:	AW
Path:	X:\Projects\232022\GIS\FigsMXD\2022_03_01

Site plan and data points used in deposit model

Figure 5



Site Boundary

Southern Site Boundary

Distribution of Coombe Deposits

- Chalk Gravel
- Flint Gravel
- Other GI Locations

Areas of brickearth extraction identifiable on LIDAR

Hillshade (m)

High : 0.99989

Low : -0.653229

0 500 m

Coordinate system: OSGB36

Date:	16/03/2022
Revision Number:	0
Scale:	1:10,000 at A3
Illustrator:	AW
Path:	X:\Projects\232022\GIS\FigsMXD\2022_03_01

Distribution of Coombe deposits in interventions

Figure 6

593000
594000
595000
164000
163000
162000
GTP3
GTP4
GTP5
GTP7
GTP9
GTP15
GTP21
GTP10
GTP23
GTP12
GTP11
GTP24
GTP31
GTP32
GTP13
GTP35
GTP29
GTP28
GTP36
GTP26
GTP33
GTP30
TP11-2020
TP10Bapchild-2020
TP13-2020
BH14A-2020
BHADD6-2020
BHADD2-2020
TP19Bapchild-2020
HP15-2020
TP7Bapchild-2020
BH15A-2020
BHADD3-2020
BHADD1-2020
HP12-2020
BHADD4-2020
HP14-2020
TP12-2020
HP13-2020
BH104-2020
BH108-2020
TP33-2018
TP14-2020
BH32-2020
TP20-2020
TP30-2018
BH106-2020
BH93-2020
TP27-2018
TP32-2018
BH100-2020
TP19-Highstead
TP18-2020
TP29-2018
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Site Boundary

Southern Site Boundary

Distribution of Head-Brickearth in Interventions: depth (m)

- <1.00
- 1.00-2.00
- 2.00-3.00
- 3.00-4.00
- >4.00
- Other GI Locations

Areas of brickearth extraction identifiable on LIDAR

Hillshade (m)

High : 0.99989

Low : -0.653229

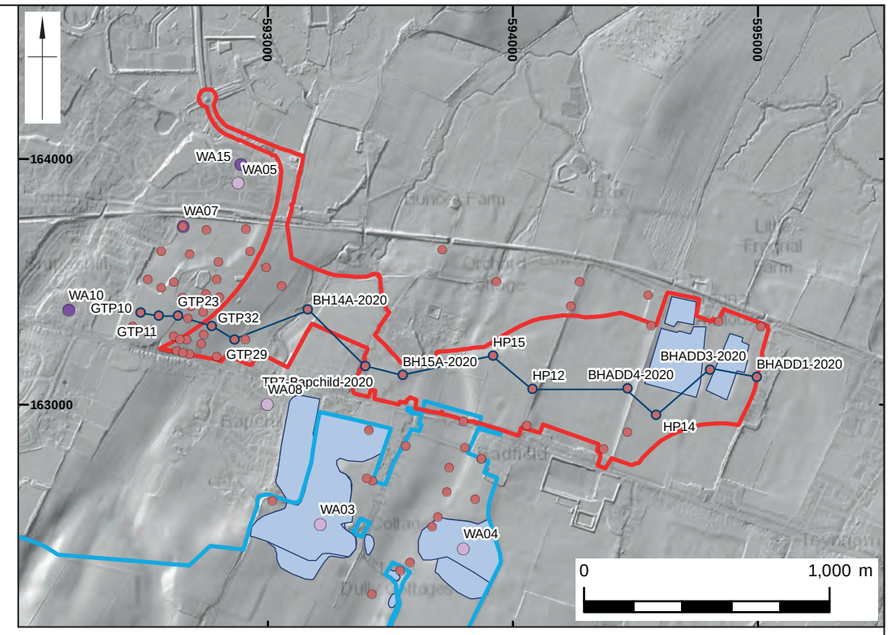
0 500 m

Coordinate system: OSGB36

Date:	17/03/2022
Revision Number:	0
Scale:	1:10,000 at A3
Illustrator:	AW
Path:	X:\Projects\232022\GIS\
	FigsMXD\2022_03_01

Distribution of Head-Brickearth in interventions

Figure 7

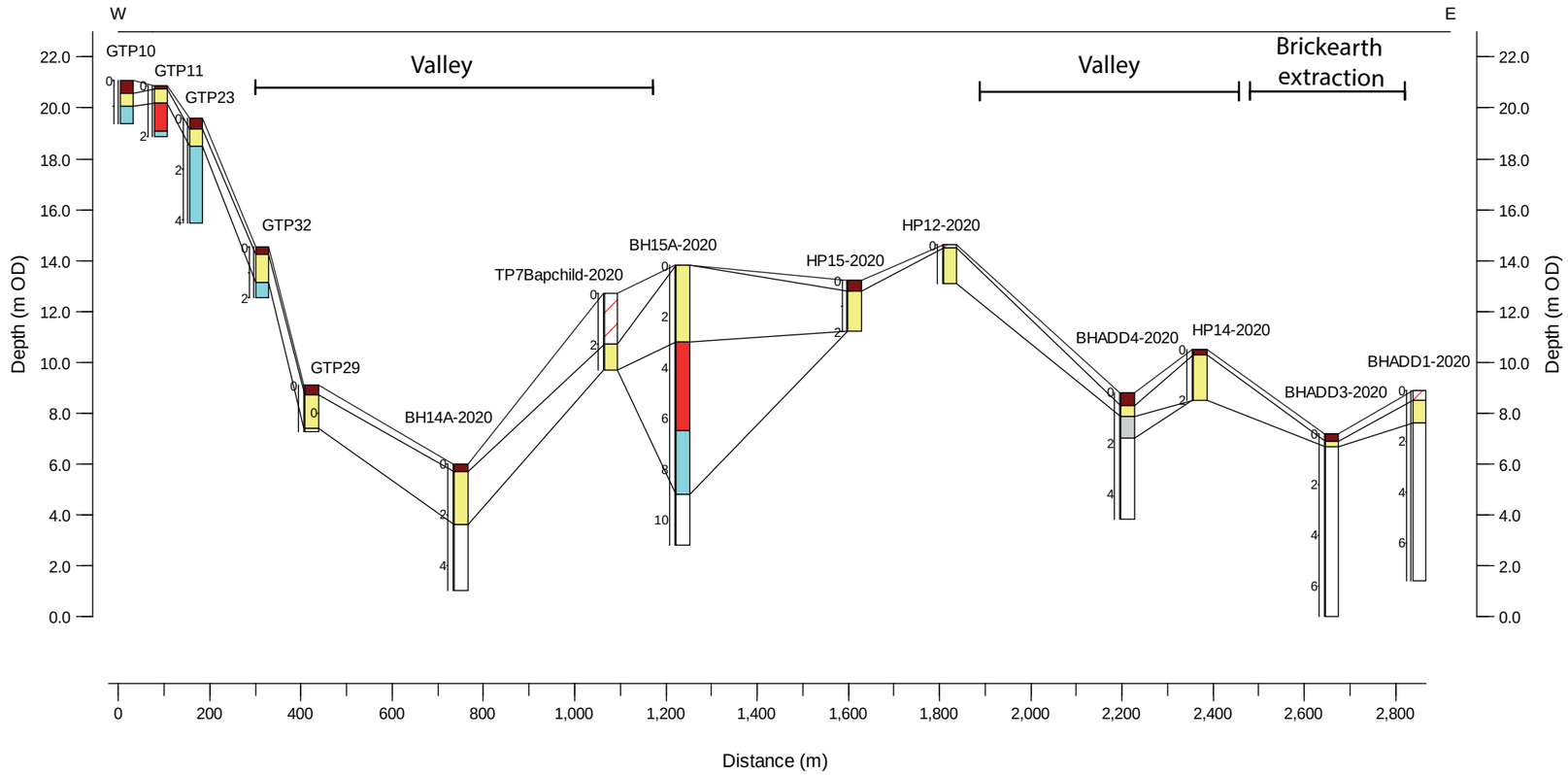


Site Boundary
Southern Site Boundary
GI Locations
Transect Location
Mesolithic Findspot
Palaeolithic Findspot
Areas of brickearth extraction identifiable on LIDAR

Hillshade (m)

High: 0.99989

Low: -0.653229



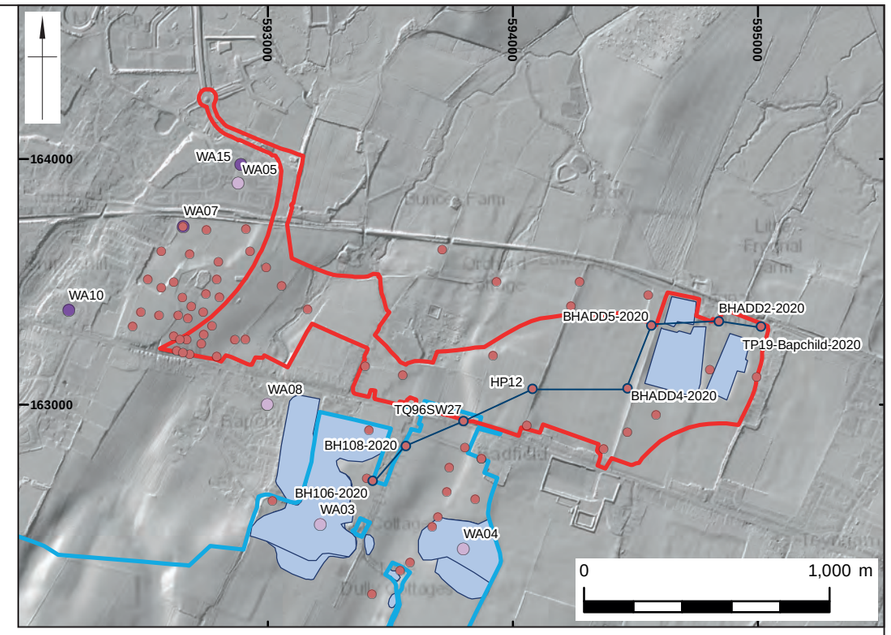
Stratigraphy

- Made Ground
- Modern soil profile
- Modern soil profile/Head-Brickearth
- Head-Brickearth
- ?Head-Brickearth or Thanet Formation
- Chalk gravel
- Thanet Formation
- Chalk

Date:	04/03/2022	Revision Number:	0
Scale:	Plan: 1:25,000 @ A3	Illustrator:	AW
Path:	X:\Projects\232022\Graphics_Office\Rep figs\Geoarch\2022_03_03		

Transect 1

Figure 8



Site Boundary
Southern Site Boundary
GI Locations
Transect Location
Mesolithic Findspot
Palaeolithic Findspot
Areas of brickearth extraction identifiable on LIDAR

Hillshade (m)

High: 0.99989

Low: -0.653229

SW NE

Valley

Brickearth extraction

BH106-2020
BH108-2020
TQ96SW27
HP12-2020
BHADD4-2020
BHADD5-2020
BHADD2-2020
TP19Bapchild-2020

Depth (m OD)

Distance (m)

0 100 200 300 400 500 600 700 800 900 1,000 1,100 1,200 1,300 1,400 1,500 1,600 1,700 1,800

Stratigraphy

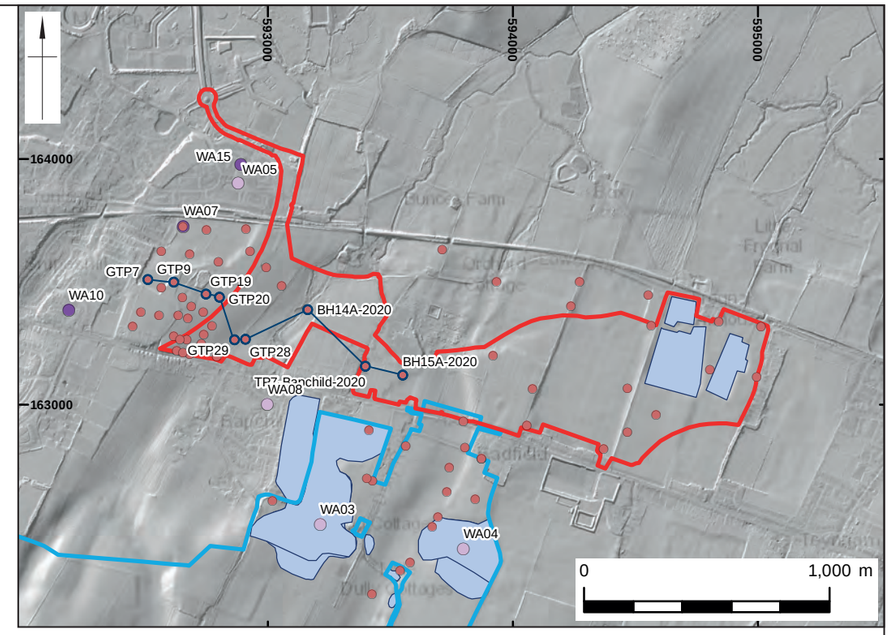
- Made Ground
- Modern soil profile
- Modern soil profile/Head-Brickearth
- Head-Brickearth
- ?Head-Brickearth or Thanet Formation
- Chalk gravel
- Chalk

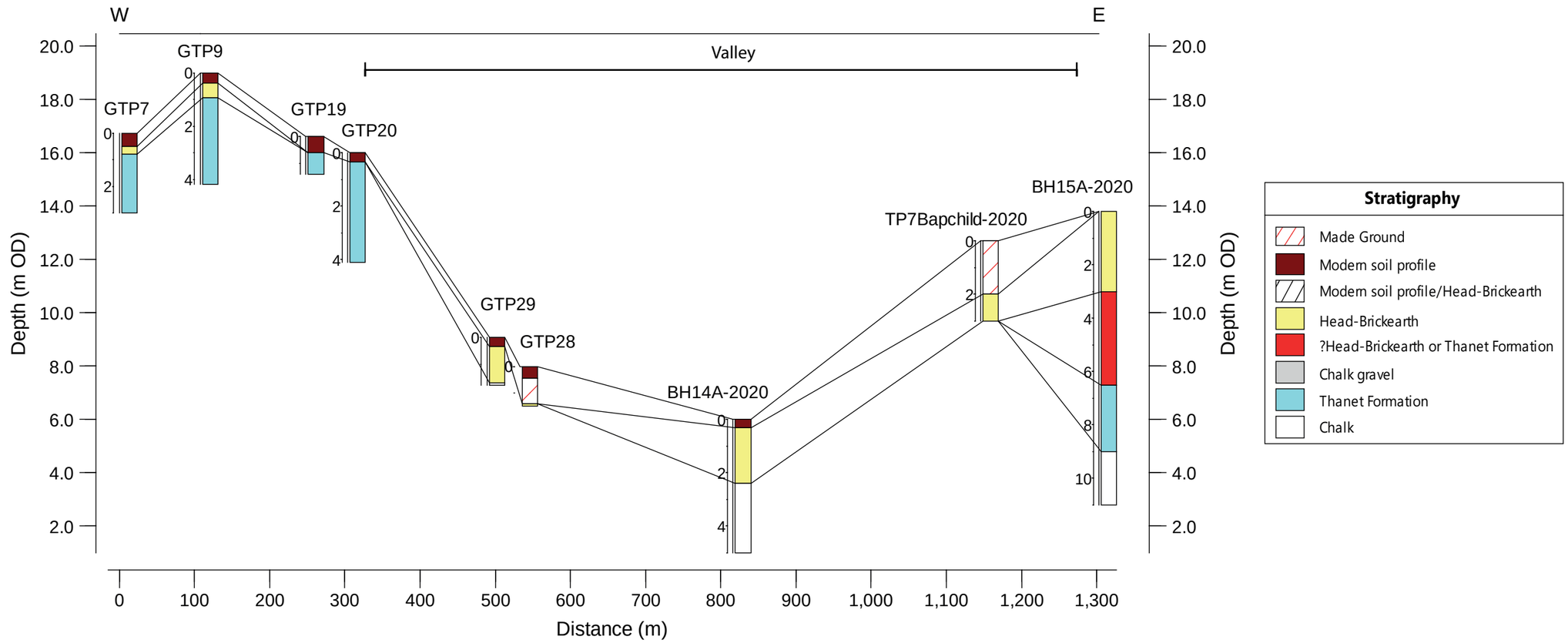
Coordinate system: OSGB36

Date:	04/03/2022	Revision Number:	0
Scale:	Plan: 1:25,000 @ A3	Illustrator:	AW
Path:	X:\Projects\232022\Graphics_Office\Rep figs\Geoarch\2022_03_03		

Transect 2

Figure 9





Site Boundary
Southern Site Boundary
GI Locations
Transect Location
Mesolithic Findspot
Palaeolithic Findspot
Areas of brickearth extraction identifiable on LIDAR

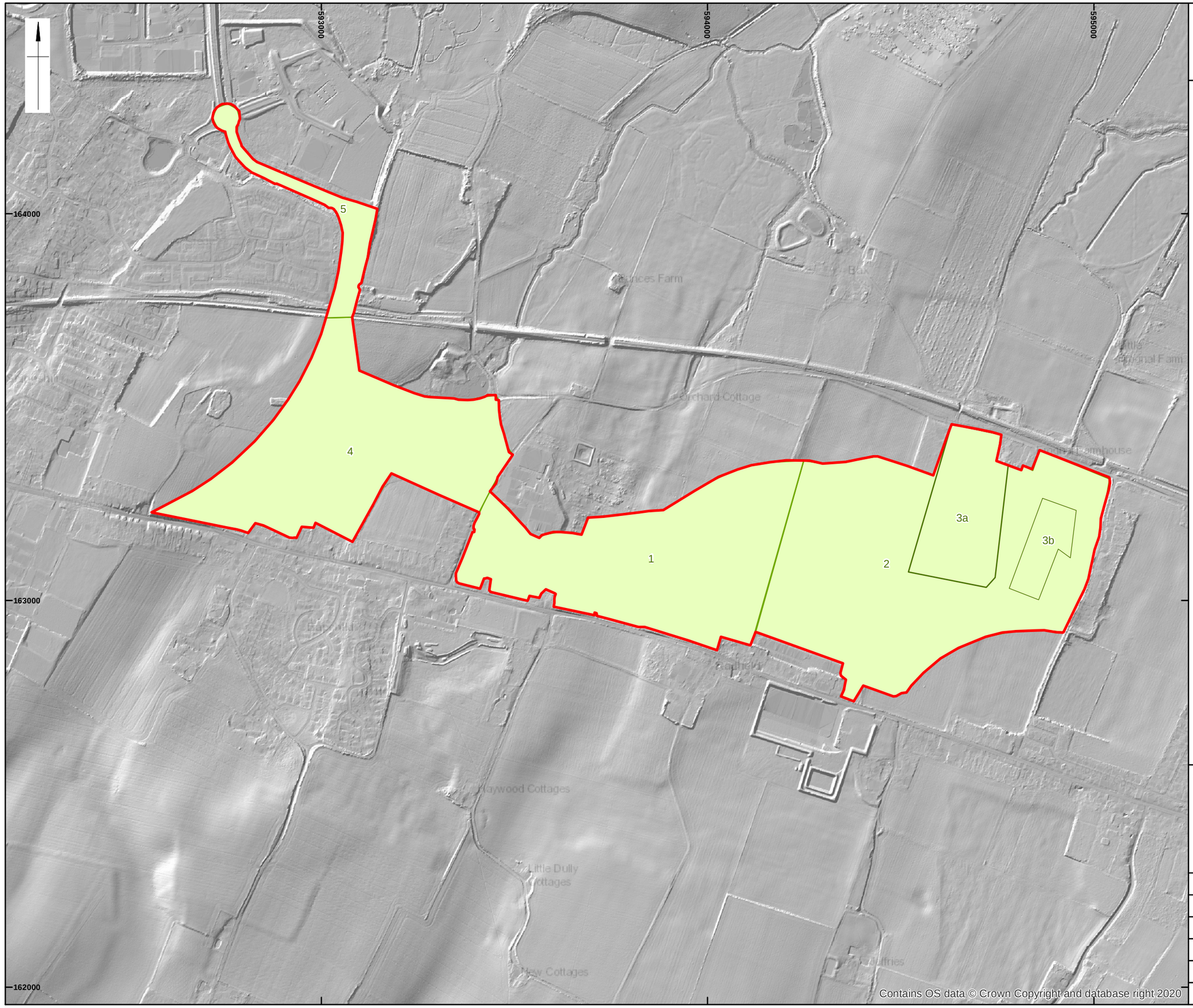
Hillshade (m)
High: 0.99989
Low: -0.653229

Coordinate system: OSGB36

Date:	04/03/2022	Revision Number:	0
Scale:	Plan: 1:25,000 @ A3	Illustrator:	AW
Path:	X:\Projects\232022\Graphics_Office\Rep figs\Geoarch\2022_03_03		

Transect 3

Figure 10



Site Boundary

Geoarchaeological Characterisation Zones

Hillshade (m)

High : 0.99989

Low : -0.653229

0 500 m

Coordinate system: OSGB36

Date:	16/03/2022
Revision Number:	0
Scale:	1:10,000 at A3
Illustrator:	AW
Path:	X:\Projects\232022\GIS\
	FigsMXD\2022_03_01

Plan of Geoarchaeological Characterisation Zones (GCZs)

Figure 11

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