Lowfield Street
Dartford, Kent

Geoarchaeological Test Pitting Evaluation

Planning Ref: DA/16/01919/FUL
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Summary

Wessex Archaeology was commissioned by CgMs Heritage (Part of RPS) ('the client'), to carry out a geoarchaeological evaluation through a program of test pitting of a 1.73 ha parcel of land located in Lowfield Street, Dartford, Kent. The evaluation area is centred on NGR 554186 173964.

A previous a desk-based assessment (Cotswolds Archaeology 2016), along with geotechnical investigation in 2004 (Scott Wilson 20014) and an archaeological evaluation (AOC 2006) had demonstrated that Quaternary deposits with possible geoarchaeological potential were present at the site. To evaluate the geoarchaeological potential of these deposits, targeted geoarchaeological prospection was required. This report details the results of a geoarchaeological evaluation of these sediments.

This geoarchaeological evaluation comprised the excavation of 7 machine-excavated test pits. The investigations were designed to investigate the sub-surface deposits, establish their stratigraphy, their extent, and to evaluate their potential to contain geoarchaeological remains.

The evaluation established that two distinct Quaternary sediment bodies are present, Pleistocene fluvial sands and gravels and Holocene alluvial deposits. Pleistocene sands and gravels were identified in the northern and southern areas of the Site; except for along the Site's southern margin, these have been truncated by previous development. These deposits reflect dynamic fluvial depositions, under cooling-cold conditions. They can be equated with the Taplow/Mucking Gravel Member of River Thames which aggraded between MIS 8 and MIS 6 (Bridgland 2006). The potential for these sands and gravels to preserve Palaeolithic artefacts and associated palaeoenvironmental evidence was assessed. No Palaeolithic artefacts clearly associated with these deposits were recovered and their palaeoenvironmental potential has been assessed as low.

Holocene alluvial sediments associated with River Darent were recorded at the southern margin of the Site; they are absent and/or have been removed from the other areas evaluated. These deposits represent fine grained, over-bank material laid down during an unknown expanse of the Holocene; the uppermost units are of recent date. No peat was encountered. The potential for the alluvial deposits to preserve artefacts and ecofacts was assessed. No artefacts were recovered and their palaeoenvironmental potential has been assessed to be low.

Based on this evaluation, the geoarchaeological potential of the Quaternary deposits present at the site can be regarded as low.

Acknowledgements

Wessex Archaeology would like to thank Richard von Kalinowski-Meager of CgMs Heritage (Part of RPS) for commissioning the archaeological evaluation. Wessex Archaeology is also grateful for the advice of Wendy Rogers, Senior Archaeological Officer for KCC who monitored the project who monitored the evaluation on behalf of the LPA.

The fieldwork was directed by Andrew Shaw, with the assistance of Emilia Seredynska, Lisa McCaig, Aleksanadra Bialobrzewska and Alin Fuior. The paleoenvironmental samples were processed by Jenny Giddins, Jenna Jackson and Sam Rogerson. The flot and residues were sorted by Nicki Mulhall and Sam Rogerson and assessed by Inés López-Dóriga.

Lowfield Street
Dartford, Kent

Geoarchaeological Test Pitting Evaluation

1 INTRODUCTION

1.1 Project and planning background

1.1.1 Wessex Archaeology was commissioned by CgMs Heritage (Part of RPS) ('the client'), to carry out a geoarchaeological evaluation through a program of test pitting of a 1.73 ha parcel of land located in Lowfield Street, Dartford, Kent. The evaluation area is centred on NGR 554186 173964 (**Figure 1**).

1.1.2 The proposed development comprises the demolition of the existing buildings within the site, refurbishment of No.26 Lowfield Street and the construction of new residential dwellings, retail and office units, new access roads and associated landscaping works.

1.1.3 A planning application (DA/16/01919/FUL) submitted to Dartford Borough Council, was granted 7th December 2016, subject to conditions. The following conditions relate to archaeology:

Condition: Prior to commencement of any works on site the applicant, or their agents or successors in title, will secure the implementation of a programme of geo-archaeological work in accordance with a written specification and timetable which has been submitted to and approved by the Local Planning Authority.

(a) Before commencement of any building operations on site details of archaeological field evaluation works shall be submitted to and approved by the Local Planning Authority, such details to include a specification of the works, which shall include as necessary a phasing programme, subsequent reporting and written timetable for the works. The field evaluation works shall be implemented in accordance with the details approved.

(b) Following on from the evaluation of any defined phase of the site, as set out in the archaeological field evaluation specification, details of any safeguarding measures required to ensure preservation in situ of important archaeological remains and/or further archaeological investigation and recording to include a specification and timetable shall be submitted to and approved by the local planning prior to any construction on that defined phase of the site. Such safeguarding, investigation and recording shall be carried out in accordance with the approved details.

Prior to completion of Phase 1 the applicant, or their agents or successors in title, will secure the implementation of a programme of heritage interpretation measures in accordance with a written specification and timetable which has been submitted to and approved by the Local Planning Authority.

On completion of the development the Developer, or their agents or successors in title, will arrange for the development archaeological archive to be deposited in a suitable museum or similar repository to be agreed with Kent County Council and Dartford Borough Council. Deposition of the archive will include a one-off payment by the Developer at the standard museum archive storage rate per box at the time of deposition.

1.1.4 The geoarchaeological evaluation comprised the excavation, investigation and recording of 7 geoarchaeological test pits (**Figures 2 & 3**). The geoarchaeological evaluation formed part of archaeological works for the site which also included an archaeological trial trench evaluation, the results of which are presented in a separate evaluation report.

1.1.5 This evaluation is part of a staged approach in determining the geoarchaeological potential of the Site. It informs on the nature and distribution of Quaternary deposits and provides an assessment of their geoarchaeological potential. It follows other non-intrusive archaeological work, including a desk-based assessment in 2016 (Cotswolds Archaeology 2016). Intrusive surveys conducted within the site have included a geotechnical investigation in 2004 (Scott Wilson 2014) and an archaeological evaluation (AOC 2006).

1.1.6 All works were undertaken in accordance with a written scheme of investigation (WSI) which detailed the aims, objectives, methodologies and standards to be employed to undertake the evaluation (Wessex Archaeology 2018). Kent County Council's (KCC) Heritage and Conservation Team approved the WSI, on behalf of the Local Planning Authority (LPA), prior to fieldwork commencing.

1.1.7 The evaluation was undertaken between the 17th September and 19th September 2018.

1.2 Scope of the report

1.2.1 The purpose of this report is to provide a detailed description of the results of the test pit evaluation, to interpret the results within a local, regional or wider geoarchaeological context and assess whether the aims of the evaluation have been met.

1.2.2 The presented results will provide further information on the geoarchaeological resource that may be impacted by the proposed development and facilitate an informed decision with regard to the requirement for, and methods of, any further geoarchaeological mitigation.

1.3 Location, topography and geology

1.3.1 The evaluation area is located immediately south of Dartford Town Centre, bordered to the north by Market Street, Central Park to the east, the Glentworth Club to the south and Lowfield Street to the west. The Site, approximately 2.5ha in size and currently occupied by several buildings, including commercial and residential fronting onto Lowfield Street, as well as access roads and car parks.

1.3.2 Existing ground levels on the site vary between 5-6m above Ordnance Datum (aOD).

1.3.3 The underlying geology within the site is mapped as chalk of the Seaford Chalk Formation with superficial deposits comprising of clay, silt, sand and gravels; it is east to an area where Pleistocene fluvial sands and gravels ascribed to the Taplow/Mucking Gravel Member are mapped, overlying Seaford Chalk Formation (British Geological Survey online viewer).

1.3.4 Geotechnical investigations that were undertaken in 2004 (Scott Wilson) and 2016 (Delta-Simons 2016) have demonstrated that Pleistocene fluvial sands and gravels extend across the evaluation area and may be overlain in places by Holocene Alluvium. The fluvial sands and gravels have been suggested to belong to the Taplow/Mucking Gravel Member of the River Thames. The Taplow/Mucking Gravels forms part of the Pleistocene river terrace sequence of the Lower Thames and is thought to have aggraded between MIS 8-MIS 6 (Bridgland 2006).

1.3.5 The sequence encountered in the geotechnical investigations is summarized below:

- Made ground: present to a maximum depth of 0.05m to 2.8m below ground level (bgl);
- Relic topsoil: this encountered at specific points within the Site, between 1.6m to 2.4m bgl, and these deposits comprise silty gravelly sand or clay, with rootlets and/or roots;
- Alluvium: this was encountered between 1.6m to 2.4m bgl overlying the Taplow/Mucking Gravel Member; previous archaeological evaluations indicate the possible presence of peat deposits associated with this alluvium (see below);
- Fluvial sands and gravel: equated with the Taplow/Mucking Member, this consists of brown sandy flint gravel with occasional flint cobbles; identified across the entire Site at a depth of 6.5m to 9m bgl; and
- Seaford Chalk Formation: Formation: encountered approximately 15m bgl (Delta-Simons 2016).

2 GEOARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Introduction

2.1.1 The archaeological and historical background was assessed in a prior desk-based assessment and Written Scheme of Investigation (Cotswolds Archaeology 2016, Wessex Archaeology 2018). The relevant information is summarized below, with additional information included as appropriate.

2.2 Previous investigations related to the proposed development

Geotechnical Investigation (Scott Wilson, 2004)

2.2.1 In 2004, Scott Wilson Kirkpatrick and Co Ltd undertook a geotechnical investigation of the site comprised of seven test pits. Test pits 1-5 recorded a similar stratigraphy comprised of 1.3-1.8m of post-medieval made ground from land reclamation dumping, which sealed deposits of sands and gravels. Test pit 6 also recorded a layer of alluvium 1m thick in between the made ground and gravels. A seventh test pit was stopped after a post-medieval brick wall was encountered.

Archaeological evaluation (AOC, 2006)

2.2.2 In April 2006, a programme of archaeological evaluation was carried on the site by AOC Archaeology. The area subject to the evaluation was located within the northern section of the site and comprised 11 trial trenches, targeting areas considered to be of the highest archaeological potential.

2.2.3 No archaeological remains pre-dating the modern period were recorded, however the presence of peat and/or alluvial deposits overlying fluvial recorded in most trenches indicates that the absence of archaeology is not due to truncation, but rather it infers a scarcity of archaeological remains within this area.

Geotechnical investigation (Delta-Simmons, 2016)

2.2.4 Between July and September 2016, a geotechnical investigation was conducted by Delta-Simmons on the site. Geotechnical borehole data and levels taken during the geotechnical evaluation recorded that made ground is present to depths of up to 2.80m bgl and is comprised of hardstand up to 0.50m bgl comprising asphalt, block paving, concentrate or reinforced concrete. The made ground typically comprised clay, gravels (including brick, flint, concrete, chalk and carbonaceous fragments with the occasional brick cobbles), ground asphalt and concrete. It is considered that the made ground is likely to include reclamation layers, modern layers and 19th to 20th century development.

2.2.5 Alluvium was recorded at a depth of 1.6m to 2.4m bgl; the geotechnical investigations also identified a layer of gravels and mixed alluvium at a depth of 6.5m to 9m bgl. Chalk and Newhaven Chalk lies beneath. The assessment has concluded that these alluvial layers have the potential to contain palaeoenvironmental and artefactual remains from the prehistoric, Roman and medieval period.

2018 Archaeological Evaluation (Wessex Archaeology, forthcoming)

2.2.6 A separate archaeological evaluation was undertaken concurrently with the geoarchaeological evaluation, comprising the excavation of 13 trenches across the site, which varied in length and depth due to on-site constraints.

2.2.7 The evaluation recorded widespread truncation across the site due to the construction and demolition of former buildings. This included made ground deposits from 0.1 to 2.4m+ below ground levels. Several of the former concrete footings and brick walls recorded during the investigation were found to correlate with buildings recorded on the 1938 and 1961 Ordnance Survey maps,

2.3 Geoarchaeological and historical context

2.3.1 The Pleistocene fluvial sands and gravels identified in the evaluation area have the potential to preserve Palaeolithic artefactual and palaeoenvironmental remains.

2.3.2 A previous programme of investigation undertaken by AOC Archaeology during 2006, on part of the evaluation area, recorded peat and/or alluvial deposits overlying fluvial sands and gravels. Although no remains pre-dating the modern period were recorded during this investigation, the presence of such deposits, also recorded during a recent geotechnical survey undertaken between July and September 2016, indicate that these deposits have the potential to preserve palaeoenvironmental datasets; they may also preserve artefactual material.

2.3.3 From the Roman period onwards, the site is likely to have comprised marshland, and there is some potential for evidence of agricultural or other activities associated with the exploitation of the riverine environment. During previous investigations within the site, it is postulated that Roman and medieval settlements were recorded towards the north of the site, and although the potential for associated remains within the remainder of the site cannot be ruled out, it is considered that due to due to post-medieval and modern disturbance in this area, the survival of such remains is likely to have been compromised.

2.3.4 The survival of any potential archaeological remains within the site may have been comprised by the construction of the former and existing buildings.

2.4 Summary of the possible geoarchaeological potential

2.4.1 The geoarchaeological potential of the evaluation area can be summarized as follows:

Pleistocene river terrace deposits

- Pleistocene river terrace deposits are key contexts for Palaeolithic archaeology. They represent fluvially deposited sediments (gravels, sands, clays and silts) that have been subsequently incised through and preserved as evidence of former floodplains along the sides of current and former river valleys.

- The terrace sands and gravels generally reflect deposition under cold climatic conditions in braided river environments, whereas silts and clays tend to be associated with meandering rivers in temperate climates. Within individual catchments evidence for

several terrace deposits can usually be mapped representing successive phases of aggradation and incision covering multiple glacial-interglacial cycles.

Holocene alluvium

- Alluvium is a generalised term covering unconsolidated sediment transported by water in a non-marine environment (e.g. rivers). It has also been used as a banner term including other sediment such as peat, but that often occur as distinct bands or discrete features within alluvium. Alluvium will therefore be encountered within both active rivers and floodplains and the fills of former river channels (termed palaeochannels).

- Both floodplain alluvium and palaeochannels are key contexts of the preservation of waterlogged archaeology and palaeoenvironmental remains important for understanding the physical evolution of the landscape and its exploitation by past human communities.

3 AIMS AND OBJECTIVES

3.1 General aims

3.1.1 The general aims (or purpose) of the evaluation, in compliance with the CIfA *Standard and guidance for archaeological field evaluation* (CIfA 2014a) and Kent County Council's (KCC) draft *Manual of Specification Part B: Specification for Preliminary Evaluation of Quaternary Deposits and Palaeolithic Potential*, were:

- To establish the broad presence/absence, nature and distribution of Quaternary deposits across the evaluation area;
- To develop a preliminary assessment of the possible geoarchaeological and Palaeolithic potential of the evaluation area;
- To establish a broad preliminary model for the evaluation areas Quaternary geoarchaeological potential.

3.2 General objectives

3.2.1 To achieve the above aims, the general objectives of the evaluation were:

- To determine the presence or absence of Quaternary deposits within the specified area;
- To establish, within the constraints of the evaluation, the extent, character, date, condition and quality of any Quaternary deposits;
- To place any identified Quaternary deposits within a wider historical and archaeological context to assess their significance;
- To make available information about the archaeological resource within the site and its geoarchaeological potential by reporting on the results of the evaluation.

3.3 Site-specific objectives

3.3.1 Following consideration of the geoarchaeological potential of the site, the site-specific objectives of the evaluation were:

- To characterise and evaluate the geoarchaeological potential of the Pleistocene river terrace deposits identified across the evaluation area;

- To evaluate the potential of the Pleistocene fluvial deposits to preserve Palaeolithic artefactual remains, palaeoenvironmental evidence and material suitable for dating;
- To assess the extent of post-depositional processes which have impacted on any Palaeolithic artefact and Pleistocene palaeoenvironmental datasets associated with the terrace deposits;
- To characterise and evaluate the geoarchaeological potential of the Holocene alluvial deposits identified in the evaluation area;
- To provide an evaluation of the alluvial deposits to preserve cultural remains, palaeoenvironmental evidence and material suitable for dating;
- To establish whether peat horizons are present within the Holocene alluvial deposits;
- To assess the extent of post-depositional processes which have impacted on any Palaeolithic artefact and Pleistocene palaeoenvironmental datasets associated with the Pleistocene sands and gravels;
- To establish the extent to which previous development and/or other processes have affected the Pleistocene sands and gravels and alluvial deposits;

4 METHODS

4.1 Introduction

4.1.1 All works were undertaken in accordance with the detailed methods set out within the WSI (Wessex Archaeology 2018) and in general compliance with the standards outlined in relevant CIfA and Historic England guidance (CIfA 2014a, Historic England 2015). The methods employed are summarised below.

4.2 Fieldwork methods

General

4.2.1 The test pit locations were set out in general positions proposed in the WSI, with minor adjustment made to avoid buried services to and to take in account other on-site constraints, such as concrete footings.

4.2.2 Test pits positions were located through real time kinematic (RTK) survey using a Leica GNSS connected to Leica's SmartNet service. All survey data was recorded in OS National Grid coordinates and heights above OD (Newlyn), as defined by OSGM15 and OSTN15, with a three-dimensional accuracy of at least 50 mm.

4.2.3 Prior to fieldwork commencing the client provided information regarding the presence of any below/above-ground services, and any ecological, environmental or other constraints.

4.2.4 Before excavation began, the evaluation area was walked over and visually inspected to identify, where possible, the location of any below/above-ground services. All test pit locations will be scanned before and during excavation with a Cable Avoidance Tool (CAT) to verify the absence of any live underground services.

4.2.5 7 test pits, each measuring approximately 3 m in length and 2 m wide, were excavated using a 360º excavator equipped with a toothless bucket, under the constant supervision and instruction of a recognised Palaeolithic specialist with experience of recording, interpreting and sampling Pleistocene sediments. Machine excavation proceeded in level spits of approximately 50-100 mm, respecting the interface between sedimentary units, until either the solid geology was exposed, or further excavation became impractical.

4.2.6 Test pits were entered at the maximum safe depth (usually c. 1.2m, but less if loose sands/gravel are present) to record the upper stratigraphy. After excavation had progressed beyond this depth, recording took place without entering the test pit.

4.2.7 Test pits completed to the satisfaction of the client and the Kent County Council's (KCC) Heritage and Conservation Team were backfilled using excavated materials in the order in which they were excavated, and left level on completion. No other reinstatement or surface treatment was undertaken.

Sampling

4.2.8 Samples of suitable deposits were taken at appropriate intervals (usually 100l every 20 cm), in stratigraphic succession and sieved on site through a 10-mm mesh to investigate whether artefacts and/or macro mammalian faunal remains are present.

4.2.9 One unit was suitable for sieving: **Phase I**: fluvial sands and gravels. From this unit samples were sieved on site through a 10-mm mesh to investigate whether artefacts and/or macro mammalian faunal remains are present (see **Table 1**).

Table 1 Number of litres of sieved by stratigraphic context

Stratigraphic	Litres
Phase I: Fluvial sands and gravels	2000

4.2.10 When sediments were encountered that were not suitable for dry-sieving (i.e. too clayey), excavation proceeded in shallower spits of c. 5cm, looking carefully for the presence of any geoarchaeological evidence, and the spit samples were carefully investigated by hand.

4.2.11 The potential for deposits to preserve paleoenvironmental evidence was assessed for each sediment unit by the monitoring Pleistocene geoarchaeological specialist. Bulk sediment samples of suitable deposits were taken for palaeoenvironmental assessment (**Table 2**)

Table 2 Samples taken for palaeoenvironmental assessment

Sample number	Context number	Stratigraphic context	Description	Sample Size
0509	0503	Phase I: Fluvial sands and gravels	Fine-very coarse sub-angular clast supported flint gravel; moderately frequent medium rounded Tertiary flint clasts; medium yellowish orange medium-coarse sand matrix; poorly sorted; sub-horizontally bedded; loose	20L
0510	0503	Phase I: Fluvial sands and gravels	Fine-very coarse sub-angular clast supported flint gravel; moderately frequent medium rounded Tertiary flint clasts; medium yellowish orange medium-coarse sand matrix; poorly sorted; sub-horizontally bedded; loose	20L
0703	0706	Phase II: Lower alluvium	Light yellowish-brown slightly silty very fine sand; moderately frequent medium orange mottles; occasional organic	40L

			fragments; very frequent very fine sub-angular flint clasts; structureless; poorly consolidated	

4.2.12 Sampling strategies, including for the recovery, processing and assessment of environmental samples, were in line with those detailed in the WSI (Wessex Archaeology 2018). The treatment of environmental remains was in general accordance with Wessex Archaeology's in-house guidance, which adheres to the principles outlined in Historic England's guidance (English Heritage 2011 and Historic England 2015). *Guidance for the collection, documentation, conservation and research of archaeological materials* (CIfA 2014b) and *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (English Heritage 2011).

4.2.13 Consideration was given to the suitability of any sediment units for optically stimulated luminescence dating (OSL).

Recording

4.2.14 A representative section from each test pit was drawn at a scale of 1:20. Accompanying geoarchaeological descriptions and interpretations were recorded (see **Appendix 1**).

4.2.15 A full photographic record was made using a digital camera. This recorded both the detail and the general context of the principal lithological and stratigraphic features, and the evaluation area as a whole. Digital images have been subject to managed quality control and curation processes, which has embedded appropriate metadata within the image and will ensure long term accessibility of the image set.

4.3 Monitoring

4.3.1 The client informed the Senior Archaeological Officer to KCC of the start of the geoarchaeological test pitting and its progress. Wendy Rodgers, Senior Archaeological at Kent County Council, monitored the evaluation on behalf of the LPA.

5 RESULTS

5.1 Stratigraphic evidence

5.1.1 The specific lithologies and stratigraphic succession encountered in each test pit are outlined in **Appendix 1**.

5.1.2 The deposits form a consistent sequence comprising coarse grained fluvial sands and gravels, the upper units of which is truncated and heavily disturbed by previous developments, overlain by made ground (**Plates 1-3**). The only exception to this was in **TP 7**, located along the southern margins of the site, where these gravels were overlain by Holocene alluvium.

5.1.3 The lithological units identified across the assessment area have been grouped into six stratigraphic units and the generalised sequence is described below.

Phase I: Fluvial sands and gravels

5.1.4 This was exposed within the northern (**TP 1**) and southern portions (**TP 4**, **5**, **6** and **7**) of the evaluation area. It consists of fine to very coarse, clast supported flint gravels with a

medium-coarse sand matrix; sub-horizontal bedding structures are frequently apparent. They reflect fluvial deposition, likely under cool/cold conditions.

5.1.5 Except for the deposits exposed in **TP 7**, the upper horizons of this deposit have been truncated and/or extensively disturbed. It is unclear whether fluvial sands and gravels are present in **TP 2** and **TP 3** as extensive made ground (+2.0m) underlain by reinforced concrete, is present here (**Plate 4**). However, given amount of disturbance and depth of made ground, any fluvial sands and gravels present in this area will have been extensively disturbed and truncated.

Phase II: Lower alluvial deposits

5.1.6 Alluvial deposits were only identified in **TP 7** at the extreme southern limit of the evaluation area (**Plate 5**). These can be sub-dived into an upper and lower suite of deposits. The lower alluvial deposits consist of structureless light yellowish-brown slightly silty very fine sand containing very fine sub-angular flint clasts and occasional organic fragments, overlain by a clast free, dark grey, slightly sandy silt.

Phase III: Upper alluvial deposits

5.1.7 Similar confined to **TP 7**, the Upper alluvial deposits consist of olive grey-orange mottled, structureless, silty clay with very fine sub-angular flint clasts, occasional charcoal fragments and very occasional fine brick/tile fragments. This is overlain by a rooted, structureless, olive grey slightly sandy clay with moderately frequent fine sub-angular flint clasts.

Phase MG: Made ground and buried top soil

5.1.8 With exception of the deposits within **TP 7**, the deposits across the site have been extensively truncated and are overlain by at least 1.00m of made ground result from the construction and demolition of building which previously occupied the Site; this increases to more than 2.50m to 3.00m in depth in **TP 2** and **TP 3.**

5.1.9 Beneath the made ground a buried top soil is present in **TP 1** and **TP 4**.

5.2 Artefactual evidence

5.2.1 A single hard hammer flint flake was recovered from a gravel sample from **TP 1**. The flake is undiagnostic, slightly edge damaged, but unabraded – this condition is at odds with an apparent associated with coarse grained fluvial gravel. Due to previous heavy disturbance in this area of the site (**Plate 1**), only a single gravel sample was taken from this test pit due to unconsolidated material collapsing into the test pit and associated problems with contamination. Consequently, given the condition state of this flake, it may have been introduced into the sample from the overlying disturbed, unconsolidated material.

5.2.2 No other artefacts were recovered from within the deposits investigated.

5.3 Palaeoenvironmental assessment

Introduction

5.3.1 Three bulk sediment samples taken from a range of deposits were processed by wet-sieving and flotation and were assessed for the presence of environmental evidence. Sample processing was as follows:

- Samples **0509** and **0510** (20 litres each): **Phase I: Fluvial sands and gravels** – wet-sieved.

- Sample **0703** (40 litres): **Phase II: Lower alluvium** – floated.

Methods

1.1.1 The size of the samples varied between 20 and 40 litres. The wet-sieved samples were washed on a 1 mm fraction mesh. The floated sample was processed by standard flotation methods on a Syraf-type flotation tank; the flot retained on a 0.25 mm mesh, residues fractionated into 4 mm and 1 mm fractions and dried. The coarse fractions (>5.6/4 mm) were sorted and examined by eye. The fine residue fractions and the flots were scanned using a stereo incident light microscopy (Leica MS5 microscope) at magnifications of up to x40 for the identification of environmental remains. Different bioturbation indicators were considered, including the percentage of roots, the abundance of modern seeds and the presence of mycorrhizal fungi sclerotia (e.g. *Cenococcum geophilum*) and animal remains, such as earthworm eggs and insects, which would not be preserved unless anoxic conditions prevailed on site. The preservation and nature of the charred plant and wood charcoal remains, as well as the presence of other environmental remains was recorded.

Results

1.1.2 The wet-sieved samples from **Phase I: Fluvial sands and gravels** contained recent intrusive vegetative plant remains and small assemblage of unidentifiable mollusc fragments.

1.1.3 The flot from the floated sample from **Phase II: Lower alluvium** was small and contained some roots and modern seeds that may be indicative of some stratigraphic movement and the possibility of contamination by intrusive elements. No charred material was observed and a small amount of fine (>1 mm) wood charcoal was present. Remains of terrestrial molluscs were also found.

1.1.4 No other environmental evidence was preserved in any of the sediment samples.

Conclusions

1.1.5 The environmental evidence obtained from the bulk sediment samples is of no significance.

1.1.6 The assemblages recovered so far have little potential and require no further analysis. The residues and flot are recommended for discard, but the extracted fossils from the wet-sieved samples are recommended for retention and deposition with the archive.

5.4 Scientific dating potential

5.4.1 Consideration was given to the suitability of sediment units for optically stimulated luminescence dating (OSL). **Phase I: fluvial sands and gravels** that were suitable for OSL dating. **The Phase II: Lower alluvial deposits** found at depth have potential for successful OSL dating, however, these were not safely accessible.

5.4.2 No accessible deposits were suitable for OSL dating, and no samples were taken.

6 DISCUSSION

6.1.1 Three sedimentary have been identified across the evaluation are:

- Phase I: Fluvial sands and gravels
- Phase II: Lower alluvial deposits
- Phase III: Upper alluvial deposits

Phase I: Fluvial sands and gravels

6.1.2 Fluvial sands and gravels are present across the northern and southern parts of the evaluation area. However, the uppermost units have been truncated and extensively disturbed by previous development.

6.1.3 It is unclear whether these sands and gravels are present in the vicinity **TP 2** and **TP 3**, as +2.50m – +3.00m of made ground was encountered, overlying reinforced concrete. Given the depth of made ground, should Pleistocene sands and gravels be present in this area, they will have been extensive truncated and disturbed.

6.1.4 The only area identified where the upper units of the Pleistocene sands and gravels were not truncated was at the very southern margin of the evaluation area in **TP 7**. The extent of this minimal area of disturbance would, however, appear to be restricted; immediately to the north, in **TP 6**, extensive recent disturbance was noted.

6.1.5 Although not mapped as such within the evaluation area, these fluvial sands and gravels have been attributed Taplow/Mucking Gravel Member of the River Thames (Scott Wilson 2004, Delta-Simmons 2016).

6.1.6 Taplow/Mucking Gravel Member deposits are mapped 150m west of the Site, with their surface at a similar elevation to those encountered in the evaluation area (BGS online viewer). Consequently, these fluvial sands and gravels can be attributed to Taplow/Mucking Gravels of the Pleistocene river terrace sequence of the Lower Thames; these sands and gravels are thought to have aggraded between MIS 8-MIS 6 (Bridgland 2006).

6.1.7 A single undiagnostic was recovered from a sample taken from the sands and gravels in **TP 1**, however, this may be intrusive to the sample and originate for unconsolidated overlying units (see section 5.2). No other artefacts were recovered from the fluvial sands and gravels.

6.1.8 The Taplow/Mucking terrace deposits encountered during this evaluation consist of coarse sands and gravels reflecting high energy fluvial deposition, likely during cool/cold conditions. They consequently have the broad potential to preserve reworked Palaeolithic artefacts.

6.1.9 The deposits were assessed to establish whether Palaeolithic artefacts were present; no artefacts definitively associated with these deposits were encountered.

6.1.10 Based on a general lack of associated artefactual evidence in the Middle and Lower Thames, Pleistocene sands and gravels of the Taplow/Mucking terrace have been suggested to be reflective of a period of human absence from Britain during MIS 6 to MIS 4 (Ashton and Lewis 2002). Humans are, however, present in northern France during this period and such a claim requires testing; investigating whether a significant population crash occurred over the Lower Palaeolithic/Middle Pleistocene time has been identified as a major research theme for the British Palaeolithic (English Heritage 2008).

6.1.11 The paleoenvironmental potential of the deposits were also assessed and their potential was established to be low.

Phase II: Lower alluvial deposits

6.1.12 Alluvial deposits were encountered along the southern margin of the evaluation area; if such deposits were previously present, they have been removed by subsequent development across all other areas investigated.

6.1.13 These alluvial deposits can be subdivided into stratigraphically distinct units. The lowermost unit consists of sands and silts, with occasional organic fragments present in basal horizons. These represent over-bank deposits laid down during the Holocene, within the floodplain of the River Darent. No peat was encountered.

6.1.14 No artefacts were recovered from these deposits. The palaeoenvironmental potential of the deposits were assessed and were demonstrated to be low.

Phase II: Lower alluvial deposits

6.1.15 The lower alluvial deposits are overlain by silty clay with very fine sub-angular flint clasts, with occasional charcoal fragments and very occasional fine brick/tile fragments, the upper units of which are affected by rooting. This reflects recent quiescent alluvial deposition in low lying wet ground adjacent to the River Darent.

6.2 Assessment of geoarchaeological potential

6.2.1 Coarse fluvial sands and gravels are present across the Site. However, these have been extensively truncated and disturbed by recent development. These fluvial sands and gravels can be correlated with the Taplow/Mucking terrace of the River Thames and reflect dynamic deposition, likely under cooling/cold conditions. They have broad potential to contain reworked Palaeolithic artefacts. No artefacts were identified from these deposits during this evaluation, and their palaeoenvironmental potential has been demonstrated to be low. Based on the results of this evaluation the Palaeolithic potential of the deposits can be regarded to be low.

6.2.2 Holocene alluvial deposits are only preserved along the southern margins of the evaluation area; they are absent from the other areas evaluated. The upper-most units of these deposits are of recent date, whilst the lower-most units are of unknown age. No artefacts were recovered from these lower alluvial deposits and their paleoenvironmental potential has be assessed to be low. Based on the results of this evaluation the geoarchaeological potential of the deposits can be regarded to be low.

7 CONCLUSIONS

7.1.1 The geoarchaeological test pitting evaluation has demonstrated that truncated fluvial sands and gravels are present in the northern and southern areas of the Site. These reflect dynamic fluvial deposition, likely under cool-cold conditions. They can be equated with the Taplow/Mucking terrace of River Thames, which would indicate that they were deposited between MIS 8-MIS 6 (Bridgland 2006).

7.1.2 The potential for the deposits to preserve artefacts and ecofacts was assessed. No Palaeolithic artefacts unequivocally provenanced to these deposits were recovered during the evaluation and their palaeoenvironmental potential has been assessed and classed as low.

7.1.3 Holocene alluvial deposits associated with River Darent were recorded at the southern margin of the Site; this is absent and/or has been removed from the other areas evaluated. It represents fine grained, quiescent over-bank deposition during an unknown expanse of the Holocene, with the uppermost units being of recent date.

7.1.4 The potential for the deposits to preserve artefacts and ecofacts was assessed. No artefacts were recovered from these deposits and their palaeoenvironmental potential has been assessed and classed as low.

8 ARCHIVE STORAGE AND CURATION.

8.1 Museum

8.1.1 The archive, which includes paper records, graphics and digital data, will be prepared following the standard conditions for the acceptance of excavated archaeological material, and in general following nationally recommended guidelines (SMA 1995; CIfA 2014c; Brown 2011; ADS 2013).

8.2 Preparation of the archive

8.2.1 The archive, which includes paper records, graphics and digital data, will be prepared following the standard conditions for the acceptance of excavated archaeological material, and in general following nationally recommended guidelines (SMA 1995; CIfA 2014c; Brown 2011; ADS 2013).

8.2.2 The archive will be combined with the parallel archaeological evaluation archive. All archive elements are marked with the site code **208040**, and a full index will be prepared. The physical archive currently comprises the following:

- 1 files/document cases of paper records and A3/A4 graphics;

8.3 Selection policy

8.3.1 Wessex Archaeology follows national guidelines on selection and retention (SMA 1993; Brown 2011, section 4). In accordance with these, and any specific guidance prepared by the museum, a process of selection and retention will be followed so that only those artefacts or ecofacts that are considered to have potential for future study will be retained. The selection policy will be agreed with the museum, and is fully documented in the project archive.

8.4 Security copy

8.4.1 In line with current best practice (eg, Brown 2011), on completion of the project a security copy of the written records will be prepared, in the form of a digital PDF/A file. PDF/A is an ISO-standardised version of the Portable Document Format (PDF) designed for the digital preservation of electronic documents through omission of features ill-suited to long-term archiving.

8.5 OASIS

8.5.1 An OASIS online record (http://oasis.ac.uk/pages/wiki/Main) has been initiated, with key fields and a .pdf version of the final report submitted. Subject to any contractual requirements on confidentiality, copies of the OASIS record will be integrated into the relevant local and national records and published through the Archaeology Data Service ArchSearch catalogue.

9 COPYRIGHT

9.1 Archive and report copyright

9.1.1 The full copyright of the written/illustrative/digital archive relating to the project will be retained by Wessex Archaeology under the *Copyright, Designs and Patents Act* 1988 with

all rights reserved. The client will be licenced to use each report for the purposes that it was produced in relation to the project as described in the specification. The museum, however, will be granted an exclusive licence for the use of the archive for educational purposes, including academic research, providing that such use conforms to the *Copyright and Related Rights Regulations* 2003. In some instances, certain regional museums may require absolute transfer of copyright, rather than a licence; this should be dealt with on a case-by-case basis.

9.1.2 Information relating to the project will be deposited with the Historic Environment Record (HER) where it can be freely copied without reference to Wessex Archaeology for the purposes of archaeological research or development control within the planning process.

9.2 Third party data copyright

9.2.1 This document and the project archive may contain material that is non-Wessex Archaeology copyright (eg, Ordnance Survey, British Geological Survey, Crown Copyright), or the intellectual property of third parties, which Wessex Archaeology are able to provide for limited reproduction under the terms of our own copyright licences, but for which copyright itself is non-transferable by Wessex Archaeology. Users remain bound by the conditions of the *Copyright, Designs and Patents Act* 1988 with regard to multiple copying and electronic dissemination of such material.

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APPENDICES

Appendix 1 Test pit summaries

The stratigraphic succession encountered in each test pit are outlined below. Heights are given in metres above OD.

NGR coordinates and OD heights taken at centre of each trench; depth bgl = below ground level

Site:	Lowfield Street, Dartford		**Test Pit ID:**	TP 1	**Comments:**		
Site code:	208040						
Level (top):	5.63 m aOD	**Length:**	1.80 m				
		Width:	1.80 m				
		Depth:	2.30 m				

Depth		**Sediment description**	**Interpretation**	**Context**	**Samples < >**	**Lithic finds**	**Enviro remains**
Mbg	**mOD**						
0.00−0.90	5.63−4.73	Asphalt and made ground with extensive brick and concrete rubble **ABRUPT; SUB-HORIZONTAL**	MADE GROUND	0101	-	-	-
0.90−1.60	4.73−4.03	Dark grey-brown clay loam; moderately frequent fine-medium sub-angular flint clasts; rooted; structureless; poorly consolidated **DIFFUSE; SUB-HORIZONTAL**	BURIED TOP-SOIL	0102	-	-	-
1.60−1.75	4.03−3.82	Fine-coarse sub-angular flint gravel; dark orange fine sandy clay matrix; poorly sorted; structureless; poorly consolidated **ABRUPT; SUB-HORIZONTAL; TRUNCATED**	DISTURBED FLUVIAL SANDS AND GRAVEL	0103	-	-	-
1.75−+2.30	3.82−3.27	Fine-very coarse sub-angular and rounded clast supported flint gravel; very frequent medium rounded Tertiary flint clasts; dark orange slightly clayey coarse sand matrix; moderately sorted; weakly cross bedded; loose	FLUVIAL SANDS AND GRAVEL	0104	0101	1 flint flake; possibly intrusive	-

Site:	Lowfield Street, Dartford		**Test Pit ID:**	TP 2	**Comments:**
Site code:	208040				
Level (top):	5.09 m aOD	**Length:**	4.60 m		
		Width:	1.80 m		
		Depth:	3.05 m		

Depth		**Sediment description**	**Interpretation**	**Context**	**Samples < >**	**Lithic finds**	**Enviro remains**
Mbg	**mOD**						
0.00–+3.05	5.09–+2.04	Asphalt; hardcore; 1.10m of redeposited sand; 0.40m of brick rubble; +1.00m of reinforced concrete	MADE GROUND	0201	-	-	-

Site:	Lowfield Street, Dartford		**Test Pit ID:**	TP 3	**Comments:**
Site code:	208040				
Level (top):	5.35 m aOD	**Length:**	3.30 m		
		Width:	1.80 m		
		Depth:	2.50 m		

Depth		**Sediment description**	**Interpretation**	**Context**	**Samples < >**	**Lithic finds**	**Enviro remains**
Mbg	**mOD**						
0.00–+2.50	5.35–+2.85	Asphalt; hardcore; 2.10m of redeposited sand with brick rubble at base; reinforced concrete	MADE GROUND	0301	-	-	-

Site:	Lowfield Street, Dartford		**Test Pit ID:**	TP 4	**Comments:**
Site code:	208040				
Level (top):	5.43 m aOD	**Length:**	3.40 m		
		Width:	1.80 m		
		Depth:	3.00 m		

Depth		**Sediment description**	**Interpretation**	**Context**	**Samples < >**	**Lithic finds**	**Enviro remains**
Mbg	**mOD**						
0.00–0.90	5.43–4.53	Made ground and demolition rubble **SHARP; SUB-HORIZONTAL**	MADE GROUND	0401	-	-	-

Site:	Lowfield Street, Dartford		**Test Pit ID:**	TP 4	**Comments:**
Site code:	208040				
Level (top):	5.43 m aOD	**Length:**	3.40 m		
		Width:	1.80 m		
		Depth:	3.00 m		

Depth		**Sediment description**	**Interpretation**	**Context**	**Samples < >**	**Lithic finds**	**Enviro remains**
Mbg	**mOD**						
0.90−1.35	4.53−4.08	Dark grey-brown fine-medium sandy clay; frequent fine sub-angular flint and chalk clasts; occasional shell and shell fragments rooted; structureless; poorly consolidated **SHARP; SUB-HORIZONTAL; TRUNCATED**	BURIED TOP-SOIL	0402	-	-	-
1.35−+3.00	4.08-+2.43	Fine-very coarse sub-angular and rounded clast supported flint gravel; very frequent medium rounded Tertiary flint clasts; becoming coarser with depth; light yellowish grey to reddish brown fine to medium sand matrix; moderately sorted; weakly sub-horizontally bedded; loose	FLUVIAL SANDS AND GRAVEL	0403	0401 0402 0403 0404 0405	- - - - -	- - - - -

Site:	Lowfield Street, Dartford		**Test Pit ID:**	TP 5	**Comments:**
Site code:	208040				
Level (top):	5.77 m aOD	**Length:**	3.20 m		
		Width:	1.80 m		
		Depth:	2.80 m		

Depth		**Sediment description**	**Interpretation**	**Context**	**Samples < >**	**Lithic finds**	**Enviro remains**
Mbg	**mOD**						
0.00−1.05	5.77−4.72	Made ground and demolition rubble **SHARP; SUB-HORIZONTAL; TRUNCATED**	MADE GROUND	0501	-	-	-
1.05−1.80	4.72−3.97	Fine-very coarse sub-angular flint gravel; frequent rounded Tertiary flint clasts; dark orange-brown clayey medium-coarse sand matrix; poorly sorted; structureless; upper part rooted; poorly consolidated **ABRUPT; SUB-HORIZONTAL**	DISTURBED FLUVIAL SANDS AND GRAVEL	0502	0501 0502	-	-

Site:	Lowfield Street, Dartford		**Test Pit ID:**	TP 5	**Comments:**
Site code:	208040				
Level (top):	5.77 m aOD	**Length:**	3.20 m		
		Width:	1.80 m		
		Depth:	2.80 m		

Depth		**Sediment description**	**Interpretation**	**Context**	**Samples < >**	**Lithic finds**	**Enviro remains**
Mbg	**mOD**						
1.35−+3.00	3.97−+2.32	Fine-very coarse sub-angular clast supported flint gravel; moderately frequent medium rounded Tertiary flint clasts; medium yellowish orange medium-coarse sand matrix; poorly sorted; sub-horizontally bedded; loose	FLUVIAL SANDS AND GRAVEL	0503	0503 0504 0505 0506 0507 0508	- - - - - -	- - - - - -

Site:	Lowfield Street, Dartford		**Test Pit ID:**	TP 6	**Comments:**
Site code:	208040				
Level (top):	6.13 m aOD	**Length:**	4.00 m		
		Width:	1.80 m		
		Depth:	3.10 m		

Depth		**Sediment description**	**Interpretation**	**Context**	**Samples < >**	**Lithic finds**	**Enviro remains**
Mbg	**mOD**						
0.00−0.30	6.13−5.83	Light grey silty loam; heavily rooted; extensive modern rubbish; structureless; loose **ABRUPT; SUB-HORIZONTAL**	TOP SOIL	0601	-	-	-
0.30−1.15	5.83-4.98	Dark grey silty loam; extensive brick rubble, glass, tile, plastic, metal etc. **SHARP; SUB-HORIZONTAL**	DUMPED MATERIAL	0602	-	-	-
1.15−2.30	4.98−3.83	Fine-very coarse sub-angular-sub rounded flint gravel; moderately frequent medium rounded Tertiary flint clasts; dark-light brownish orange medium-coarse sand matrix; poorly sorted; loose; heavily disturbed; modern rubbish pit cut through deposit	DISTURBED FLUVIAL SANDS AND GRAVEL	0603	-	-	-

Site:	Lowfield Street, Dartford		**Test Pit ID:**	TP 6	**Comments:**
Site code:	208040				
Level (top):	6.13 m aOD	**Length:**	4.00 m		
		Width:	1.80 m		
		Depth:	3.10 m		

Depth		**Sediment description**	**Interpretation**	**Context**	**Samples < >**	**Lithic finds**	**Enviro remains**
Mbg	**mOD**						
2.30−+3.10	3.83−+3.03	Fine-very coarse sub-angular-sub rounded flint gravel; moderately frequent medium rounded Tertiary flint clasts; dark-light brownish orange medium-coarse sand matrix; poorly sorted; sub-horizontally bedded; loose	FLUVIAL SANDS AND GRAVEL	0604	0601 0602 0603 0604 0605	- - - - -	- - - - -

Site:	Lowfield Street, Dartford		**Test Pit ID:**	TP 7	**Comments:**
Site code:	208040				
Level (top):	5.85 m aOD	**Length:**	4.00 m		
		Width:	1.80 m		
		Depth:	3.10 m		

Depth		**Sediment description**	**Interpretation**	**Context**	**Samples < >**	**Lithic finds**	**Enviro remains**
Mbg	**mOD**						
0.00−0.35	5.85−5.50	Light grey silty loam; heavily rooted; extensive modern rubbish; structureless; loose **ABRUPT; SUB-HORIZONTAL**	TOP SOIL	0701	-	-	-
0.35−0.80	5.50−5.05	Dark grey -brown clay silt; very frequent brick and chalk rubble; structureless; poorly consolidated **SHARP; SUB-HORIZONTAL**	MADE GROUND	0702	-	-	-
0.80−1.00	5.05−4.85	Olive grey slightly sandy (medium sand) silty clay; medium frequent orange mottles; moderately frequent fine sub-angular flint clasts; rooted; structureless; poorly consolidated **ABRUPT; SUB-HORIZONTAL**	UPPER ALLUVIAL DEPOSITS	0703	-	-	-

Site:	Lowfield Street, Dartford		**Test Pit ID:**	TP 7	**Comments:**
Site code:	208040				
Level (top):	5.85 m aOD	**Length:**	4.00 m		
		Width:	1.80 m		
		Depth:	3.10 m		

Depth		**Sediment description**	**Interpretation**	**Context**	**Samples < >**	**Lithic finds**	**Enviro remains**
Mbg	**mOD**						
1.00−1.40	4.85−4.45	Olive grey-orange mottled silty clay; frequent very fine sub-angular flint clasts; occasional medium-very coarse rounded flint cobbles; occasional charcoal fragments; very occasional fine brick/tile fragments; structureless; poorly consolidated **ABRUPT; SUB-HORIZONTAL**	UPPER ALLUVIAL DEPOSITS	0704	-	-	-
1.40−1.90	4.45−3.95	Dark grey slightly sandy (fine) silt; moderately frequent medium brown mottles; clast free; structureless; moderately consolidated **ABRUPT; SUB-HORIZONTAL**	LOWER ALLUVIAL DEPOSITS	0705	-	-	-
1.90−2.70	3.95−3.15	Light yellowish-brown slightly silty very fine sand; moderately frequent medium orange mottles; occasional organic fragments; very frequent very fine sub-angular flint clasts; structureless; poorly consolidated **SHARP; SUB-HORIZONTAL**	LOWER ALLUVIAL DEPOSITS	0705	0703	-	-
2.70−+3.10	3.15−+2.75	Fine-very coarse sub-angular-sub rounded clast supported flint gravel; moderately frequent medium rounded Tertiary flint clasts; brownish orange medium-coarse sand matrix; poorly sorted; weakly sub-horizontally bedded; loose	FLUVIAL SANDS AND GRAVEL	0706	0701 0702	- -	- -

Appendix 2 Kent HER Form

Site Name: Lowfield Street, Dartford, Kent	
Site Address: Lowfield Street, Dartford, Kent, DA1 1LH	
Summary of discoveries: Post-medieval/19th century remains	
District/Unitary: Dartford	**Parish:** Dartford
Period(s): NA	
NGR (centre of site to nearest 1m): **(NB if large or linear site give multiple NGRs)** 554186 173964	
Type of archaeological work (delete) Evaluation	
Date of fieldwork (dd/mm/yy) From: 17th September 2018 **To:** 23rd September 2018	
Unit/contractor undertaking recording: Wessex Archaeology	
Geology: Seaford Chalk Formation with superficial deposits comprising of clay, silt, sand and gravels; it is east to an area where Pleistocene fluvial sands and gravels ascribed to the Taplow Gravel Member are mapped, overlying Seaford Chalk Formation (BGS online viewer)	
Title and author of accompanying report: Title: Lowfield Street, Dartford, Kent: Geoarchaeological Test Pitting Evaluation Authors: Thomas Piggott	
Summary of fieldwork results (begin with earliest period first, add NGRs where appropriate) Wessex Archaeology was commissioned by CgMs Heritage (Part of RPS) ('the client'), to carry out a geoarchaeological evaluation through a program of test pitting of a 1.73 ha parcel of land located in Lowfield Street, Dartford, Kent. This geoarchaeological evaluation comprised the excavation of 7 machine-excavated test pits. The evaluation established that two distinct Quaternary sediment bodies are present, Pleistocene fluvial sands and gravels and Holocene alluvial deposits. Pleistocene sands and gravels were identified in the northern and southern areas of the Site; except for along the Site's southern margin, these have been truncated by previous development. These deposits reflect dynamic fluvial depositions, under cooling-cold conditions. They can be equated with the Taplow/Mucking Gravel Member of River Thames which aggraded between MIS 8 and MIS 6 (Bridgland 2006). The potential for these sands and gravels to preserve Palaeolithic artefacts and associated palaeoenvironmental evidence was assessed. No Palaeolithic artefacts clearly associated with these deposits were recovered and their palaeoenvironmental potential has been assessed as low. Holocene alluvial sediments associated with River Darent were recorded at the southern margin of the Site; they are absent and/or have been removed from the other areas evaluated. These deposits represent fine grained, over-bank material laid down during an unknown expanse of the Holocene; the uppermost units are of recent date. No peat was encountered. The potential for the alluvial deposits to preserve artefacts and ecofacts was assessed. No artefacts were recovered and their palaeoenvironmental potential has been assessed to be low.	
Location of archive/finds: Wessex Archaeology Maidstone Office	
Contact at Unit: Rob De'Athe	**Date:** 22.10.2018

Appendix 3 Oasis Form

OASIS ID: wessexar1-331594

Project details

Project name	Lowfield Street, Dartford, Kent: Geoarchaeological Evaluation
Short description of the project	Wessex Archaeology was commissioned by CgMs Heritage (Part of RPS) ('the client'), to carry out a geoarchaeological evaluation through a program of test pitting of a 1.73 ha parcel of land located in Lowfield Street, Dartford, Kent. The evaluation area is centred on NGR 554186 173964. The evaluation established that two distinct Quaternary sediment bodies are present, Pleistocene fluvial sands and gravels and Holocene alluvial deposits. Pleistocene sands and gravels were identified in the northern and southern areas of the Site; except for along the Site's southern margin, these have been truncated by previous development. These deposits reflect dynamic fluvial depositions, under cooling-cold conditions. They can be equated with the Taplow/Mucking Gravel Member of River Thames which aggraded between MIS 8 and MIS 6 (Bridgland 2006). The potential for these sands and gravels to preserve Palaeolithic artefacts and associated palaeoenvironmental evidence was assessed. No Palaeolithic artefacts clearly associated with these deposits were recovered and their palaeoenvironmental potential has been assessed as low. Holocene alluvial sediments associated with River Darent were recorded at the southern margin of the Site; they are absent and/or have been removed from the other areas evaluated. These deposits represent fine grained, over-bank material laid down during an unknown expanse of the Holocene; the uppermost units are of recent date. No peat was encountered. The potential for the alluvial deposits to preserve artefacts and ecofacts was assessed. No artefacts were recovered and their palaeoenvironmental potential has been assessed to be low.
Project dates	Start: 17-09-2018 End: 19-09-2018
Previous/future work	Yes / Not known
Any associated project reference codes	208040 - Contracting Unit No.
Any associated project reference codes	DA/16/01919/FUL - Planning Application No.
Type of project	Field evaluation
Site status	None
Current Land use	Vacant Land 1 - Vacant land previously developed
Methods & techniques	"Sample Trenches"
Development type	Urban residential (e.g. flats, houses, etc.)
Prompt	Planning condition
Position in the planning process	After full determination (eg. As a condition)

Project location

Country	England
Site location	KENT DARTFORD DARTFORD Lowfield Street: Geoarchaeological Evaluation

Postcode	DA1 1LH
Study area	1.73 Hectares
Site coordinates	TQ 54186 73964 51.443131865492 0.218871053975 51 26 35 N 000 13 07 E Point

Project creators

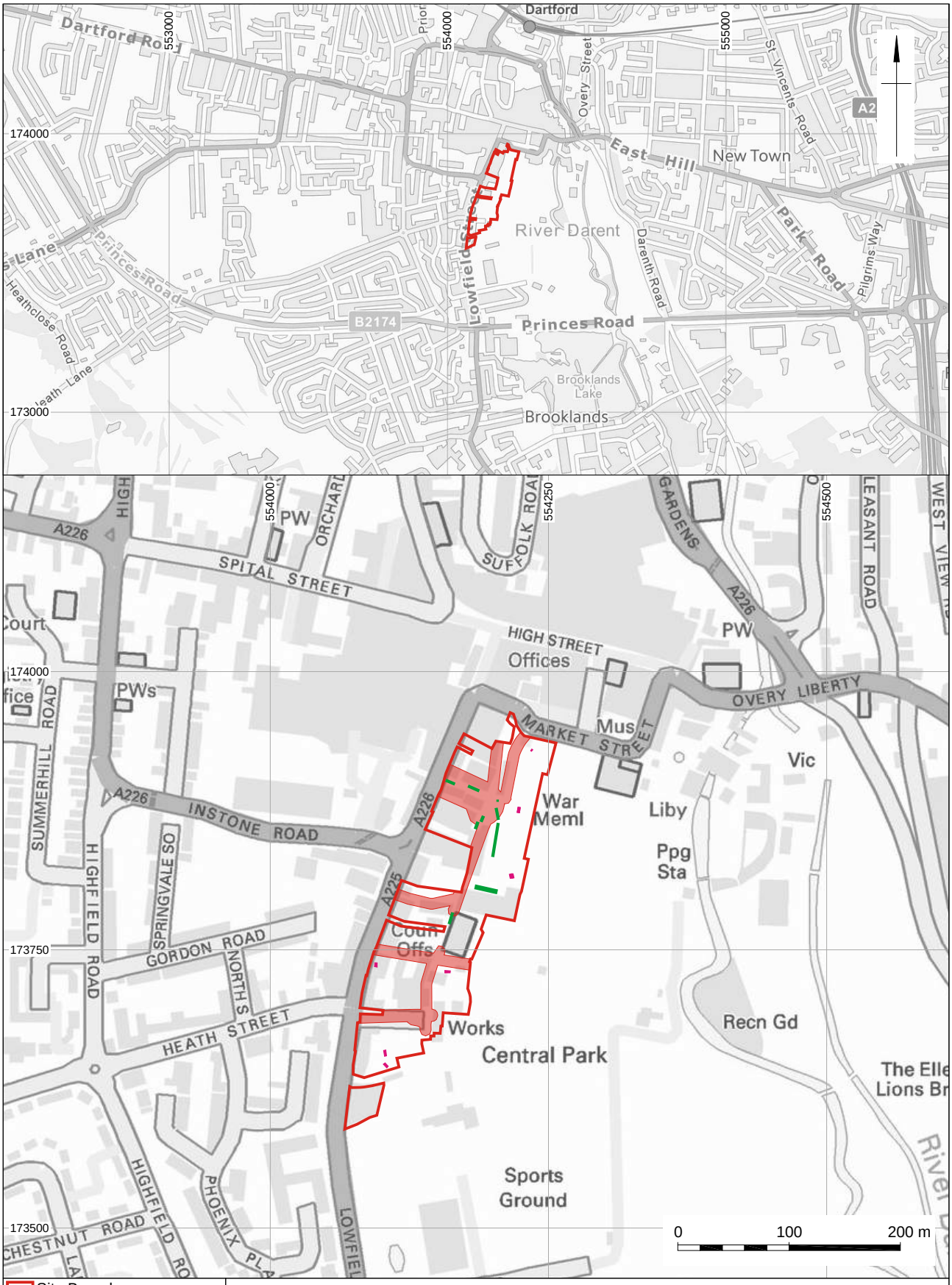
Name of Organisation	Wessex Archaeology
Project brief originator	CgMs Heritage
Project design originator	Wessex Archaeology
Project director/manager	Rob De'Athe
Project supervisor	Emilia Seredynska
Type of sponsor/funding body	Archaeological Consultant
Name of sponsor/funding body	CgMs Heritage

Project archives

Physical Archive Exists?	No
Digital Media available	"Images raster / digital photography","Survey","Text"
Paper Media available	"Context sheet","Correspondence","Diary","Report","Unpublished Text","Unspecified Archive"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Lowfield Street, Dartford, Kent: Pleistocene Geoarchaeological Test Pitting Evaluation
Author(s)/Editor(s)	Shaw, A
Other bibliographic details	208040.4
Date	2018
Issuer or publisher	Wessex Archaeology
Place of issue or publication	Maidstone
Description	Report detailing the results of a Pleistocene Geoarchaeological Test Pitting Evaluation. Grey literature report.



Site Boundary
Previous Eval Trench
Test Pit

Coordinate system: OSGB36 (OSTN15/OSGM15)

Date:	23/10/2018	Revision Number:	0
Scale:	1:5,000 at A4	Illustrator:	ALS
Path:	R:\PROJECTS\208040\Graphics_Office\Rep figs\GeoEval\2018_10_22\208040_Eval.dwg		

Site location and test pit locations

Figure 1

554100 554150 554200 554250

173950 173900 173850 173800 173750

Market Street
30 mph Speed Limit - Asphalt

Lowfield Street
30 mph Speed Limit - Asphalt

Dense Vegetation
Unable to Survey

Locked Compound
Unable to Survey

Shed

TP1 TP2 TP3 TP4 TP5

ST01 ST02 ST03 ST04 ST05 ST06 ST07 ST35 ST36 ST37 ST38 ST39 ST40 ST41 REF-1

Coordinate system:
OSGB36 (OSTN15/OSGM15)

- Site Boundary
- AOC 2006 Evaluation Trench
- Proposed Test Pit
- Exclusion Zone

Date:	22/10/2018	Revision Number:	0
Scale:	1:800 at A3	Illustrator:	ALS
Path:	R:\PROJECTS\208040\Graphics_Office\Rep figs\GeoEval\2018_10_22		

Test Pit Layout: North

Figure 2

554050
554100
554150
554200
173750
173700
173650
173600
173550
TP4
TP5
TP6
TP7
Dense Vegetation Unable to Survey
Locked Compound Unable to Survey
Shed
ST07
ST08
ST09
ST10
ST41
Lowfield Street
30 mph Speed Limit - Asphalt
Glentworth Ex Service Club
Private Fields
UK 12h

Coordinate system:
OSGB36 (OSTN15/OSGM15)

- Site Boundary
- AOC 2006 Evaluation Trench
- Proposed Test Pit
- Exclusion Zone

Date:	22/10/2018	Revision Number:	0
Scale:	1:800 at A3	Illustrator:	ALS
Path:	R:\PROJECTS\208040\Graphics_Office\Rep figs\GeoEval\2018_10_22		

Test Pit Layout: South

Figure 3

Plate 1: Test Pit 1, north facing section through made ground and fluvial sands and gravels

Plate 2: Test Pit 4, north east facing section through made ground and fluvial sands and gravels

Date:	22/10/2018	Revision Number:	0
Scale:	N/A	Illustrator:	ALS
Path:	R:\PROJECTS\208040\Graphics_Office\Rep Figs\Eval\2018_10_22\208040_Plates.cdr		

Plate 3: Test Pit 5, north east facing section through made ground and fluvial sands and gravels

Plate 4: Test Pit 2, west facing section through made ground

Date:	22/10/2018	Revision Number:	0
Scale:	N/A	Illustrator:	ALS
Path:	R:\PROJECTS\208040\Graphics_Office\Rep Figs\Eval\2018_10_22\208040_Plates.cdr		

Plate 5: Test Pit 7, north east facing section through made ground, upper and lower alluvium and fluvial sands and gravels

Date:	22/10/2018	Revision Number:	0
Scale:	N/A	Illustrator:	ALS
Path:	R:\PROJECTS\208040\Graphics_Office\Rep Figs\Eval\2018_10_22\208040_Plates.cdr		

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