

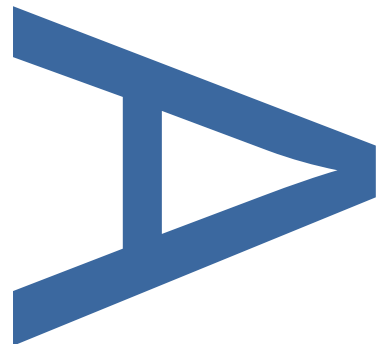
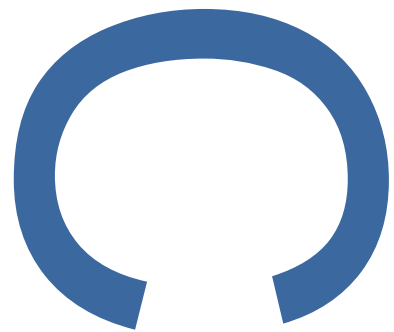
**95 BRENT LANE, DARTFORD,
KENT DA1 1QT**

**AN ARCHAEOLOGICAL AND
GEOARCHAEOLOGICAL
EVALUATION**

**LOCAL PLANNING AUTHORITY:
DARTFORD BOROUGH COUNCIL**

PCA REPORT NO: 13054

OCTOBER 2017



PRE-CONSTRUCT ARCHAEOLOGY

DOCUMENT VERIFICATION

95 BRENT LANE, DARTFORD, KENT DA1 1QT

AN ARCHAEOLOGICAL AND GEOARCHAEOLOGICAL
EVALUATION

Quality Control

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**95 BRENT LANE, DARTFORD, KENT, DA1 1QT. AN ARCHAEOLOGICAL AND
GEOARCHAEOLOGICAL EVALUATION**

Site Code: KBLD17

Central NGR: TQ 5515 7354

Local Planning Authority: Dartford Borough Council

Planning Reference: DA/16/01848/FUL

Commissioning Client: Urban Enhance

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1 ABSTRACT

- 1.1 This report details the results and working methods of an archaeological and geoarchaeological evaluation conducted by Pre-Construct Archaeology Ltd on land at 95 Brent Lane, Dartford, Kent, DA1 1QT. The site is located within Dartford and is centred at TQ 5515 7354.
- 1.2 Following a Written Scheme of Investigation prepared by Pre-Construct Archaeology Ltd (Moore 2017), the evaluation was carried out between 18^h and 21st September 2017 and was completed in accordance with the standards specified by the Chartered Institute for Archaeologists and following the guidelines issued by Historic England.
- 1.3 Natural deposits of gravels were located between 38.11m OD in Trench 1 to the north of the site and 37.94m OD in Trench 3, located to the south. Of the 9 flakes recovered 2 were residual and 7 may be Palaeolithic but are small non-diagnostic and heavily rolled. No other archaeological finds or features were observed during the course of the exercise.
- 1.4 On this basis, no further archaeological mitigation works are expected to be necessary.

2 INTRODUCTION

- 2.1 An archaeological and geoarchaeological evaluation commissioned by Urban Enhance was undertaken on Land 95 Brent Lane, Dartford, Kent, DA1 1QT between 18th and 21st September 2017.
- 2.2 The site comprised an irregular rectangular plot of land, with a spur access to the south that joins to Brent Lane and is centred at TQ 5515 7354. The site is bounded to the east by a public footpath and by housing to the north, west and south.
- 2.3 The Written Scheme of Investigation prepared by Pre-Construct Archaeology Ltd (Moore 2017), details the methodology by which the evaluation was undertaken. The WSI followed the Historic England (Historic England GLAAS 2014) and Chartered Institute for Archaeologists guidelines (CIFA, 2014). The WSI identified that the southwest corner of the site had been truncated by a gravel quarry. The archaeological evaluation trenches were located in the untruncated northern and eastern parts of the site while the geoarchaeological test pits were located to provide transects across the site. The evaluation was supervised for PCA by Guy Seddon and managed by Peter Moore for Pre-Construct Archaeology Ltd.
- 2.4 The site was given a unique site code KBLD17. The complete archive comprising written, drawn and photographic records will be deposited with a local museum.

3 PLANNING BACKGROUND

- 3.1 The study aims to satisfy the objectives of Kent County Council and Dartford Borough Council, which fully recognise the importance of the buried heritage for which they are the custodians.
- 3.2 The evaluation was undertaken in advance of a planning application at the site for a block of apartments. The scope of works, the Written Scheme of Investigation and the site works were agreed with, and monitored by Wendy Rogers, KCC, on behalf of Dartford Borough Council
- 3.3 The work was undertaken under the auspices of the National Planning Policy Framework (NPPF 2012), and the Dartford Borough Council Local Plan Review Second Deposit Draft, dated September 2002. Since September 2007 a number of saved policies remain valid until the adoption of the Local Development Framework (LDF) Development Management Policies. Saved policies relating to archaeology include:
- BE10 SCHEDULED ANCIENT MONUMENTS
 - BE11 PROTECTION OF SITES OF LOCAL ARCHAEOLOGICAL VALUE
 - B12 OTHER SITES OF ARCHAEOLOGICAL SIGNIFICANCE
- 3.14 It was agreed that a programme of archaeological and geoarchaeological evaluation would form the appropriate mitigation to inform the planning application progress.

4 GEOLOGY AND TOPOGRAPHY

4.1 Geology

4.1.1 The British Geological Survey (2013) indicates that the solid geology within the vicinity of the site consists of Chalk bedrock overlain by superficial geology consisting of Taplow Gravels (Sand and Gravel).

4.2 Topography

4.2.1 The site was broadly level at 38m OD (Ordnance Datum).

4.2.2 The site had a considerable dip in levels in the south-west corner, of c.3m, which corresponds with the location of a 19th century gravel quarry.

4.2.3 The site lay c.3.6km from the River Thames and c. 570m from the River Darent.

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 Prehistoric

- 5.1.1 A Palaeolithic axe was found at York Road just off Brent Lane to the NW of the site, this was still sharp, indicative that it had not moved far since original deposition.
- 5.1.2 A scatter of Palaeolithic flints was found at East Hill house to the north of the study site.
- 5.1.3 The potential for a preserved Palaeolithic horizon was found at Green Street to the SW of the site.
- 5.1.4 Bronze Age and Iron Age features have been found at East Hill House to the north, Green Street to the SW and Princes Road to the south.

5.2 Roman

- 5.2.1 East Hill to the north of the site is part of the Roman Watling Street and 103 Roman burials have been found at East Hill House. Another single inhumation was also found at Green Street. The presence of other Roman activity was found at Princes Road and Green Street.

5.3 Saxon

- 5.3.1 The site of a supposed Saxon cemetery lies to the south of the site, but the information has poor provenance.

6 ARCHAEOLOGICAL METHODOLOGY AND OBJECTIVES

- 6.1 The purpose of the archaeological investigation was to determine the presence or absence of surviving features at the site and, if present, to assist in formulating an appropriate archaeological mitigation strategy. All works were undertaken in accordance with the guidelines set out by Historic England and the Institute of Field Archaeology.
- 6.2 As outlined in the Written Scheme of Investigation (Moore 2017), the evaluation aimed to address the following issues:
- The Evaluation will aim to locate, evaluate, date and record all any archaeological remains, from the Palaeolithic to Post-Medieval periods so as to be able to inform an archaeological mitigation strategy.
 - The Evaluation will aim to locate and define any truncation which may have wholly or partially removed any archaeological or geological deposits. It will also create a deposit model of the deposits across the site.
 - The Evaluation will aim to define whether the natural gravel survive intact to the NE of the site or whether they have been disturbed but not removed. If undisturbed do they contain any evidence for Palaeolithic activity?
 - Is there any evidence on the site for the prehistoric and Roman activity as seen in the vicinity?
- 6.3 The site was initially to be subject to three evaluation trenches initially to measure 10m by 1.8m, however the upon the initial excavation of Trench 2, deposits of asbestos were encountered and the trench was abandoned for health and safety reasons.
- 6.4 All excavation of the low-grade overlying deposits was undertaken using a 360° tracked mechanical excavator using a toothless ditching bucket, under the constant supervision of a qualified archaeologist.
- 6.5 Machine excavation continued in spits of 100mm at a time until the natural ground was exposed.
- 6.6 Following machine excavation, relevant faces of the trench that required examination or recording were cleaned using appropriate hand tools. The investigation of archaeological levels was by hand, with cleaning, examination and recording both in plan and in section.
- 6.7 All archaeological features (stratigraphical layers, cuts, fills, structures) were evaluated by hand tools and recorded in plan at 1:20 or in section at 1:10 using standard single context recording methods. Features were evaluated so as to characterise their form, function and date.
- 6.8 Both the excavated trenches were allowed 48 hours to allow any features to weather out.

- 6.9 Once the archaeological potential had been established, and any features investigated and recorded, then one end of each trench was selected and machine excavated in spits by a Palaeolithic specialist and geoarchaeologist so as to identify and record the stratigraphic sequence, examine and record the deposits and identify any palaeoarchaeological artefacts or ecofacts.
- 6.10 The recording systems adopted during the investigations were fully compatible with those developed out of the Department of Urban Archaeology Site Manual, now published by the Museum of London Archaeological Service (MoLAS 1994) and with PCA Site Manual (Taylor and Brown, 2009). The site archive was organised to be compatible with the archaeological archives produced in the Local Authority area.
- 6.11 A full photographic record was made during the archaeological investigation consisting of a digital photographic archive that was maintained during the course of the archaeological investigation.
- 6.12 The complete archive produced during the evaluation and watching brief, comprising written, drawn and photographic records, will be deposited with a local museum under the unique site code KBLD17.
- 6.13 Levels were trenches and test pits were located using a GPS.

7 THE ARCHAEOLOGICAL SEQUENCE BY TRENCH

7.1 Trench 1

7.1.1 The earliest deposit recorded in Trench 1 was compacted gravels within a clayey silt matrix, [1]. It fell from a height of 38.18m OD at the western end of the trench to 37.99m OD to the east.

7.1.2 Directly overlying the natural was 20th century made ground, c. 0.20m in thickness, consisting of hardcore rubble which was used as bedding for the patio area to the rear of the property. This brought the height up to current day levels of 38.38m OD at the western end of the trench, rising to 38.57m OD at the eastern end.

7.2 Trench 2

7.2.1 As stated in the methodology, Trench 2 was unexcavated due to the presence of asbestos in the topsoil.

7.3 Trench 3

7.3.1 The earliest deposit recorded in Trench 3 was compacted gravels in a clayey silt matrix [2]. It fell from a height of 38.10m OD to the south of the trench to 37.94m OD at the northern end.

7.3.2 Overlying the natural deposits was a layer of imported topsoil, c.0.40m thick, which brought the height up to the current day levels of 38.51m OD at the southern end of the trench and 38.31m OD at the northern end.

8 ARCHAEOLOGICAL PHASE DISCUSSION

8.1 Phase 1: Natural Deposits

8.1.1 The natural deposits found on site comprised gravels within a clayey silt matrix. They fell from a height of 38.11m OD in Trench 1 to the north of the site and 37.94m OD in Trench 2, located to the south.

8.2 Phase 2: Modern

8.2.1 The natural layers were directly overlain by modern deposits in both the excavated trenches, heavily suggesting that the entire site had been stripped down and terraced either because of the quarrying activity in the 19th century, or due to landscaping during the construction of the current property at 95 Brent Lane in the early 20th century. In Trench 1 the modern deposits took the form of hardcore rubble, the bedding layer for a patio area to the rear of the property that had a surface height of c.38.50m OD. In Trench 3 imported topsoil had been brought in to build the area up to a level of c.38.40m OD.

9 ORIGINAL AND REVISED RESEARCH OBJECTIVES

9.1 Primary Objectives

9.1.1 The Written Scheme of Investigation (Moore, 2017) prepared prior to the commencement of archaeological work at Brent Lane highlighted a set of specific objectives to be addressed by the investigation;

9.2 The Evaluation will aim to locate, evaluate, date and record all any archaeological remains, from the Palaeolithic to Post-Medieval periods so as to be able to inform an archaeological mitigation strategy.

9.2.1 No diagnostic archaeological remains from the Palaeolithic to Post-Medieval periods were witnessed while the evaluation. Seven small, heavily rolled flakes were recovered which stratigraphically may have need Palaeolithic but were undiagnostic.

9.3 The Evaluation will aim to locate and define any truncation which may have wholly or partially removed any archaeological or geological deposits. It will also create a deposit model of the deposits across the site.

9.3.1 The evaluation showed that the natural gravels were directly sealed by early-mid 20th century deposits, with no presence of any subsoil. This indicates that the study site had been stripped and the natural gravels horizontally truncated. It is most probable that this process happened during the construction of the existing property at 95 Brent lane, in order to level the site, in preparation for building after its use as a quarry.

9.4 The Evaluation will aim to define whether the natural gravel survive intact to the NE of the site or whether they have been disturbed but not removed. If undisturbed do they contain any evidence for Palaeolithic activity?

9.4.1 The evaluation proved the presence of natural gravels to the NE of the site. The evaluation also showed that the gravels had been horizontally truncated, to an unknown degree in the past, as afore mentioned.

9.4.2 The Pleistocene deposits encountered were poorly sorted and contained large clasts indicating deposition under high energy conditions. A small number of struck flints were recovered from within the Pleistocene gravels deposits, which were very small and heavily rolled having clearly travelled a long way down the river before being finally incorporated. This indicates general activity within the broader area but nothing in situ.

9.5 Is there any evidence on the site for the prehistoric and Roman activity as seen in the vicinity?

9.5.1 No evidence for the prehistoric and Roman activity as seen in the vicinity was witnessed on the study site.

10 CONCLUSIONS

- 10.1 The evaluation showed that the area of trial trenching had been horizontally truncated during historical use of the study site and any archaeological features that may have been present were removed at that time.
- 10.2 The archaeological evaluation found natural gravels at between 38.11m OD and 37.94m OD, which were directly sealed by modern deposits.

11 ACKNOWLEDGEMENTS

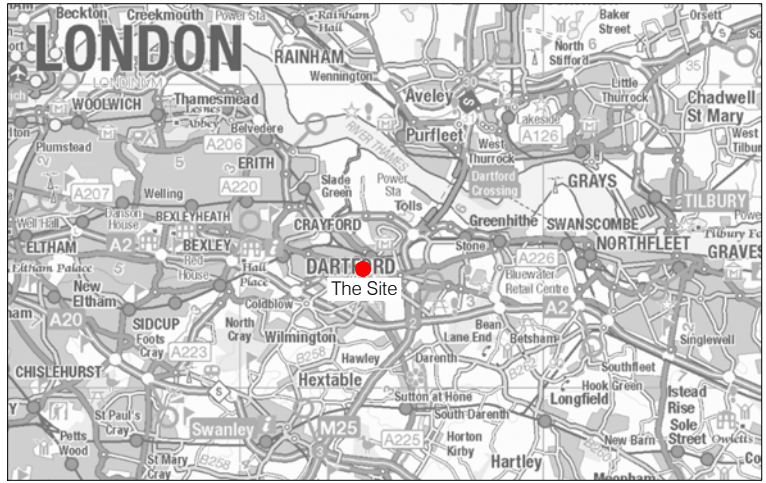
- 11.1 Pre-Construct Archaeology Limited would like to thank Urban Enhance for commissioning the archaeological work, especially James Skinner, and for their logistical support.
- 11.2 Thanks also to Wendy Rogers for monitoring the project on behalf of Dartford District Council.
- 11.3 The author would also like to thank: Peter Moore for project managing and editing this report; Barry Bishop and Kate Turner for the geoarchaeological investigation; Ray Murphy for the illustrations; Richard Archer for the survey and James Heathcote for his work on site.

12 BIBLIOGRAPHY

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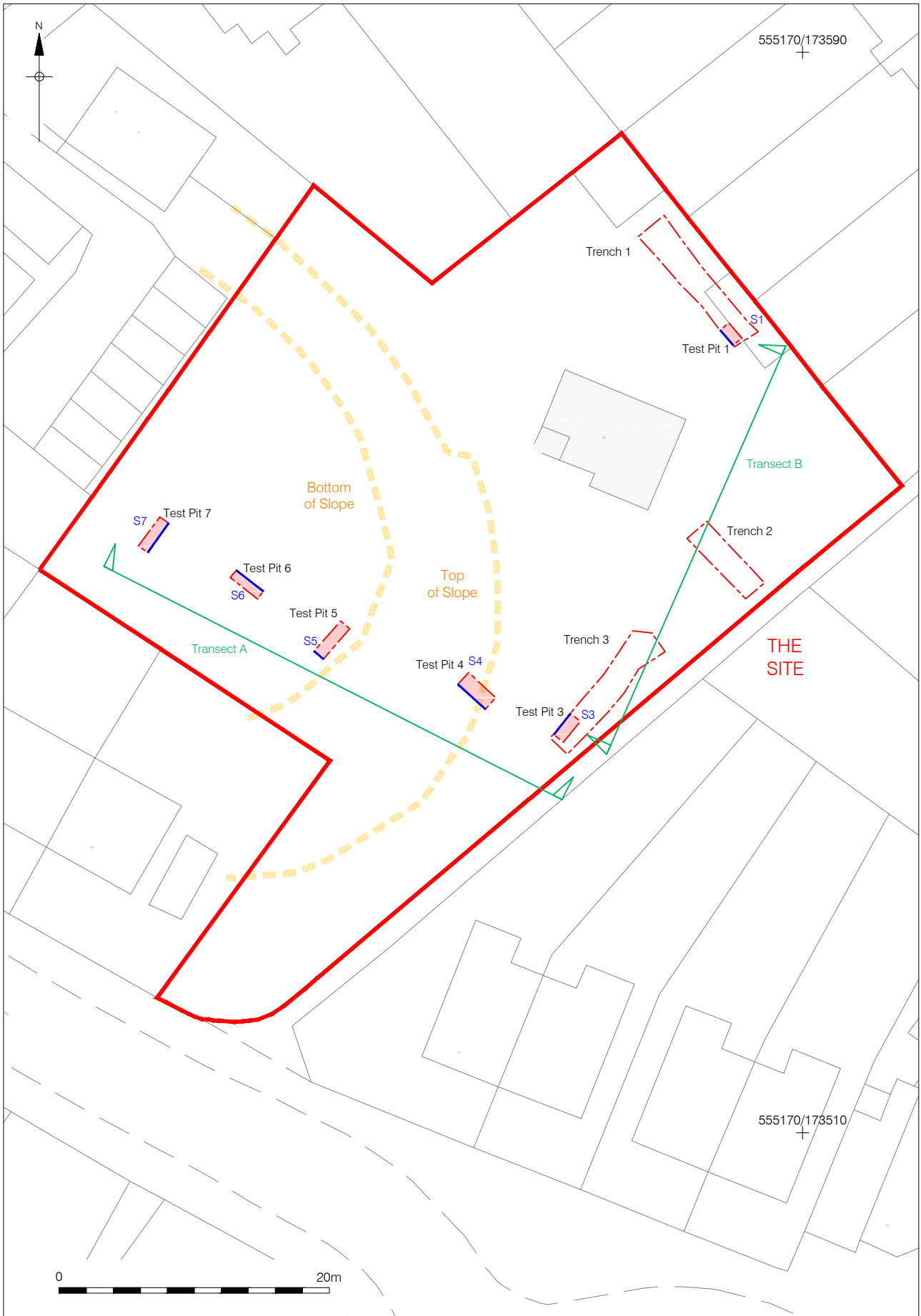
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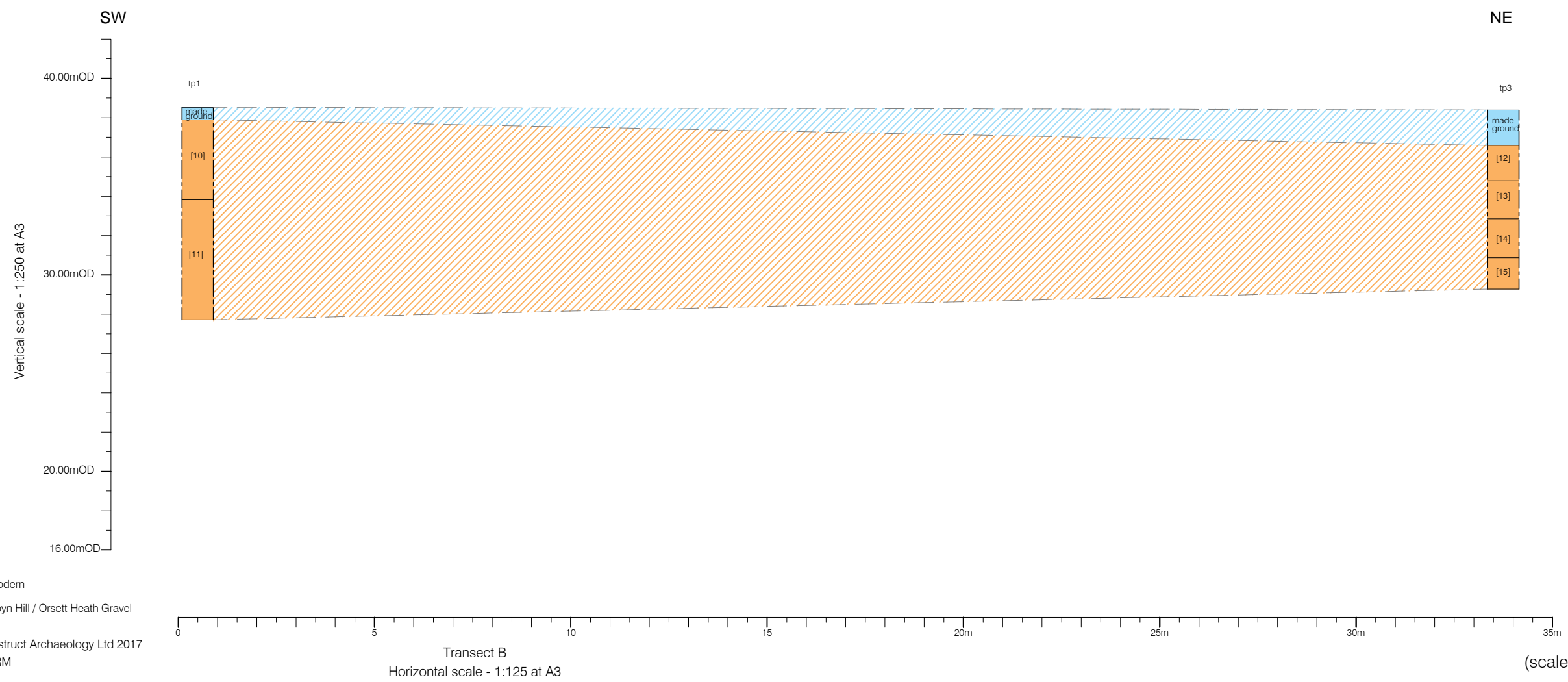
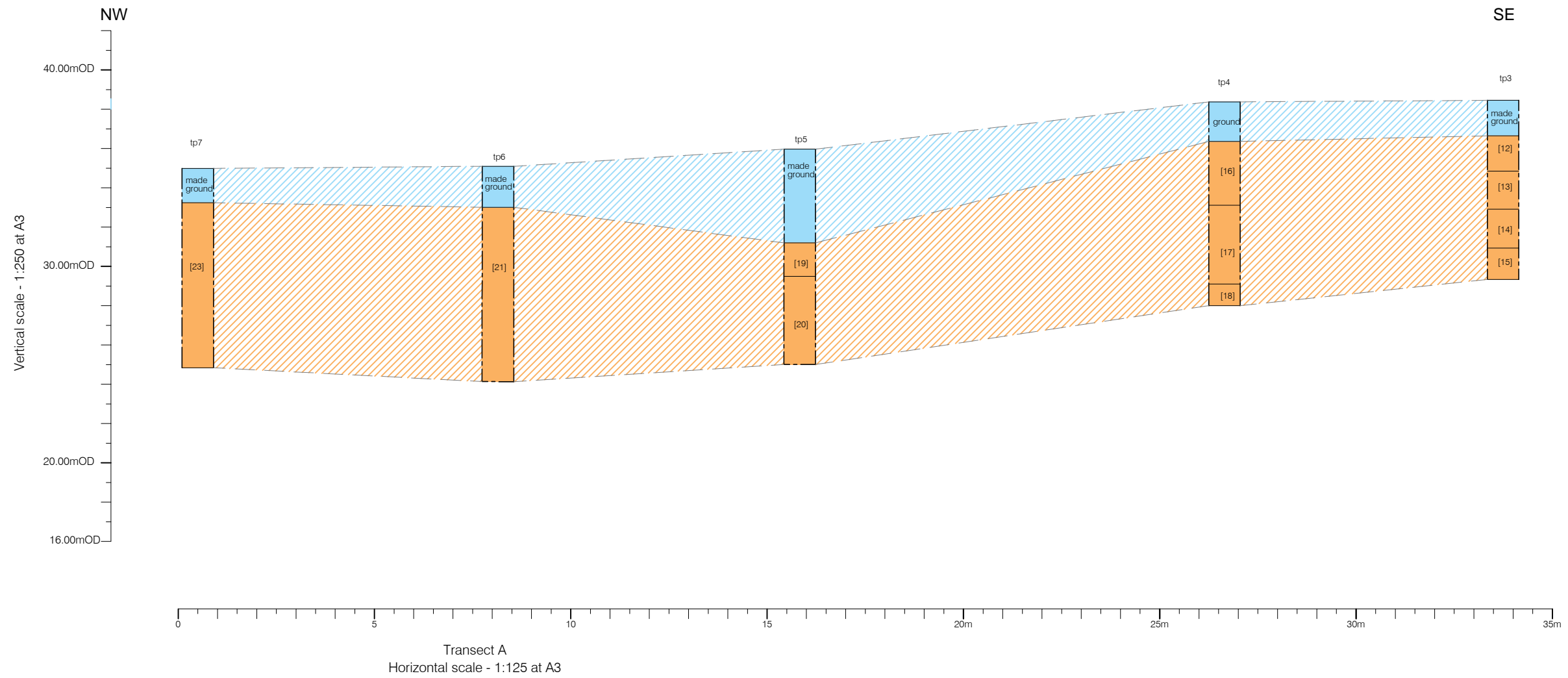
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Figure 1
 Site Location
 1:2,000,000; 1:250,000; 1:25,000 at A4



Drawing based on Topographical Survey supplied by Hook Survey Partnership
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 17/10/17 RM

Figure 2
 Trench & Test Pit Location Plan
 1:400 at A4



Modern
 Boyn Hill / Orsett Heath Gravel

Figure 3
Test Pit sections
(scales as indicated on drawing)

PLATES



Plate 1: Trench 1, Looking North



Plate 2: Trench 3, Looking North



Plate 3: Test Pit 1, Section 1, Looking South



Plate 4: Test Pit 3, Section 2, Looking West



Plate 5: Test Pit 4, Section 3, Looking North



Plate 6: Test Pit 5, Section 4, Looking East



Plate 2: Test Pit 6, Section 5, Looking West



Plate 3: Test Pit 7, Section 6, Looking East

APPENDIX 1: GEOARCHAEOLOGICAL ASSESSMENT OF THE QUATERNARY DEPOSITS

GEOARCHAEOLOGICAL ASSESSMENT REPORT

Site: 95 Brent Lane, Dartford, Kent (KBLD17)

By Kate Turner

1. INTRODUCTION

This report summarises the findings of the evaluation of two archaeological trial trenches and four geoarchaeological test pits from an archaeological evaluation on land at 95 Brent Lane, Dartford. The aim of this assessment is to describe and provide an interpretation of the sedimentary sequences uncovered during the course of the evaluation.

2. METHODOLOGY

Two 2-metre square geoarchaeological test pits were machine excavated within the area of previously excavated archaeological evaluation trenches. Four further test pits were machine excavated in a transect across the site to assess the relative levels of natural gravels in areas where gravel quarrying had previously taken place. Sediment was removed in spits and recorded upon reaching discrete sedimentary boundaries; upon exposure of a representative section of the stratigraphic sequence, digging was halted and the sequence was logged following the standard recording procedure (Jones et al., 1999). One-hundred litre sediment samples were taken from each discrete unit and hand sorted for any artefactual or environmental evidence.

3. RESULTS

The following tables provide the depth, stratigraphy and descriptions of the deposits identified.

Figure 1: Test pit 1, trench 1 (North facing)

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Context	Description
0.00	38.56	0.60	Made ground		Mixed hardcore rubble.
Sharp boundary					

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Context	Description
0.60	37.65	0.60	Terrace gravels		10 YR 6/4 light yellowish brown. Gs ² Gg ² . Weakly bedded, loosely compacted gravel in a coarse sandy matrix. Rounded to sub-rounded pebbles; medium to small clast size. Low concentration of sub angular and nodular pebbles and cobbles. Poorly sorted.
Diffuse boundary					
1.20	37.36	0.70	Terrace gravels		7.5 YR 6/8 reddish yellow. Gs ² Gg ² . Moderately compacted coarse sandy gravel, weakly bedded. Medium to large rounded to sub rounded inclusions. Some large nodular cobbles observed. Some small rounded tertiary pebbles. Poorly sorted.
Sharp boundary					
1.90	36.66		Terrace gravels		5 YR 6/6 reddish yellow. As above, less compacted. Clast size increases towards base of unit.
STOPPED AT 2.75 M EXTENT NOT REACHED					

Figure 2: Test pit 2, trench 3 (East facing)

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Context	Description
0.00	38.56	0.45	Made ground		10 YR 4/2 dark greyish brown. Loose topsoil.
Sharp boundary					
0.45	38.11	0.95	Terrace gravels		10 YR 7/8 yellow. Gs ² Gg ² . Weakly bedded, loosely compacted gravel in a coarse sandy matrix. Rounded to sub-rounded pebbles; medium to small clast size. Low concentration of sub angular and nodular pebbles and cobbles. Poorly sorted.
Diffuse boundary					

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Context	Description
1.40	37.16	0.45	Terrace gravels		10 YR 6/8 brownish yellow. Gg ³ Gs ² . As above, more compacted, some large nodular cobbles. Some small, rounded tertiary pebbles. Poorly sorted.
Diffuse boundary					
1.85	36.71	0.25	Terrace gravels		10 YR 6/8 brownish yellow. Gg ³ Gs ² . Gg ² Gs ² Ag ⁺ . Weakly bedded, moderately compacted sandy, silty gravel. Sub rounded to sub angular pebbles and cobbles, with a moderate number or rounded tertiary pebbles. Poorly sorted. Occasional lenses of possible Thanet Sands formation, Gley 1 8/1 light greenish grey.
Diffuse boundary					
2.10	36.46		Terrace gravels		10 YR 6/8 brownish yellow. Gg ³ Gs ² . Gg ² Gs ² Ag ⁺ . Weakly bedded, moderately compacted sandy, silty gravel. Sub rounded to sub angular pebbles and cobbles, with a moderate number or rounded tertiary pebbles. Poorly sorted.
STOPPED AT 2.20 M AS SINKHOLE ENCOUNTERED, EXTENT NOT REACHED					

Figure 3: Test pit 4 (North facing)

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Context	Description
0.00	38.16	0.50	Made ground		10 YR 4/2 dark greyish brown. Loose topsoil.
Sharp boundary					
0.50	37.66	1.80	Terrace gravels		7.5 YR 6/8 reddish yellow. Gs ² Gg ² . Weakly bedded, loosely compacted coarse sandy gravel. Mix of small to medium rounded to sub angular inclusions. Some larger nodular cobbles. Poorly sorted. Lens of sandy silty clay at 1.3 metres (Gs ² Gg ¹ As ¹ Ag ⁺ , no colour change).
Diffuse boundary					

2.30	35.86		Terrace gravels		7.5 YR 6/8 reddish yellow. Gs ² Gg ² Ag ⁺ . Weakly bedded, moderately compacted, slightly silty sandy gravel. Small rounded to large sub angular inclusions. Poorly sorted.
STOPPED AT 2.60 M EXTENT NOT REACHED					

Figure 4: Test pit 5 (North facing)

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Context	Description
0.00	35.97	0.13	Made ground		10 YR 4/2 dark greyish brown. Loose topsoil.
Diffuse boundary					
0.13	35.85	1.07	Made ground		10 YR 4/2 dark greyish brown. Quarry spoil, as above with sub-angular chalk inclusions.
Sharp boundary					
1.20	34.78	0.40	Disturbed terrace gravels		7.5 YR 6/6 reddish yellow. Moderately compacted, disturbed sandy gravels. Gg ² Gs ² . Small to medium rounded to sub angular pebbles and small cobbles.
Diffuse boundary					
1.60	34.38		Terrace gravels		10 YR 6/6 yellow brown. Gs ² Gg ² . Loosely compacted coarse sandy gravel, 60/40 % component split. Small to medium sub rounded to sub angular inclusions, some nodular, rare large cobbles and small tertiary pebbles. Weakly bedded, poorly sorted. Occasional lenses of sand (Ga ² Gs ¹ Gg ¹).
STOPPED AT 2.70 M EXTENT NOT REACHED					

Figure 5: Test pit 6 (South facing)

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Context	Description
0.00	35.25	0.50	Made ground		10 YR 4/2 dark greyish brown. Loose topsoil.
Sharp boundary					

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Context	Description
0.50	34.75	0.50	Terrace gravels		7.5 YR 6/6 reddish yellow. Gs ² Gg ² Ag ⁺ As ⁺ . Weakly bedded, moderately compacted, slightly silty coarse sandy gravel. Small to medium rounded to sub angular inclusions. Some larger nodular cobbles and rounded tertiary pebbles. Poorly sorted.
Diffuse boundary					
1.0	34.25	1.0	Terrace gravels		7.5 YR 6/6 reddish yellow. Gs ² Gg ² Ag ⁺ As ⁺ . Weakly bedded, loosely compacted, coarse sandy gravel. Small to medium rounded to sub angular inclusions. Some larger nodular cobbles and rounded tertiary pebbles. Poorly sorted. Frequent sandy lenses (7.5 YR 6/8 reddish yellow. Gs ³ Gg ¹ . Loose sand with some rounded to sub-rounded gravel inclusions, rare large nodules).
Diffuse boundary					
1.50	33.25		Terrace gravels		7.5 YR 6/6 reddish yellow. Gs ² Gg ² . Weakly bedded, loosely compacted coarse sandy gravel. Small to medium rounded to sub angular inclusions. Some larger nodular cobbles and rounded tertiary pebbles (30%). Clast size increases with depth. Poorly sorted.
STOPPED AT 2.80 M EXTENT NOT REACHED					

Figure 6: Test pit 7 (West facing)

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Context	Description
0.00	34.99	0.45	Made ground		10 YR 4/2 dark greyish brown. Loose topsoil.
Sharp boundary					
0.45	34.54	0.09	Terrace gravels		7.5 YR 6/6 reddish yellow. Gs ² Gg ² Ag ⁺ . Weakly bedded,

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Context	Description
					loosely compacted, slightly silty coarse sandy gravel. Small to medium rounded to sub rounded inclusions. Rare sub-angular to nodular cobbles. Poorly sorted.
Diffuse boundary					
0.54	34.45		Terrace gravels		10 YR 6/6 yellow brown. Gs ² Gg ² . Weakly bedded, moderately compacted, coarse sandy gravel. Small to large rounded to sub angular inclusions. Some larger cobbles and rounded tertiary pebbles. Compaction decreases towards base. Poorly sorted. Sand lens towards base (7.5 YR 6/8 reddish yellow. Gs ³ Gg ¹).
STOPPED AT 2.54 M EXTENT NOT REACHED					

4. DISCUSSION AND RECOMMENDATIONS

Quaternary deposits were generally homogenised across the site; weakly bedded coarsely grained sandy gravels were encountered at between 38.11 and 34.25 metres OD, often overlain by imported topsoil or, in the case of test pit 1, hardcore rubble. British Geological Survey data for the region would suggest that the gravels form part of the Boyne Hill Gravel member, with the occasional sand lenses encountered in test pits 2, 4, 5 and 6 possibly being re-deposited material from the Thanet Sands Formation, also found in this area. At no point was the extent of the gravel deposit reached, and the underlying deposits exposed. In the area of the known quarry, there is clear evidence that the gravels have been truncated, illustrated by a decrease in the level of these deposits. With the exception of a small number of flint artefacts, no cultural or environmental material was identified in these test pits, therefore further sampling is not recommended for either environmental or geoarchaeological purposes.

APPENDIX 2: PALAEO-ENVIRONMENTAL ASSESSMENT

Geoarchaeological Investigations of the Quaternary Deposits at 95 Brent Lane, Dartford, Kent

Site Code: KBLD 17

Barry John Bishop September 2017

Introduction

This report describes and comments on the Quaternary geology encountered during an Archaeological Field Evaluation of the above site.

The site lies towards the southern side of a significant outcrop of Quaternary terrace geology mapped as part of the Boyn Hill Gravel Formation (British Geological Survey 1998). The Boyn Hill terrace equates with the Lower Thames Middle Pleistocene Orsett Heath Gravel Formation, generally thought to have been deposited during late OIS 12 to early OIS 10, around 430,000 to 350,000BP (Bridgland 1994; Gibbard 1994). However, the upper parts of the sequence as recorded at Barnfield Pit (Swanscombe Stage III) may indicate deposition continued until OIS 8, c.303,000 – 245,000BP (Conway *et al.* 1996, fig 8.7; 239). It is the highest and oldest terrace and the first to have been formed in the lower Thames valley following the glacial diversion of the Thames during the Anglian glaciation. It is preserved as a discontinuous band from Dartford through Stone to Northfleet along the south banks of the lower Thames valley. It has produced significant quantities of internationally important artefactual and palaeo-environmental information and is perhaps best known for the discovery of hominid remains at Swanscombe during the 1930s and 1950s, but very significant discoveries have also been made at several locations in the Dartford area.

Methodology

The Geoarchaeological evaluation involved the excavation of six test-pits; a proposed seventh test-pit was abandoned due to the presence of asbestos. Two of excavated test-pits were located within the footprints of archaeological evaluation trenches whilst a further four formed a transect designed to investigate the impact of a 19th century quarry on the Quaternary deposits. The test pits measured c. 2m X 2m in plan and were machine excavated using a 1.8m wide toothless ditching bucket in spits of no more than 100mm thickness whilst taking care to avoid crossing stratigraphic boundaries. The pits were excavated to the full depth of the machine bucket's reach, at c. 2.5m below ground level (bgl); in the event, the base of the gravel terrace was not reached and no pre-Quaternary geological deposits were encountered. Representative sections of each test-pit were photographed and drawn from the side, as they were too deep to enter safely.

100 litre samples were taken using the machine bucket at regular intervals and sieved through a 10mm mesh, with all other spoil being thoroughly searched on the side of the pits for any artefacts and environmental indicators.

Geological Sequence (see Sections **)

Geoarchaeological Test-pit 1 (East End of Archaeological Trench 1)

The surface height of Test-pit 1 was at 38.56m OD. Quaternary sands and gravels were encountered at a maximum height of 38.38m OD and were recorded to a depth of 35.81m OD, although their full depth was not established. Two facies of quaternary deposits were recorded and three 100 litre samples taken. No artefactual or organic materials were recovered. The north facing section was drawn for the record.

Stratigraphic Sequence

Context [10]: Loosely compacted dull yellow brown rounded to sub-rounded gravel, pebbles and small cobbles <70mm (70%) with rare nodular cobbles up to 150mm in a slightly silty coarse sand matrix (30%). Poorly sorted and weakly horizontally bedded. Sample <1>.

Context [11]: Very compacted dull mid orange brown rounded to sub-angular pebbles and small cobbles <70mm (70%) with rare nodular cobbles up to 200mm in a coarse sand matrix (30%). Increase in proportions of the larger nodular cobbles from rare to occasional below c. 36.50m OD and coarse sand rises from c. 30% to c. 40-50% below 36.20m OD. Poorly sorted and weakly horizontally bedded. Samples <2> and <3>.

Geoarchaeological Test-pit 2 (Archaeological Trench 2)

Not excavated due to the presence of asbestos in the upper levels of the trench

Geoarchaeological Test-pit 3 (Archaeological Trench 3)

The surface height of Test-pit 2 varied from between 38.56 and 38.53m OD. Quaternary sands and gravels were encountered at a maximum height of 38.08m OD and were recorded to a depth of 36.23m OD although their full depth was not established. At 36.33m OD a large void opened in the eastern side of the trench; this was probably caused by the formation of a sinkhole in the underlying chalk. Four Quaternary facies were recorded and four 100 litre samples taken. No artefactual or organic materials were recovered. The east facing section was drawn for the record.

Stratigraphic Sequence

Context [12]: Loosely compacted light brown-yellow rounded to sub angular pebbles (40%), rounded to sub-angular nodular cobbles 50 – 150mm (10%) in a coarse sand matrix (50%). Massive / very weakly horizontally bedded. Sample <1>.

Context [13] Moderately to very compacted dull mid orange brown rounded to sub angular pebbles (40%), rounded to sub-angular nodular cobbles up to 200mm (20%) in a coarse sand matrix (40%). Weakly horizontally bedded. Sample <2>.

Context [14] Moderately to firmly compacted dull mid orange brown rounded to sub angular pebbles (40%), rounded to sub-angular nodular cobbles up to 150mm (20%) in a silty coarse sand matrix (40%). Frequent thin (<100mm thick) lenses of grey green rounded sand (Re-deposited Thanet sand?). Weakly horizontally bedded. Sample <3>.

Context [15] Very firmly compacted light greyish yellow rounded to sub rounded pebbles and small cobble <70mm (50%) with rare rounded to sub-angular nodular cobbles 70 – 200mm in a slightly silty coarse sand matrix (50%). Frequent thin (<100mm) thick lenses of grey green rounded sand (re-deposited Thanet sand?). Weakly horizontally bedded. Sample <3>.

Geoarchaeological Test-pit 4

Geoarchaeological test-pit 4 was situated at the top of the eastern side of a disused gravel quarry. Ground level at the test-pit varied between 38.16m OD and 38.37m OD. Quaternary sands and gravels were encountered at a maximum height of 37.90m OD and were recorded to a depth of 35.77m OD although their full depth was not established. Three Quaternary facies were encountered and three samples taken. No artefactual or organic materials were recovered. The north facing section was drawn for the record.

Stratigraphic Sequence

Context [16] Loose to moderately compacted mid to dark orange brown rounded pebbles (20%), sub-rounded to sub-angular pebbles (20%), sub-rounded to sub-angular nodular cobble up to 150mm (20%) in a coarse sand matrix (40%). Weakly horizontally bedded. Sample <1>

Context [17] Loose to moderately compacted light to mid orange brown rounded pebbles (20%) sub-rounded to sub-angular pebbles and small cobble <70mm (20%), sub-rounded to sun-angular nodular cobbles 70 – 200mm (20%) in a coarse sand matrix (40%). Weakly horizontally bedded. Sample <2>

Context [18] Moderately compacted light to mid orange brown rounded pebbles (20%) sub-rounded to sub-angular pebbles (20%) and sub-rounded to sun-angular nodular cobble 50-150mm (30%) in a silt and coarse sand matrix (30%). Weakly horizontally bedded. Sample <3>

Geoarchaeological Test-pit 5

Geoarchaeological test-pit 5 was situated towards the bottom of the slope on the eastern side of a disused gravel quarry. Ground level at the test-pit varied between 35.74m OD and 35.97m OD. Quaternary sands and gravels were encountered at a maximum height of 34.77m OD and were recorded to a depth of 33.12m OD although their full depth was not established. Two Quaternary facies were encountered and three samples taken. The north facing section was drawn for the record.

Stratigraphic Sequence

Context [19] Loose to moderately compacted, dull mid to dark orange brown humic silty sandy pebbles and small cobbles. Massive, unbedded. Interpreted as Pleistocene gravels redeposited or disturbed during the 19th century quarrying operations. Sample <1> provided two primary flakes, both of which are rather rolled. Given the disturbed nature of the deposit, these are not necessary of Palaeolithic date.

Context [20] Moderately compacted light to medium yellow brown sub-angular to sub-rounded pebbles (20%), rounded pebbles (20%) and rare sub-angular nodular cobble fragments 50-150mm in a coarse sand matrix (60%). Occasional thin (<100mm thick) lenses of coarse sand but otherwise weakly horizontally bedded. Samples <2> and <3>.

Geoarchaeological Test-pit 6

Geoarchaeological test-pit 6 was situated at the base of a disused gravel quarry. Ground level at the test-pit varied between 35.07m OD and 35.25m OD. Quaternary sands and gravels were encountered at a maximum height of 34.57m OD and were recorded to a depth of 32.27m OD although their full depth was not established. A single Quaternary facie was recorded and four samples taken. The south facing section was drawn for the record.

Stratigraphic Sequence

Context [21] Moderately compacted dull mid orange brown rounded pebbles (20%), sub-rounded to sub-angular pebbles (20%) and sub-rounded nodular cobbles 50 - 200mm (10%) in a coarse sandy silt-clay matrix (50%). Throughout the sequence above c. 33.60m OD were lenses of light to orangey brown coarse sand 100-150mm thick. Below c. 32.90m OD occasional complete but heavily weathered sub-rounded flint nodules up to 300mm maximum diameter were present. Weakly horizontally bedded. Samples <1>, <2>, <3> and <4>. Sample <3> produced three heavily rolled cortical flakes which are not diagnostic but potentially of Palaeolithic date.

Geoarchaeological Test-pit 7

Geoarchaeological test-pit 7 was situated at the base of a disused gravel quarry towards the southwest corner of the site. Ground level at the test-pit varied between 35.07m OD and 34.99m OD. Quaternary sands and gravels were encountered at a maximum height of 34.55 OD and were recorded to a depth of 32.45m OD although their full depth was not established. Two Quaternary facies were recorded and three samples taken. The west facing section was drawn for the record.

Stratigraphic Sequence

Context [22] Moderately compacted dull mid orange brown sub-angular to sub-rounded pebbles (20%), rounded pebbles (20%) and rare sub-angular nodular cobble fragments 50-150mm in a coarse sand matrix (60%). Poorly sorted, unbedded. Possibly redeposited or disturbed during quarrying operations. Sample <1> provided two small and very rolled struck flakes. Given the possible disturbed nature of the deposit these are not necessary of Palaeolithic date.

Context [23] Moderately to firmly compacted light yellow brown rounded pebbles (20%), sub-rounded to sub-angular pebbles (20%) and sub-rounded nodular cobbles 50-200mm (20%) and rare sub-rounded nodular cobbles 200-330mm in a coarse sand matrix (40%). Becomes less firmly compacted with depth. Weakly horizontally bedded. Samples <2> and <3>. Sample <3> provided two small and heavily rolled struck flint flake fragments which although not diagnostic could be of Palaeolithic date.

Summary

Quaternary sand and gravel deposits were encountered in all of the excavated test-pits including those excavated at the base of the 19th century quarry. They were present with a maximum height of 38.38m OD as recorded in Test-pit 1 and attained a depth of at least 32.27m OD as recorded in Test-pit 6. Although a single section through the gravels could not be obtained, the results suggest that they are in excess of six metres thick at this location.

The levels at which these were encountered confirm their attribution to the upper parts of Boyn Hill / Orsett Heath Gravel Formation. At the site they consist of a variety of massive or weakly bedded gravels in a silty sand matrix. The deposits are essentially homogeneous with only minor local differences caused by variations in the proportions of the various clast sizes. The pebbles and gravels are overwhelming of flint with small quantities of greensand chert present, along with very rare examples of glacially derived exotic sandstone and igneous rock. In all test-pits, Tertiary flint pebbles, presumably incorporated from the pebble beds of the Lambeth Group or Harwich Formation, are present and greenish grey sand lensing noted in some of the test-pits may represent redeposited sands from the Thanet beds.

The sampling produced a total of nine struck flakes, two from context [19] in Test-pit 5, three from context [21] in Test-pit 6, two from context [22] in Test-pit 7 and two from context [23] in Test-pit 7. Those from contexts [19] and [22] come from potentially disturbed deposits and are possibly intrusive, but the others were more securely stratified and are likely to be of Palaeolithic date. All are small, none-diagnostic flakes and they have been heavily rolled, indicating they have experienced considerable displacement.

Recommendations

The geoarchaeological investigations have confirmed the presence at the site of Quaternary deposits equating to the parts Boyn Hill / Orsett Heath Gravel Formation and have added further detail to our knowledge of the nature and extent of this deposit. Given the size of the site and that, despite intensive sampling, very little artefactual material and no environmental indicators were identified, no further work is recommended for the geoarchaeological investigations.

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APPENDIX 3: OASIS FORM

12.1 OASIS ID: preconst1-297569

Project details

Project name	95 Brent Lane, Dartford, Kent, DA1 1QT
Short description of the project	An archaeological and geoarchaeological evaluation was conducted by Pre-Construct Archaeology Ltd on land at 95 Brent Lane, Dartford, Kent, DA1 1QT. The site is located within Dartford and is centred at TQ 5515 7354. The evaluation was carried out between 18th and 21st September 2017. Natural deposits of gravels were located between 38.11m OD in Trench 1 to the north of the site and 37.94m OD in Trench 3, located to the south. Seven small undiagnostic, heavily rolled flint flakes were found. No other archaeological finds or features were observed during the course of the exercise.
Project dates	Start: 18-09-2017 End: 21-09-2017
Previous/future work	No / No
Any associated project reference codes	KBLD17 - Sitecode
Type of project	Field evaluation
Site status	Local Authority Designated Archaeological Area
Current Land use	Residential 1 - General Residential
Monument type	NONE None
Significant Finds	UNDIAGNOTIC FLINTS Palaeolithic
Methods & techniques	"Environmental Sampling", "Sample Trenches", "Test Pits"
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 95 Brent Lane
Postcode	DA11QT
Study area	1600 Square metres
Site coordinates	TQ 5515 7354 51.43905790454 0.232546720226 51 26 20 N 000 13 57 E Point
Lat/Long Datum	Unknown
Height OD / Depth	Min: 37.94m Max: 38.11m

Project creators

Name of Organisation	Pre-Construct Archaeology Limited
Project brief originator	Kent County Council Heritage Conservation Group
Project design originator	Peter Moore
Project director/manager	Peter Moore
Project supervisor	Guy Seddon
Type of sponsor/funding body	Developer
Name of sponsor/funding body	Urban Enhance

Project archives

Physical Archive recipient	Local museum
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Physical Contents	"Worked stone/lithics"
Digital Archive recipient	Local museum
Digital Contents	"Stratigraphic", "Survey", "Worked stone/lithics"
Digital Media available	"Database", "Images raster / digital photography", "Spreadsheets", "Survey", "Text"
Paper Archive recipient	Local Museum
Paper Contents	"Stratigraphic", "Survey", "Worked stone/lithics"
Paper Media available	"Context sheet", "Diary", "Matrices", "Photograph", "Plan", "Report", "Section", "Survey", "Unpublished Text"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	95 Brent Lane, Dartford, DA1 1QT, An Archaeological and Geoarchaeological Evaluation
Author(s)/Editor(s)	Seddon, G
Date	2017
Issuer or publisher	Pre-Construct Archaeology Ltd
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Entered by	Peter Moore (pmoore@pre-construct.com)
Entered on	18 October 2017

13 OASIS:

Please e-mail [Historic England](#) for OASIS help and advice

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