

**An Archaeological Evaluation at
Oakfield Infant's and Junior's School,
Dartford, Kent**

NGR TQ 55401 17281

**Project No. 3229
Report No. 2008005
Site Code: OSD 08
OASIS ID: archaeol6-51438**

Giles Dawkes

January 2008

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Abstract

An archaeological evaluation of 3 trenches and 5 geoarchaeological test pits was undertaken at Oakfield Infant's and Junior's School, Dartford, in advance of the construction of a proposed new school building.

The trenches and test pits recorded a broadly similar stratigraphic sequence of deposits. The lowest deposit seen was solifluction gravels at 9.12m OD or 3.1m below ground level. Above was an alluvial sequence up to 1.6m thick. Overlying the alluvium was a colluvial sequence, the lowest deposit of which contained inclusions of occasional burnt clay flecks and finds of fire-cracked flint and bone and above, Roman CBM fragments. The upper colluvium contained finds of post-medieval CBM. The colluvium was overlain by post-medieval subsoil and topsoil.

No cut features or structures were identified during the evaluation. No Palaeolithic finds were recovered.

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1.0 INTRODUCTION

- 1.1 Archaeology South-East (ASE), (a division of The Centre for Applied Archaeology at the Institute of Archaeology, University College London) was commissioned by Property Group, Kent County Council to undertake an archaeological evaluation at Oakfield Infant's and Junior's School, Dartford, Kent (centred NGR TQ 55401 17281) to address a condition for a programme of archaeological works attached to the planning consent for the scheme (Fig 1).
- 1.2 The site is being considered for redevelopment, with the demolition of the infant's school and the extension of the junior's.
- 1.3 A Written Scheme of Investigation (WSI) outlining the requirements of the evaluation was prepared by Archaeology South-East and was submitted and duly approved by the Kent County Council Archaeological Officer prior to the archaeological works taking place.
- 1.4 The underlying drift geology of the site is sands and gravels of Pleistocene fluvial deposits. The site sits at the base of a superficial dry valley with a southwest-northeast orientation which effectively forms a now-extinct tributary of the river Darent. The solid geology of the site is chalk.
- 1.5 The fieldwork was undertaken by Giles Dawkes and Dr Matt Pope from 4th to 9th January 2008. The project was managed by Jim Stevenson.

2.0 ARCHAEOLOGICAL BACKGROUND

- 2.1 This archaeological background is a summary of the findings of the Desk-based Assessment (Archaeology South-East, Dr Caroline Russell & Dr Matt Pope, Project No. 3091, September 2007).
- 2.2 Kent is rich in Palaeolithic finds, which mostly derive from secondary contexts and comprise isolated artefacts. The finds are usually handaxes, which are predominantly found in the major river valleys, particularly the Thames and its tributaries the Cray, Darent and Medway. Fragments of a human skull and associated hand axes were recovered from gravel quarries at Barnfield Pit, Swanscombe, around 8 kilometres to the north-east of the Site. These finds date to around 400, 000 years ago, and are amongst the earliest of their kind in Europe. Significant Palaeolithic remains have also been discovered at two pits on Dartford Heath. Many hand-axes have been found around Dartford, particularly on the west slopes near Heath Lane and Miskin Road.
- 2.3 The Mesolithic period is fairly elusive in the archaeological record. The few *in situ* settlement sites known from Kent are either rock shelters, such as High Rocks near Tunbridge Wells, or low-lying riverine sites, such as Lower Halstow. Most Mesolithic sites are represented by concentrations of flintwork, which often form clusters that may correspond to discrete activity zones.
- 2.4 The Neolithic witnessed increasing temperatures and more settled human occupation, which allowed for the development of more permanent farming systems. Evidence for Neolithic settlement in Kent is limited, with many suitable locations in coastal and floodplain areas likely to be buried deep beneath later deposits. Several finds of pottery and axeheads have been made in the Darent valley. In Dartford, a Neolithic axehead was found in a garden in York Road. In addition, a quantity of struck flakes, discovered at St Edmund's church, are of potential Late Neolithic date.
- 2.5 The Early Bronze Age is characterized by the introduction of metals, generally associated with a new type of pottery known as Beaker. New forms of ceremonial sites were constructed, notably round barrows that often form linear cemeteries on ridges. A scatter of metalwork has been recorded in the Darent Valley. In Dartford, a Late Bronze Age founder's hoard was discovered near Watling Street.

Approximately 500m north of the site is a Late Neolithic to Early Bronze Age flintworking site. In addition, Late Bronze Age pits and ditches were found at Lowfield Street. These features imply that an occupation site, presumably of high status with regard to the finds, must have been located nearby.

- 2.6 The Iron Age is characterised by increasing evidence for field systems and the development of defended sites. It witnessed stronger influences from the Continent, with evidence in the Late Iron Age for contact with Belgic tribes in Gaul. In Dartford, archaeological evidence of the Iron Age predominantly relates to the later half of the period. With regards to the Early Iron Age, for instance, there may only be a cremation cemetery at Sandpit Road (it may, however, instead date to the Romano-British period). The Late Iron Age evidence is mostly of pottery, as found at High Street and to the west of Farnol Road, or ditches, as discovered at the former Dartford Adult Education Centre and at East Hill House. There are, however, one or two burial sites.
-

Fragments of two Iron Age urns, of around 200 BC, were found east of King Edward Avenue, probably in the grounds of the County Hospital, and three burials at St Edmund's Church, which are believed to be of a Late Iron Age date. In addition, and broadly dated to the Iron Age, is an Iron Age settlement that has been recently discovered at Temple Hill.

- 2.7 As the nearest part of Britain to the Continent, Kent was in contact with Rome from an early date, first through trade and then conquest. The initial invasion route was along the Kentish coastal plain, which was later heavily settled along the major Roman road (now Watling Street) that linked Richborough, Canterbury, Rochester and London. Many settlement sites have been excavated, with the most notable examples in the wider area being at Springhead, and in the Darent valley where there are a number of villas, including those at Darenth and Lullingstone.

Dartford may have been a trading centre for these rich villa estates. It may also have served as a posting station on Watling Street, which is observed today in the straight line of West Hill, Spital Street, High Street and East Hill. However, it is still unclear as to whether Dartford was a town or a minor roadside settlement during the Romano-British period. The cemeteries on the hills above Dartford, including the large inhumation cemetery on East Hill, may suggest that it was a sizeable settlement.

A Romano-British site was believed to be located in the north-east corner of the school. However, this has proven to be mistaken, with the site being only the location of the Dartford District Archaeological Group's (DDAG) test pits, which were to be inconclusive (Rady and Scott, 2007, 7).

The nearest Roman building to the site was eventually located by DDAG some 100m to the east, at the east end of Trafalgar Road. This building was the apparent remains of a villa complex, complete with hypocaust system and possible stable block.

Another possible villa is found just outside the Site at Walnut Avenue. Further Roman remains were located at a site at Lowfield Street, comprising mostly ditches, probably relating to field boundaries. Another site in Lowfield Street which revealed a water channel, mill race and gully, perhaps associated with one of the nearby villas.

- 2.8 Kent was one of the first areas to be heavily settled by Germanic peoples, who tended to favour the more tractable soils of the coastal plain and river valleys. The densest occupation in the early Anglo-Saxon period seems to have been in north-east Kent, the heartland of the kingdom of the *Cantware*, which is protected to the west by the Medway and to the south-east by the Weald. There is scant information regarding the early Saxon period at Dartford. For instance, there are just one or two potential settlement sites. That located beside the River Darent, half a kilometre to the north-east of the parish church, comprised an occupation deposit but no structural evidence. The other is a possible grubenhaus, which was discovered about 1 kilometre to the north-east of the town, in Temple Hill. This site is also the location of a fifth to seventh century cemetery, which contained at least 51 burials. By the late Saxon period Dartford was the ecclesiastical centre of the royal estate and also probably its economic centre, as it was well-positioned for excellent communications. Therefore, it is not inconceivable that it was also a market

town by this time. The Domesday Book records that Dartford had two harbours, a church and three chapels, which suggests it was probably a sizeable trading centre.

- 2.9 In the medieval period, Dartford developed into a market town on the pilgrimage route to Canterbury, with hospitals, a Dominican priory, chapels, and a hermitage. The remains of medieval buildings have been found at both Spital Street and High Street. The nearest medieval sites to the evaluation area are St Michael's Church and Horsman's Place, a Medieval manor house at Lowfield Street.
- 2.10 The post-medieval period saw the river Darent was being continuously exploited for industry and trade. By the nineteenth century three large wharves were built to accommodate barges carrying raw materials to the new industrial plants by the river, to the north of the town. A variety of mills were constructed in Dartford, including iron-working mills, sawmills, and brass, cotton and paper mills. Inevitably, the population grew greatly with the expansion in the nineteenth and twentieth centuries of the industrial areas to the north and south of Dartford. Housing estates were built to the west, south and east to accommodate their numbers.

3.0 ARCHAEOLOGICAL METHODOLOGY

- 3.1 Three trial trenches and 5 geoarchaeological were excavated, located where space was permissible within the footprint of the proposed new building (Fig 2). A geoarchaeological borehole was subsequently located within the footprint (see Appendix 3).
- 3.2 The trial trenches were excavated under constant archaeological supervision. The trenches were dug by an 8 ton 360° tracked excavators fitted with a 1.5m wide toothless ditching bucket. Trenches 1 and 2 were 15m long and 2m wide. Trench 3 was shortened due to the constraints of space to a length of 11.5m. Test pits 1A and 1B were located at the west and east ends of Trench 1 respectively. Similarly, Test pits 2A and 2B were located at the west and east ends of Trench 2. Test pit 3A was located at the north end of Trench 3. The proposed test pit at the south end of Trench 3 was not deemed necessary by Dr Matt Pope.
- 3.3 The trench excavation was taken down to 1.2m below ground level and the test pits were excavated to a maximum depth of 3m below ground level. The sections of the trenches were selectively cleaned to observe and record their stratigraphy. The removed spoil was scanned for the presence of any stray, unstratified artefacts.
- 3.3 All encountered archaeological deposits, features and finds were recorded according to accepted professional standards in accordance with the approved ASE Written Scheme of Investigation using pro-forma context record sheets. Archaeological features and deposits were planned at a scale of 1:50 and a general site plan was kept at 1:250. Deposit colours were verified by visual inspection and not by reference to a Munsell Colour chart. The spoil, from site clearance prior to development, was inspected by the archaeologist to recover any artefacts of archaeological interest.
- 3.4 A full photographic record of the work was kept (monochrome prints, colour slides and digital), and will form part of the site archive. The archive (including the finds) is presently held at the Archaeology South-East offices at Portslade, and will in due course be offered to Dartford museum.
- 3.5 Environmental samples were taken where appropriate. Two bulk samples were taken of colluvium (1/005) and colluvium (1/003).

3.6 Site Archive Quantification

Number of Contexts	22
No. of files/paper record	22
Plan and sections sheets	6
Bulk Samples	2
Photographs	37 Black and White; 40 colour slide
Bulk finds	Pot 2 bags; CBM 6 bags; Animal bone 1 bag; FCF 1 bag; Fired clay 2 bags
Registered finds	0
Environmental flots/residue	2

Table 1: Quantification of site archive

4.0 RESULTS

4.1 Trench 1, Test Pit 1A & 1B (Fig 3)

List of recorded contexts

Number	Type	Same As	Description	Max. Length	Max. Width	Max. Depth
1/001	Layer		Topsoil	Tr.	Tr.	0.27m
1/002	Layer		Subsoil	Tr.	Tr.	0.30m
1/003	Deposit	2/003 3/003	Upper colluvium	Tr.	Tr.	0.28m
1/007	Deposit		Colluvium	Tr.	Tr.	0.38m
Geo-archaeological Test Pit Deposits						
1/004	Deposit	2/004 3/004	Colluvium with chalk flecks	Tr.	Tr.	0.10m
1/005	Deposit		Lower colluvium	Tr.	Tr.	1.11m
1/006	Deposit		Alluvium	Tr.	Tr.	+1.2m

Summary

Reduced mechanically through successive layers of topsoil [1/001], subsoil [1/002] and colluviums [1/003] and [1/007] to a depth of 1.00m, 11.42m OD, the natural deposits were not observed in this trench.

No archaeological features were seen to cut any of the deposits observed in this trench.

Two geo-archaeological test pits were also excavated mechanically in Trench One; Test Pit 1A to the northeast and Test Pit 1B to the southwest. These are summarised here. For a comprehensive report see Appendix 3.

Test Pit 1A was excavated to a depth of 1.70m below the bottom of Trench One, 9.72m OD. An alluvial deposit [1/006] was overlain by successive deposits of colluviums [1/004] and [1/005].

Test Pit 1B was excavated to a depth of 2.50m below the bottom of Trench One, 8.92m OD. An alluvial deposit [1/006] was overlain by successive deposits of colluviums [1/004] and [1/005].

4.2 Trench 2 (Fig 4)

List of recorded contexts

Number	Type	Same As	Description	Max. Length	Max. Width	Max. Depth
2/001	Layer		Topsoil	Tr.	Tr.	0.32m
2/002	Layer		Subsoil	Tr.	Tr.	0.29m
2/003	Deposit	1/003 3/003	Upper colluvium	Tr.	Tr.	0.40m
2/004	Deposit	1/004	Colluvium	Tr.	Tr.	1.22m

	t	3/004	Geo-archaeological Test Pit Deposits			
2/005	Deposit		Lower colluvium	Tr.	Tr.	0.09m
2/006	Deposit		Upper alluvium	Tr.	Tr.	0.70m
2/007	Deposit		Alluvial gravel	Tr.	Tr.	0.10m
2/008	Deposit		Lower colluvium	Tr.	Tr.	0.81m
2/009	Deposit		Solifluction gravel	Tr.	Tr.	+0.30m

Summary

Reduced mechanically through successive layers of topsoil [2/001], subsoil [2/002] and colluviums [2/003] and [2/004] to a depth of 1.20m, 11.02m OD, in the west falling away to 1.40m, 10.82m OD, in the east the natural deposits were not observed in this trench.

No archaeological features were seen to cut any of the deposits observed in this trench.

Two geo-archaeological test pits were also excavated mechanically in Trench Two; Test Pit 2A to the west and Test Pit 2B to the east. These are summarised here. For a comprehensive report see Appendix 3.

Test Pit 2A was excavated to a depth of 2.20m below the bottom of Trench One, 8.82m OD. Solifluction gravel [2/009] was overlain by successive deposits of colluviums [2/008], gravels [2/007], alluvium [2/006] and finally another colluvial deposit [2/005].

Test Pit 2B was excavated to a depth of 1.80m below the bottom of Trench One, 9.02m OD. An alluvial deposit [2/006] was overlain by a colluvial deposit [2/003] which presented along the length of Trench Two but was not present In Test Pit 2A.

4.3 Trench 3 (Fig 5)

List of recorded contexts

Number	Type	Same As	Description	Max. Length	Max. Width	Max. Depth
3/001	Layer		Topsoil	Tr.	Tr.	0.37m
3/002	Layer		Subsoil	Tr.	Tr.	0.29m
3/003	Deposit	1/003 2/003	Colluvium	Tr.	Tr.	0.37m
Geo-archaeological Test Pit Deposits						
3/004	Deposit	1/004 2/004	Alluvium	Tr.	Tr.	0.30m
3/005	Deposit		Alluvium with gravel	Tr.	Tr.	0.39m
3/006	Deposit		Lower alluvium with gravel	Tr.	Tr.	+0.34m
3/007	Deposit		Colluvium	Tr.	Tr.	1.02m

Summary

Reduced mechanically through successive layers of topsoil [3/001], subsoil [3/002] and colluviums [3/003] to a depth of 1.10m, 9.86m OD, the natural deposits were not observed in this trench.

No archaeological features were seen to cut any of the deposits observed in this trench.

One geo-archaeological test pit was also excavated mechanically in Trench Three; Test Pit 3A to the north. This is summarised here. For a comprehensive report see Appendix 3.

Test Pit 3A was excavated to a depth of 1.70m below the bottom of Trench Three, 8.16m OD. An alluvial deposit [3/006] was overlain by successive deposits of alluviums [3/004] and [3/005] and a colluvial deposit [3/007] which presented along the length of Trench Three.

5.0 THE FINDS by Trista Clifford

A small collection of finds was recovered during the evaluation at Oakfield School, Dartford. The assemblage is characterised below in Table 1:

Context	Pottery	weight (g)	CBM	weight (g)	Bone	weight (g)	FCF	weight (g)	Fired Clay	weight (g)
1/002			10	110						
1/003			11	256						
1/005					1	2	1	132		
2/002			8	196						
2/003			3	32						
2/004									4	28
3/002	2	82	1	8						
3/007	1	<2	1	6					3	48
Total	3	82	34	608	1	2	1	132	7	76

Table 2: Quantification of bulk finds by weight

5.1 The pottery

Three sherds of pottery were recovered from two contexts, weighing 82g in total. The oldest of these is a coarse sandy ware sherd with oxidised surfaces, dating to the 13th-14th century, recovered from [3/007]. The fragment is small and abraded. Context [3/002] contained two brown-glazed stoneware fragments of 19th century date.

5.2 The CBM

Thirty four fragments of CBM, weighing 608g in total, were recovered from six contexts. The majority of material consists of abraded roof tile fragments in similar high fired, medium- fine sand tempered fabrics of post medieval date.

5.2.1 Context [1/003] contained a tile fragment in a medium fired, micaceous fine sandy fabric with occasional flint and quartz grains up to 1mm. Context [1/003] also produced two tile fragments in a lower fired, fine sandy fabric with abundant clay pellet inclusions. A fragment of tile in this fabric was also present in context [2/003], along with an enigmatic piece in medium fired abundant coloured quartz sand tempered fabric, which appears to be similar to pottery fabrics of the 14-15th century. The thickness and form of the fragment however suggests it derives from a tile. These fragments are likely to be earlier in date than the majority of the assemblage, although no diagnostic features such as peg holes were present so the dating cannot be certain.

5.2.2 A small assemblage of brick in a variety of fabrics was recovered. Context [1/003] contained three red brick fragments in a coarse sandy fabric with occasional white inclusions less than 2mm. Context [1/002] contained four small abraded fragments in a high fired, coarse sandy fabric similar to those in [1/003], although the fabric appears somewhat denser. Three fabrics were present in context [2/002]. Three fragments are present in a dense, micaceous abundant fine sandy fabric. A high fired fragment is of a coarse sandy fabric, poorly mixed with occasional irregular voids and sparse ?chalk inclusions up to 4mm. The context also produced two fragments from a 19th

century porous red brick with large irregular voids up to 10mm and frequent white chalk/clay inclusions up to 2mm. The brick assemblage is characterised by its fragmentary and abraded nature.

5.3 The fired clay

Seven fragments of fired clay were recovered from two contexts; two fabrics are present. Context [2/004] contained three fragments in a medium fired micaceous fine sandy fabric with frequent organic voids and infrequent quartz and flint inclusions up to 2mm. A fourth piece is of a similar fabric, well fired and without the organic voids. Context [3/007] also contained three pieces this fabric. A single fragment shows a possible 'shaped' area; otherwise the fragments are not diagnostic of form.

5.4 The animal bone

A sheep sized long bone fragment with no signs of butchery was recovered from [1/005].

The finds have little scope for further analysis therefore no further work is required.

6.0 THE ENVIRONMENTAL SAMPLES

- 6.1 Two environmental samples were taken from colluvium deposits in Trench 1 to establish the presence of environmental remains such as wood charcoal, macro botanicals and bone, and to evaluate the potential of the site to yield further environmental remains.
- 6.2 The bulk samples were processed using tank flotation and the flots and residues were retained on 250µm and 500µm meshes respectively and allowed to air dry. The residues were passed through a series of stacked sieves and sorted for environmental and archaeological remains (Table 2). The flots were scanned under a stereozoom microscope at magnifications of x7-40 and their contents noted (Table 3).
- 6.3 The residues from both samples produced small quantities of wood charcoal fragments <4mm (the majority of which were <2mm in size). No other environmental remains were noted. Charred botanicals were also sparse in the flots although both samples produced small charcoal fragments, occasional charred seeds (including 1 grass weed and 1 pulse) were noted. The flots also contained moderate quantities of small land snail molluscs. Other archaeological remains recovered include small pottery fragments, CBM, FCF, a single lithic and some small pieces of industrial debris.
- 6.4 The samples have confirmed the presence of environmental remains and were moderately well preserved. Unfortunately the environmental remains were present in such small quantities that no further information can be gained from these samples and therefore no further work is suggested.

Sample Number	Context	Sample Volume (ltrs)	sample size processed (ltrs)	Charcoal <4mm	Weight (g)	Charcoal >4mm	Weight (g)	Residue Description (quant./weight)
1001	1/005	40	40	*	1			
1002	1/003	40	40	*	1			Pottery */1, Lithics */1, FCF */8, CBM */21

Table 3: Residue Quantification (* = 1-10, ** = 11-50, *** = 51-250, **** = >250) and weight in grams

Sample Number	Context	Context / deposit type	Flot Volume (ml)	Flot weight (g)	Flot description (before sorting)	Charcoal <4mm	Charcoal >4mm	Charred plant remains	Laminar shells	Industrial debris
100 1	1/005	Colluvium	10	5	Uncharred vegetation incl. seeds, charcoal and land molluscs	***	*	1 Poaceae	***	*
100 2	1/003	Colluvium	5	2	Uncharred vegetation incl. seeds, charcoal and occasional land molluscs	***		1 Leguminosae	*	*

Table 4: Flot Quantification (* = 1-10, ** = 11-50, *** = 51-250, **** = >250) and weight in grams

7.0 DISCUSSION AND CONCLUSIONS

This programme of trenching has demonstrated the presence of archaeological remains in the area of development. The results of this investigation do permit some useful, if general observations to be made regarding the nature and date of past activity on the site and the extent to which the fieldwork can be seen to have fulfilled the original aims of investigation as set out in the *Written Scheme of Investigation*.

A similar stratigraphic sequence was recorded in each of the four trenches. The results can be broadly phased as follows.

7.1 Phase 1: Natural Gravels

The natural sandy gravel was located at a height of between 4.30m OD and 4m OD. No Palaeolithic finds were recovered from the site (Appendix ##)

7.2 Phase 2: ?Prehistoric/Roman Pit and Gully

Cut into this gravel were the two features representing the earliest activity identified on site: gully [1/005] and pit [4/006]. No finds or datable material was recovered from either of these features, or from the deposits directly overlying the fills. However, the Phase 3 alluvium (2/004) found in Trench 2 directly overlay the natural gravels and contained a sherd pottery dating from the Late Iron Age to the 2nd century AD and it is reasonable to assume that these features were at least contemporary or even earlier than this date.

Features of Iron Age or Roman date on the site are not unexpected due to the close proximity of the Iron Age site at the former West Hill Hospital and of the Roman road at Spital Street.

7.3 Phase 3: Late Iron Age/ Roman Alluvium

Sealing the natural gravels and features was a series of alluvial layers identified in all four trenches: (1/003); (2/004); (2/003); (3/004); (4/004); (4/003). The only secure dating from these layers was in Trench 2: layer (2/004) contained a sherd pottery dating from the Late Iron Age to the 2nd century AD and above (2/003) contained Roman tile CBM fragment.

The alluvium was up to 0.7m thick and was generally grey in colour but in some instances had weathered to an orange brown.

7.4 Phase 4: Post-Medieval Dark Earth

Above the Phase 3 alluvial layers were dark brown silt clay layers with finds of post-medieval CBM fragments: (1/002); (2/002); (3/002); (4/002). These 'dark earth' soils almost certainly relate to the when the site was open fields and orchards throughout the post-medieval period.

7.5 Phase 5: Modern Made Ground

The uppermost layers of (1/001), (2/001), (3/001) and (4/001) consisted of modern rubble and gravel, and probably relate to the recent demolition of the former buildings on the site.

REFERENCES

Russell, C. & Pope, M., September 2007, *An Archaeological Desk-based Assessment of Land at Oakfield Infant's and Junior School, Dartford, Kent*, Archaeology South-East, Project No. 3091.

Rady, J. & Scott, B., 2007, *An Archaeological Evaluation of Land to the Rear of 3 Hawley Road, Wilmington, Dartford*, Canterbury Archaeological Trust Ltd

ACKNOWLEDGEMENTS

The co-operation and assistance of the staff of Oakfield School and Wendy Rogers of Kent County Council is gratefully acknowledged, as is the co-operation of the on-site building contractor.

APPENDIX 1

Kent County Council SMR summary form

Site Name: Oakfield Infant's and Junior's School, Dartford	
Site Address: Oakfield Infant's and Junior's School, Oakfield Lane, Dartford, Kent	
Summary: An archaeological evaluation of 3 trenches and 5 geoarchaeological test pits were undertaken in advance of the building of a proposed new school building.	
District/Unitary: Dartford	Parish: Wilmington
Period(s): Roman, Post-medieval	
NGR (centre of site : 8 figures) 55401 17281 (NB if large or linear site give multiple NGRs)	
Type of archaeological work (delete) Evaluation: Geoarchaeological investigation	
Date of Recording: 04/01/2008 to 09/01/2008	
Unit undertaking recording: Archaeology South-East	
Geology:	
Title and author of accompanying report: An Archaeological Evaluation at Oakfield Infant's and Junior's School, Dartford, Kent by Giles Dawkes and Dr Matt Pope	
Summary of fieldwork results An archaeological evaluation of 3 trenches and 5 geoarchaeological test pits was undertaken at Oakfield Infant's and Junior's School, Dartford, in advance of the construction of a proposed new school building. The trenches and test pits recorded a broadly similar stratigraphic sequence of deposits. The lowest deposit seen was solifluction gravels at 9.12m OD or 3.1m below ground level. Above was an alluvial sequence up to 1.6m thick. Overlying the alluvium was a colluvial sequence, the lowest deposit of which contained inclusions of occasional burnt clay flecks and finds of fire-cracked flint and bone and above, Roman CBM fragments. The upper colluvium contained finds of post-medieval CBM. The colluvium was overlain by post-medieval subsoil and topsoil. No cut features or structures were identified during the evaluation.	
Location of archive/finds: Presently Archaeology South-East, Portslade, but ultimately Dartford Museum	
Contact at Unit: Giles Dawkes, Dr Matt Pope	Date: 11/01/2008

APPENDIX 2

OASIS ID: archaeol6-51438

Project details

Project name	Oakfield School Dartford
Short description of the project	An archaeological evaluation of 3 trenches and 5 geoarchaeological test pits was undertaken at Oakfield Infant's and Junior's School, Dartford, in advance of the construction of a proposed new school building. The trenches and test pits recorded a broadly similar stratigraphic sequence of deposits. The lowest deposit seen was solifluction gravels at 9.12m OD or 3.1m below ground level. Above was an alluvial sequence up to 1.6m thick. Overlying the alluvium was a colluvial sequence, the lowest deposit of which contained inclusions of occasional burnt clay flecks and finds of fire-cracked flint and bone and above, Roman CBM fragments. The upper colluvium contained finds of post-medieval CBM. The colluvium was overlain by post-medieval subsoil and topsoil. No cut features or structures were identified during the evaluation.
Project dates	Start: 04-01-2008 End: 09-01-2008
Previous/future work	Not known / Not known
Any associated project reference codes	OSD08 - Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Community Service 1 - Community Buildings
Monument type	. None
Significant Finds	. None
Methods & techniques	'Sample Trenches', 'Test Pits'
Development type	Public building (e.g. school, church, hospital, medical centre, law courts etc.)
Prompt	Planning condition

Digital Archive Exists?	No
Digital Archive recipient	Local Museum
Paper Archive Exists?	No
Paper Archive recipient	Local Museum
Paper Contents	'Stratigraphic'
Paper Media available	'Context sheet','Report','Unpublished Text'

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	An Archaeological Evaluation at Oakfield Infant's and Junior's School,Dartford, Kent
Author(s)/Editor(s)	Dawkes, G. Matt Pope
Date	2008
Issuer or publisher	archaeology south east
Place of issue or publication	Portslade
Description	Word processed in Ariel pnt 12 bound with Card and Clear acetate cover

Entered by	Deon Whittaker (mushak@hotmail.co.uk)
Entered on	12 November 2008

APPENDIX 3

**Report on geoarchaeological works carried out at Oakfield County Primary School,
Dartford.
Oakfield Infant's and Junior's School,
Dartford, Kent**

NGR 554010 172810

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**Project No. 3229
Site Code: OSD 08**

July 2008

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Topographic Situation

The centre point of the site is located at NGR 554012 172819. The site is presently the county primary school, a mixture of buildings, car parks and sports fields and covers an area of 25,703m². This broadly equates with an area bounded by Oakfield Lane to the north, Hawley Road to the east, Southfield Road to the south and housing to the west. The site consisted of three evaluation trenches which, in addition to the borehole, provided the framework for sediment characterisation at the site.

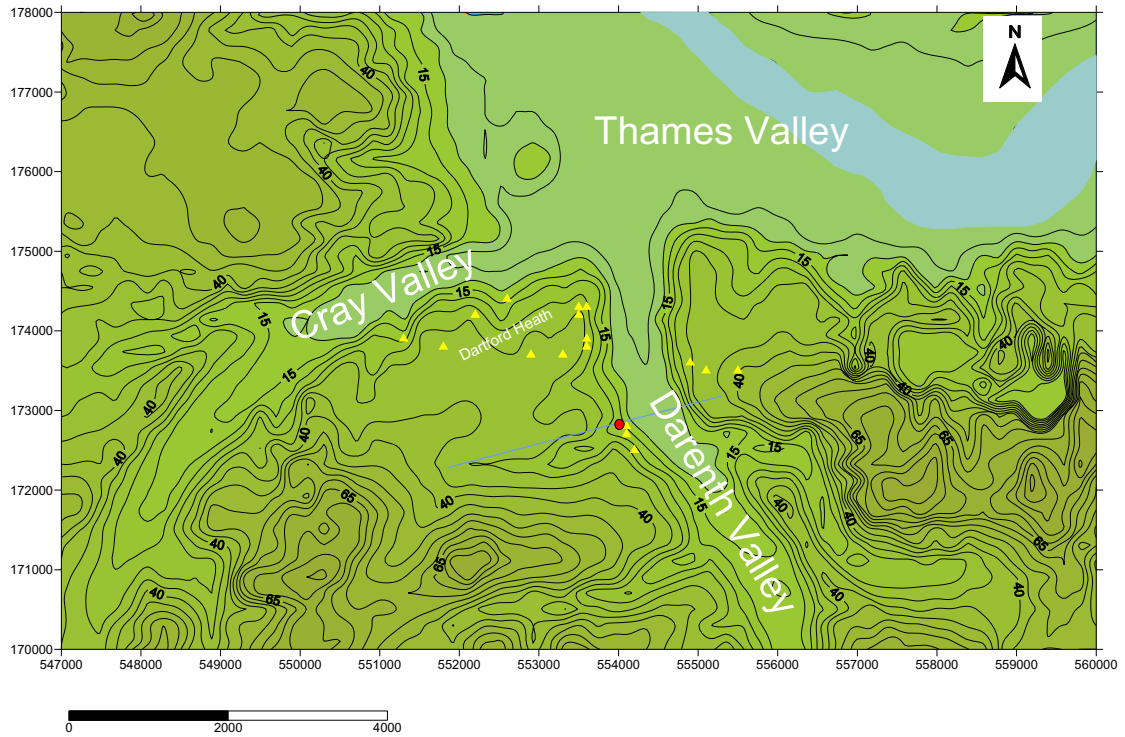


Figure 1: Location map for the Dartford site (marked in red). Local Palaeolithic sites are marked as yellow triangles while the position of the cross section shown in Figure 6 is marked as a blue line.

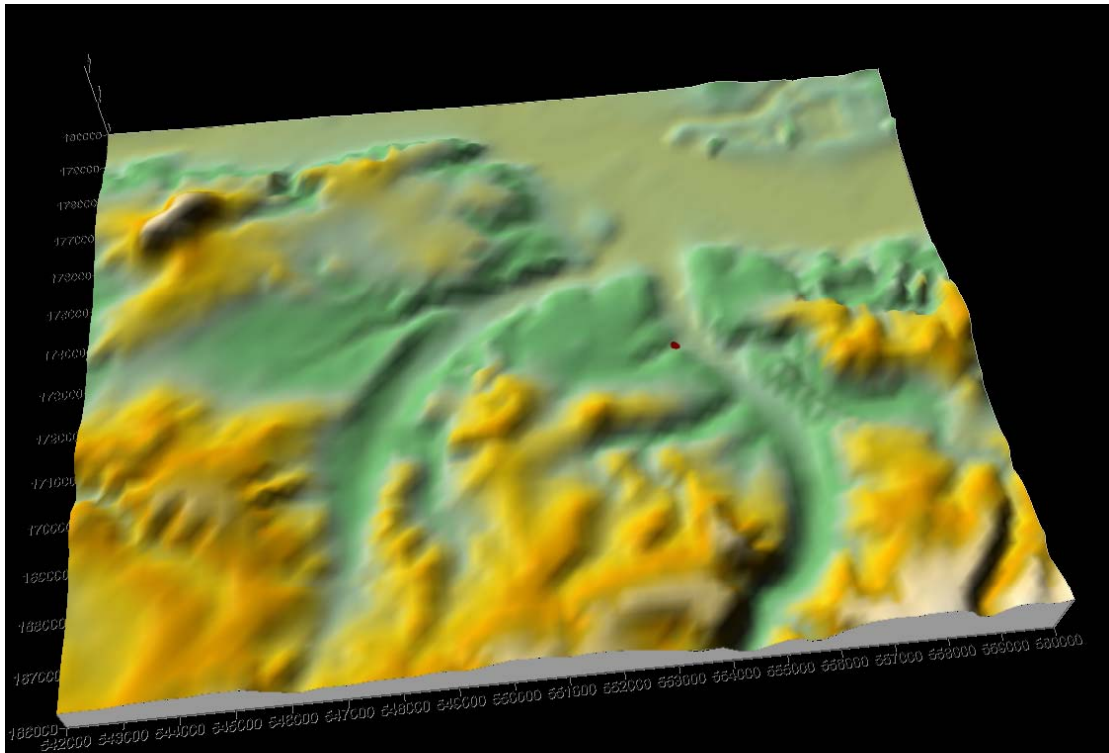


Figure 2: Topographic DEM of the Dartford Plateau. The position of the site, situated in a minor dry valley is marked in red.

The site sits at the base of a superficial dry valley with a southwest-northeast orientation which effectively forms a now-extinct tributary of the Darent. Between the site and the modern valley floodplain there is currently only a gentle gradient which has been subject to urban development. The valley dissects the edge of a low plateau of chalk capped by the sands and gravels of Pleistocene fluvial deposits and dissected by superficial dry valleys. Broadly speaking, this area is known as Dartford Heath (Figure 2). This plateau sits in an area of high land within the triangular area marked by the confluence of the Cray and Darent Rivers (Figures 1, 2 and 3). The site is situated at around 16-20m O.D. on the western bank of the River Darent, a major south-bank tributary of the Thames.

To the north-west the topography flattens above the dry valley suggesting the presence of a terrace and associated fluvial sediments. The positioning of the site in itself therefore suggests conditions suitable for the survival of river terrace sands and gravels and associated Head Deposits.

Examining the wider context of the site is also important in appreciating its unique position, its situation in relation to local Palaeolithic find-spots and in understanding the Boyn Hill terrace controversy. The following summary of potential suggests that the site should be considered as particularly sensitive from a Palaeolithic archaeology/Geoarchaeological perspective.

Broad Geological and Palaeolithic background to the site.

The chalk plateau of Dartford Heath is an area rich in Palaeolithic finds. The river terrace sands and gravels were worked extensively on a commercial basis during the past two centuries allowing numerous opportunities for geological sections to be recorded and for finds to be collected. The following find spots are recorded within 5km of the Oakfield School site (Roe 1968; Wessex Archaeology 1993; Wymer 1999):

31. Dartford Heath Bowmans Lodge TQ 518738
32. Dartford Heath Wasunt Pit TQ513739
33. 14 St James Road TQ522742
34. Broomhill Road TQ526744
36. Shepherds Lane TQ 529737
37. Pearson's Pit TQ 533737
38. Dartford Technical College TQ 536738
39. Miskin Road 536739
40. Tower Road TQ 535742
41. West Hill Road Schools TQ 535743
42. King Edward Avenue TQ 536743
43. Wilmington Church Hill TQ 541728
44. Lowfield Street TQ 541 272
45. Warren Road TQ 542725
47. York Road TQ 549736
48. East Hill TQ 551735
49. The Brent TQ555735

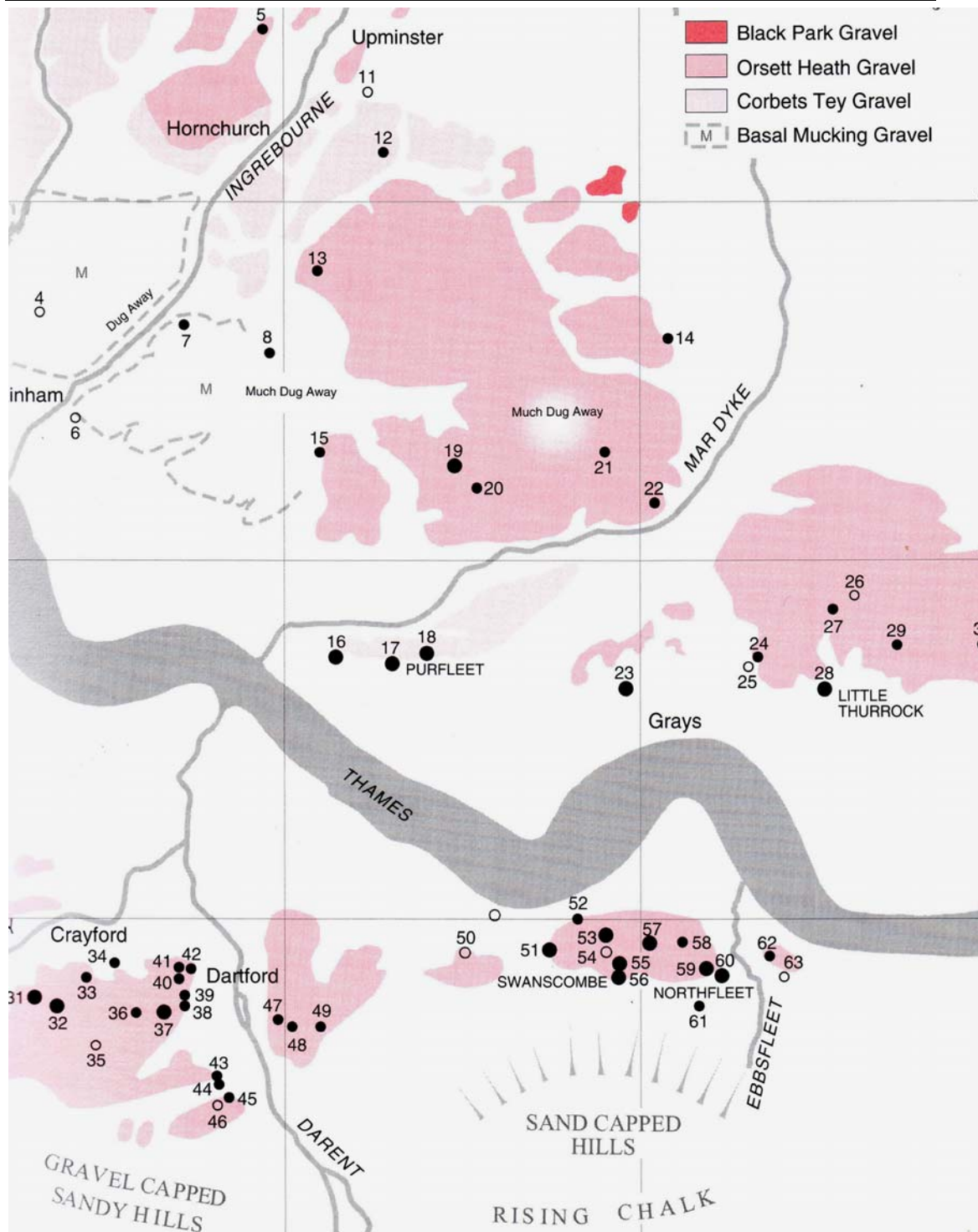


Figure 3: Location map showing major Palaeolithic find spots in the Lower Thames. The Dartford Plateau, between the valleys of the Cray and Darent lies in the south-wets corner of the map. (From Wymer 1999).

Of these sites, 43, 44, and 45 sit within a few hundred yards of the site while sites 37, 38 and 39 sit less than a kilometre to the north. Of these, the sites of Church Hill (45) and Warren Road Pit (43) are of immediate interest and are discussed in further detail below.

More broadly, these sites vary from single artefact find spots to collection of bifaces, refitting debitage and faunal remains at Wasunt Pit (Chandler and Leech 1912). At

Wasunt Pit, Bowman's Lodge and Pearson's Pit, large numbers of well made soft-hammer and tranchet finished bifaces have been recovered (Roe 1968, see Figure 4). a large proportion exhibiting a twisted profile. The latter characteristic is broadly confined to MIS11

The solid geology of the site is mapped as Upper Chalk. While the Upper Chalk here is mapped as undifferentiated, it is mostly comprised of the high Seaford Chalk which is characteristically white, soft and friable with regular courses of flint nodules. The chalk here out-crops on the edge of the London Syncline achieving only partial exposure due to a prevailing capping of Tertiary geology (mainly Thanet Beds) within the local area. To the north and west the angle of bedding takes the chalk down below London Clay and Reading Beds into the main body of the London Syncline.

Head Deposits are mapped as filling a superficial dry valley under the site. This can be expected to be largely decalcified mixture of slits and clay matrix supporting clasts of sub-angular flints. If this achieves depth it might be possible that

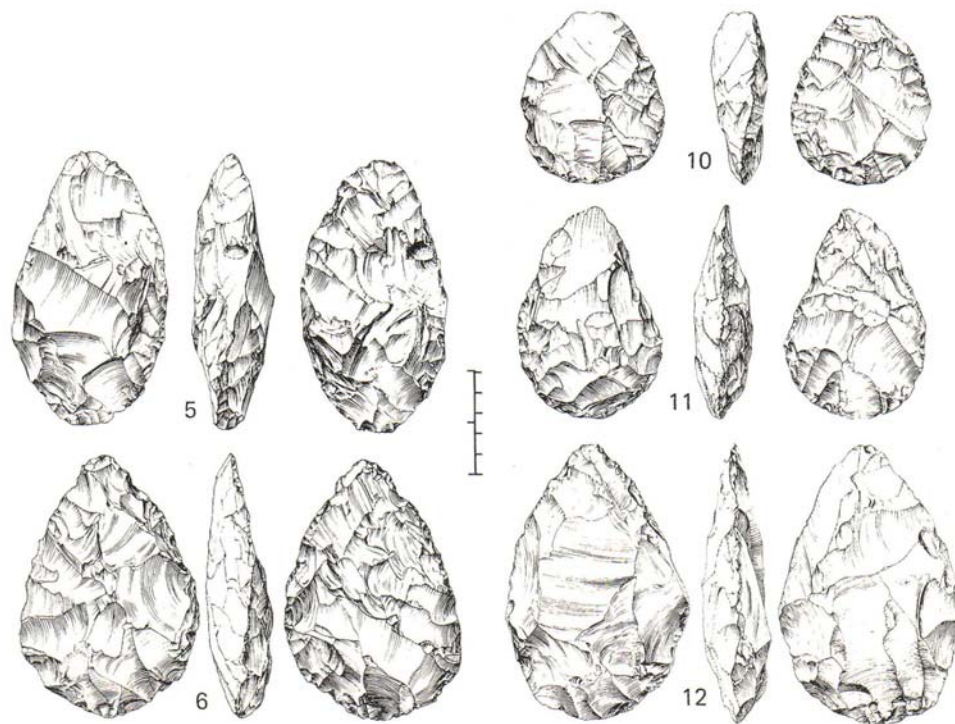


Figure 4: Artefacts from Wasunt Pit and Pearson Pit, Dartford (From Roe 1968)

calcareous Coombe Rock comprising weathered chalk blocks and pellets alongside angular-sub-angular flint gravel maybe be encountered. However the presence of Holocene fluvial deposits within the basal sequence has also been determined (see below).

Two suites of Pleistocene terrace deposits are mapped by the BGS within the region of the site. The BGS appears to map the Head Deposits as being truncated by Taplow Gravels close to the site, this clearly unusual situation is probably due to the limits of the BGS mapping. Establishing the exact relationship between sediments filling the dry valley and fluvial deposits bracketed closely to MIS 7 and MIS8 offer the potential for phasing the Head Deposits. Locally, interglacial deposits associated with the Taplow-Mucking Formation have produced exceptional archaeology relating

to MIS 7 occupation including the important Levallois site of Crayford with a few kilometres of the site.

Of less immediate relevance but still worthy of consideration are the deposits of the Boyn Hill/Orsett Heath Formation, mapped to the north-west of the site. The Boyn Hill terrace is widely documented early terrace of the post-diversionary Thames River system. It was first documented at Maidenhead but has been now mapped throughout the course of the Lower Thames as well as within the valleys of major tributaries such as the Roding, Lea and Wey (Ellison et al. 2004). The base of the Boyn Hill terrace sits at just under 30m O.D. in the Dartford vicinity although great variation in terrace platform height can occur depending on post-depositional solution of the underlying geology. The deposits are broadly correlated with those a few kilometres to the east at Swanscombe, the site which has produced a rich wealth of both Clactonian and Achuelean Palaeolithic tools in addition to faunal remains including a human (Pre-Neanderthal) skull (Wenban-Smith and Bridgland 2001; Bridgland 2003). At Swanscombe, the terrace base has been mapped at 23m O.D. (Wenban-Smith and Bridgland 2001) suggesting caution in ruling out deeply incised parts of the MIS 11 terrace within the vicinity of the site. In general, the deposits of the Boyn Hill/Orsett Heath Formation vary in thickness from c.6m at Stone Cross, Dartford to up to 12m in a solution hollow close to the Dartford tunnel.

The deposits consist of medium to coarse sands and beds of well rounded flint gravel. These deposits are variably decalcified and yet have produced locally rich assemblage of mammoth, rhinoceros and molluscan fauna. The Boyn Hill/Orsett deposits are now generally correlated with the initial post-Anglian formation of terrace deposits during MIS 11 (Bridgland 2003; Figure 5). However this

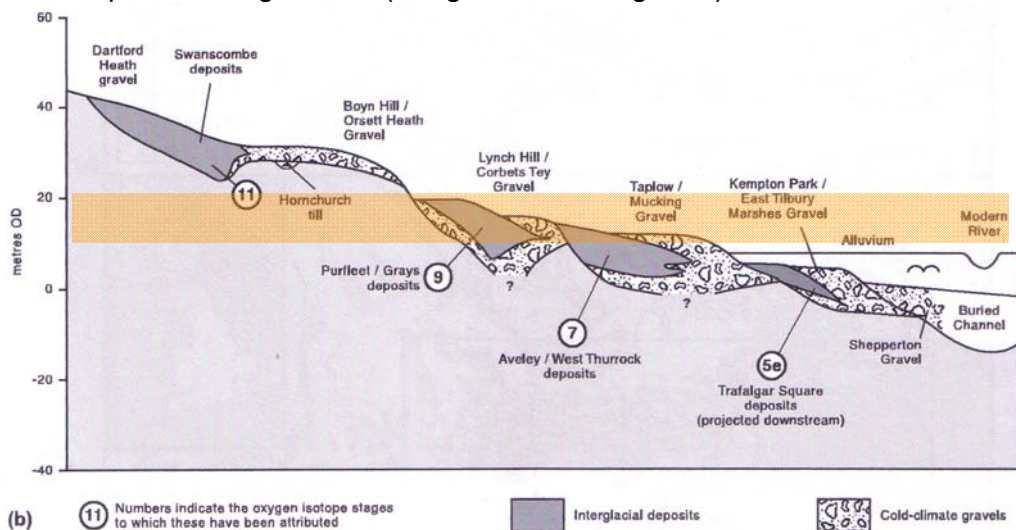


Figure 5: Schematic section through the Lower Thames terrace sequence. The yellow band indicates the altitude range present at the Oakfield site. (Modified from Bridgland 2006).

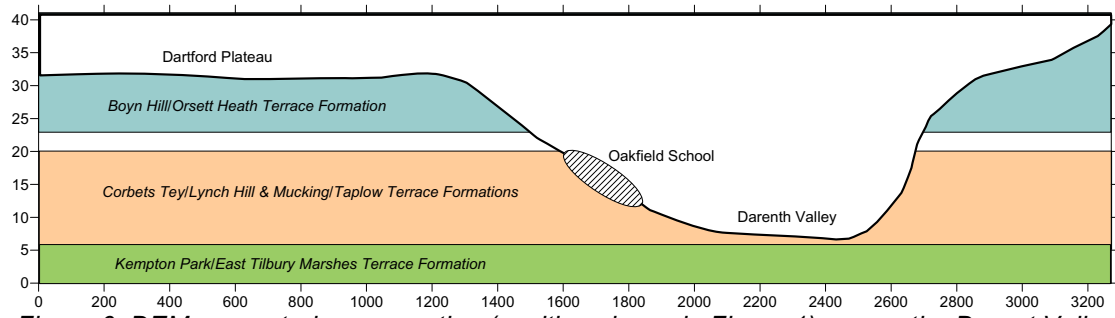


Figure 6: DEM generated cross section (position shown in Figure 1) across the Darent Valley showing the position of the school site in relation to estimated heights of Thames River terrace formations.

association was extensively debated, with deposits from the Wasunt Pit (2km to north west of the site) have long be the focus of controversy with regards to the range of glacial/interglacial cycles represented by these deposits (White *et-al.* 1995).

Geoarchaeological background to the immediate vicinity of the site.

Focussing on the immediate vicinity of the site it is possible to see it lies between 10 and 20m O.D., below the known minimum terrace height for the Boyn Hill/Orsett Heath terrace (Figures 5 & 6), its position within a dry valley system does however offer the possibility that Head Deposits here contain reworked material, potentially including artefacts and fauna, from the higher terrace. More pertinently, the altitude of the site (Figures 5&6) sits within the known height range of both the Corbets Tey/Lynch Hill Terrace (MIS 9) and the Taplow/Mucking Terrace (MIS 7). The latter is mapped by the BGS as possibly underlying the dry valley deposits within the vicinity of the site.

A more specific guide to the local sedimentary conditions at the site is given from the results of recent Geoarchaeological work carried out by Canterbury Archaeological Trust at the sites of 3 Hawley Road (Rady and Scott 2007). Here two test pits, excavated to a depth of c.3m revealed a fluvial sequence at odds with the generalised BGS mapping of the valley as containing soliflucted/colluvial Head Deposits. The recorded sequence shows a basal fluvial gravel which, while at a height equivalent with the Taplow/Mucking gravel, grade seamlessly into Holocene alluvium and peat; the upper levels of which contained evidence of Roman occupation, presumably relating to the nearby Roman building. The excavators interpreted this gravel as relating to sedimentation from a tributary of the modern Darent River system active in the earlier Holocene which, after infilling of the channel with alluvium and peat, stabilised into a dry valley surface at a stage prior to Roman occupation.

It was thought highly likely that deposits of a similar nature will be encountered at the Oakfield School site. It was therefore critical to determine, through test pits and deeper borehole investigation how this Holocene channel relates to possible Pleistocene fluvial and solifluction sequences within the valley. It needed be determine whether the Holocene channel is incised into solifluction deposits or has been reworking Pleistocene gravel from earlier terraces and itself is set into solid Cretaceous geology. The higher altitude of the Oakfield site further up on the dry long profile, as opposed to the Hawley Road site which was situated very much in the dry valley bottom, lends itself to establishing the relationship between colluvial sequences and Pleistocene solifluction/river terrace deposits, Holocene colluvial slope deposits and the possible Holocene fluvial channel.

Also of relevance are the nearby Palaeolithic sites of the Warren Road Pit and finds from Church Hill (Wymer 1968; Roe 1968). While little is known about the circumstances of the finds from Church Hill, including its location, inspection of the 1929 O/S Map shows a working gravel pit close to the given grid co-ordinate for the Church Hill site (Figure 7). This location less, than 50m to the south-east of the Oakfield School, clearly demonstrates the potential for recovering Palaeolithic archaeology from the deposits within the dry valley close to the site. The Warren Road site is relatively better documented and situated approximately 300m to the south west of the site on the southern flank of the dry valley and is also visible on the historic map (Figure 7). While the surface height of the pit sat at the slightly higher altitude of 25-30m artefacts were retrieved here from a variety of depths within the pit, almost certainly overlapping in altitude with the Oakfield school site. 31 handaxes were recovered by Mr S. Priest from this pit in 1934 and are now currently in Dartford Museum. Material here was recovered both from 'coombe deposits' and underlying terrace gravels. The derived material could have conceivably originated from the Boyn Hill/Orsett Heath Gravels having become entrained in solifluction deposits. The handaxes recovered from the underlying fluvial gravels could have

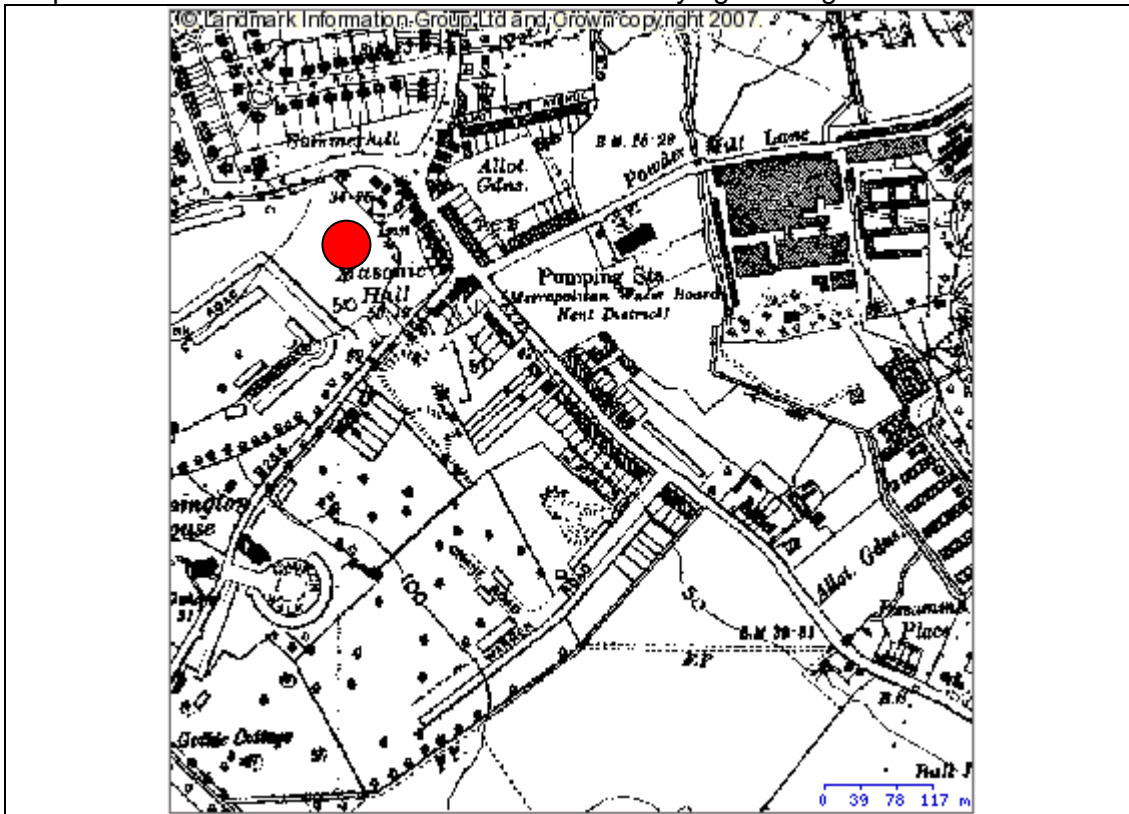


Figure 7: 1929 O/S Map of Wilmington Parish showing the position of two working gravel pits thought to be locations of Palaeolithic finds close to Oakfield School. The Location of the school is shown as a red dot.

originated either in the Corbets Tey/Lynch Hill (MIS 9) or, more probably, the Taplow/Mucking (MIS 7) gravels. It is possible, within the higher areas of the site that a similar stratigraphic situation, with similar potential for palaeolithic archaeology is present.

Summary of Potential and programme of geoarchaeological work.

The Dartford plateau and its flanking sides and incised valleys, situated between the confluence of the Rivers Darent and Cray, should generally be considered an area of major geoarchaeological significance given the area's potential to preserve high-

quality Palaeolithic sites across a range of dates from MIS 11-7. Dartford and the surrounding river valleys of the Cray and Darent have produced high numbers of Lower Palaeolithic artefacts, including fresh tranchet-finished bifaces, associated with large mammal fauna and environmental evidence. It is also an area of crucial importance in determining the overall framework of terrace development and the Pleistocene evolution of the Thames.

On the basis of the BGS survey alone it was clear that a potential mix of solid chalk, dry-valley Head Deposits and Pleistocene river terrace deposits could be present at the site. The exact distribution of these deposits, their depth and structure would be the factors that eventually determine their Palaeolithic and geoarchaeological potential. More specific indications of probable Holocene fluvial sequences, comprising gravels, alluvium and peat indicate the potential for palaeoenvironmental work aimed at reconstructing the depositional and environmental history of a Darent Tributary. Provision was therefore be made for environmental sampling and radiometric dating of these sediments should they be encountered.

To this end KCC commissioned ASE to undertake the excavation of six geoarchaeological test pits, each sited at the flanking ends of the three archaeological evaluation trenches. These were excavated down to the maximum reach of the JCB trenching bucket (c.4m), well below the impact depth of foundations proposed for the development. These sections were to be logged, recorded and suitable deposits sampled for palaeoenvironmental evidence. Any Pleistocene sediments were also to be sampled through direct sieving for Palaeolithic artefacts and mammalian fauna.

Results.

The following sections were logged in the field.

OSD 08 TP1A

Depth m	Height m OD	Notes
0.6	12.42	2.5YR 3/2 very dark greyish brown topsoil with 10% rounded flint gravel. Topsoil.
0.2	12.22	2.5YR very dark greyish brown sandy clay with 10% rounded Tertiary flint. Chalk fragments and occasional large cobbles. Made Ground.
0.45	11.97	10YR 4/3 sandy clay with 20% rounded to subrounded flint including Tertiary pebbles. CBM and burnt flint noted. Colluvium
1.1	11.32	10YR 4/3 sandy clay with 20% rounded to subrounded flint including Tertiary pebbles. CBM and burnt flint noted. 10% chalk fragments noted. Colluvium
1.5	10.92	10YR 4/3 sandy clay with 20% rounded to subrounded flint including Tertiary pebbles. Absence of CBM and burnt flint noted. Colluvium
2.2	10.22	<i>Sandy Clay. Alluvium. Proved to 3m</i>

OSD 08 TP1B

Depth m	Height m OD	Notes
0	12.42	2.5YR 3/2 very dark greyish brown topsoil with 10% rounded flint gravel. Topsoil.
0.2	12.22	2.5YR very dark greyish brown sandy clay with 10% rounded Tertiary flint. Chalk fragments and occasional large cobbles. Made Ground.
0.45	11.97	10YR 4/3 sandy clay with 20% rounded to subrounded flint including tertiary pebbles. CBM and burnt flint noted. Colluvium
1.05	11.37	10YR 4/3 sandy clay with 20% rounded to subrounded flint including tertiary pebbles. CBM and burnt flint noted. 10% chalk fragments noted. Colluvium
1.10	11.32	10YR 4/3 sandy clay with 20% rounded to subrounded flint including tertiary pebbles. Absence of CBM and burnt flint noted. Colluvium
1.8	10.62	<i>Sandy Clay. Alluvium. Proved to 3m</i>

OSD 08 TP2A

Depth m	Height m OD	Notes
0	12.22	2.5YR 3/2 very dark greyish brown topsoil with 10% rounded flint gravel. Topsoil.
0.2	12.02	2.5YR very dark greyish brown sandy clay with 10% rounded Tertiary flint. Chalk fragments and occasional large cobbles. Made Ground.
0.45	11.77	10YR 4/3 sandy clay with 20% rounded to subrounded flint including tertiary pebbles. CBR and burnt flint noted. Colluvium
1.1	11.12	10YR 4/3 sandy clay with 20% rounded to subrounded flint including tertiary pebbles. CBM and burnt flint noted. 10% chalk fragments noted. Colluvium

1.2	11.02	10YR 4/3 sandy clay with 20% rounded to subrounded flint including tertiary pebbles. Absence of CBM and burnt flint noted. Colluvium
1.5	10.72	<i>Sandy Clay. Alluvium</i>
2.2	10.02	<i>Gravel Seam</i>
2.3	9.92	Sandy Clay. Alluvium
3.1	9.22	Solifluction Gravel. Proved to 3.5 m

OSD 08 TP2B

Depth m	Height m OD	Notes
0	12.22	2.5YR 3/2 very dark greyish brown topsoil with 10% rounded flint gravel. Topsoil.
0.2	12.02	2.5YR very dark greyish brown sandy clay with 10% rounded Tertiary flint. Chalk fragments and occasional large cobbles. Made Ground.
0.6	11.62	10YR 4/3 sandy clay with 20% rounded to sub-rounded flint including tertiary pebbles. Colluvium
1.8	10.62	<i>Sandy Clay. Alluvium. Proved to 2.5m</i>

OSD 08 TP3A

Depth m	Height m OD	Notes
0	10.96	2.5YR 3/2 very dark greyish brown topsoil with 10% rounded flint gravel. Topsoil.
0.2	10.76	2.5YR very dark greyish brown sandy clay with 10% rounded Tertiary flint. Chalk fragments and occasional large cobbles. Made Ground.
0.45	10.54	10YR 4/3 sandy clay with 20% rounded to subrounded flint including tertiary pebbles. Colluvium
1.9	9.06	<i>Sandy Clay. Alluvium</i>
2.0	8.96	Gravel
2.5	8.46	<i>Sandy Clay. Alluvium. Proved to 3m.</i>

Depth below ground surface (meters)	Lithology	Samples
0.00 – 0.30	Made ground	
	---abrupt contact---	
0.30 – 1.50	Mid-brown silty-sand to sandy-silt. Frequent large flint cobbles (<10cm). White chalk flecks. Relatively loose and structureless. Colluvium	
	Contact not seen	
1.50 – 2.00	As above but silty sand with occasional -Tertiary flints, sub-angular flints while chalk flecks have disappeared. Unit is soft and unconsolidated. Colluvium	
	Contact not seen	
2.00 – 3.00	Mid-brown silty sand. Soft and structureless. Angular flint clasts with occasional sharp edges to clasts. Becomes yellowish fine silty sand and slightly more cohesive with depth. Possibly bedded with horizontal brown silty bands. Occasional very fine flint chips (<0.5cm). Alluvium	U4 1, 2.00-2.45m
- 2.50	As above but patches of lighter grey silty very fine sand (possibly intrusive from above or below). Very rare flint clasts.	U4 3, 2.50-2.95m Dist 4, 2.95-3.00m
	Contact not seen	
3.00 – 4.00	Yellow-brown and grey silt (very low sand content). Possible remnant beds with brown silt. Rare, very small (1-2mm) angular flint clasts. Moderately cohesive. Alluvium	U4 5, 3.00-3.45m Dist 6, 3.45-3.50m U4 7, 3.50-3.95m Dist 8, 3.95-4.00m
	Contact not seen	
4.00 – 4.30	Yellow-grey gravelly sand. Sub-angular clasts of flint (<2cm). Matrix supported, structureless and moderately compact. Fluvial Gravel	U4 9, 4.00-4.30m
	Contact not seen	
4.30 – 5.20	Flint gravel. Many Tertiary flints and large sub-angular and rolled flint cobbles (<6cm). Loose and non-cohesive. Probable matrix of medium/coarse sand. Fluvial Gravel	
	Contact not seen	
5.20 – 7.10	White chalk silt with common chalk and flint clasts. Clasts are <0.5cm, and sub-rounded. Clasts are matrix supported in matrix of chalky silt. Occasional larger angular flint clasts (<1cm). Becomes whiter chalk with putty chalk silt matrix. Very clean. Solifluction Gravel	U4 10, 5.20-5.65m Dist 11, 5.65-5.70 U4 12, 5.70-6.15 Dist 13, 6.15-6.20
	Contact not seen	
7.10 – c.9.70	As above but yellowish white in colour. Clasts of chalk now sub-angular in shape with no evidence of rounding of edges. Solifluction Gravel	Dist 14, c.8.0m
- 8.00	As above but with brown sandy patches. Soft and unconsolidated. Possibly bedded in places. Solifluction Gravel	
	Contact not seen	
9.70 -	Very white chalk with large angular chalk clasts and chalky silt matrix (putty chalk) Solid Chalk	
	---base of borehole 10.00m---	

The recorded sections showed three distinct phases of sedimentation:

1. Pleistocene Solifluction (Coombe Deposits) 5.2 to 10m depth
2. Fluvial gravel giving way to an alluvial sequence. 2 to 5.2m
3. Colluvial sedimentations capped by made ground. 0 to 2m

Colluvial sequence interpretation.

Under superficial made ground, a colluvial sequence comprising material apparently derived large from Tertiary deposits which are known to have capped the Dartford Heath plateau and immediate environs of the Oakfield School valley. The derived Tertiary component was indicated by the presence of large quantities of small, extremely rounded flint pebbles which characterise the local Eocene deposits. While small quantities of sub-rounded flint gravel and the sand matrix of the colluvium may well also be of Tertiary origin, the possibility cannot be ruled out that a component derived from local outcrops of Thames Terrace gravels is also present within the colluvium.

The colluvium, in GTP's 1A, 1B, 2A, 2B could be sub-divided into two distinct phases of deposition. The upper, younger phase, of deposition was characterised by the presence of Roman CBM and burnt flint to a depth of 0.45m. At the base of this deposit, at 1.1m depth, the burnt flint and CBM continued within a 0.1m bed of colluvium which comprised 5-10% small chalk flecks. Below this the colluvium continued to a depth of 2.2m depth but with a complete absence of chalk, CBM and burnt flint.

The suggestion is that the colluvium represents a phase of increased erosion of the valley sides, presumably relating to woodland clearance and increased agricultural activity in late Prehistory. The appearance of chalk fragments alongside Roman CBM and burnt flint is tentatively suggested to relate to changes in landuse during the Roman-British period. The chalk perhaps either representing direct marling of agricultural land within the valley or a by-product of some industrial activity such as lime production. The suggestion is that colluvial development led to the formation of a flatter, drier base to the dry valley floor, which is currently seen today within the valley. This effectively choked the Winterbourne River indicated by the lower, alluvial sediments sequences and allowed for direct occupation of the valley floor. The presence of CBM indicates the proximity of RB structures and the established occupation of the valley.

Alluvial sequence interpretation

Detailed logging of the alluvial competent was only possible through examination of the U100 borehole tubes as these deposits were encountered below 2m at a point where it was not safe to enter the trench. Between 2 and 3.5m depth a bed of 10YR 5/4 yellowish brown silty sand with some manganese oxide flecking at <5% was observed. Some possible weak bedding was present indicated by possible partings of lighter, slightly sandier sediment but due to deformation during capture in the tube, the exact nature of these beds could not be determined. The sequence is seen as being a corollary of alluvial sedimentation further down the valley at the Hawth development recorded by CAT. The alluvium is part of the initial Holocene sedimentation of the dry valley forming either through indirect over-bank flooding of the Darent swamping the lower part of the Oakfield school Valley, through direct alluviation due to permanent/seasonal flow of the original Oakfield valley stream or through a combination of both. The dating of the alluvial component is not directly possible although this could be determined through pollen assessment. Given the

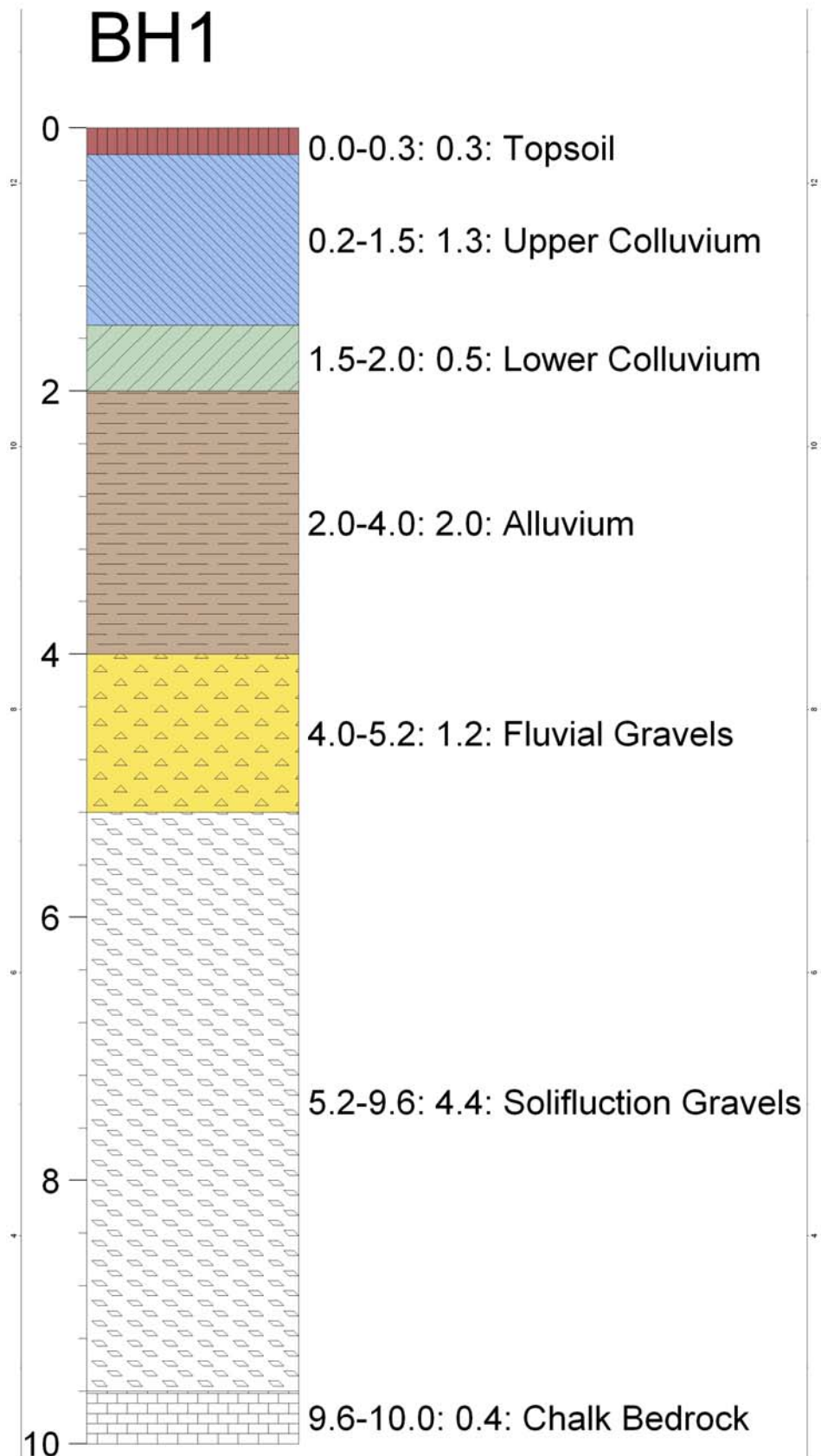


Figure 8: Logged stratigraphy of Oakfield School BH1.

absence of colluviation at the point and the implicit assumption that clearance of the valley sides had not yet been undertaken on a significant scale, an early Holocene

date is possible. At the base of the alluvium, between 3.5 and 5.2m depth a suite of fluvial

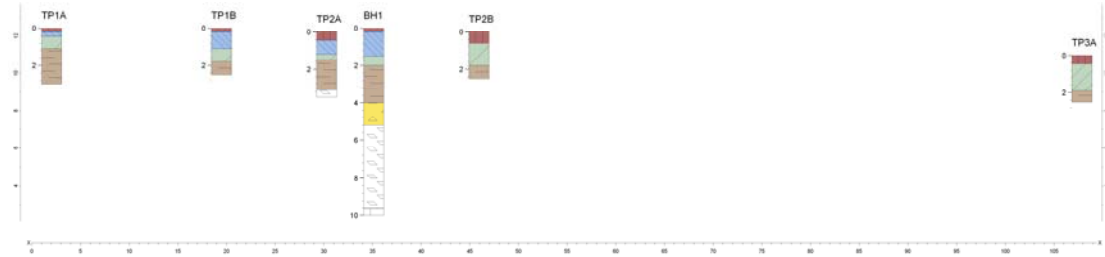


Figure 9: South to North Cross-section of sedimentology at the Oakfield School site. For key see Figure 8.

sands and gravels were encountered. These sit well below any impact through the proposed development but do have moderate potential for Palaeolithic archaeology. It is considered likely, given their stratigraphic position between Coombe Deposits and alluvium with the dry valley, that these sands and gravel date to the last glacial. Possibly they represent final melt water deposits reworking the underlying solifluction gravels but perhaps introducing some material from the Dartford Plateau.

Pleistocene Solifluction Deposits.

At 5.2m the fluvial gravels give way to sediments of a different character. A series of bed containing variable quantities of chalk fragments and pellet gravels comprise up to five metres of soliflucted calcareous Coombe deposits. These coarse components, which varying in size, sit within a marly 2.5Y 8/3 pale yellow clay silt. The presence of <5% rounded flint as part of the clast population shows the input of material from Tertiary beds capping the local plateau. The contact with the underlying chalk was shard to determine given both the weathered, wet nature of the solid and the presence of beds comprising angular chalk blocks with the solifluction gravels. The suite of deposits is interpreted as relating to valley formation and sedimentation resulting from the actions of ice, permanent snow fields and permafrost. The sediments have moderate archaeological potential but sit beneath the depth of impact from the development.

Summary

The geoarchaeological work has enabled the recording of a complete sequence of valley formation and sedimentation for a dry-valley tributary of the River Darent. The recovered U100 tubes offer good potential for developing an environmental sequence for early stage of the valley formation. While the colluvial material was decalcified and offers little potential for the recovery of palaeoenvironmental remains the U100 tubes offer the chance to sample for pollen and micropalaeontological remains from the late Pleistocene and early Holocene parts of the sequence. No potential for Palaeolithic archaeology exists within the 2.5m impact zone of the proposed development.

Recommendations for future work

1. Subsampling of U100 tubes at 0.25m intervals for pollen potential.
2. Subsampling of U100 tubes at 0.1m intervals for micro palaeontological potential.

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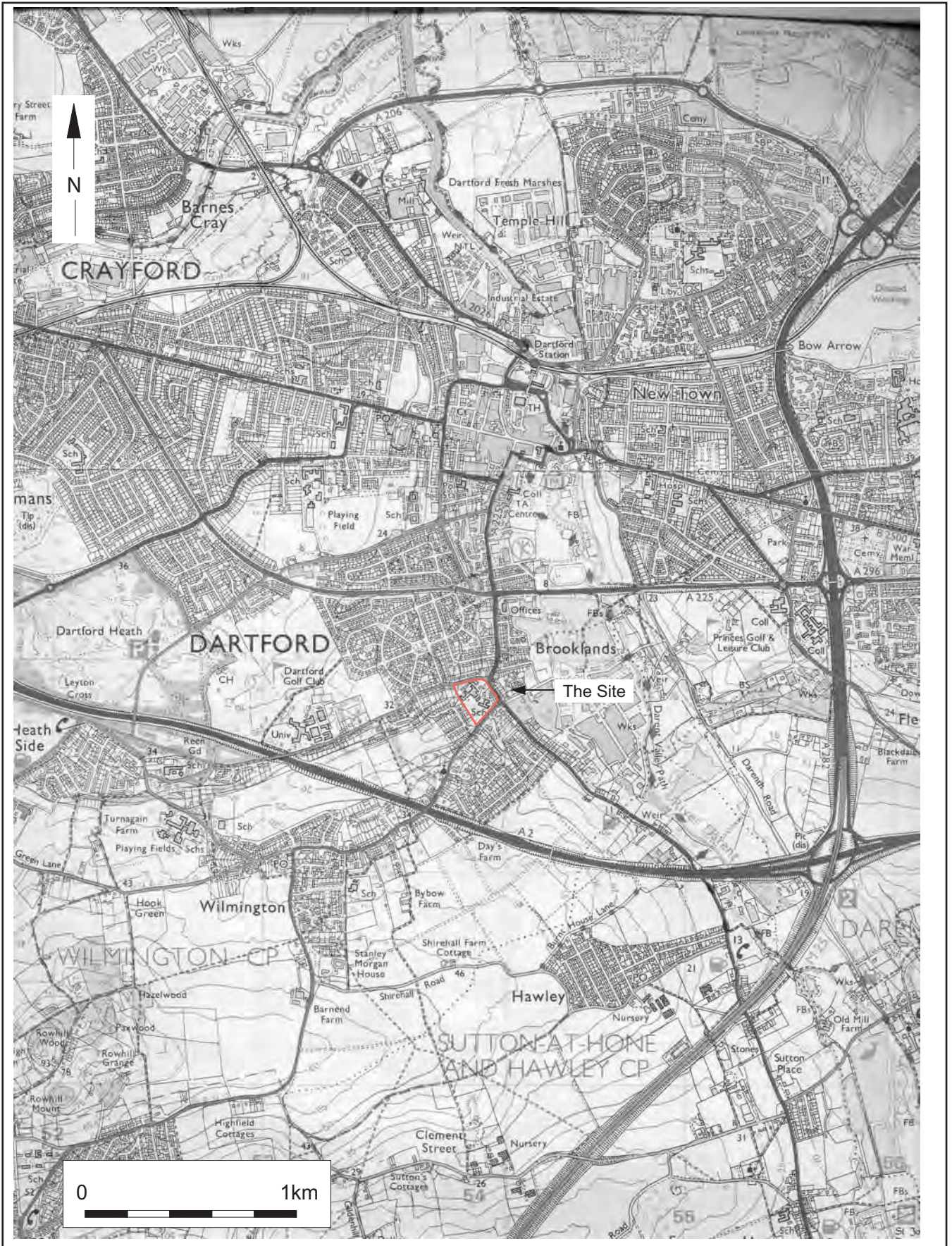
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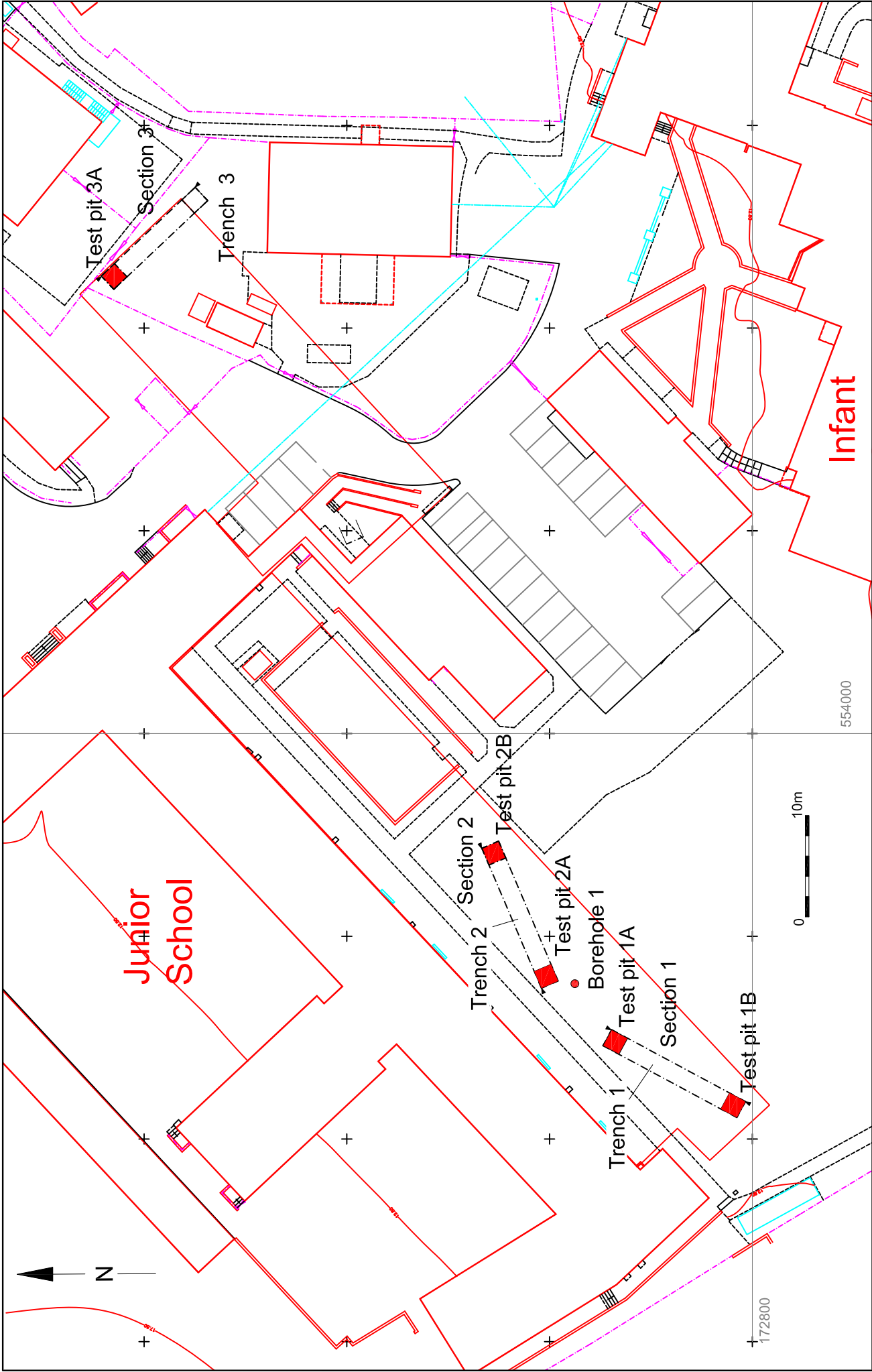
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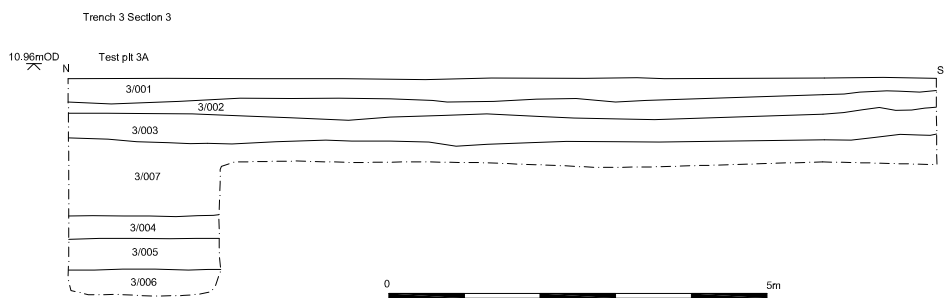
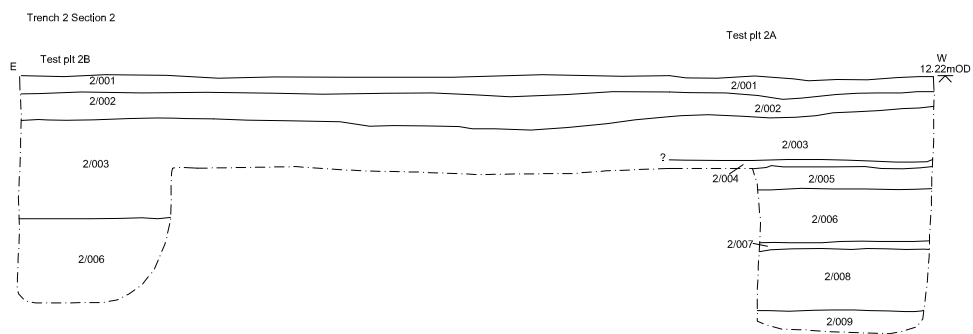
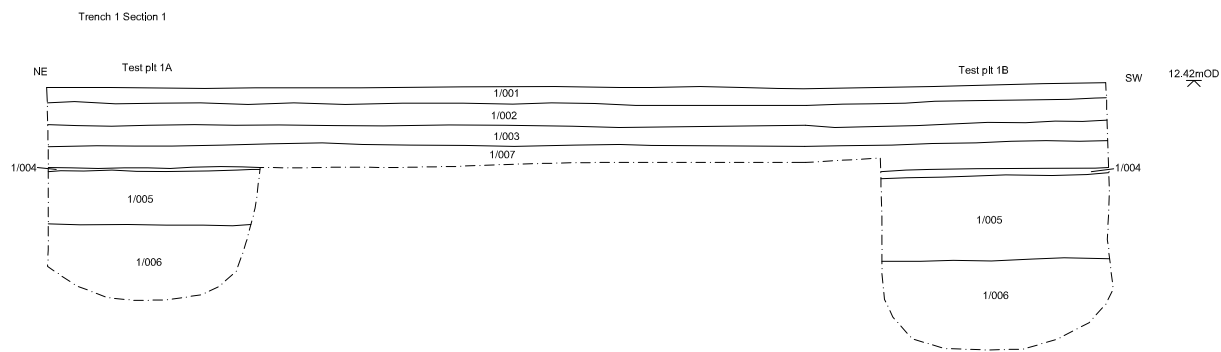
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Project Ref: 3229	Jan 2008	Site Location Plan	
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