A REPORT ON THE QUATERNARY GEOARCHAEOLOGY OF THE SITE AT 1-3 UXBRIDGE ROAD, HAYES (NGR: TQ 1165 8036)

P. Allen and D.S. Young
Quaternary Scientific (QUEST), *School of Human and Environmental Sciences, University of Reading, Whiteknights, PO Box 227, Reading, RG6 6AB, UK*

INTRODUCTION

This report summarises the findings arising out of the geoarchaeological investigations undertaken by Quaternary Scientific (University of Reading) in connection with the proposed development at 1-3 Uxbridge Road, Hayes (National Grid Reference: TQ 1165 8036; Figure 1). The site lies on the south side of the Uxbridge Road, between Hayes and Southall, bounded by the Yeading Brook on its west side and the Grand Union Canal to the east. According to Ordnance Survey mapping, the majority of the site lies at approximately 30m OD. For much of both west and east London, the built-up area is on a sequence of terraces left as the Thames successively cut down to lower levels (Figure 2). Geological mapping (BGS 1:50,000, Sheet 256, North London) shows the general area to lie where Langley Silt overlies sands and gravels of the Lynch Hill terrace, in turn resting on London Clay bedrock (Table 1). The site, however, lies in the shallow valley of the Yeading Brook, which cuts through this sequence. The Langley Silt is of variable character, ranging from sandy silt to reworked London or Reading Clay (Bromehead, 1925; Gibbard, 1985). The Lynch Hill Gravel comprises mostly sandy gravel or gravelly sand, with frequent lenses or beds of medium or coarse sand. The deposits of the Yeading Brook have not been described.

Table 1: Expected sequence at the 1-3 Uxbridge Road site, as shown by BGS mapping.

Era	Period	Stage	Unit	Age (yrs)
Quaternary	Pleistocene	Devensian	Langley Silt	? *ca*. 30,000
		Un-named MIS 10-9-8	Lynch Hill terrace sand and gravel	*ca*. 300,000
Tertiary	Palaeocene	Eocene	London Clay	*ca*. 55,000,000

Key: MIS = Marine Oxygen Isotope Stage.

GEOARCHAEOLOGICAL CONTEXT

Lynch Hill Gravel

Brown (1886; 1887; 1889), at Creffield Road, Acton, described a ‘working floor’ lying on a seam of black-stained gravel (= Lynch Hill Gravel) immediately beneath the brickearth (Langley Silt), which he thought to be humic staining on an extensive land surface. He also identified two further seams or surfaces at depth within the gravels associated with small

numbers of unrolled flint tools. He reported (Brown, 1887) 10 or 12 flint artefacts from the Lynch Hill gravels, 8 or 10 from the upper part and 2 from the lower. In contrast, Collins (1988), working in the Yiewsley area, suggested that within the Lynch Hill terrace sequence, artefacts may be more common in the lower part of the gravels.

Bazely *et al*. (1991) did not support the idea of an extensive stable land surface at the top of the Lynch Hill Gravels, as the humic component is more likely to be manganese staining and they noted the flints that Brown had collected, though not badly rolled, were not in pristine condition.

Langley Silt

Marsden (1927) recorded flints from the vicinity of Brown's site, including some Levallois flakes, 'thrown up' from a depth of 4 to 6.5 ft in the brickearth. The occurrence of the Levallois industry is important as it indicates a MIS 8 age, at oldest, and follows on from the MIS 9 age ascribed to the Lynch Hill Gravel. Bazely *et al*. (1991) recovered 21 artefacts from Creffield Road, but only from the Langley Silt.

A total of five cable percussion boreholes and seven window samples were put down during geotechnical investigations at the site by Harrison Group (2014), confirming a sequence of stiff clay (?London Clay), overlain in most places by sandy gravel and Made Ground. In one borehole the Made Ground directly overlies the stiff clay (WS5), whilst in two (WS7 and BH1A) the gravel is overlain by slightly sandy clay (?Langley Silt). The borehole data suggest that the London Clay has an upper surface varying between 23.3 and 26.3m OD, but the borehole descriptions describe the London Clay as fissured, suggesting that it may be weathered or even reworked, fitting some descriptions of the Langley Silt (Bromehead, 1925; Gibbard, 1985). Above the fissured London Clay, most of the boreholes and window samples note the presence of sandy gravels. As stated above, these could be part of the Taplow or Lynch Hill Terrace gravels, or relate to more recent (Late Devensian/Early Holocene) deposits of the Yeading Brook.

As outlined in the written scheme of investigation for the site (Young & Allen, 2015) the aim of the geoarchaeological investigations was (1) to clarify the nature of the sub-surface stratigraphy across the site, and (2) to evaluate the potential of the sequences to contain evidence for Palaeolithic archaeology or biological remains.

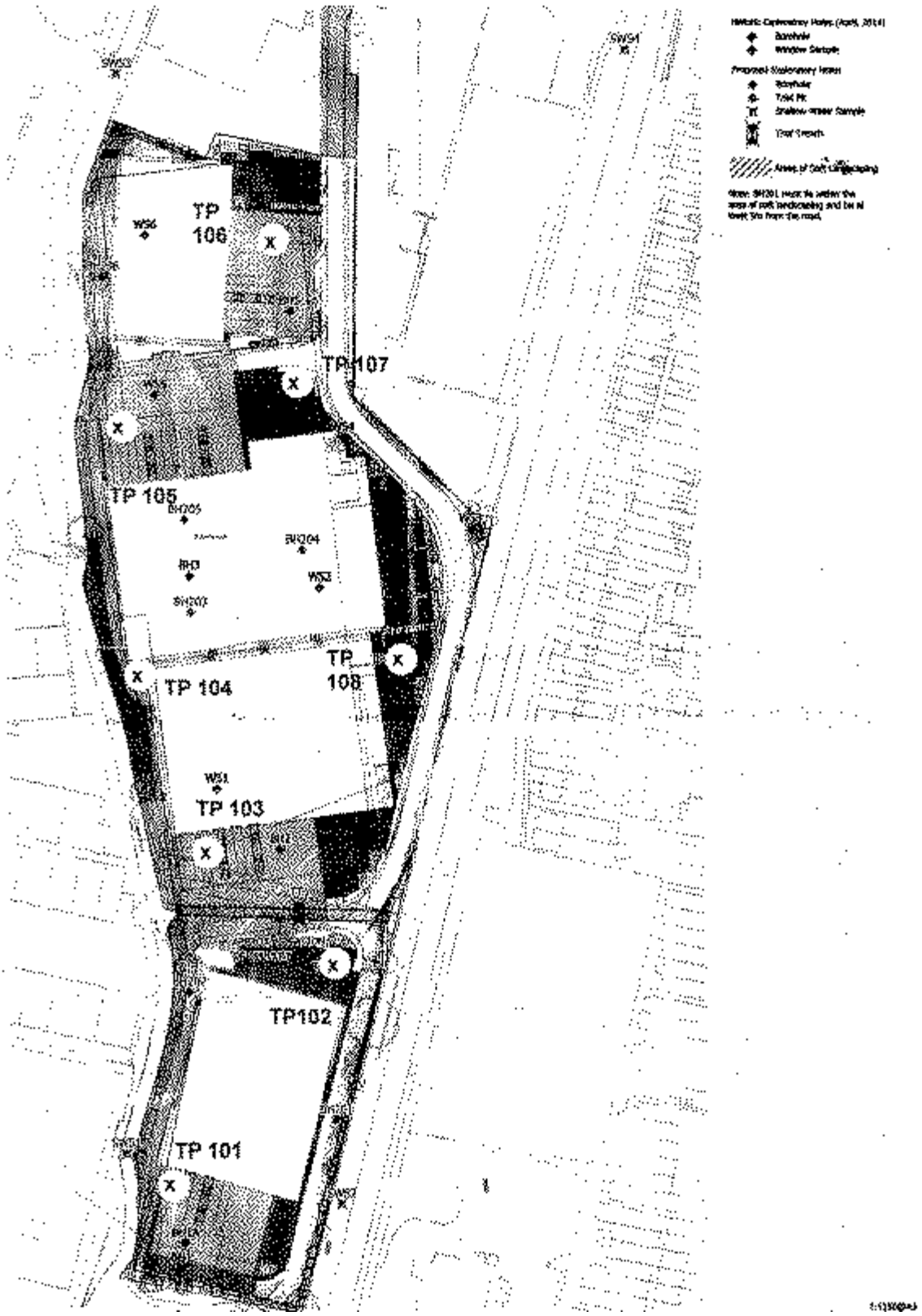

Figure 1: Test pit locations (original figure provided by CgMs Consulting).

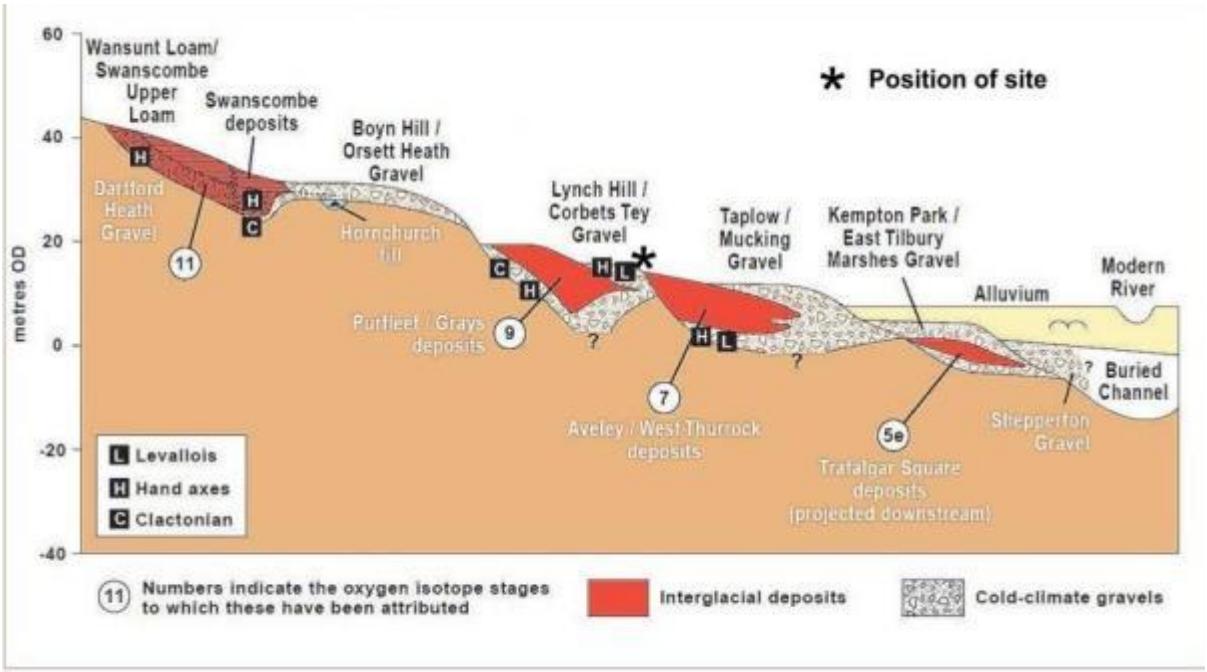

Figure 2: The Thames Terrace sequence.

METHODS

Eight trial pits (TP101 to TP108) were sunk to depths up to 3m below ground surface (bgs). The trial pits had a footprint of approximately 1m by 2m. For health and safety reasons no pit was entered beyond a depth of 1.2m; observations of the deeper parts of the pits were made from the ground surface, and strata thicknesses estimated from tape measurements. The geology was recorded by a field log at 1m to 4cm (1:25) and photographically.

The surface exposed by the machine blade was examined visually, where possible, for changes in the sedimentology of the deposits and for fossil material and the contents of the bucket for worked flint, bone and other fossil material. No indications of manganese (or humic) staining were seen in the Lynch Hill Gravel.

RESULTS AND INTERPRETATION OF THE GEOARCHAEOLOGICAL INVESTIGATIONS

The results of the lithostratigraphic descriptions of trial pits TP101 to TP108 are displayed below. An estimated arbitrary level of 30.0m OD was assumed for the surface of the eight trial pits.

On site, the London Clay surface varies between 23.0 and 28.0m OD (Figure 19), which compares well with other records from the local area where BGS archive boreholes (www.bgs.ac.uk/opengeoscience) indicate a surface between 23.3 and 26.0m OD.

All the gravelly deposits lie within the height range expected for the Lynch Hill Gravel (see Figure 20), and they have a fairly uniform clast content, due to reworking, dominated by rounded and sub-angular flint, with lesser amounts of quartzite and vein quartz and occasional cherts and distant exotics. Thus other criteria are needed to distinguish the gravels found at the site.

Where yellow or brown sand and gravel, with little or no silt or clay in the matrix occurred, typical of the Thames terrace deposits, the sediment was interpreted as Lynch Hill Gravel. Where sands and gravels with a significant clayey or silty element to the matrix and coloured grey or grey-green, especially where associated with silt or clay beds, were considered to be sediments deposited by the Yeading Brook. The latter, clearly, had been deposited in a different environment from the former. Additionally, the iron coating the grains and clasts was still in a reduced state, giving the black colouring, unlike the yellow – brown – orange colour range of the oxidised iron associated with the Thames terrace deposits.

The Lynch Hill Gravel occupies much of the eastern part of the site (Figure 20). The Yeading Brook sediments have a crescentic distribution to the west, probably reflecting a sinuous course of the river in the past. In several of the test pits (TP 102, 103, 106a, 107 and 108), Yeading Brook deposits may overlie the Lynch Hill Gravel.

Samples of the gravel were sieved from selected test pits for the recovery of Palaeolithic artefacts. In TP102, 10 litres of gravel was sieved through a 10mm mesh sieve. One worked flake was recovered, *ca*. 1 cm long. In test pits TP103, 104, 106A, 107 and 108 70 litres of material from each pit was set aside and trowelled through carefully. No artefacts were recovered.

Table 2: Results of the lithostratigraphic description of TP101, excavated to a depth of 3.0m bgs (Figures 3 and 4).

Unit	m bgs	m OD	Thick	Description	Sample
101.1	0.0-0.4	30.0-29.6	0.4	Made ground; coarse building debris overlying ashy spoil.	
101.2	0.4-1.3	29.6-28.7	0.9	Reworked London Clay; pellets of London Clay up 3 cm in a London Clay matrix; occasional fragments of pottery. Historical origin.	
101.3 1.3a 1.3b 1.3c 1.3d	1.3 – 2.9	28.7 – 27.1	1.6	Grey and grey-green clay 1.3 – 1.6 stiff, grey-green 1.6 – 1.9 soft, grey-green 1.9 – 2.4 green 2.4 – 2.9 grey-green with brown mottles.	
101.4	2.9 – 3.0	27.1 -27.0	0.1	Gravel in sandy, clayey matrix; grey. ?Yeading Brook deposits	
101.5				Gravel not bottomed.	

bgs – metres below ground surface; OD – Ordnance Datum; S – sample

Table 3: Results of the lithostratigraphic description of TP102, excavated to a depth of 3.0m bgs (Figures 5 and 6).

Unit	m bgs	m OD	Thick	Description	Sample
102.1	0.0-1.3	30.0 – 28.7	1.3	Made ground; crushed building debris, with lens of calcium-rich coarse sandy material at base. Overlies London Clay debris intermixed with brick and wood. ?Recent pebbly Yeading Brook overbank deposits, but with glass and traces of brick	
102.2	1.3-2.1	28.7-27.9	0.8	Gravelly sandy silt, green-grey colour, predominantly rounded and sub-angular flints, mostly up to 3 cm, occasionally to 10 cm. ?Yeading Brook deposits	
102.3 2.3a 2.3b	2.1–3.0	27.9-27.0	0.9	Sandy gravel, coarse sand matrix, brown. Mostly rounded or sub-angular flint, mostly 2 – 3 cm, occasionally 8 cm (2.3a), becoming coarser and more gravelly with depth (2.3b). ?Lynch Hill Gravel	100 litres ? Waste flake x1 c.1 cm
				Lynch Hill Gravel not bottomed	

bgs – metres below ground surface; OD – Ordnance Datum; Sample – sieved sample

Table 4: Results of the lithostratigraphic description of TP103, excavated to a depth of 2.8m bgs (Figures 7 and 8).

Unit	m bgs	m OD	Thick	Description	Sample
103.1	0.0-0.4	30.0-29.6	0.40	Made ground; building debris	
103.2	0.40-1.2	29.6-28.8	0.8	Silty, clayey fine to medium sand,	

				occasional gravel clasts to up 4 cm.	
103.3	1.2- 1.6	28.8-28.4	0.4	Sandy gravelly clay, , grey (5Y5/1, grey); flint mostly 2 – 3 cm, occasionally to 10 cm ?Yeading Brook deposits	
103.4 3.4a 3.4b	1.6-2.8	28.4-27.2	1.2	Sandy gravel, coarse sand matrix with minor amount of silt and clay, gravels mostly 2 - 3 cm, occasionally to 10 cm in upper part (103.4a). Brown-orange colour (10YR5/8, yellowish brown); gravel becomes more coarse towards base, clasts to 14 cm (103.4b) ?Lynch Hill Gravel	70 l No finds
				Lynch Hill Gravel not bottomed	

bgs – metres below ground surface; OD – Ordnance Datum; Sample – sieved sample

Table 5: Results of the lithostratigraphic description of TP104, excavated to a depth of 3.0m bgs (Figures 9 and 10).

Unit	m bgs	m OD	Thick	Description	Sample
104.1	0.0-0.3	30.0-29.7	0.3	Made ground; building debris	
104.2 4.2a 4.2b 4.2c 4.2d	0.3-3.0	29.7-27.0	2.7	Fining upwards sequence Clayey, silty fine sand, some flint, mostly up to 4 cm, occasionally to 6 cm. Brown - grey colouring (7.5YR, dark brown; 10YR4/1, dark grey). Becomes more gravelly by 1.0 m bgs, gravels commonly to 10 cm. Iron staining at c.12.75 m bgs Gravels become dominant, flints up to 14 cm, with little matrix ?Lynch Hill Gravel	75 l No finds
				Lynch Hill Gravel not bottomed	

bgs – metres below ground surface; OD – Ordnance Datum; Sample – sieved sample

Table 6: Results of the lithostratigraphic description of TP105, excavated to a depth of 3.0m bgs (Figures 11 and 12).

Unit	m bgs	m OD	Thick	Description	Sample
105.1	0.0-0.7	30.0-29.3	0.7	Made ground; brick and concrete building debris	
105.2	0.7-0.9	29.3-29.1	0.2	Silty clay, dark grey, occasional flints	
105.3 5.3a 5.3b	0.9-2.0	29.1-28.0	1.1	Clayey gravel, grey matrix (2.5Y4/0, dark grey + 10YR5/6, dark yellowish brown). Becoming more clayey with depth,; at 2 m bgs, clay with some gravel. ?Yeading Brook deposits	
105.4	2.0-3.0			London Clay. Top part with rootlets, slickensiding and conglomeratic structure (L. Clay pellets within London Clay matrix). Quickly becomes massive, with	

				occasional mollusc fossil material.	

bgs – metres below ground surface; OD – Ordnance Datum; Sample – sieved sample

Table 7: Results of the lithostratigraphic description of TP106a, excavated to a depth of 3.0m bgs (Figures 13 and 14). Trial pit opened immediately adjacent, to north, of intended position.

Unit	m bgs	mOD	Thick	Description	Sample
106.1	0.0-0.4	30.0-29.6	0.40	Made ground; brick and concrete rubble	
106.2	0.4-1.6	29.6-28.4	1.2	Sandy gravel, mostly rounded and sub-angular flint, up to 3 cm, grey and brown (2.5 Y4/2, dark greyish brown + 7.5YR4/6, strong brown).	
106.3	1.6-1.7	28.4 -28.3	0.1	Clay	
106.4	1.7-1.85	28.3-28.15	0.15	Clayey, sandy gravel, grey (2.5Y3/1, very dark grey) ?Yeading Brook deposits	
106.5	1.85-3.0	28.15-27.0	1.15	Sandy gravel, brown (10YR5/6, yellowish brown), clasts mostly up to 4 cm, occasionally 9 cm. Sand lens at 2.6 m bgs. ?Lynch Hill Gravel	0.7 l From basal area; no finds
				Lynch Hill Gravel not bottomed	

bgs – metres below ground surface; OD – Ordnance Datum; Sample – sieved sample

Table 8: Results of the lithostratigraphic description of TP107, excavated to a depth of 2.9m bgs (Figures 15 and 16).

Unit	m bgs	m OD	Thick	Description	Sample
107.1	0.0-0.2	30.0-29.8	0.2	Made ground; brick and concrete building rubble	
107.2	0.2-0.5	29.8-29.5	0.3	Clayey sandy gravel, grey (10YR4/1, dark grey) ?Yeading Brook deposits	
107.3 7.3a 7.3b	0.5-0.9	29.5-29.1	0.4	Sandy gravel, mostly 2-3 cm, occasionally up to 7 cm, brown (10YR5/8, yellowish brown) Sand lens at base.	
107.4	0.9-2.90	29.1-27.1	2.0	Sandy gravel, clasts mostly up to10 cm, occasional flints and quartzite to 15 cm ?Lynch Hill Gravel	0.7 l No finds
				Lynch Hill Gravel not bottomed	

bgs – metres below ground surface; OD – Ordnance Datum; Sample – sieved sample

Table 9: Results of the lithostratigraphic description of TP108, excavated to a depth of 2.7m bgs (Figures 17 and 18).

Unit	m bgs	m OD	Thick	Description	Sample
108.1	0.0-0.8	30.0-29.2	0.8	Made ground; coarse spoil ofbricks, concrete, tyres 0verlying finer spoil.	
108.2	0.8-1.5	29.2-28.5	0.7	Gravelly sand, coarse sand, clasts mostly less than 1 cm	

108.3	1.5- 1.6+	28.5-28.4+	0.1+	Gravelly clay, grey, variable thickness ?Yeading brook deposits	
108.4	1.6-2.7	28.4-27.3	1.1	Gravelly sand, clasts mostly less than 6 cm, occasionally to 10 cm, brown-grey. ?Lynch Hill Gravel	70 l No finds
				Lynch Hill Gravel not bottomed	

bgs – metres below ground surface; OD – Ordnance Datum; Sample – sieved sample

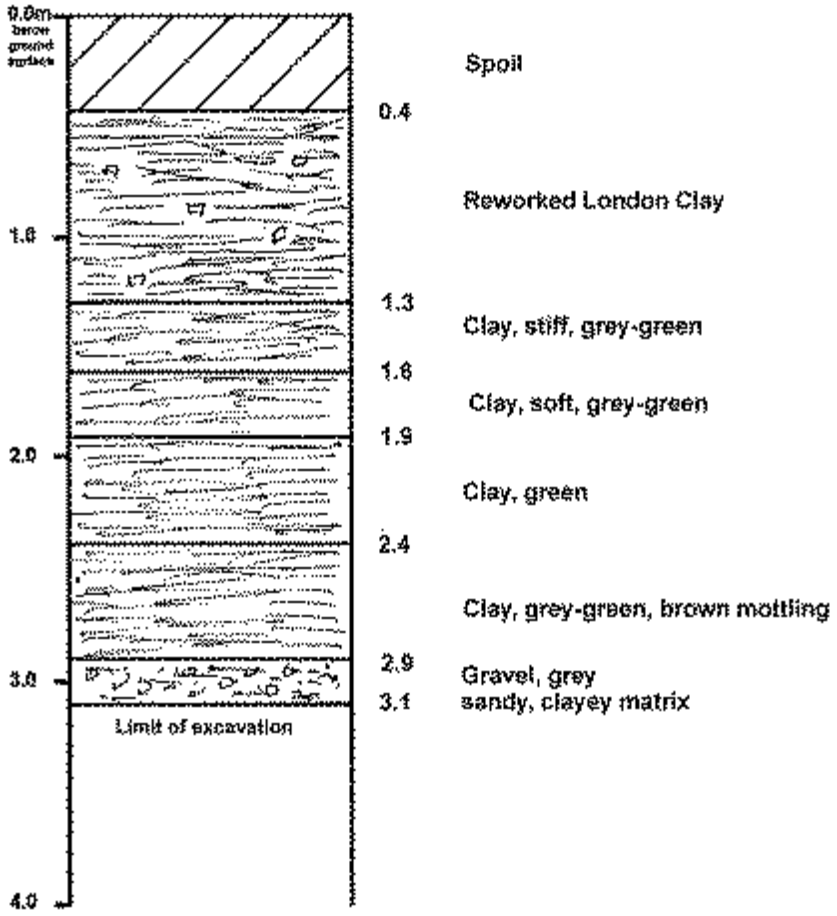

Figure 3: Trial pit TP101, log.

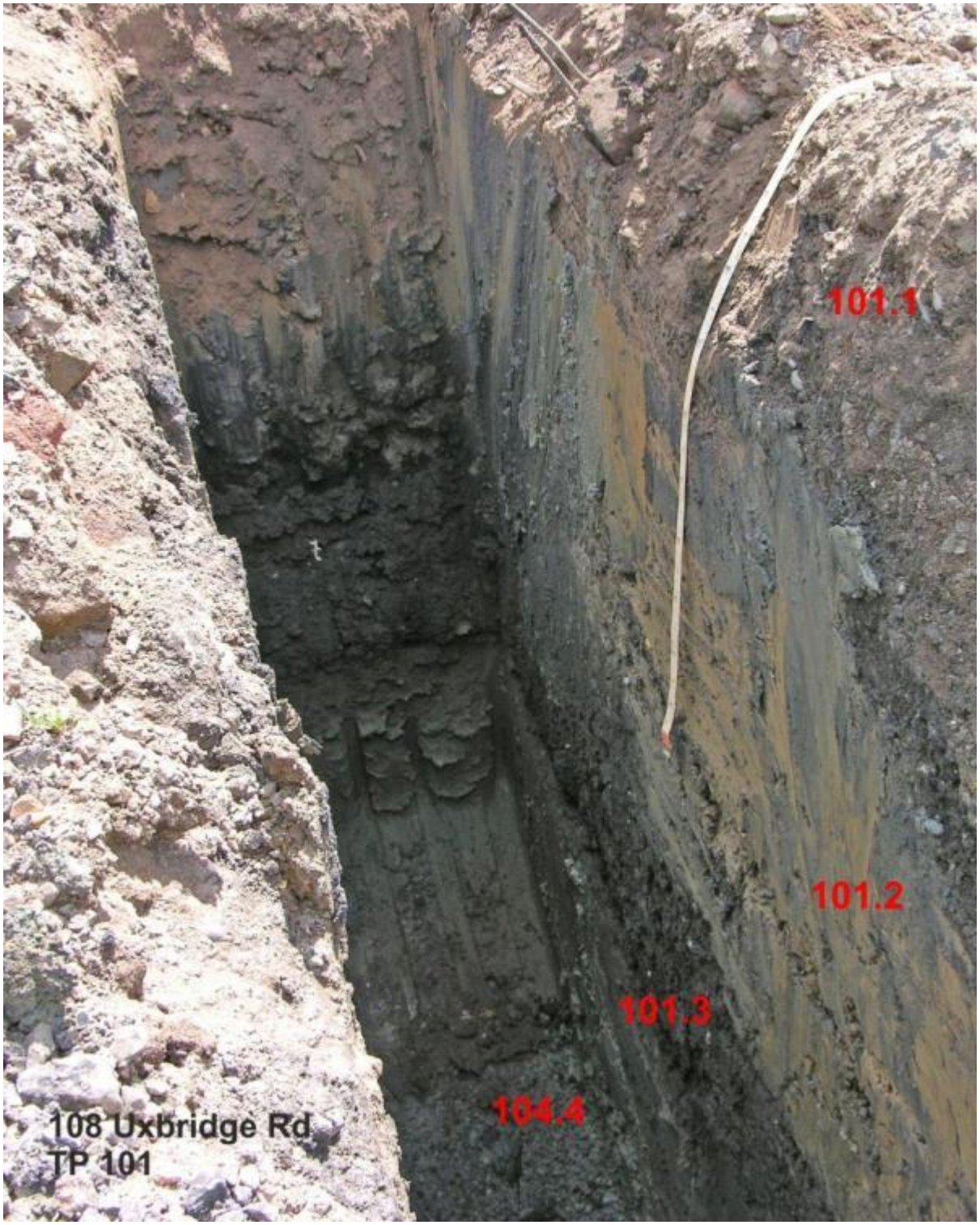

Figure 4: Trial pit TP101, annotated photograph.

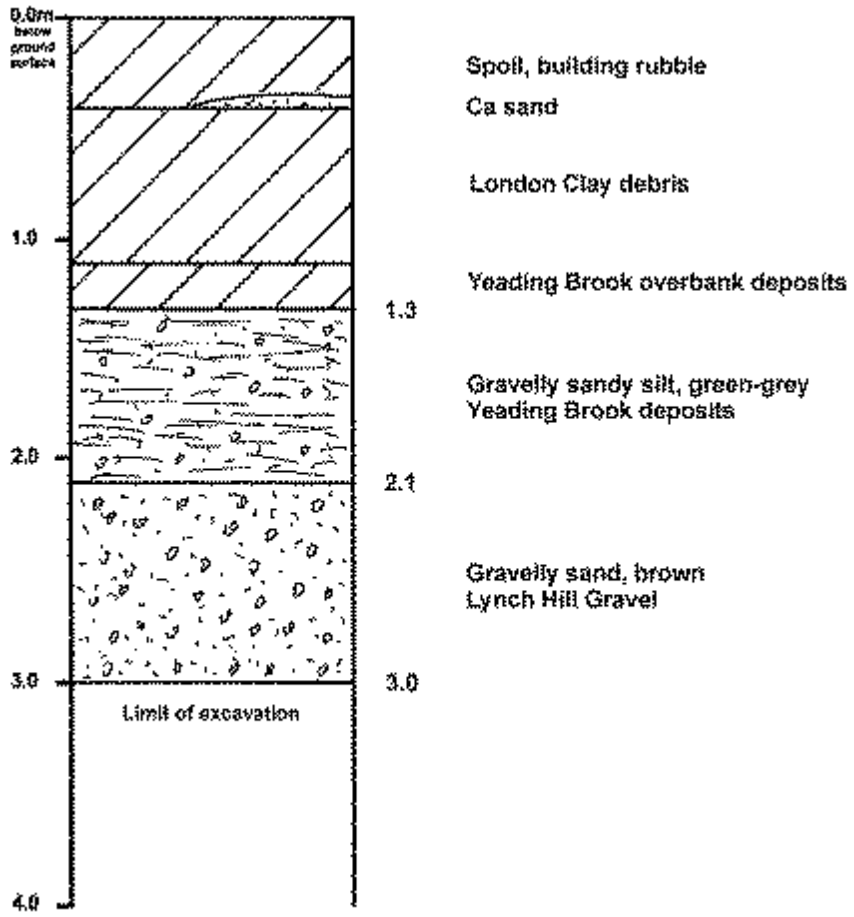

Figure 5: Trial pit TP102, log.

Figure 6: Trial pit TP102, annotated photograph.

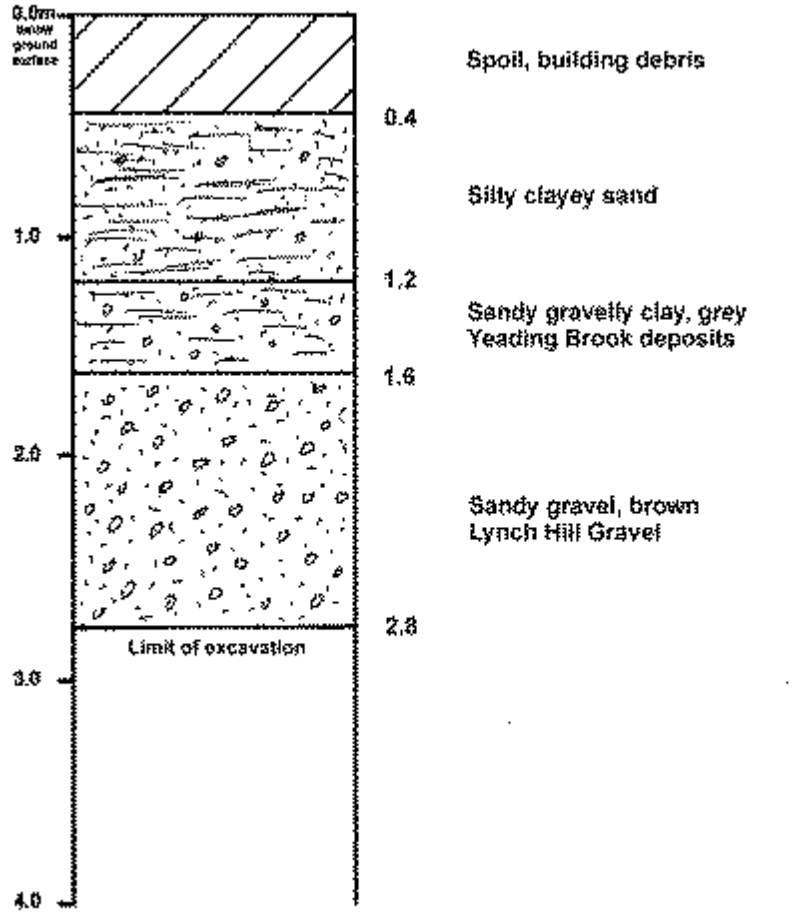

Figure 7: Trial pit TP103, log.

Figure 8: Trial pit TP103, annotated photograph.

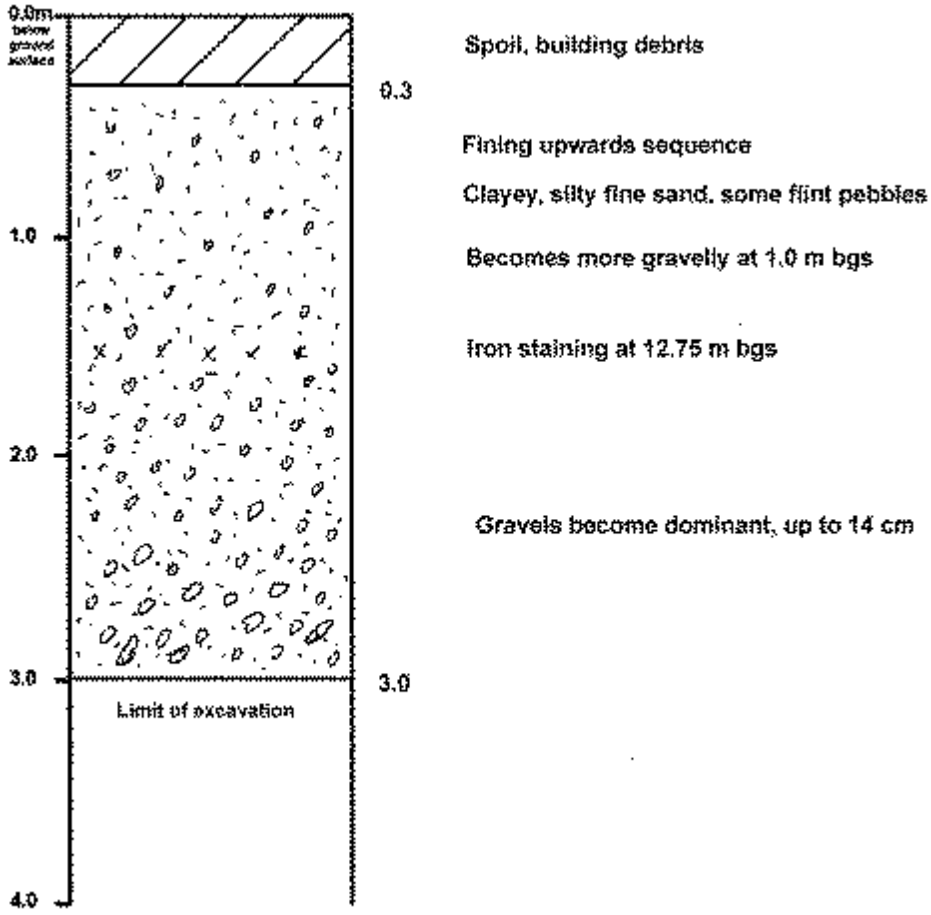

Figure 9: Trial pit TP104, log.

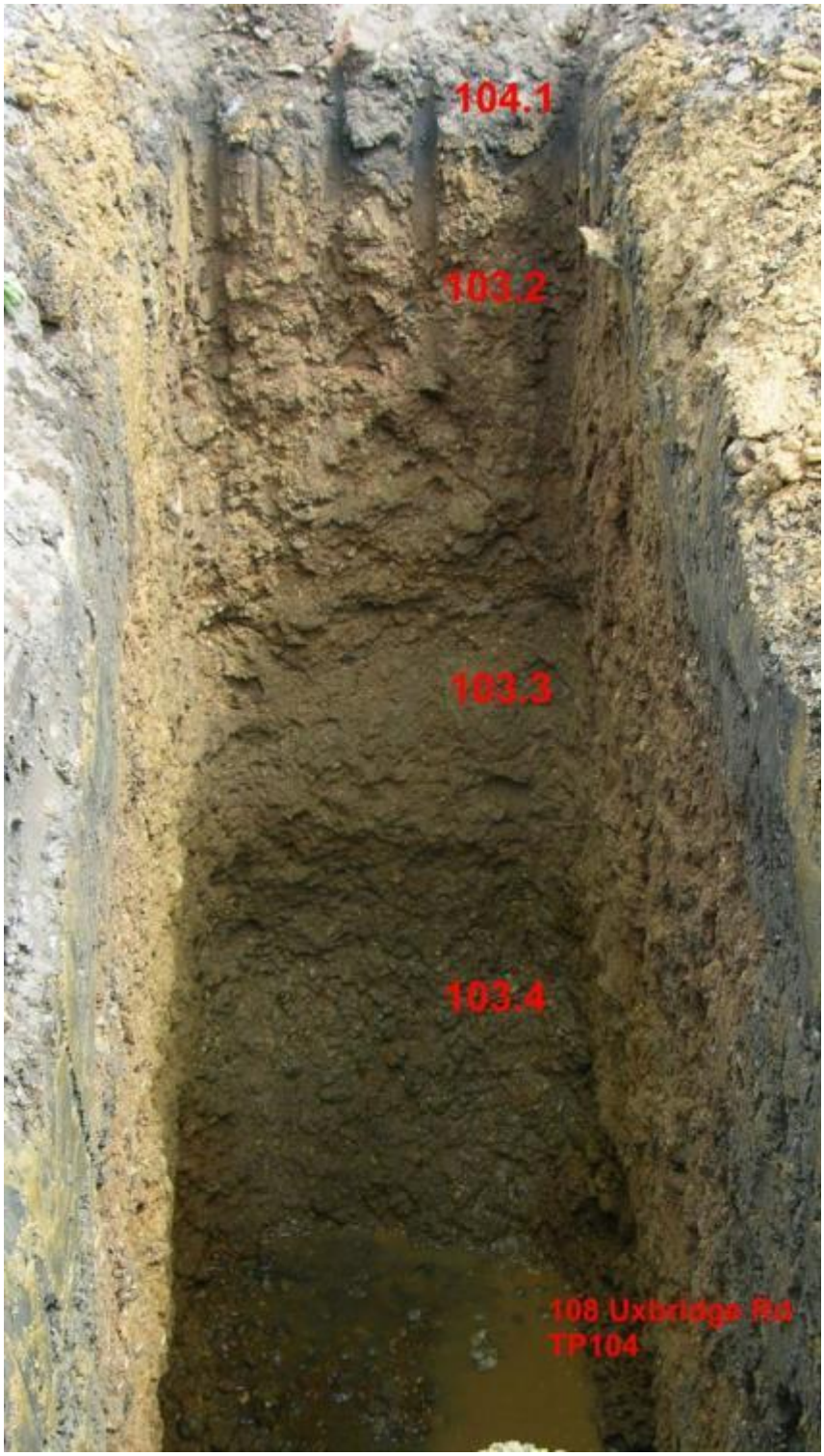

Figure 10: Trial pit TP104, annotated photograph.

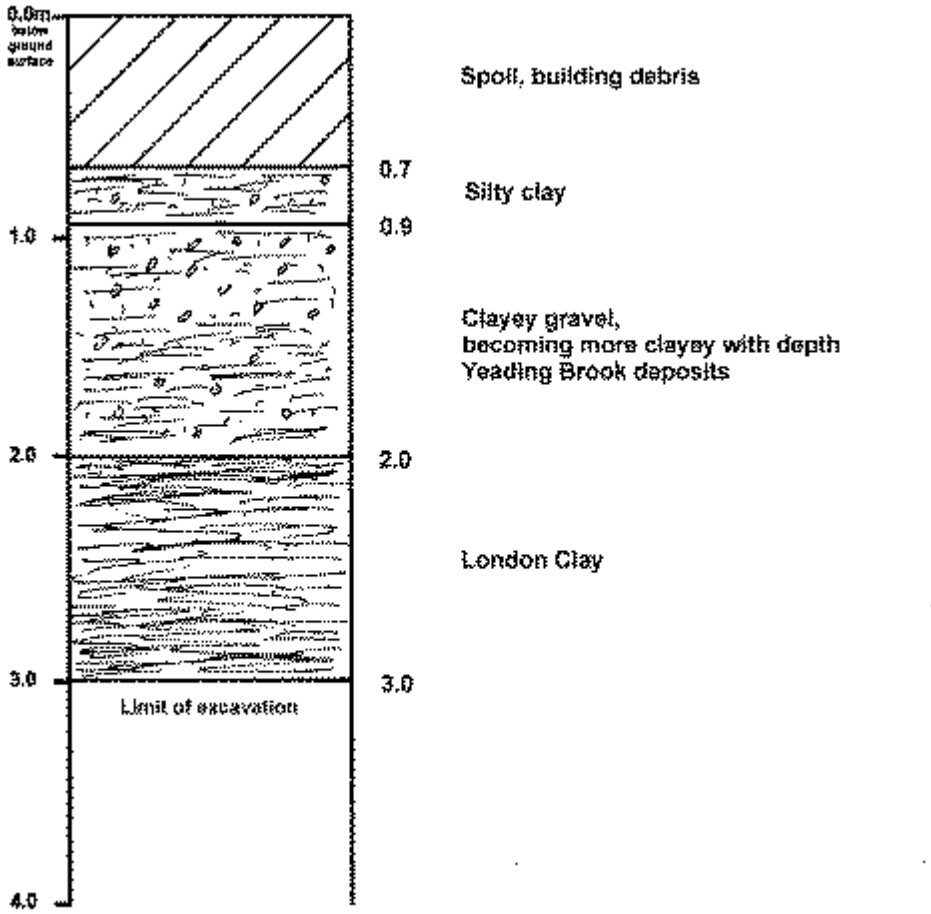

Figure 11: Trial pit TP105, log.


105.1
105.2
105.3
105.4
108 Uxbridge Rd
TP 105

Figure 12: Trial pit TP105, annotated photograph.

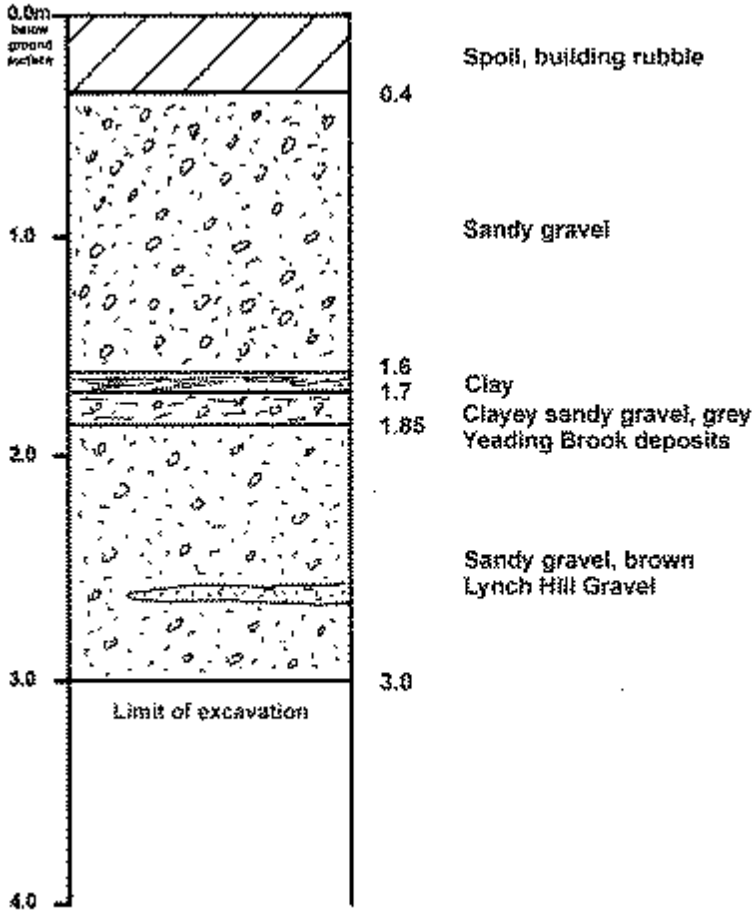

Figure 13: Trial pit TP106, log.

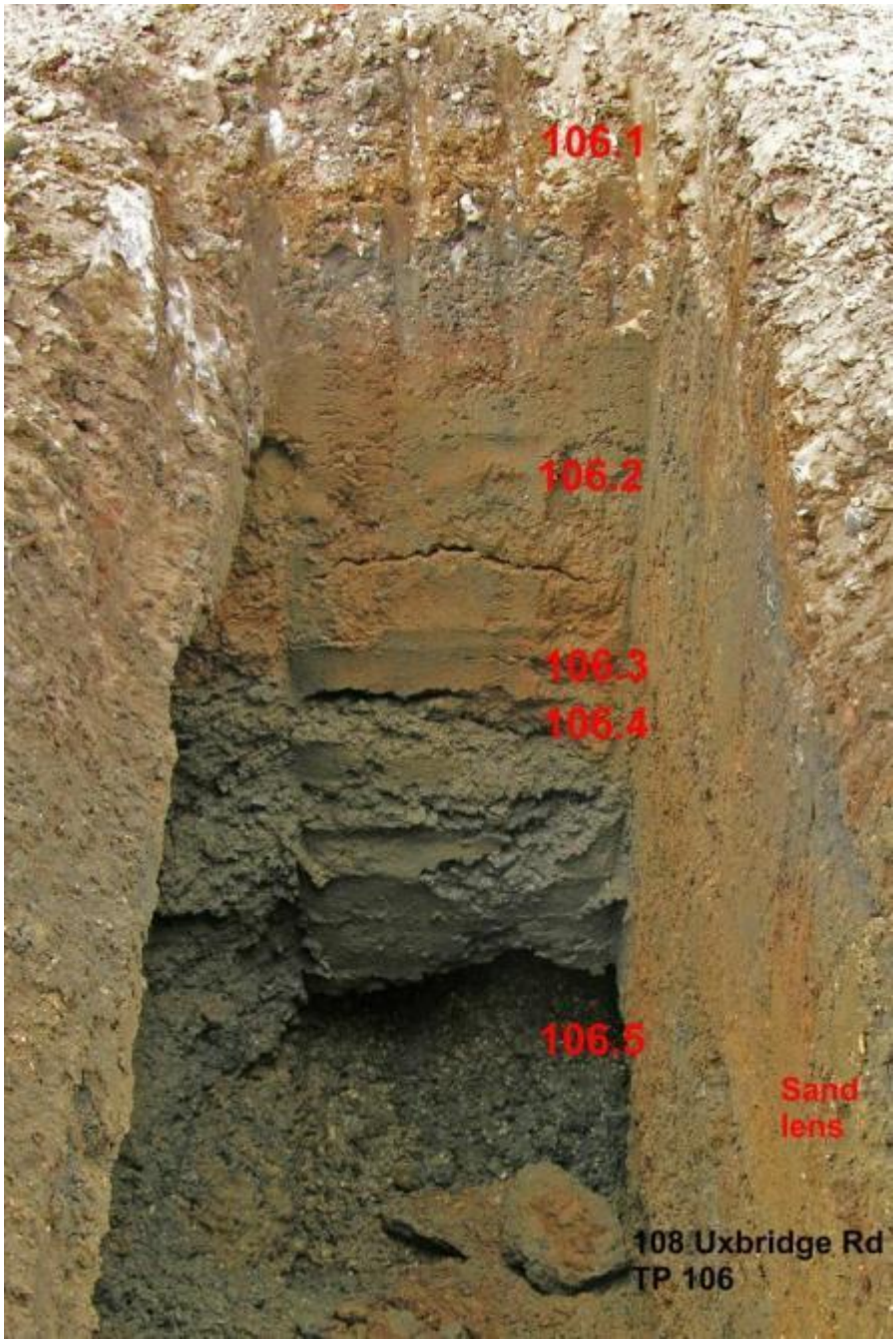

Figure 14: Trial pit TP106, annotated photograph.

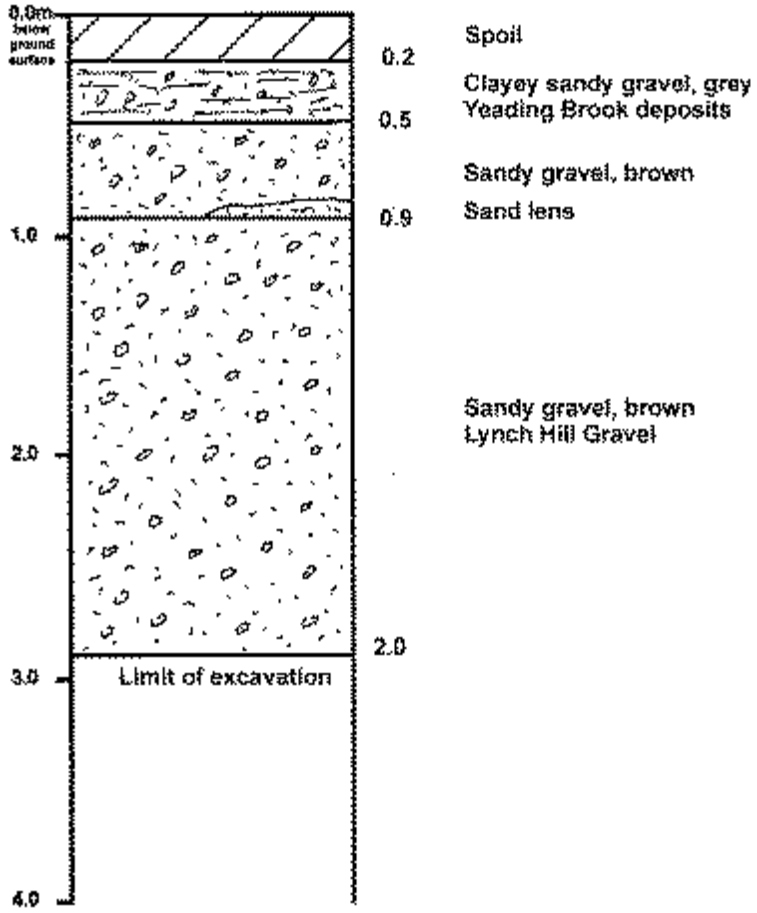

Figure 15: Trial pit TP107, log.

Figure 16: Trial pit TP107, annotated photograph.

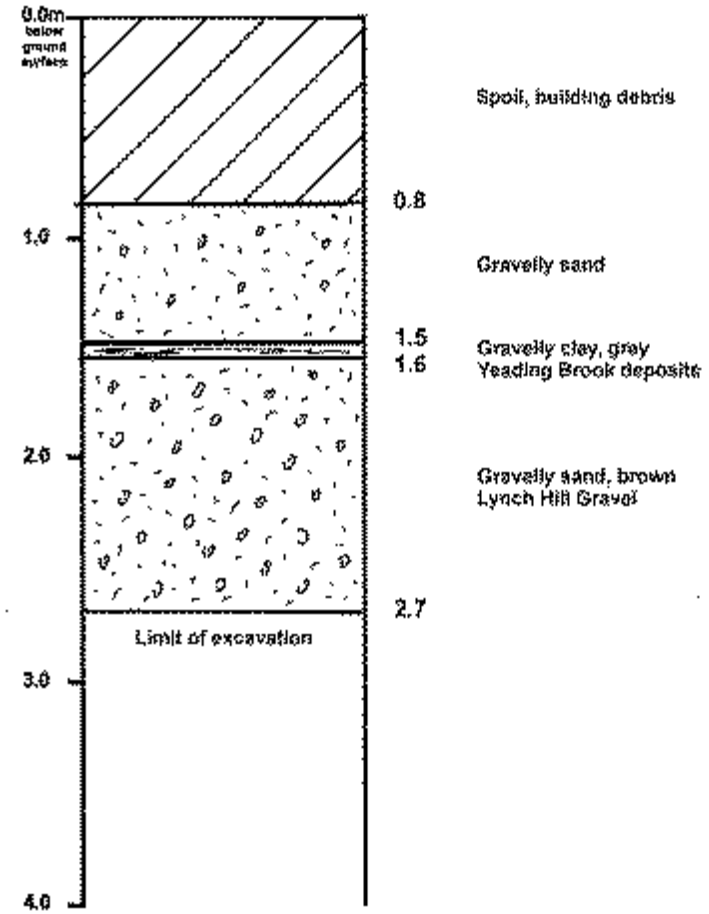

Figure 17: Trial pit TP108, log.

Figure 18: Trial pit TP108, annotated photograph.

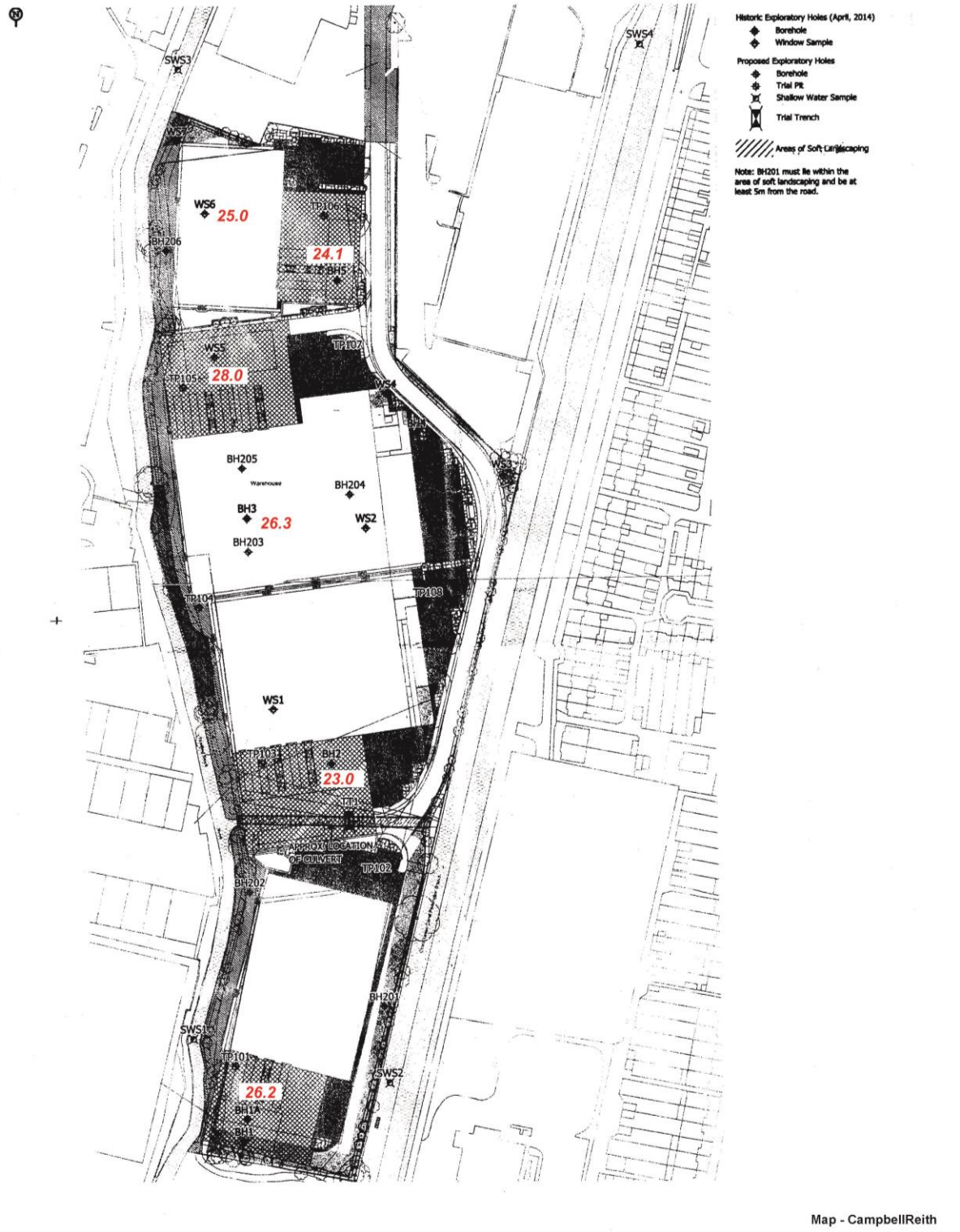

Figure 19: Surface of the London Clay (m OD) observed in test pits TP101-208.

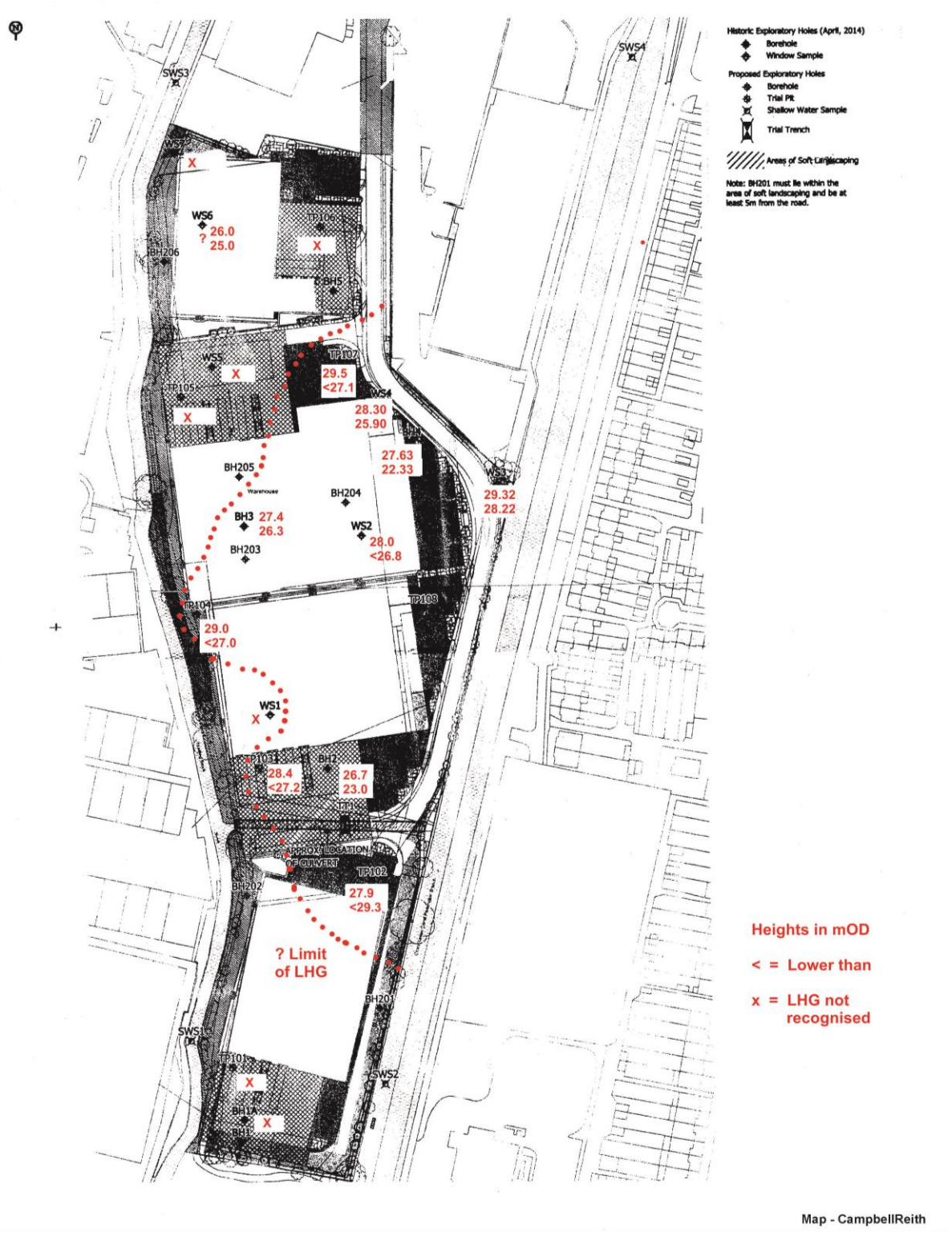

Figure 20: Surface (upper figure) and base (lower figure) of the Lynch Hill Gravel (m OD) observed in test pits TP101-108, showing its western boundary (red dotted line).

CONCLUSIONS AND RECOMMENDATIONS

The aim of the geoarchaeological investigations was (1) to clarify the nature of the sub-surface stratigraphy across the site, and (2) to evaluate the potential of the sequences to contain evidence for Palaeolithic archaeology or biological remains.

Lynch Hill Gravel

No stained (manganese or humic) horizons were noted in the Lynch Hill Gravel, and no lithics of consequence were found within the total of 450 litres of sample material examined. The one small flake found is not considered to be of significant consequence. No further geoarchaeological investigations are therefore recommended.

Yeading Brook deposits

The Yeading Brook deposits were usually clayey and silty, and are most likely of Holocene age. No organic (peaty) or possible soil horizons were identified within these deposits, and they are considered to be of very limited environmental archaeological potential. No further investigations are recommended.

ARCHIVE

An OASIS online record form (http://ads.ahds.ac.uk/projects/oasis/) has been completed for submission to the GLHER (see below). This will include an uploaded .pdf version of this report.

REFERENCES

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OASIS FORM

OASIS ID: quaterna1-214858

Project details

Project name	1-3 Uxbridge Road, Hayes
Short description of the project	Geoarchaeological investigations were conducted in order to clarify the nature of the sub-surface stratigraphy across the site, and to evaluate the potential of the sequences to contain evidence for Palaeolithic archaeology or biological remains. A total of eight test pits were monitored. Lynch Hill Gravel or Holocene deposits associated with the Yeading Brook were identified overlying London Clay bedrock. No humic or manganese staining was identified within the Lynch Hill Gravel, and only one small worked flake was identified in 450 litres of sieved samples. No organic/soil horizons were identified in the Yeading Brook alluvium. No further work was recommended.
Project dates	Start: 01-05-2015 End: 19-06-2015
Previous/future work	No / No
Type of project	Environmental assessment
Survey techniques	Landscape

Project location

Country	England

Site location	GREATER LONDON HILLINGDON HAYES 1-3 Uxbridge Road
Postcode	UB4 0JN
Site coordinates	TQ 1165 8036 51.5106320743 -0.390928742281 51 30 38 N 000 23 27 W Point

Project creators

Name of Organisation	Quaternary Scientific (QUEST)
Project brief originator	CgMs Consulting
Project design originator	D.S. Young
Project director/manager	D.S. Young
Project supervisor	D.S. Young

Project archives

Physical Archive Exists?	No
Digital Archive Exists?	No
Paper Archive recipient	LAARC
Paper Contents	"Environmental"
Paper Media available	"Report"

Entered by	Daniel Young (d.s.young@reading.ac.uk)
Entered on	19 June 2015