Sanderson Site
Oxford Road
Denham, Buckinghamshire

A report on the evaluation

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Summary (non-technical)

This report presents the results of an archaeological evaluation carried out by the Museum of London Archaeology Service on the site of the former Sanderson's factory, Denham, Buckinghamshire. The report was commissioned from MoLAS by the Baynham Meikle Partnership on behalf of their client Arlington Properties Ltd.

Following the recommendations of a previous desk-top assessment, six evaluation trenches were excavated on the site. The results of the field evaluation have helped to refine the initial assessment of the archaeological potential of the site. The site consists of a sequence of floodplain deposits (alluvium) observed in all the trenches. At the base of the alluvium in the central and eastern parts of the evaluated area were gravels, which had been deposited towards the end of the last ice age. Worked flints were recovered from a soil that developed on the surface of the gravel. The soil sloped down towards a watercourse that would have crossed the western part of the site.

The watercourse adopted a meandering course 8,000 years ago (or earlier) and a gravel bar developed at the edge of the channel along the western margins of the site. Eventually the gravel bar caused the flow of the watercourse to cease and thick peat deposits accumulated in the former channel, which was heavily wooded. In contrast, an open environment existed adjacent to the river channel along the western margins of the site, where the bar had formed.

From about 7,000 years ago, during the later Mesolithic, the woodland became waterlogged and a marsh developed across the entire site, with expanses of standing water. At this time the climate was warm and wetter than today and remained so during the Neolithic period, when tufa deposits, found to the south of the evaluated area, indicate that a clear, swift-flowing stream crossed the site.

Later in the prehistoric period, the site became wet grassland, subject to overbank flooding, and this environment was likely to have continued throughout the historic period. At the top of the alluvial sequence, the remains of the former hay meadow are represented by oxidised silty clay and in patches the remains of the post-medieval soil is preserved below the factory construction levels.

The impact of the present building is localised to the wall foundations and piles/stanchions used in its construction. The extensive surviving deposits are in a good state of preservation, probably due to the high water table.

In the light of revised understanding of the archaeological potential of the site the report, MoLAS considers that the proposed development will not significantly impact upon the surviving deposits and recommends that no further on-site archaeological work should be undertaken. However, any changes to the piling scheme may, should the impact be large enough and affecting those areas of potential as highlighted by this report, necessitate the implementation of a programme of archaeological work.

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1 Introduction

1.1 Site background

The evaluation took place at the former Sanderson's Fabric Factory (see Fig 1), *c* 750m north of Uxbridge town centre, hereafter called 'the site'. The site is sub-rectangular in shape and comprises an area of *c* 7.42 hectares. A waterway, known as the *Shire Ditch*, forms the southeastern boundary of the site, and the west side is defined by a minor tributary of the River Colne, which meets the Shire Ditch at the southern end of the site. The northern limit of the site is defined by a hedge and fence. The OS National Grid Ref. for centre of site is 50545 18505. The level of the ground slab varied between 32.60m OD and 33m OD. The site code is BM-SSU 02.

A desk-top *Archaeological assessment* was previously prepared, which covers the whole area of the site (Bourn 2000). The *assessment* document should be referred to for information on the natural geology, archaeological and historical background of the site, and the initial interpretation of its archaeological potential.

An archaeological field evaluation was subsequently carried out on a series of trial trenches within and external to the existing buildings in June and July 2002.

1.2 Planning and legislative framework

The legislative and planning framework in which the archaeological exercise took place was summarised in the *Method Statement* (MoLAS 2002) and the *Archaeological assessment* which formed the project design for the evaluation.

1.3 Planning background

This evaluation was carried out in accordance with a condition attached to the planning consent to develop the site.

The site does not contain any listed buildings, scheduled ancient monuments or historic parks/gardens.

1.4 Origin and scope of the report

This report was commissioned by the Baynham Meikle Partnership on behalf of the client Arlington Properties and produced by the Museum of London Archaeology Service (MoLAS). The report has been prepared within the terms of the relevant Standard specified by the Institute of Field Archaeologists (IFA 1999).

Field evaluation, and the *Evaluation report* which comments on the results of that exercise, are defined in the most recent English Heritage guidelines (English Heritage

1998) as intended to provide information about the archaeological resource in order to contribute to the:

- formulation of a strategy for the preservation or management of those remains; and/or
- formulation of an appropriate response or mitigation strategy to planning applications or other proposals which may adversely affect such archaeological remains, or enhance them; and/or
- formulation of a proposal for further archaeological investigations within a programme of research

1.5 Aims and objectives

The research aims and objectives were established in the *Method Statement* for the evaluation (Section 2.2). In summary form these were:

What is the nature and level of the natural topography?

What are the earliest deposits identified?

What are the latest deposits identified?

What evidence exists (ie: nature and extent) for Late Upper Palaeolithic and Early Mesolithic remains?

What potential is there for obtaining a fuller understanding of the wider context, local distribution and significance of the Late Upper Palaeolithic and Early Mesolithic remains previously found nearby and deemed to be of National importance?

What evidence for later prehistoric or historic remains exists?

What is the potential of the alluvium on the site to preserve archaeological remains or palaeoenvironmental evidence?

What is the potential for modelling the sub-surface stratigraphy of the site?

In particular:

Do landsurfaces, suitable for human occupation, exist?
Can areas / deposits of archaeological potential be predicted?
What is the potential for reconstructing the landscape evolution of the site in the Late Upper Palaeolithic and Mesolithic periods, when human activity is known to have taken place nearby?
What disturbance to the archaeological deposits has been caused by modern foundations, piles, services etc?

2 Topographical and historical background

Contained in this section is a summarised version of the results of the documentary research in the preceding a*rchaeological assessment* (Bourn 2000, sections 3 and 4).

The time-scales used in this report are:

Quaternary	
Pleistocene:	2million to 10,000 years ago
Holocene:	10,000 years ago (10,000 BP[1]) to the present
Prehistoric	
Palaeolithic:	450,000 –10,000 BP
Mesolithic:	10,000-6,000 BP
Neolithic:	4,000-2,000 BC
Bronze Age:	2,000-600 BC
Iron Age:	600 BC-AD 43
Historic	
Roman:	AD 43-410
Saxon (early-medieval):	AD 410-1066
Medieval:	AD 1066-1485
Post-medieval:	AD 1485-present

2.1 Topography

The site lies within the valley of the River Colne, which flows off the Chilterns to join the Thames Valley to the south of Uxbridge. The site lies towards the eastern edge of the floodplain, which is traversed by a network of watercourses, both natural and man-made. The general ground level is *c* 32.5m OD. To the east of the site, the side of the valley slopes up to the town centre of Uxbridge

The outcrop pattern in the area is closely related to the geological structure, which is dominated by the London Basin, a gentle synclinal fold, with its axis aligned west-east. The oldest geological deposits outcrop on the edge of the syncline with the younger ones towards the centre. Thus the Colne Valley successively cuts through outcrops of Cretaceous and Tertiary deposits: Chalk (forming the Chiltern Hills), Reading Beds and London Clay. Reading Beds underlie the floodplain in the vicinity of the site, with Chalk to the north and London Clay to the south (BGS Sheet 255).

The Colne drainage system developed in the Quaternary period, during the latter part of the Anglian cold stage (around half a million years ago) when ice sheets advanced to their maximum extent. In this area, ice extended into the Vale of St. Albans, diverting the course of the Thames to its present route through central London. As the

[1] Owing to the Lateglacial / Early Holocene significance of the site, the usual system of quoting dates across this period in radiocarbon years before the present (BP) has been followed in this report.

ice decayed, meltwaters carved out what is now the Colne Valley, creating the topography of the modern landscape.

The Colne Valley, in common with the Thames and its other tributaries, has sand and gravel spreads arranged as a series of steps or terraces on the valley sides. They result from a series of alternating downcutting and aggradational cycles that took place since the river was formed and which, together with a gradual background tectonic uplift, has led to a sequence of progressively younger Quaternary deposits down the valley sides. The terraces represent former floodplains of the river, which subsequently became incised as the river downcut to lower levels. The present floodplain therefore represents the most recent stage in this sequence.

The sand and gravel beneath the floodplain is formally known as the 'Colney Street Gravel' and was deposited during the Late glacial period, at the end of the last (Devensian) cold stage, about 15,000-10,000 years ago (Gibbard, 1985). It is overlain by a series of fine-grained deposits, sand, silt, marl, clay and peat (alluvium) laid down by the river during the last 10,000 years (the Holocene).

2.2 Prehistoric

The site lies to the north of the nationally important site of Three Ways Wharf[2], where artefact scatters of late Devensian/early Holocene date were excavated. These remains were found in association with faunal remains in a buried soil. To the north of the current site, observations[3], made during gravel quarrying, noted numerous worked flints sealed by peat deposits.

There is little evidence other than isolated finds for the later prehistoric periods. However there is evidence that a major Late Bronze Age settlement existed near to the present centre of Uxbridge[4].

2.3 Roman

Other than pits containing Roman remains found on an excavation[5] 500m to the south on the higher ground, there is little evidence of occupation in the Roman Period in the vicinity.

2.4 Saxon

The *Domesday Book* refers to two mills in Denham. The exact location of the mills is unknown but this shows that the river's resources were being exploited in at least the Late Saxon period, although the mills could be located on the River Missbourne that flows into the Colne 1km to the north of the site.

[2] Lewis 1995
[3] Lacaille 1963, 143-181
[4] Barclay 1995, 1-25
[5] ibid

2.5 Medieval

Uxbridge is first mentioned in a charter in 1107 and it is clear that the town developed along the present High Street, which would have been the main London to Oxford road. Therefore it is thought that the site would have been permanent pasture used for seasonal grazing.

2.6 Post-medieval

Cartographic evidence shows that throughout the post-medieval period the site continued as permanent pasture despite the increasing warehousing and industry where the Oxford Road crosses the Colne Valley. The main events that occurred near to the site were the cutting of the Fray's River in the 1560s to supply water to the mills in Uxbridge and the digging of the Grand Union Canal in 1796.

The Sanderson Factory was built in 1927 and extended by various building programmes until it reached its present size. The open land, surrounding the factory, was utilised as leisure facilities for the workers, including tennis courts, bowling green and football pitches.

3 The evaluation

3.1 Methodology

All archaeological excavation and monitoring during the evaluation was carried out in accordance with the preceding *Method Statement* (MoLAS 2002), and the MoLAS *Archaeological Site Manual* (MoLAS 1994).

Six evaluation trenches were excavated (see Fig 2). The locations of evaluation trenches were recorded by MoLAS Geomantics staff using a total station theodolite. This information was then plotted onto the OS grid.

The concrete factory floor was broken out and cleared by contractors. Trenches were excavated by the contractor's mechanical digger in 0.2m spits to the top of the waterlogged peat deposits, while under MoLAS supervision. At this level a written and drawn record of all archaeological deposits encountered was made in accordance with the principles set out in the MoLAS site-recording manual (MoLAS 1994).

Hand excavation was then undertaken at various points within the trenches to record the lower deposits, down to floodplain gravel. In addition to the hand excavation a series of power augerholes were drilled along each trench, in places where hand excavation had not been undertaken.

Bulk samples for finds recovery were taken from each context of potential archaeological interest in every trench. These samples were wet-sieved on-site over a 0.4mm mesh and scanned for worked flint. About 0.5litres of each context was washed through a nest of finer sieves to assess its potential for the preservation of environmental remains. The residues were kept wet and have been scanned by MoLSS environmentalists as part of the assessment. A 10litre bucket of each context was retained in case further work is required.

A series of overlapping monolith tins (blocks of undisturbed soil) was taken through a representative profile in Trenches 1, 4, 5 and 6. The monoliths are suitable for detailed off-site recording, sub-sampling for radiocarbon, pollen, diatoms, ostracods and other microfossil remains and for further sedimentological techniques, where appropriate (x-ray, loss-on-ignition, magnetic susceptibility and sub-sampling for soil micromorphology). Monolith <19> (Trench 6) was sub-sampled for radiocarbon dating as part of the assessment. The remaining monoliths were not examined, as sufficient information for the evaluation was obtained by on-site recording of the stratigraphy. They will be kept in cold storage by MoLAS until the analysis stage.

Small grab samples, suitable for microfossil examination and radiocarbon dating, were taken from the augerholes. Sub-samples from Augerhole 10 (Trench 1) were submitted for pollen assessment and radiocarbon dating.

Levels were calculated by a traverse from the Ordnance datum on the bridge adjacent to the front of 97 Oxford Road.

The site has produced: 5 trench location plans; 36 context records; 11 augerhole recording sheets; 6 section drawings at 1:20 and 1:10; and 25 photographs. In addition, 1 box of worked and burnt flint (16 worked pieces and 15 unworked burnt flints (86g)) was recovered from the site, together with 3 shoeboxes of processed environmental. The environmental material consists of flots from 15 samples, wet-sieved sub-samples from 8 samples and 2 wood samples. A further 15 x 10 litre bulk samples have been retained unprocessed for insect analysis and 8 unprocessed monoliths (forming 5 profiles) have been kept until a decision is made regarding the requirement for further work. The pollen slides have been retained by Rob Scaife.

The site finds and records can be found under the site code BM-SSU02, which will be presented to the archive officer or relevant curator of Buckinghamshire County Museum within 6 months of the completion of fieldwork (unless alternative arrangements have been agreed in writing with the local planning authority). If there is further fieldwork the archive for the evaluation will be presented with the archive for that fieldwork.

3.2 Results of the evaluation

For trench locations see Fig 2.

3.2.1 The stratigraphy

Evaluation Trench 1

Location	Aligned SW – NE to SE of evaluated area and within proposed footprint of Building 1
Dimensions	20m by 4m
Modern ground level/top of slab	32.70m OD
Base of modern fill/slab	32.45m OD
Depth of archaeological deposits seen	2.45m at SW and 1.65m OD at NE
Level of base of deposits observed	Max: 29.50mOD (in augerholes AH7-10)
Natural observed (floodplain gravel)	29.80m OD at SW and 30.65m OD at NE

Table 1: Results of Evaluation Trench 1

Trench 1 was machine excavated as 7 segments, between ground-beams, down to a depth of c. 1m (into the top of the black peat deposit [26]). There was further excavation in the form of two hand-dug slots at both ends of the trench and 4 augerholes drilled along its length. The entire sequence down to floodplain gravel was recorded in the hand-dug slot at the NE end of the trench and in the augerholes (AH7-10). A hand-excavated slot at the SW end of the trench had to be abandoned at c.1.50m (within a red-brown peat deposit) depth because of flooding.

Floodplain gravel was recorded in the NE slot at c 2m below the ground surface (30.65m OD), but detailed recording of the gravel / alluvium interface was not

possible, owing to rapid water ingress. The auger holes showed that the gravel surface dips towards the south, where it was recorded at c 2.9m below the ground surface in AH9 (29.80m OD) (see Fig 5).

Above the gravel, a pale brown ('mulchy') detritus peat or humic silt, with sand lenses and crushed shell was recorded as [38] in the augerholes and [41] in the hand-excavated slot at the NE end of the trench, where it was c 0.15m thick. It thickened to 0.8m thick at the SW end (AH9) where it contained a bed, c.0.10m thick, of tufa-like clasts. Context [38/41] is thought to represent a shoreline or shallow-water environment at the edge of a watercourse or body of standing water of fluctuating level. A deposit with similar characteristics and in a similar stratigraphic position was recorded above floodplain gravel in the augerhole drilled at the NW end of Trench 4 (see below).

A red-brown peat [27] with large wood fragments, especially in its upper part was recorded above the mulchy peat. The base of [27] was very well-humified (weathered, as a result of drying out) and a blacker colour in the northern part of the trench. The peat thickened slightly from c 0.8m in the NE to 0.9m in the SW of the trench and was shown in the augerholes to include beds of differing degrees of humification and organic preservation. Its surface was recorded consistently between 1.20-1.30m below ground level (31.50-31.60m OD). In the abandoned hand-dug slot at the southern end of the trench a large fallen timber was preserved towards the surface of the peat. The peat is thought to represent drier conditions with thicker vegetation growth and woodland colonisation of the site. It is similar to [10], [16], [34] and the base of [1].

A fairly sharp interface existed between the red-brown wood peat and the overlying black more clayey peat [26], which was consistently recorded as c 0.20-0.30m thick, with a surface c 1m below ground level in the south of the trench and 0.90m in the north. It contained frequent reed / sedge stems and is likely to represent an increasingly wet and open environment, with sedge fen developing in shallow standing water. Context [26] is similar to the lower part of contexts [9], [28] and [15] and the middle part of [1].

The black peat appeared to become less peaty upwards and a gradual interface existed between it and the overlying black clayey silt [23]. The black silt varied between 0.10-0.30m thick and its surface undulated between 0.60-0.90m below ground level (31.80-32.10m OD) and may have been truncated. The black silt is likely to represent a similar shallow water sedge-fen environment to the underlying black peat, but its lower peaty content might indicate an increase in water depth through time. A similar deposit was observed in all the other trenches (top part of [1], [15], [9] and [28]).

The surface of the black silt may have been truncated by fluvial activity, perhaps associated with the deposition of the overlying tufa [22]. The tufa almost certainly formed *in situ* and formed a bed c.0.10-0.20m thick, with a surface 0.60-0.70m below ground level, at approximately 32m OD. It was of the fine granular type, thought to be representative of deposition in flowing water (M. Bates *pers. comm.*) and contained many visible whole snail shells. It was only recorded in Trench 1.

A mottled, but predominantly dark grey-brown silty clay [21] 0.05-0.10m thick, was recorded above the tufa. Brown clay silt [24/25], 0.10-0.20m thick, variously occurred above the tufa or above the grey silty clay [21]. All three contexts are likely to represent overbank flooding and the development of a soil that gradually accumulated upwards with floodsilts. Although [21] remained anaerobic, [24] and [25] represent oxidation and weathering due to drying out and plant growth. Many iron-stained root channels were observed in [24] and [25], which formed the subsoil of the post-medieval soil. Although pockets of this sooty, gritty soil were observed directly below the modern factory make-up deposits, in trench 1, for the most part the soil and upper levels of the underlying weathered alluvium were truncated by the factory construction. The alluvial subsoil deposits [21], [24] and [25] were similar to [7], [8] and [14] in the other trenches.

The archaeological sequence was sealed by about 0.45-0.55m of clinker, concrete rubble and re-enforced concrete, to modern ground level at 32.70m OD.

Evaluation Trench 2

Location	Aligned SW – NE to E of evaluated area and within proposed footprint of Building 2
Dimensions	20m by 4m
Modern ground level/top of slab	32.70m OD
Base of modern fill/slab	32.25-32.40m OD
Depth of archaeological deposits seen	c.1.0m
Level of base of deposits observed	30.40m OD (in augerholes AH4-6)
Natural observed (floodplain gravel)	31.40 (NE)-31.50 (SW) m OD

Table 2: Results of Evaluation Trench 2

Trench 2 was machine excavated down to a depth of c. 0.80m, into the top of the reddish-brown peat deposit [10]. The entire sequence down to floodplain gravel was subsequently recorded in a hand-dug slot at the SW end of the trench and in 3 augerholes (AH4-6) drilled along its length.

Floodplain gravel [12] was recorded at c 1.20m below the ground surface (31.50m OD) in the south of the trench and the augerholes showed that its surface dipped slightly to 31.40m OD in the north (se Fig 5). Fine hair roots were recorded in the uppermost part of the gravel.

A gritty, clayey gravel with frequent plant fragments [11] 0.15m (SW) – 0.25m (NE) thick was recorded immediately above the floodplain gravel. This is likely to represent plant growth, colonising the newly exposed gravel surface. It is similar to [17]. It became browner and more humic upwards and had a gradual interface with the overlying more organic deposits.

A sequence of reddish-brown wood peat (variously well to poorly humified) and humic silt deposits [10], 0.25-0.30m thick, were recorded above the clayey gravel. The surface of these deposits lay just below 32m OD. They are likely to represent

thicker vegetation and woodland development across the vegetated gravel surface and are similar to [27], [16], [34] and the lower part of [1]. A well-humified band was recorded within the peat at around 31.80m OD in the augerholes.

A fairly sharp transition was recorded between the brown wood peat and the overlying black more clayey reed peat (the lower part of [9]), which was about 0.05-0.10m thick. This deposit became a soft black clayey silt (ie: less peaty) upwards. The clayey silt formed the upper part of [9] and was about 0.10-0.20m thick, with a surface undulating between 32.10-32.30m OD. The black peat and black silt are similar to [26/23], [15], [9], [28] and the upper parts of [1]. These deposits are likely to represent the demise of woodland on the site, increasingly wet conditions and a sedge fen environment with shallow standing water.

Stiff, mottled grey-brown clay silt [8], 0.05-0.20m thick, with frequent iron-stained root channels and occasional gravel was recorded above the soft black silt. This deposit represents a seasonally wetland environment. It is similar to [24/25] and [14] and is likely to be a gleyed, accretionary floodplain soil that became the sub-soil for a drier post-medieval landsurface [7]. Lenses of gritty, humic loam, recorded between 32.30-33.50m OD, immediately below the modern factory deposits are likely to represent the post-medieval soil. It is likely that in Trench 2, as elsewhere on the site, the post-medieval soil and its alluvial sub-soil were truncated during the construction of the factory (see section 6).

The archaeological sequence was sealed by about 0.20-0.45m of clinker, concrete rubble and re-enforced concrete, representing the factory construction levels, below modern ground level at 32.70m OD.

Evaluation Trench 3

Location	Aligned NW – SE and external to the building on the west side adjacent to the river course.
Dimensions	10m by 4m
Modern ground level/top of slab	32.56m OD
Base of modern slab	Estimated 32.21m OD
Depth of archaeological deposits seen	Estimated 0.5m
Level of base of deposits observed	Estimated 31.60m OD
Natural observed	Estimated 31.60m OD

Table 3: Results of Evaluation Trench 3

Evaluation Trench 3 did not remain open long as diesel contamination seen in the rising water would have presented a threat to the nearby river course. This meant that there was not the opportunity for records other than noted observations and limited hand digging for bulk sample collection.

Natural gravel [6] (or at least the top of the bedded gravel, sands, organics and clay, which was recorded as [13] in Trench 6, where it was examined in more detail) was observed *c* 0.90m beneath the current ground surface. Overlying this was *c* 0.20m of

mid greenish grey sandy clay [5], thought to be similar to deposit [3] in Trench 6. The 'fining-up' sequence of bedded gravel to sandy clay is thought to represent the development of a channel bar. A bulk sample <2> was recovered from [5], but no samples were taken from the gravel [6].

Sealing the former channel bar was *c* 0.30m of a dark bluish grey alluvial clay [5], interpreted as silt accumulated in standing water. It is similar to deposit [1] in Trench 6 and probably also equates with the major series of 'black silt' deposits seen across the site, eg: [9], [15], [23] and [28].

Above deposit [1] are the factory construction levels to modern ground level at 32.56m OD.

Evaluation Trench 4

Location	Aligned NW – SE within proposed footprint of Building 2
Dimensions	20m by 4m
Modern ground level/top of slab	32.70m OD
Base of modern fill/slab	32.30m OD
Depth of archaeological deposits seen	1.4m (W) - 1.1m (E)
Level of base of deposits observed	Max: 30.40m OD (in augerhole AH11)
Natural observed (floodplain gravel)	30.90m OD (W) - 31.20m OD (E)

Table 4: Results of Evaluation Trench 4

Trench 4 was machine excavated down to a depth of c. 0.90m, into the top of the reddish-brown peat deposit [16]. The entire sequence down to floodplain gravel was recorded in a hand-dug slot at the SE end of the trench and in an augerhole (AH11) drilled at its NW end. The sequence of deposits appears to be transitional between that recorded in Trenches 1 and 2. The sequence in the SE end of the trench was very similar to Trench 2. The sequence recorded in the augerhole at its NW end, however, resembled the Trench 1 profile, except that no tufa was recorded in AH11.

Floodplain gravel was recorded at c 1.50m below the ground surface (31.20m OD) in the SE of the trench and the augerhole showed that its surface dipped to 30.90m OD in the NW. (see Fig 5)

Immediately above the floodplain gravel, gritty, clayey gravel with frequent plant fragments [17] c.0.10m thick was recorded. It is similar to [2], [11] and [35] and is likely to represent vegetation colonisation of the newly exposed gravel surface.

A sequence of reddish-brown peat and humic silt deposits [16], 0.50m thick in the SE slot and 0.90m thick in AH11, were recorded above the clayey gravel. The surface of these deposits lay at 31.80m OD in the SE slot and 31.90m OD in AH11. The peat was more clayey at the base of [16] and, in AH11, was similar to the 'mulchy' peat of Trench 1, with sand lenses and crushed shell. It became woody upwards, however, with a very well-humified band observed in both profiles at around 31.75m OD. The reddish-brown peat complex is similar to [27], [16], [34] and the lower part of [1] and

is likely to represent thickening vegetation and woodland development across the vegetated gravel surface.

A fairly sharp transition was recorded between the brown wood peat and the overlying black more clayey reed peat, which became a soft black clayey silt (ie: less peaty) upwards. The black peat and clayey silt together [15] were about 0.30m thick, with a surface undulating between 32m OD and 32.20m OD and are likely to equate with [26/23], [9], [28] and the upper parts of [1]. These deposits are likely to represent the demise of woodland on the site, increasingly wet conditions and a sedge fen environment with shallow standing water.

Stiff, mottled grey-brown clay silt [14], 0.10-0.30m thick, with frequent iron-stained root channels and occasional gravel was recorded above the soft black silt. This deposit represents a seasonally flooded grassland environment. It is similar to [24/25] and [8] and is likely to be a gleyed (waterlain), accretionary floodplain soil.

The archaeological sequence was sealed by about 0.35m of clinker, concrete rubble and re-enforced concrete, representing the factory construction levels.

Evaluation Trench 5

Location	Aligned NW – SE to N of evaluated area and within proposed footprint of Building 3
Dimensions	25m by 4m
Modern ground level/top of slab	32.72m OD
Base of modern fill/slab	31.70-32.25m OD
Depth of archaeological deposits seen	Max: 0.8m
Level of base of deposits observed	30.40m OD (in auherhole AH1-3)
Natural observed (floodplain gravel)	31.30-31.65m OD

Table 5: Results of Evaluation Trench 5

Trench 5 was machine excavated down to a depth of c. 0.70m, into the top of organic deposits. The entire sequence down to floodplain gravel was recorded in hand-dug slots at the SE, NW and central parts of the trench and in three augerholes (AH1-3) drilled along its length. The sequence of deposits most closely resembled those in the eastern part of Trench 6, although it was not possible to examine the characteristics of the gravel at the base of the sequence in Trench 5.

The surface of floodplain gravel [36] varied between 31.30-31.65m OD, about 0.95-1.30m below the ground surface (see Fig 5). Hair roots, clay lenses and plant fragments were recorded throughout the gravel in the augerholes and it is thought to be similar to [13] in Trench 6, where a fining-up sequence of gravel and fine-grained deposits characteristic of a channel bar of a meandering river was recorded.

The deposits recorded immediately above the gravel differed along the trench. At the SE end a similar sequence to Trench 2 existed. About 0.20m of gravel in a brown peaty, gritty soil-like matrix [35], with occasional twigs and plant fragments, similar to [2] and possibly also to [11] and [17] was overlain by about 0.20m of a reddish-

brown wood peat [34] with a surface at around 31.75m OD. This was similar to the reddish-brown peat recorded as the lowest part of [1] in trench 6 and possibly also to [27], [10] and [16], although much thinner than any of these contexts. The sequence in the SE part of the trench is likely to represent plant growth on the newly exposed gravel surface, which trapped floodsilts and debris floating on the water, creating a soil-like horizon that gradually became colonised by woodland.

In contrast, in the central part of the trench (AH2) 0.35m of interbedded sand, clay and organic deposits were recorded above the gravel, with a surface at 31.85m OD, suggesting this part of the trench remained affecteded by flowing water.

In the NW part of the trench a similar sequence to that in the SE was recorded, except that the peat [34] was very sandy and difficult to differentiate from the underlying context [35], suggesting fluvial influence continued throughout the accumulation of the peat.

About 0.1m of a black clayey reed peat (the lower part of [28]) was recorded above the brown peat in the NW and SE parts of the trench. This deposit was similar to [26], the base of [9] and the middle part of [1]. It was overlain by a further 0.10m of soft black clay (the upper part of [28]), which was recorded across the entire trench and had a surface between 31.95 and 32.10m OD. As in the other trenches, the black peat to clay sequence is likely to represent the development of a sedge fen in an increasingly boggy environment across the entire site. The flow of water across the western part of Trench 5 throughout the period of peat accumulation appears to have ceased by the time the black clay became deposited.

Pockets of stiff greyish brown silty clay with iron-stained root channels, 0.05-0.20m thick were preserved below the factory construction levels in places along the trench. This deposit is likely to represent seasonally flooded grassland. It is similar to [24/25], [14] and [8] and is likely to be a gleyed, accretionary floodplain soil. Truncation by the factory construction was varied along the length of the trench. About 1m-1.40m of clinker, concrete rubble and re-enforced concrete lay above the archaeological levels and below the present factory floor level.

Evaluation Trench 6

Location	Aligned NW – SE to S of evaluated area and within proposed footprint of Building 1
Dimensions	6.5m by 3.75m
Modern ground level/top of slab	32.56m OD – 32.72m OD
Base of modern fill/slab	c. 32.00m OD
Depth of archaeological deposits seen	0.8m
Level of base of deposits observed	31.4m OD
Natural observed (?floodplain gravel)	31.80m OD

Table 6: Results of Evaluation Trench 6

Trench 6 was machine excavated down to a depth of c. 0.90m, into the top of gravel deposits [13]. The gravel surface dipped slightly from north to south and west to east, but its surface lay at approximately 3.70m OD. Examination of the gravel showed it to be bedded with sands, organics and clay and contained frequent hair roots throughout. Overlying the gravel in the west of the trench was 0.10-0.20m of mid greenish grey sandy clay [3] with occasional discontinuous sand and gravel lenses. This deposit is similar to [5] in Trench 3. The 'fining-up' sequence of bedded gravel [13] to sandy clay [3] is thought to represent the development of a channel bar.

In the eastern part of the trench the gravel [13] was overlain by 0.10m of humic soil-like gravel [2], similar to [35], which probably represents plant growth at the surface of the channel bar as it became abandoned by the river. The lateral relationship of [2] and [3] was difficult to follow across the trench, due to truncation. The humic gravel was overlain by a brown peat – black peat – black clay sequence, grouped together as [1] and similar to that recorded as [34/28], [16/15], [27/26/23] etc in the other trenches. The brown peat was on the whole grittier than elsewhere, however, and the entire sequence was less than 0.55m thick, although it was truncated by factory construction. A black silty clay [1] also sealed the sandy clay [3] in the west of the trench (where it had not been truncated). Above deposit [1] are factory construction levels to modern ground level at 32.56m OD.

3.2.2 The Dating

Three samples were submitted for radiocarbon (^{14}C) age estimation, from organic deposits in locations selected to provide an outline chronology for the stratigraphy of the site. The objective was to enable provisional comparisons to be made between the deposits found on the site and those previously excavated at Three Ways Wharf and to provide a dated framework for the preliminary reconstruction of the evolving landscape of the site.

Owing to the need to assess the deposits on the site within a very short interval of time, the samples were submitted for rapid dating. As this technique is more expensive and slightly less precise than standard dating, a minimum number of samples and only those that could be dated with minimum pre-treatment were selected. In all cases the organic sediment matrix, as opposed to any plant remain inclusions, was dated. The details of the samples are set out in Table 7. The ^{14}C age estimates, made by Beta Analytic[6] are presented in Table 8.

MoLAS ref.	Trench	Context	Reduced level	Objective
BM-SSU[1]T6	6	[1]	31.95m OD	To date the development of peat [1] above the 'soil' [2] that had formed in the surface of the bedded gravel, clay and organic material [13] at the base of the recorded sequence in trench 6. The underlying 'soil' (gritty, sandy, humic gravel) was too stony to date easily without pre-treatment.
BM-SSU[26]T1	1	[26]	31.75m OD	To date the interface between the black peat [26] and overlying black (organic) clay [23] in Trench 1. It was considered that less sediment would be required to date the peat than the clay itself.
BM-SSU[38]T1	1	[38]	30.75m OD	To date the 'mulchy' (detritus) peat that overlay gravel in Trench 1. The sample was obtained from towards the northern end of the trench, where the gravel surface was higher. Worked flints were found at the interface of [38] and the underlying gravel, in this location.

Table 7: The radiocarbon samples

Material dated	MoLAS ref.	Lab no.	Uncalibrated date	calibrated date*
organic sediment fraction	BM-SSU[1]T6	Beta - 168948	**8170 +/- 60 BP**	7340 to 7050 BC
organic sediment fraction	BM-SSU[26]T1	Beta - 168949	**7380 +/- 70 BP**	6400 to 6070 BC
organic sediment fraction	BM-SSU[38]T1	Beta - 168950	**10230 +/- 80 BP**	10640 to 10550 *and* 10420 to 9620

Table 8: Radiocarbon Age Estimates

As the dates relate to the Lateglacial / Early Holocene interface, they will be referred to in the text by their uncalibrated radiocarbon ages, which is in line with the normal practice when dealing with this period.

[6] Calibration was provided by Beta Analytic, using the INTCAL 98 database as published in Stuiver, M. *et al* (1998) *Radiocarbon Vol.40 No.3* and is quoted to 98% confidence levels.

3.2.3 The Pollen

Rob Scaife, University of Southampton

Introduction and background to the study

The Sandersons site lies in close proximity (c.100m) to the earlier excavations of the Late Upper Palaeolithic and Mesolithic site at Three Ways Wharf, Uxbridge. However, the evaluation on the Sanderson site revealed more extensive peat and mineral sediments of Lateglacial / Early Holocene age than the deposits previously excavated at Three Ways Wharf. This offers potential for re-evaluation of the latter site, where pollen preservation was marginal (Wiltshire in Lewis *et al.* 1992). Clearly, if the deposits at the Sanderson Site were contemporaneous with Three Ways Wharf, useful corroborative information and possibly better pollen preserving conditions might pertain. Radiocarbon dates recently obtained and the pollen data obtained here show this is indeed the case. Consequently, the Sanderson Site is important in becoming one of the very few late-Devensian glacial and early Holocene sites in London which provides vegetational and environmental data for this period. This is also enhanced by the rare archaeology of this period within close proximity to the site.

Sites dating to the late Devensian cold stage within the London come from the Lower Colne (Gibbard and Hall 1982) and Kempton Park, Sunbury (Gibbard *et al*. 1982) and from Bramcote Green (Thomas and Rackham 1996). The latter is of particular importance, demonstrating the presence of the Windermere interstadial (phase of birch and pine colonization) prior to the return of harsh stadial conditions from 11,000-10,000 BP. Sites which are transitional from the Devensian cold stage into the present Holocene interglacial at *c.* 10,000 BP are also present and have also been analysed from Bramcote Green (Thomas and Rackham 1996), Point Pleasant, Wandsworth (Scaife and Rackham forthcoming), Uxbridge, Three Ways Wharf (Lewis *et al.* 1992), and from North London at Enfield Lock (Chambers *et al.* 1996). Early Holocene (Flandrian Chronozone I sites investigated include Meridian Point (Scaife 1997), Purley Way (Scaife 1995?), Elizabeth Fry dated to 9000-8500 BP (Scaife in *Davis et al.* 1995), Silvertown (Scaife 1995; Wilkinson *et al*. 2000) and Strathfield Road (Giorgi *et al.* 1995). These are the data sources with which studies of the Sandersons site may be correlated or compared.

Pollen Method

Standard techniques were used on sub-samples of 2ml volume taken from a monolith profile of the sequences (Moore and Webb 1978; Moore *et al.* 1992). Pollen was identified and counted using an Olympus biological research microscope fitted with Leitz optics. All samples produced sub-fossil pollen and spores enabling preliminary pollen counts to be made and the construction of a pollen diagram for the longer trench 1 sequence. This was plotted using Tilia and Tilia Graph (see Fig 3). Percentages have been calculated as follows:

Sum =	% total dry land pollen (tdlp)
Marsh/aquatic herbs=	% tdlp+sum of marsh/aquatics
Spores=	% tdlp+sum of spores
Misc.=	% tdlp+sum of misc. taxa.

Taxonomy in general follows that of Moore and Webb (1978) modified according to Bennett *et al.* (1994) for pollen types and Stace (1992) for plant descriptions. These procedures were carried out in the Palaeoecology Laboratory of the Department of Geography, University of Southampton.

The Pollen Data

With the exception of the top sample (44cm in tufa), the profile has a pollen flora which is consistent with the late-Devensian and early Holocene age of the sediments as demonstrated by the radiocarbon dates. The late-Devensian, late upper-Palaeolithic is represented in the basal samples at 180 and 170cm which, as might be expected, exhibits the greatest pollen/taxonomic diversity. Above this there is a progressive expansion of tree and shrub types within the early Holocene. The single (top), tufaceous sample at 44cm may be of middle or later Holocene age. There appears to be a hiatus prior to the tufa horizon. Although a pollen assessment, these changes in the pollen spectra can be zoned broadly as follows.

Zone 1: (P7+8) 180cm to 165cm.

Has the greatest numbers of herbs and taxonomic diversity with few trees except for *Pinus* (expanding from c.20-40%) with *Juniperus communis* (5%). Herbs are dominated by Poaceae and Cyperaceae with peaks of *Filipendula, Valeriana officinalis* and *Galium*. Spores are dominated by *Equisetum* (35%).

The pollen assemblages and the radiocarbon date of 10,230 +/-80BP of this basal zone is commensurate with a late-Devensian flora but transitional into the Holocene. Peaks of *Filipendula* (meadow sweet), *Juniperus* (juniper) and expanding *Pinus* (pine) are typical and represent the floral response to increasing temperature at *c*.10,000 BP. The flora was a mosaic of herbaceous communities within expanding juniper and pine woodland. The on-site habitat was one of grass-sedge fen with some evidence of aquatic habitats (algal *Pediastrum*).

Zone 2: (P6) 155cm.

Pinus is dominant at this level (66%) with fewer herbs. *Salix* (6%) is also present. Poaceae and Cyperaceae noted in zone 1 remain the most important herbs types. *Equisetum* values are lower while monolete *Dryopteris* type spores are expanding.

This single horizon represents the early Holocene dominance of pine woodland after its early migration into southern Britain. Additional pollen levels are required to verify this as a separate and important pollen zone/event. The depositional habitat remained grass-sedge fen but with evidence of willow colonisation.

Zone 3: (P3-5) 150cm to 80cm.

Ulmus (12%) and *Quercus* (6%) are incoming while *Corylus avellana* type expands sharply to 46%. *Pinus* values decline (*c*.15%) along with small values of *Betula* and *Salix*. Herbs are less diverse but Poaceae remain most important (to 30%). Marsh and aquatics comprise Cyperaceae and occasional *Typha latifolia.* Spores of ferns become more important with *Dryopteris* type (to 50%) and *Thelypteris palustris* (peaking at 68cm.).

This pollen zone represents typical early-middle Boreal woodland with the colonisation of oak and elm woodland but with remaining areas of pine. The site remained grass-sedge fen but the marsh fern perhaps indicating that the habitat was becoming drier.

Zone 4: (P1+2) 80cm to 50cm.
Quercus becomes more significant (20%) with *Pinus* again becoming more important (to *c*.50%). There is some reduction of *Corylus avellana* type and *Ulmus*. Poaceae remains the dominant herb with autocthonous Cyperaceae expands to *c*.50%. Spores become dominated by *Dryopteris* type (50%) with higher values of *Equisetum*.

These upper peats/organics of middle to late Boreal age are more humified and the expansion of spores may indicate some differential preservation in their favour. Although sedges, reed-mace/bur-reed and horsetail ferns remained important on-site, it is possible that this is a phase of drying out and ultimately cessation of peat formation. A radiocarbon date of 7,380 BP +/-70 BP gives the age of the upper humic levels and confirms the late Boreal (Flandrian chronozone Ic) flora suggested above.

Zone 5: (P9) 44cm.
This single sample comes from the highly calcareous tufa. The most significant feature is the presence of *Alnus* (25%) not found in previous zones. *Pinus* declines to small values (5%) while *Quercus* (15%) and *Corylus avellana* type (15%) remain. There are also expansions of Lactucoideae, *Plantago lanceolata* and *Pteridium aquilinum*.

This zone/upper level is clearly out of character with the previous zones both palynologically and sedimentologically. The pollen spectra suggest a middle or late Holocene date. Tufa deposition indicates increased ground water flow with springs perhaps as a function of wider climatic change (more humid Atlantic period?) or through local woodland clearance.

Discussion
The pollen data obtained provide information on vegetation change through the period from just prior to 10,000 BP. That is, from the end of the late-Devensian cold stage (the late upper-Palaeolithic) through early Holocene pre-Boreal and Boreal phases (Flandrian chronozone Ia-b/c). Archaeologically, the latter equates with the early Mesolithic period. The data obtained from the Sanderson Site is broadly comparable with Three Ways Wharf (Lewis *et al.* 1992) although on the Sanderson Site a thicker sequence, with better preservation capable of providing considerably more information has been obtained, which can also be compared to other London sites of similar date. It is becoming increasingly apparent that regional variations existed in this period. Through the use of radiocarbon dating, the migration and establishment of pioneer woodland in the early Holocene in Britain from their glacial refugia is becoming better understood.

There are, however, substantial gaps in this picture and Sandersons has potential to join the several sites now available in the London region, which can contribute to our knowledge of the changing Mesolithic environment. Comparable sites in Greater London include Peninsula House, City of London (Scaife 1983), Enfield Lock

(Chambers *et al*. 1996), Uxbridge, Three Ways Wharf (Lewis *et al* 1992), Bramcote Green, Bermondsey (Thomas and Rackham 1996), Silvertown (Scaife 1996,1998 and Wilkinson *et al*. 2000). As yet unpublished sites include Strathfield Road (Giorgi *et al.* 1995) dated to 9270 +/-60 BP (Beta 76897), and Point Pleasant, Wandsworth (Scaife 1995; Scaife and Rackham forthcoming), the latter providing dates of 9410+/-100 BP and 9620+/-80 BP.

On the Sandersons site, the late-Devensian heliophilous (sun-loving) herbaceous vegetation communities give way to pioneer woodland in response to temperature rise at *c.*10,000 BP. This triggered a dynamic vegation succession which culminated in the dominace of woodland. Initially, this is shown by the expansion of *Juniperus* (juniper) with *Filipendula* (meadow-sweet) and reduction in herb pollen (pollen zone 1). *Pinus* rapidly colonised here (pollen zone 2), whereas at other sites in southern England, *Betula* (birch) was more significant in the pre-Boreal period. This expansion of pine is in accord with sites in London at Wandsworth and Peninsular House. From *c.*9000-8500 BP, the pollen spectra show the migration of elm, oak and hazel into the region (pollen zone 3) while pine remained.

Human impact

It is not often that the impact of Mesolithic activity is evidenced in pollen profiles from lowland Britain. It is usually 'fragile ecosystems' such as the uplands and areas with poor soils, which produce evidence of the ephemeral activities of these hunting and foraging communities. Here, the proximity of the Three Ways Wharf Mesolithic site offers the opportunity to seek the possible nature of local impact. Whilst the analysis of Three Ways Wharf showed much charcoal, the pollen preservation was poor. Sandersons site has much better pollen preservation and also microscopic charcoal. At present, no evidence has been found for any modification of the vegetation but with a closer pollen-sampling interval such data might be forthcoming. However, even if this is not the case, more detailed analysis will provide important information on the nature of the environment that the Mesolithic communities exploited.

Conclusions

- The analysis of Sandersons Site has been carried out to assessment level to determine the presence or absence of pollen and its comparability with the site of Three Ways Wharf.
- Pollen and spores appear to be better preserved in this sequence than in the nearby site of Three Ways Wharf. This is due to the greater organic content of the sediments and the thicker deposits available.
- The analysis shows clearly the Late-Devensian/Holocene transition at *c.* 10,000 BP with change from upper Palaeolithic, herbaceous vegetation to woodland of pine and juniper.
- The overlying peat accumulated in a wet grass-sedge fen during the pre-Boreal and Boreal periods (Flandrian chronozone Ia-b/c) between *c*. 10,000 and 8000 BP.
- This therefore spans the early Mesolithic period of activity represented in the local area. The pollen spectra show a typical early Holocene dynamic vegetation succession, which culminated in mixed oak, elm and hazel woodland with remaining pine.

3.2.4 Worked Flint

Pippa Bradley, MoLSS

Methodology
All of the flint was examined and recorded using standard MoLSS procedures. Typological and technological attributes were recorded together with general comments including raw material type, condition and evidence for use. The burnt unworked flint was counted and weighed and its general appearance noted. The computerised records are held on the MoLAS Oracle database. Sixty-six pieces of natural flint were discarded.

Description
Sixteen pieces of worked flint and 15 pieces of burnt unworked flint (weighing 86 g) were recovered from the evaluations. The flint is summarised in Table 9 by context. The flint consists largely of debitage (flakes and two flake core fragments), and only a single retouched piece, a possible piercer [13] was recovered. The flint is generally poor quality pebble flint with cherty inclusions. It is mostly mid brown in colour with a thin grey cortex. One flake from context [11] has been burnt. The burnt unworked flint consists of small highly burnt pebbles and fragments from larger pieces. They have been calcined grey or red.

The dating of this group is difficult given its small size and lack of diagnostic pieces. The majority of the flakes are small, both hard and soft hammers appear to have been used. One or two of the flakes may have been struck whilst the auger was removing samples (eg possibly two of the fresher looking flakes from [41]. Two flake core fragments were recovered from contexts [41] and [41], the latter has a recent break. The one retouched item, a possible piercer from context [13] is small and neatly retouched. It would not be out of place in a Mesolithic or earlier Neolithic assemblage.

Context	Type	Number	Weight (g)	Comments
2	Burnt unworked flint	7	57	Calcined grey and red
5	Flake	1		Small flake
7	Burnt unworked flint	1	3	Burnt red
11	Flake	1		Small burnt flake
13	Flakes	4		Small flakes
13	Piercer	1		Small, neatly retouched, possibly Mesolithic
13	Burnt unworked flint	7	26	Calcined red and grey
16	Flake	1		Small flake
22	Flake	1		
41	Flakes	4		Small flakes, 2 poss. struck by auger
41	Flake	1		Thick flake
41	Core fragment	1		Flake core fragment
41	Core fragment	1		Recent break
Total		31		

Table 9: Worked and unworked flint by context

Discussion

The flint is a small group of relatively undiagnostic pieces. A possible Mesolithic date is suggested on the basis of the small neatly retouched piercer recovered from context [13]. However, this dating is tentative and must be treated with caution. It is likely that the flint represents domestic activity; the presence of burnt unworked flint raises the possibility of hearths in the area.

Provenance of flint

The flint came from a series of layers overlying the natural gravel deposits.

3.2.5 Environmental Remains

Anne Davis, MoLSS

Introduction/methodology
Twenty-six soil samples, of 20-60 litres, were taken for environmental analysis from five trenches, cut through natural deposits close to Uxbridge town centre. These samples have been assessed, to establish the extent of preservation, and the frequency and species diversity, of any surviving plant and animal remains, and thus to determine whether further study of these assemblages would contribute to the research objectives of the project.

Sixteen of the samples were processed by flotation using a Siraf flotation tank, and meshes of 0.25mm and 1.00mm to catch the flot and residue respectively. The residues were dried and sorted for finds and environmental material, while all flots were stored wet. Sub-samples of the remaining eight samples were wet sieved through a 0.25mm mesh, and the resulting residues also stored wet. Flots and wet sieved residues were briefly scanned using a low-powered binocular microscope, and the abundance, diversity and general nature of plant macrofossils and any faunal remains were recorded on the MoLAS ORACLE database. Tables 10-13 show the contents of the sample.

Charred remains
Occasional small fragments of wood charcoal were seen in seven samples: [27] from trench 1, [5], [10], [11] from trench 3, [15] and [16] from trench 4, and [2] from trench 6.

Waterlogged remains
Most of the samples contained a large component of waterlogged plant material, the bulk of this in most samples however, consisted of unidentifiable rootlets and root fragments. Small fragments of wood (possibly from roots in some cases) were seen in several samples ([10], [16], [26], [27], [34], [35], [40] and [41]), mainly from the peaty layers in trenches 1 and 5. Two samples of wood from [11] and [13] each contained several lengths of wood, and while they are all rather soft, the condition appears reasonable, and identification to species may be possible. Large pieces of wood found in [34] may also be identifiable.

Waterlogged seeds were seen in the majority of samples, although these were in most cases very scarce, and were particularly poor in samples from trenches 5 and 6. Plants of dry, disturbed habitats were present in samples from [7] and [8] (trench 3), but the majority of samples contained mainly seeds of damp or wetland plants. Seeds of mint (*Mentha* sp.), hemp agrimony (*Eupatorium cannabinum*), bur-reed (*Sparganium* sp.) and stinging nettle (*Urtica dioica*) dominated most of the samples from the clay and peat layers, and suggest a fen-type environment, or perhaps moist woodland. Hazelnut (*Corylus avellana*), found in contexts [10], [27] and [34], and possible seeds of alder (*Alnus glutinosa*) and/or birch (*Betula* sp.) in [11], [23], and [27], suggest that the ground was at least partially wooded.

Faunal remains

The tufa sample from [22] produced large numbers of mollusc shells, including at least six freshwater species and one or two ubiquitous terrestrial snails (Alan Pipe, pers. comm.).

Occasional fragments of beetle exoskeleton were seen in ten of the samples (see table 3). The numbers involved were very low in most cases, although they were slightly more common in samples from [7], [10], [26], and [27].

Potential

- Detailed identification of the plant assemblages, and analysis of ecological groupings of the taxa found should, in conjunction with the pollen analysis, enable a picture to be built up of the natural environment of the site, at the time the sediments were deposited. Very little organic material was preserved from the Three Ways Wharf site, so this would be the first information available for the area. The reliability of this information depends of course on how securely dated the assemblages can be.
- Analysis of the insect remains, where they are sufficiently numerous, is of equal importance to the plant macrofossils, as they can be quite specific in their habitat requirements, and integration of several strands of environmental evidence can be much more informative than one alone.
- Study of the molluscs from [22] will enable us to reconstruct the aquatic environment in which the tufa was laid down.

Context no.	Sample no.	Proc. Vol.(l)	Bulk vol.(l)	Bulk mesh (mm)	Wet sv vol. (l)	Wet sv mesh (mm)	Wlog vol	Wlog mesh (mm)	Flot vol.(ml)	Soil kept?
1	20	0			20	1			100	N
1	21	1			20	1			200	N
2	1	20			20	1			150	Y
2	30	0	30	5						N
5	2	5			20	1			50	N
7	3	2			20	1			150	N
8	4	0			20	1			50	N
9	5	1			20	1			150	N
10	6	2			20	1			200	N
11	8	6	20	5	20	1			500	Y
13	17	6	30	5	20	1			250	Y
15	11	1			30	1			150	Y
16	12	2			20	1			600	Y
16	13	0	20	5	20	1			250	Y
17	14	2	20	5	20	1			250	Y
22	22	8			20	1			200	Y
23	23	0	50	5					50	Y
26	24	2	50	5					100	Y
27	31	0			10	1			200	U
34	25	0	40	5						Y
34	28	0	40	5					50	Y
35	26	0	40	5					50	Y
35	27	0	40	5					50	Y
40	37	0	40	5			1	0.25	400	Y
41	38	0	70	5			1	0.25	500	Y

Table 10: Sample processing details

Sample no.	Context no.	Proc. Vol.	Flot vol.	Proc.	Chd wood	Wlg seed	Wlg misc	Wlg wood	comments
					A D	A D	A D	A D	
1	2	20	150	F			3 1		ALL ROOTLETS. THROWN OUT
				W	1 1				COARSE/FINE GRAVEL, OCC SILT
2	5	5	50	F	1 1	1 1	3 1		ALL ROOTLETS ETC. THROWN OUT
3	7	2	150	F		2 3	3 2		SEEDS WASTE & DAMP GRND. GOOD CONDIT
4	8	0.4	50	F		2 2	3 1		ROOTS. FEW SEEDS, MOST FROM DIST'BD GRND
5	9	1	150	F		2 2	3 1		ROOTLETS. SEEDS OF DAMP & DIST GRND
6	10	1.5	200	F	2 1	2 1		3 1	VIRT ALL ROOTS/WOOD; SMALL NOS SEEDS
				W		1 1		2 1	PEAT, FREQ PLANT REMAINS
8	11	6	500	F	1 1	2 2	3 2		ROOTLETS. DAMP & DISTBD GRND SEEDS.
11	15	1	150	F	1 1	2 2	3 1		ROOTLETS. SEEDS MOSTLY DAMP GRND
12	16	1.5	600	F	1 1	2 2	3 1		ROOTLETS. DAMP GRND SEEDS
13	16	0	250	F		2 2	3 1		ROOTLETS. DISTBD, DAMP GRND SEEDS
14	17	2	250	F		1 1	3 1		ROOTLETS. V. FEW SEEDS
17	13	6	250	F		1 1	3 1		ROOTLETS. FEW DAMP GRND SEEDS
20	1	0	100	F			3 1		FINE ROOTLET FRAGS.THROWN OUT
21	1	1	200	F			3 1		ROOTLETS ONLY
22	22	8	200	F		1 1	2 1		TUFA & MOLLUSCS.
23	23	0.2	50	F		2 2	3 1		ROOTLETS. DAMP GRND SEEDS. LOW DENSITY
24	26	2	100	F		2 2		3 1	MAINLY FRAG WOOD/ROOTLETS;
25	34	0		WL		2 1	3 1		.MUCH WOOD, FEW SEEDS.
26	35	0	50	F		1 1		3 1	MAINLY ROOTS/FRAG WOOD;SOME GRAVEL
27	35	0	50	F		1 1		3 1	>GRAVEL;LITTLE ROOTS & FRAG WOOD
28	34	0	50	F				2 1	MAINLY GRAVEL; LITTLE CLINKER/ROOTLETS
31	27	0	200	F	2 1	2 2	1 1	3 1	>WOOD (IDENTIFIABLE) & MOD NOS SEEDS
37	40	0	400	W				2 1	OCC GRAVEL
				WL		2 2	1 1		WOOD,ROOTLETS. DAMP GRND SEEDS-SPARSE
38	41	0	500	WL		3 2	3 2		WOOD, ROOTLETS. DAMP GRND SEEDS

Table 11: Summary of plant remains from assessed samples

context no.	sample no.	proc.	constituent	Abun/ divers	comments
1	20	F	WLG MISC	3 1	ROOTLETS
1	21	F	WLG MISC	3 1	ROOTLETS
2	1	F	WLG MISC	3 1	ROOTS/ROOTLETS
2	1	W	CHD WOOD	1 1	
5	2	F	CHD WOOD	1 1	1 SML FRAG SEEN
5	2	F	WLG MISC	3 1	ROOTLETS, LITTLE MOSS
5	2	F	WLG SEEDS	1 1	MODERN GRAS SPIKELET
7	3	F	INV BEETLES	2 1	GOOD CONDIT.
7	3	F	INV MISC	1 1	EARTHWORM EGG CASES
7	3	F	WLG MISC	3 2	MOSTLY ROOTLETS, +MOSS,?ALDER CATKIN
7	3	F	WLG SEEDS	2 3	POLAV,RAN.CHE,CARCIR,STEGR,URT,AJU,VER
8	4	F	WLG MISC	3 1	MOSTLY ROOTLETS
8	4	F	WLG SEEDS	2 2	GRAM,RAN,CER,POLAV,VER,RUM,CAR
9	5	F	WLG MISC	3 1	ROOTLETS
5	5	F	WLG SEEDS	2 2	?MEN,EUPCA,POL,GRAM
10	6	F	CHD WOOD	2 1	V FRAGMENTED (NOT ID'BLE)
10	6	F	INV BEETLES	2 1	
10	6	F	WLG ROOTS	3 1	
10	6	F	WLG SEEDS	2 1	CYPE,CAR,MEN
10	6	F	WLG WOOD	3 1	V FRAGMENTED
10	6	W	BONE L MAM	1 1	V SMALL FRAG
10	6	W	WLG SEEDS	1 1	HAZEL NUT SHELL
10	6	W	WLG WOOD	2 1	SMALL FRAGS; NOT KEPT
11	8	F	CHD WOOD	1 1	FEW SML FRAGS
11	8	F	WLG MISC	3 2	ROOTLETS,WOOD(ROOT?),PLANTTISSUE,MOSS
11	8	F	WLG SEEDS	2 2	URTDI,ALNGL,?SOL,ALIS,CYPE,MEN
13	17	F	WLG MISC	3 1	MOSTLY ROOTLETS, FEW WOOD/ROOT FRAGS
13	17	F	WLG SEEDS	1 1	EUPCA,URTDI,MEN
15	11	F	CHD WOOD	1 1	V. FEW SML FRAGS
15	11	F	INV BEETLES	1 1	
15	11	F	WLG MISC	3 1	MOSTLY ROOTLETS + WOOD FRAGS,MOSS
15	11	F	WLG SEEDS	2 2	GRAM,MEN,EUPCA,URTDI,CAR,SPAER
16	12	F	CHD WOOD	1 1	FEW SML FRAGS
16	12	F	WLG MISC	3 1	ROOTLETS,WOOD(ROOTS?),EPIDERMIS
16	12	F	WLG SEEDS	2 2	MEN,EUPCA,URTDI,CAR
16	13	F	WLG MISC	3 1	ROOTLETS, EPIDERMAL FRAGS
16	13	F	WLG SEEDS	2 2	MOST URTDI+?SOL,MEN,STA
17	14	F	WLG MISC	3 1	ROOTLETS, FEW WOOD FRAGS

					(?ROOTS)
17	14	F	WLG SEEDS	1 1	URTDI, CHE
22	22	F	MOLSC FW	3 2	AT LEAST 3 TYPES
22	22	F	WLG MISC	2 1	ROOTLETS
22	22	F	WLG SEEDS	1 1	RAN,GRAM
22	22	W	MOLSC FW	2 1	
23	23	F	INV BEETLES	1 1	V. FEW SEEN
23	23	F	MOLSC FW	1 1	FEW FRAGS, 1 COMPLETE
23	23	F	WLG MISC	3 1	ROOTLETS
23	23	F	WLG SEEDS	2 2	EUPCA,UMBE,GRAM,MEN,SPAER,?ALN GL
23	23	W	BONE S MAM	1 1	RAT TOOTH
23	23	W	MOLSC FW	1 1	
26	24	F	INV BEETLES	2 1	
26	24	F	WLG ROOTS	3 1	
26	24	F	WLG SEEDS	2 2	UMBE,SPAER,EUPCA,MEN,INDET
26	24	F	WLG WOOD	3 1	V FRAGMENTED WOOD
27	31	F	CHD WOOD	2 1	V SMALL FRAGS
27	31	F	INV BEETLES	2 1	
27	31	F	WLG MISC	1 1	CORAV (WHOLE)
27	31	F	WLG MOSS	1 1	
27	31	F	WLG SEEDS	2 2	SOLNI,BET;RUM;PTM;INDET
27	31	F	WLG WOOD	3 1	SMALL & LARGE FRAGS (IDENTIFIABLE)
34	25	WL	INV BEETLES	1 1	V. FEW FRAGS
34	25	WL	WLG MISC	3 1	MUCH WOOD, SOME LGE. ROOTLETS,LITTLE MOSS
34	25	WL	WLG SEEDS	2 1	CORAV,URTUR,MEN
34	28	F	WLG ROOTS	2 1	
34	28	F	WLG WOOD	2 1	V FRAGMENTED WOOD
35	26	F	INV BEETLES	1 1	
35	26	F	WLG ROOTS	3 1	
35	26	F	WLG SEEDS	1 1	MEN
35	26	F	WLG WOOD	3 1	V FRAGMENTED WOOD
35	27	F	WLG ROOTS	1 1	
35	27	F	WLG SEEDS	1 1	MEN,LABI
35	27	F	WLG WOOD	3 1	
40	37	W	BONE L MAM	1 1	
40	37	W	WLG WOOD	2 1	SMALL FRAGS, NOT KEPT
40	37	WL	INV BEETLES	1 1	
40	37	WL	WLG MISC	1 1	WOOD, ROOTLETS,?STEM
40	37	WL	WLG SEEDS	2 2	LYCEU,CAR,URTDI,MEN
41	38	WL	INV BEETLES	1 1	
41	38	WL	WLG MISC	3 2	WOOD,ROOTLETS,MOSS,?MODERN LEAF
41	38	WL	WLG SEEDS	3 2	LYCEU,CAR,ELE,URTDI

Table 12: Flora and fauna from environmental samples

3.2.6 Deposit model

In the following discussion, the results of the on-site geoarchaeological observations and archaeological recording have been integrated with the information obtained from radiocarbon dating and the flint and environmental assessments to provide an outline reconstruction of the evolving topography and environment of the site. This has been used as a basis for predicting where deposits of archaeological (including palaeoenvironmental) significance are likely to be preserved and to target areas for which additional information (either on- or off-site) is required.

The floodplain gravel

Late Devensian (Late Upper Palaeolithic)

At the base of the alluvial sequence are gravel deposits, which form a western and eastern ridge joining in the north of the area evaluated and with a lower-lying area in between (see Fig 4). The gravel at the base of Trenches 1, 2 and 4 (roughly the eastern ridge, 'A' on Fig 4) was not observed in detail, except in the augerholes. It did not appear to have the bedded characteristics of the western gravel, but so small a window of it was available for inspection that this is not certain and it is not known whether it was deposited in a braided or meandering channel. Given the date of 10,230+/-80 BP on organic sediment [38/41] immediately above the gravel in Trench 1, which was corroborated by the pollen evidence for Lateglacial vegetation in the same deposit, it is thought that the gravel in Trenches 1, 2 and 4 is most likely to be of Late Devensian age). Late Upper Palaeolithic material of a similar date to Three Ways Wharf (10,000-10,500 BP) might therefore be expected to lie on the surface of this gravel and in the organic deposits immediately above. The flakes and core fragments recovered from [41] and [11] are therefore almost certain to be of Late Upper Palaeolithic / Early Mesolithic date.

The deposit containing the flints is characterised by 'mulchy' detrital peat in Trench 1 [38/41] and in the western end of Trench 4 and by clayey, humic gravel in Trenches 2 [11] and 4 [17]. It represents the very end of the Lateglacial period, when climate is known to have been rapidly warming[7] and arctic vegetation giving way to temperate species. Trench 2 was located on the gravel ridge, which the pollen assessment has shown was likely to have been covered by a wide variety of grasses and herbs like *artemisia* with shrubby juniper bushes beginning to take root. The surrounding landscape was open and the topography of the valley floor was irregular, with a pronounced slope down from the location of Trench 2 to the watercourse that most probably flowed across the south-west part of the site. Trench 1 was located on the margin of this watercourse, where pollen evidence suggests that pools of standing water surrounded by sedges and wetland plants like *Equisetum* (horsetails) and *Filipendula* (meadowsweet) existed. It was in this open environment that the flakes and core fragments recovered from [41] and [11] were discarded, at a similar time to the earliest activity recorded at Three Ways Wharf.

[7] Temperatures were rising by at least as much as 7° in 50 years (Dansgaard *et al* 1989) and insolation was at its maximum (Lamb 1977).

Early Holocene (Early Mesolithic)
The gravel observed in the western trenches (Trenches 3, 5 and 6) is inter-bedded with fine grained and organic deposits in a fining-upwards sequence (see 'B' on Fig 4). These characteristics are typical of a temperate climate point bar, forming at the edge of a meandering channel. However, the floodplain gravel, which underlies the alluvium on the valley floor, is thought to have accumulated within a cold-climate braided river channel at the end of the Devensian cold stage (about 15,000-10,000 years ago). This would not have produced the characteristics of the gravel observed in Trenches 3 and 6. Organic lenses have, however, been recorded in the floodplain gravels of the Colne Valley, with dates ranging from 14,500-11,000 BP (Gibbard 1985, 81). These dates span the arctic and temperate climatic fluctuations towards the end of the Lateglacial period, suggesting that the bedded gravels [13] and [6] may have been deposited in a meandering channel during the Lateglacial interstadial.

The date of deposition of the bedded gravel is an important issue, as we are concerned with the identification of deposits that may preserve Late Upper Palaeolithic artifacts, contemporary with those found at Three Ways Wharf and dated to about 10,200 BP. If the bedded gravels were deposited by a meandering river in the temperate climate of the Lateglacial Interstadial, (c.13,000-11,000 BP) then such artefacts might be found in deposits accumulated at their surface. However, if the bedded gravels were deposited by a meandering river during the Holocene, then they are likely to have buried or eroded the Late Upper Palaeolithic levels.

Several flakes including a piercer thought to be of Mesolithic date were recovered from [13]. If this date is correct, then it would appear that the bedded gravel is of Holocene age. This appears to be supported by a radiocarbon date of 8170+/-60 BP, obtained from the base of the peat [1] developed a little above the surface of the gravel [13] in Trench 6. Holocene rivers are known to have adjusted to a meandering form from around 9,000 BP (Parker and Chambers, 1997) thus it is quite possible that this prompted the development of the point bar as the channel migrated, or as river levels fell. Such a location, on relatively dry land at the river's edge would have been very attractive to Early Holocene people, especially as the surrounding landscape was becoming thickly forested and more difficult to penetrate.

The alluvium
Early Holocene (Early Mesolithic)
The evidence obtained so far (see above) suggests that at sometime prior to 8,000BP a point or channel bar, represented by the bedded gravels [13] began to accumulate in the western part of the site ('B' on Fig 4). This effectively caused the area between the two gravel ridges to be abandoned by the main stream-flow, producing a 'sink' in the landscape ('C' on Fig 4). The hollow created gradually infilled with organic deposits. All types of organic remains became preserved (due to anaerobic conditions) and stratified in a series of peat and organic-rich deposits.

The Early Holocene organic deposits are the 'reddish-brown' peat contexts, described in section 3.2.1. As the red-brown peat accumulated, it levelled-up the irregular Early Holocene topography of the site. It is clear from all the profiles, however, that the peat represents a series of local and site-wide fluctuations in the on-site environment.

These have not been examined as part of the assessment, but monoliths taken during the evaluation would provide sufficient material to examine the peat sequence in more detail. Within the reddish-brown peat, episodes of drier climate, reduced surface run-off and slower peat accumulation led to bands of well-humified (weathered and decayed) peat, represented by blacker peat bands. The black band of well-humified peat observed in Trenches 2 and 4 at around 31.75m OD probably represents the 'driest' period, with the post-glacial on-site environment becoming steadily drier until this stage, but subsequently becoming wetter as river levels, and possibly precipitation increased. Activity at Three Ways Wharf was thought to have taken place immediately prior to a period of increased wetness, when the black organic silt accumulated.

In terms of past human activity, however, Areas 'A+C' (see Fig 4) may not have been attractive to Mesolithic people. No longer was this part of the site located adjacent to a watercourse and no longer did it sustain open grassy vegetation. Preliminary assessment of the peat deposits [27], [10] and [16] shows that the site became colonised by a succession of woodland species: first pine, then as soils matured and the climate warmed, by birch, hazel, elm and oak, with pine remaining on the sandier patches. It is likely that all of the site except for its western periphery would have been wooded and relatively difficult to clear for occupation during the Early Mesolithic.

Bars recently abandoned by the river are likely to have been very attractive to Mesolithic people, as they may have been the only 'open' areas as vegetation thickened in the early Holocene landscape. It is therefore likely to be significant that a number of flakes were recovered from [2], [13] and [7], all contexts associated with the migrating channel bar along the western edge of the site. In comparison, only one struck flint was recovered from all the peat deposits wet-sieved, despite their similar date.

Mid Holocene (Later Mesolithic / Early Neolithic)
The Late Upper Palaeolithic and Early Mesolithic occupation at Three Ways Wharf took place on a floodplain soil, prior to a rise in water table that waterlogged the soil and led to the development of a sedge swamp and the deposition of a black organic silt across the site. Similar black silt deposits have been recorded elsewhere in the Colne Valley and a black silt, which was peaty in its lower parts, was also recorded in every Trench evaluated on the Sanderson site [1], [26/23], [9], [15] and [28]. Unlike the other sites, where dating has so far relied on relative pollen chronologies, the upper part of the black peat [26], at the transition with the overlying black silt in Trench 1 was radiocarbon dated, producing a Mesolithic date of 7,380+/-70 BP. This date is likely to represent the final demise of woodland on the site (and probably within this part of the Colne floodplain in general) and the expansion of a wetland environment of sedge and filipendula fen. It represents the early part of the 'Atlantic' period or 'climatic optimum', when temperatures and precipitation were higher than today and thick woodland cover existed on the interfluve areas. The Atlantic correlates with the later Mesolithic and Neolithic periods.

By some time after 7,000BP, during the later Mesolithic, the entire site (and probably virtually all the floodplain floor of the Lower Colne) was a grass and sedge fen, with

shallow standing water covering vast areas. Thus, although the site in this period may have been exploited for its wetland resource potential, it was unlikely to have been occupied by Mesolithic people. The black silt appears to preserve good assemblages of pollen and other biological remains.

At some time during this (Atlantic) period stream-flow once again appears to have crossed the south-west part of the site, as indicated by a band of tufa [22] recorded in Trench 1. Tufa is characteristic of the climatic optimum, requiring warm temperatures and clear water (ie: with low quantities of suspended sediment) to form. It is usually found to date to between 5,000-7,500 BP. The granular tufa found in Trench 1 was probably formed in fairly swiftly flowing water. The pollen assessment suggests that its deposition might follow a period of erosion of the black silt in this part of the site, as a hiatus appears to exist in the pollen record between P9 and P1 (Fig 3).

Later Holocene (Late Neolithic to present)
Immediately below the factory construction levels, a thin deposit of brownish-grey mottled silty clay [8], [14], [21] etc survives across most of the area evaluated. This is likely to represent slowly accreting alluvium from overbank flooding during the later Holocene (c.5,000 BP to the present). For most of this period it is likely that the site was a water meadow or grassy floodplain soil, which was episodically, perhaps seasonally, flooded. The shallow thickness of this deposit suggests that flooding was not especially severe in this part of the floodplain (at the eastern edge). A dryland soil [7] etc developed in the alluvium during the post-medieval period, but this has almost everywhere been truncated by the factory construction.

3.3 Assessment of the evaluation

GLAAS guidelines (English Heritage 1998) require an assessment of the success of the evaluation 'in order to illustrate what level of confidence can be placed on the information which will provide the basis of the mitigation strategy'. In the case of this site the evaluation has successfully fulfilled the requirements of the *method statement* (MoLAS 2002), although the nature of the project has highlighted several difficulties that have affected how the evaluation was undertaken and limited the objectives.

This evaluation was undertaken prior to demolition while other contractors were working in the building. Despite the poor lighting, air conditions and restricted space the general and specific methodologies outlined in the *method statement* were closely followed. However high water levels and the risk of the destroying deposits of significance through overdigging (mechanical and manual) meant that there was a limited assessment of the lower deposits.

To best assess the lower deposits a programme of augering was undertaken and hand-dug pits at the ends of most of the evaluation trenches. This allowed for more detailed description of the sequence of deposits than the trench sections would allow and a limited opportunity for finds retrieval.

4 Archaeological potential

4.1 Realisation of original research aims

The extent to which the research questions, identified in the Method Statement have been addressed by the evaluation is discussed below:

What is the nature and level of the natural topography?

All the deposits recorded on the site, below the factory construction levels and post-medieval soil, were deposited by natural processes. The nature of the alluvial deposits, which consist of floodplain gravel overlain by Lateglacial and Holocene alluvium, is discussed in other parts of this section.

What are the earliest deposits identified?

The floodplain gravels that lie at the base of the stratigraphic sequence recorded are probably Colney Street Gravels, deposited between 10,000-15,000 years ago, at the end of the last Ice Age (Gibbard, 1985). It is not yet certain whether the inter-bedded gravel, sand, silt and organics [13] in the western part of the site are of Lateglacial or Holocene age.

What are the latest deposits identified?

Immediately below the make-up for the modern ground surface are weathered silty clay deposits. These represent a seasonally flooded grassy marshland to meadowland soil, which probably characterised the floodplain for much of the historic period. In places a sooty, gritty soil, which had developed in this alluvium and is likely to be of post-medieval date was recorded (where it had not been truncated by modern activity).

What evidence exists (ie: nature and extent) for Late Upper Palaeolithic and Early Mesolithic remains?

No struck flints diagnostic of the Late Upper Palaeolithic were found, although a possible piercer, thought to be Mesolithic, was recovered from bedded river gravels [13] in Trench 6, which represent a point bar accumulated at the edge of a meandering channel. This location was likely to have been attractive to early Holocene people, being on dry land, adjacent to a flowing watercourse and in an open situation (at a time when the landscape was becoming thickly wooded and difficult to penetrate). Occasional undiagnostic worked flints were also found in organic deposits that immediately overlay floodplain gravel.

What potential is there for obtaining a fuller understanding of the wider context, local distribution and significance of the Late Upper Palaeolithic and Early Mesolithic remains previously found nearby and deemed to be of National importance?

By further examination of the geoarchaeological and palaeoenvironmental evidence, which is well preserved on the Sanderson site, a better understanding of the topography, landscape and vegetation of this part of the Colne valley in the Lateglacial / early Holocene period will be gained. Such information was only poorly preserved and had poor chronological resolution at Three Ways Wharf (Lewis *et al* 1992). Such information is needed, in order to place the activities that took place in this locality in the Late Upper Palaeolithic and early Mesolithic periods, which are represented by the artefacts and animal bones discarded at Three Ways Wharf (Lewis 1991) and Willowbank (Lacaille 1963), into a more reliable landscape context. This would contribute to a sounder understanding of landscape scale distribution patterns and to better informed interpretations of the archaeological remains.

What evidence for later prehistoric remains was found?

No artefacts known to belong to the Neolithic to Iron Age period were found. However, a layer of tufa was excavated in Trench 1, which (as it requires non-turbid water and warm temperatures to form) is especially characteristic of the 'climatic optimum' (the late Boreal, Atlantic and early sub-Atlantic periods) around 4,000-7,500 BP. At Three Ways Wharf, late Neolithic and Bronze Age artefacts were found in alluvium that overlay a similar tufa deposit and it is likely that the tufa on the Sanderson site is also of late Mesolithic or Neolithic age.

What is the potential of the alluvium on the site to preserve archaeological remains or palaeoenvironmental evidence?

Thick deposits of Lateglacial and early Holocene age exist on the present site. These deposits accumulated in a variety of littoral environments: shallow water, shoreline, channel-edge, marsh, dry soil and woodland. All of these environments would have been attractive in terms of use and resource potential and could have been exploited by people in the past, though some more intensively than others. Moreover, in all these environments low-energy sedimentation took place, which would have led to minimum disturbance and the burial of any discarded remains. It also appears that very little erosion of these deposits took place on the site in the later Holocene.

The most likely environments to have been utilised by Late Upper Palaeolithic / Mesolithic people for more intensive activity, such as that which took place at Three Ways Wharf, would have been those where a relatively dry and open ground cover existed. Such environments are represented by the bedded gravel and fine-grained deposits in the western side of the site [13] and the thin layer of organic deposits, immediately overlying gravel across the entire site.

The relatively slow accumulation of many organic deposits on the site, however, has led to the decay of less durable plant remains as a result of oxidation and weathering. This is particularly the case in Trenches 2, 4, 5 and 6, where the floodplain gravel was highest, the landsurface was therefore drier and the deposits accreted more slowly, to produce a thinner sequence (0.5-1.0m of alluvium). In these deposits bioturbation (mixing by roots, worms and other burrowing animals) is also likely to have contributed to relatively poor chronological resolution of any biological or cultural assemblages.

In contrast, Trench 1 appears to have been located above the edge of an abandoned channel and here a much thicker sequence of alluvium is preserved (1.75-2.50m). It is likely that in this trench the deposits accumulated faster and were subject to less weathering and humification and a greater degree of waterlogging. Thus the potential for reconstructing the past environment at the Lateglacial /Holocene interface from biological remains preserved in the deposits in this part of the site is very good indeed.

What is the potential for modelling the sub-surface stratigraphy of the site?

By combining the results of the previous geotechnical investigation (Stanger 1999) with the records of the trench profiles and augerholes, an outline model of the sub-surface stratigraphy of the site has been constructed. This is based on a series of hand-drawn cross-sections, which examine the sequence of deposits and their morphology. One of these, which is representative of the stratigraphy of the site, has been selected for inclusion in this report (Fig 5). In addition, a GIS-based *surfer plot* of the gravel surface (Fig 4) illustrates the topography of the floodplain, which existed in the Early Holocene.

Do landsurfaces, suitable for human occupation, exist?

Almost the entire profile represents a series of landsurfaces, gradually building up through time and all suitable for human occupation or activity of one kind or another. Not all these landsurfaces were suitable for occupation, however, although all were probably exploited and have potential for a low level of stray finds.

The most likely landsurfaces to have been used for more sustained activity are likely to have been those which were relatively dry, open and adjacent to a watercourse. Such landsurfaces are represented by:

- The 'mulchy' peat [41] in Trench 1 and the western end of Trench 4 and the clayey gravel [11] and [17] in Trenches 2 and 4 respectively. These deposits are all likely to have formed around c.10,200 BP, at the very end of the Lateglacial, and are probably contemporary with the earlier scatter at Three Ways Wharf.
- The bedded gravel, fine-grained and organic deposits in Trenches 3, 5 and 6: [13] and [6], likely to be channel bar deposits, accumulating within or at the edge of a river channel as the river adjusted to a meandering form at some time prior to 8,000 BP. Thus probably roughly contemporary with the later scatter at Three Ways Wharf.
- The 'soily' gravel accumulated during the Early Holocene at the surface of the newly-exposed river gravel in Trenches 3, 5 and 6: [2] and [35]. This is also likely to be roughly contemporary with the later scatter at Three Ways Wharf.

The peat that overlies these deposits is likely to represent a gradually accreting damp to relatively dry thickly vegetated woodland landsurface, whilst the overlying black clay and tufa deposits are likely to represent shallow standing water (a reedswamp or sedge fen) and clear flowing water respectively. The grey to brown silty clay found immediately below the modern deposits is a slowly accreting floodplain surface, representing a seasonally flooded water meadow of later prehistoric and historic age. The post-medieval soil is also

intermittently preserved, which has developed in the surface of the earlier gleyed accretionary floodplain soil.

Can areas / deposits of archaeological potential be predicted?

Three radiocarbon dates were obtained to provide a chronological framework for the deposit model. Together with the preliminary worked flint, pollen and general environmental assessments, the model has enabled predictions to be made regarding where deposits contemporary with those at Three Ways Wharf are likely to occur and what their potential for archaeological survival is likely to be (Section 3.2.6, Table 13, Fig 4 and Fig 5).

What is the potential for reconstructing the landscape evolution of the site in the Late Upper Palaeolithic and Mesolithic periods, when human activity is known to have taken place nearby?

There is very good potential to use the samples collected during the evaluation for landscape reconstruction. A sequence of bulk samples (suitable for snails, insects and plant macrofossils as appropriate and where preserved) was taken through the deposits excavated in every trench. A series of overlapping monolith tins (blocks of undisturbed soil) was taken through the profile exposed in Trenches 1,4,5 and 6. The monoliths are suitable for more detailed off-site recording, sub-sampling for radiocarbon, pollen, diatoms, ostracods and other microfossil remains and for further sedimentological techniques, where appropriate (x-ray, loss-on-ignition, magnetic susceptibility and sub-sampling for soil micromorphology). Small grab samples, suitable for microfossil examination and radiocarbon dating were also taken from the augerholes. Assessment of the bulk samples and pollen samples from selected deposits has demonstrated the good preservation of plant, insect, snail and pollen remains. Reconstructions are also likely to have good chronological resolution, owing to the thick depth of alluvium spanning the Lateglacial / Holocene interface, especially in Trench 1.

What disturbance has been caused by modern foundations, piles, services etc?

An exact quantification of the impact of the present building has not been possible, however the survival of the floodplain deposits to the degree shown in the evaluation trenches is proof that the integrity of the deposits as an archaeological resource still remains given the nature of the deposits in question. This survival is due to the high water table and the method of construction of the former building (see Section 6).

	Context	~Depth & (~m OD)	characteristics	outline interpretation	archaeological potential	palaeoenvironmental potential
10	[7]	0.40m 32.4m OD	Black, gritty loam with brick, pot, tile	Post-medieval soil	***Very low***	***Very low***
9	[1,], [14], [8]	0.40m 32.2m OD	Stiff mottled green / grey / brown clay silt with iron-stained root channels	Late prehistoric and historic. Accretionary floodplain soil Formed the subsoil for the post-medieval soil.	***V.low***	***low***
8	[22]	0.60-0.80m 32.0m OD	Crumbly, granule-sized carbonate nodules with frequent snail shells. Only found in Trench 1.	Probably Neolithic Represents clear flowing water crossing SW part of area evaluated.	***V.Low*** *Occasional flints from resource exploitation activities likely*	***Moderate*** *Very good snail preservation. Potential for reconstruction of nature of watercourse and possibly surrounding environment (from samples already collected).*
7	[1], [9], [15], [23/26], [28]	0.40-0.80m 32-32.2m OD	Black clayey silt overlying black reedy peat	Late Mesolithic (and Neolithic) Top of black peat dated to: 7,380+/-70 BP in Trench 1 Sedge or grass fen, expanses of shallow standing water.	***V.Low*** *Occasional flints from resource exploitation activities likely*	***High*** *Good plant macro, insect, pollen and moderate snail preservation. Potentialfor radiocarbon dating and to examine landscape change and resource availability and Mesolithic impact on the environment (eg: burning) from samples already collected.*
6	Base of [1], [10], [16], [27], [34]	0.60-1.20m 31.5-32m OD	Reddish-brown wood peat. Includes black well-humified bands and more clayey zones. Thickest in Trench 1	Early Mesolithic Thick woodland development across the eastern part of the area evaluated (Trenches 1, 2, 4 and the SE end of 5).	***V.Low*** *Occasional flints from resource exploitation activities likely*	***High*** *Good plant macrofossil, insect and pollen preservation, especially in the non-humified layers. Excellent potential for radiocarbon dating. Potential to reconstruct changing environment of site and surroundings at Lateglaciel / Holocene interface.*
5	[2], [35]	0.80-1m 31.7m OD	'Soily', gritty humic gravel, fine roots and twiggy plant remains.	Mesolithic Colonisation of channel bar surface by plant growth.	***low*** *Occasional flints, possible occupation*	***Moderate*** *Good plant macrofossil, insect and pollen preservation and good potential for ^{14}C dating, but some mixing likely.*
4	[13], [6]	0.80-1m 31.7m OD	Bedded well-sorted gravel, sand, silty clay and organic material	Early Holocene Channel bar deposit in a meandering river	***low*** *Occasional flints, possible occupation*	***Moderate*** Potential for ^{14}C dating and plant, insect, snail and pollen preservation, but some far-travelled inclusions
3	[41/38]	1.9-2.1m 30.6-30.8m OD	Pale brown detrital peat with crushed shell and sand lenses.	Lateglacial Shoreline deposits, with pools of standing water and sedges	***low*** *Occasional flints, possible occupation*	***High*** *Good plant macrofossil, insect and pollen preservation. .Good potential for radiocarbon dating and to reconstruct changing environment at Lateglaciel / Holocene interface*
2	[11], [17]	1.0-1.2m 31.4m OD	'Soily', gritty humic gravel with frequent fine roots and twiggy plant remains.	Lateglacial ^{14}C dated: 10,230+/-80 BP Colonisation of gravel surface by plant growth, following Lateglacial stadial.	***low*** *Occasional flints, possible occupation*	***Moderate*** *Good plant macrofossil, insect and pollen preservation and good potential for ^{14}C dating, but some mixing likely.*
1	[12]	1.2-3m 31.5-29.8m OD	Sand and gravel	Lateglacial Deposition in a cold climate braided river channel	***V.Low***	***V.Low***

Table 13: Archaeological potential of the stratigraphy on the site

4.2 General discussion of potential

Table 13 summarises the archaeological and environmental potential of the different deposits on the site and this is also illustrated in Fig 5. In Table 13 the main deposits recorded on the site are set out, at a site-wide scale and the contexts that relate to them indicated. It gives the approximate depths below present ground level and the reduced level (m OD) for the top of these deposits. The deposits are listed in roughly chronological order, with the oldest at the base. The numbers in the extreme left hand column have been used so that the site-wide deposits can be easily recognised on Fig 5.

On the topographical reconstruction (see Fig 4) the three main areas of contrasting sub-surface topography are shown. Each has different archaeological and palaeoenvironmental potential for the Lateglacial and early Holocene periods, as summarised below. In all cases, immediately below the factory construction levels, 0.20-0.40m of late prehistoric and historic alluvium, of moderately low archaeological and palaeoenvironmental potential exists.

Area A

- Late Devensian gravel at base of sequence, about 1m below present ground level, overlain by 0.5-0.8m of alluvium.
- Low potential for Late Upper Palaeolithic / Early Mesolithic worked flints / occupation in c.0.10m layer overlying gravel, representing a relatively dry, open landsurface.
- Moderate potential for radiocarbon dating and environmental evidence from these deposits.
- Very low potential for Mesolithic flints in overlying peat and silt, as area would have been thick woodland in Early Mesolithic and wet marshland in Later Mesolithic.
- Moderate potential for environmental and radiocarbon dating evidence from these deposits.

Area B

- Early Holocene bedded gravel at base of sequence, about 0.80-1m below present ground level, overlain by 0.5-0.8m alluvium.
- Gravel has low potential for recovery of Mesolithic artefacts deposited on gravel bar at edge of river channel.
- Moderate potential for radiocarbon dating and environmental information.
- Low potential for the recovery of Mesolithic artefacts in immature ‘soil’ (0.10-0.30m thick) developed at surface of bedded gravel.
- Moderate potential for environmental and radiocarbon dating evidence from this deposit.
- Very low potential for later Mesolithic artefacts in overlying peat and silt deposits, representing thick vegetation cover followed by wet marshland.
- Moderate potential for environmental and radiocarbon dating evidence from these deposits.

Area C

- Late Devensian gravel at base of sequence, with surface dipping to south and west, between 2-3m below present ground level, overlain by 1.5-2.5m alluvium.
- Low potential for Late Upper Palaeolithic artefacts, in 'mulchy' peat (c.0.10-0.40m thick) at surface of gravel.
- High potential for radiocarbon dating and palaeoenvironmental evidence for the Lateglacial / early Holocene interface from this deposit.
- Very low potential for Mesolithic artefacts in overlying c.1.5m of peat.
- High potential for radiocarbon dating and evidence for the Early Holocene environment from this deposit.

4.2.1 Landscape reconstruction

At Three Ways Wharf very little evidence was found for the nature of the landscape inhabited by the occupants of the site. This was due to poor chronological resolution and very poor preservation of plant remains, including pollen. In contrast, the evaluation has shown that very good potential exists on the Sanderson site to gain a better understanding of the landscape and environment exploited by these Late Upper Palaeolithic / Early Mesolithic people.

A sequence of over 2m of organic deposits, spanning the very end of the Lateglacial and early Holocene (from before 10,200 BP to around 6,000 BP) exists in an abandoned channel area in the southern part of the site. Assessment has shown that the organic deposits preserve good assemblages of pollen and plant macros and there also appears to be scope for insect and snail analysis on parts of the profile. The integrated evidence from these remains, together with a closer inspection of the monolith sequence taken through the Lateglacial and early Holocene deposits and selected further ^{14}C dating, should provide as yet little-known information about the changing landscape of the Lower Colne Valley at the Lateglacial / Holocene interface.

Such information is likely to be directly relevant to the interpretation and understanding of the flint scatters found at Three Ways Wharf (and other local sites). In this period, arctic conditions were being replaced, over a very short timespan, by a temperate environment. The impact of such rapid climate change on human populations was likely to have been considerable. It would have led to dramatic changes in vegetation, river regime, animal populations and migration routes, weather patterns etc, perhaps within a lifetime. Inherited knowledge and traditional exploitation strategies would have been of little use in these conditions. The nature of the Lateglacial / early Holocene transition is known to have differed between different localities. The results of the evaluation provide an opportunity to reconstruct the changing environment in this period for the Lower Colne Valley, in order to understand the significance of the rich archaeological assemblages found on Three Ways Wharf and other local sites.

4.2.2 Human occupation

Certain deposits on the site represent relatively dry and open landsurfaces, which (in an environment of rapidly thickening vegetation cover) are likely to have been attractive for human occupation, especially where adjacent to a watercourse.

This has been confirmed by the recovery of core fragments and flakes in [41] (a shoreline deposit) and [11] (an immature soil, colonised by herbs and grasses and shrubby trees like juniper). A radiocarbon date of 10,200 BP suggests that these deposits, which occur at the surface of floodplain gravel across the eastern and central parts of the area evaluated, are contemporary with the earliest flint scatter found at Three Ways Wharf.

Along the western margin of the site worked flints, including a possible piercer thought to be of Mesolithic date were found within and directly above inter-bedded gravel and fine-grained sediments [13] representing a channel bar and the organic deposits [2] and [25] representing its colonisation by plant growth. This would also have been an open location, attractive to Mesolithic people for flint knapping and other activities.

In contrast, only one flake was found from the peat deposits, although the bulk of the wet-sieving was undertaken on the peat. The peat represents woodland with a thick understorey and thus, though suitable for hunting and foraging activities it was unlikely to be used for more intensive occupation.

The evidence from the flint artefacts is limited, given the assemblage size and lack of precise dating. However, the flint does indicate prehistoric activity on the site. Numerous excavations in the vicinity have produced evidence for Mesolithic to late Bronze Age flint assemblages (eg Barclay *et al*. 1995; Lacaille; Lewis 1991). The density of the present assemblage is much less than the material at Three Ways Wharf (Lewis 1991), where one of the scatters yielded c7,000 flints and *c*2,000 bone fragments in an area of 130m².

4.3 Significance

4.3.1 Landscape reconstruction

The alluvial deposits on the site and the waterlogged plant (including pollen) and invertebrate assemblages they contain can be linked by radiocarbon dating to the occupation at the Three Ways Wharf site. The information provided by the examination of this material will therefore assist in both the environmental reconstruction of the Sanderson site (local significance) and in gaining a better understanding of the changing environment of the Lower Colne Valley at the Lateglacial / Holocene interface. This would be of great value in interpreting the Three Ways Wharf occupation material. The geoarchaeological and environmental evidence preserved on the site is therefore likely to be of regional significance.

4.3.2 Human occupation

The flint is only of local significance given the known archaeology within the area, for example, the extensive post-glacial flintwork at Three Ways Wharf (Lewis 1991). Mesolithic through to late Bronze Age flintwork was recovered from Harefield Road (Bradley 1995, 14) and numerous Mesolithic finds have been made along the Colne valley (eg Lacaille 1963).

5 Assessment by EH criteria

The recommendations of the GLAAS 1998 guidelines on *Evaluation reports* suggest that there should be:

'Assessment of results against original expectations (using criteria for assessing national importance of period, relative completeness, condition, rarity and group value) .....' (Guidance Paper V, 4 7)

A set of guidelines was published by the Department of the Environment with criteria by which to measure the importance of individual monuments for possible Scheduling. These criteria are as follows: *Period*, *Rarity*, *Documentation*, *Survival/Condition, Fragility/Vulnerability, Diversity*, and *Potential*. The guidelines stresses that 'these criteria should not...be regarded as definitive; rather they are indicators which contribute to a wider judgement based on the individual circumstances of a case'.[8]

In the following passages the potential archaeological survival described in the initial Assessment document and Section 3.2 above will be assessed against these criteria.

Criterion 1: period
Taken as a whole, the deposits seen in the site are characteristic of the Lateglacial / Early Holocene period and later. The evaluation indicates the site has potential for a detailed description of changing landscape of the Lower Colne Valley during this period..

Criterion 2: rarity
Such archaeological deposits have only been identified in a number of locations in the Greater London region and this alluvial sequence is one of the best found in the Thames tributaries.

Criterion 3: documentation
There are no contemporary documentary records relating to the remains in the area other than other than recent academic research and maps dating back to the 16th century.

Criterion 4: group value
None of the likely archaeological deposits are associated with contemporary single Monuments external to the site.

Criterion 5: survival/condition
Despite the construction of the present building the survival of the alluvial deposits is remarkably good, probably due to the high water table.

[8] Annex 4, DOE, Planning and Policy Guidance 16, (1990). For detailed definition of the criteria see that document. Reference has also been made to Darvill, Saunders & Startin, (1987); and McGill, (1995)

Criterion 6: fragility
A sensitive construction design would protect the remains found here such that future archaeological techniques would better analyse the potential information that they contain.

Criterion 7: diversity
Clearly, taken as a whole, the archaeological deposits which are likely to be found in the site represent a diverse and heterogeneous group of archaeological remains of all types and periods. However, this diversity is in itself the product of a random process of vertical and horizontal truncation and separation. There is no reason to suggest that the diversity *per se* has any particular value that ought to be protected.

Criterion 8: potential
There is clearly potential in the archaeological deposits found to contribute to a wider understanding of the area, particularly in the Lateglacial / Holocene transition and early Mesolithic periods. Such issues as the river regime, vegetation and faunal remains and their change over time paint a picture that provide background to our understanding of other archaeological sites in the area, eg whether the Colne Valley would have been used for pasture, could boats been used to transport goods etc.

6 Impact of present building on archaeological potential

The current factory was built on a series of piles supporting the concrete floor. Without the benefit of the structural engineering plans for the 1927 building, within which evaluation trenches 1,2,4 and 5 were located, an accurate quantification of the impact cannot be made. However analysis of drawings[9] for latter additions to the factory suggest a regular layout out of 1 sq m stanchion bases at 6m intervals. Therefore a 64m² area of factory floor would typically contain 4 bases representing an approximate 6.25% loss of the underlying deposits for the area of the factory evaluated.

Combining this with other intrusions such as the external wall foundation, service ducts and concrete ground-beams the percentage clearly increases although much of the service duct would not have been deep enough to affect the lower deposits and deep ground-beams would appear to be rare according to the results of the evaluation trenches. Therefore it is unlikely that the loss of significant archaeological deposits within the area of the proposed buildings will in any instance exceed 10%. This is evident from the results of the evaluation that proves consideration remains of floodplain deposit survive under the present building.

Presumably the high water table in the area making general ground reduction impossible guided the methodology for the construction of the present building.

[9] Ley Colbeck and partners 1959 Job no 9436

7 Proposed development impact and recommendations

The proposed redevelopment currently involves the demolition of the current factory and the construction of five new units, with associated services, access routes and parking. It is intended that as far as possible the existing pile bases will be used. It is therefore understood that the only additional piling that will impact on the surviving archaeological deposits will be to the southwest of the present building where the footprint of Building 1 will be external to the present factory (see Fig 6).

The above assessment (Section 5) suggests that preservation *in situ* would be preferable for much of the alluvial sequence, in particular the layers immediately overlying the gravel. However, MoLAS considers that the remaining archaeological deposits would be considered as preserved if the piling could be reduced to a minimum. The upper levels of the alluvial sequence to *c* 32m OD represent more recent deposits, and therefore the impact on these deposits is not significant. The current water table at *c* 31.8m OD would appear to be responsible for the good preservation of the surviving depositional sequence, despite the extensive piling/stanchions of the previous factory (see section 6). While further piling would reduce the quantity of the surviving deposits, it would not amount to the destruction of the sequence, given the present understanding.

MoLAS does not anticipate that further excavation would be necessary, or indeed practical. However, due to the absence of an archaeological impact assessment, any changes to the piling scheme may, should the impact be large enough and affecting those areas of potential as highlighted by this report, necessitate the implementation of a programme of archaeological work.

Irrespective of any further on-site works, the evaluation has produced material that has potential to contribute to a better understanding of the landscape of this part of the Lower Colne Valley at the Lateglacial / Holocene transition. These significant deposits are of a comparable date to the deposits at Three Ways Wharf, where extensive Late Upper Palaeolithic and Early Mesolithic working floors were found. The good potential for landscape reconstruction during this period, from the long sequence of organic deposits sampled in Trench 1, would be a crucial supplement to, and provide the environmental setting for, the cultural evidence previously recorded in the area. It is therefore recommended that, following any further on-site works (if any are undertaken) a design for the analysis and publication of the material recovered from the site be prepared.

The decision on the appropriate archaeological response to the deposits revealed within the six trenches rests with the Local Planning Authority and their designated archaeological advisor.

8 Acknowledgements

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Fig 1: Site location

Fig 2: Areas of evaluation

Fig 3: Pollen diagram

Fig 4: Topographic reconstruction of gravel surface

Fig 5: SW-NE transect across the evaluated part of the site

Fig 6: Impact of proposed buildings

10 RCHME/NMR archaeological report form

1) TYPE OF RECORDING

Evaluation

2) LOCATION

County: Buckinghamshire

Site address: Sanderson Site, Oxford Road, Denham

Site name: as above Site code: BM-SSU 02

Nat. Grid Refs: **centre** of site**:** 505425 185095

limits of site a) 505510 185315 b) 505620 185215

c) 505330 184800

3) ORGANISATION

Name of archaeological unit/company/society:
Museum of London Archaeology Service (MoLAS)

Address: **Mortimer Wheeler House,**
46 Eagle Wharf Road,
London N1 7ED

Site director/supervisor: Isca Howell Project Manager: Dave Lakin

Funded by: Arlington Properties Ltd

4) DURATION

Date fieldwork started: 17th June 2002 Date finished: 5th July 2002

Fieldwork previously notified? NO
Fieldwork will continue? NOT KNOWN

5) PERIODS REPRESENTED

Palaeolithic	**Roman**
Mesolithic	**Saxon (pre-AD 1066)**
Neolithic	**Medieval (AD 1066-1485)**
Bronze Age	**Post-Medieval**
Iron Age	**Unknown**

6) PERIOD SUMMARIES

The site consists of a sequence of floodplain deposits (alluvium).

Late Upper Palaeolithic / Mesolithic

At the base of the alluvium in the central and eastern parts of the evaluated area were gravels, which had been deposited in braided river channels in an arctic climate towards the end of the last ice age. Worked flints, deposited as the climate began to warm up about 10,000 years ago, were recovered from a soil developed in the surface of the gravel. The soil sloped down towards a watercourse that would have crossed the western part of the site.

Mesolithic

The watercourse adopted a meandering course at sometime prior to 8,000 BP and a gravel bar developed at the edge of the channel along the western margins of the site, causing the central area to be abandoned by flowing water. Thick peat deposits accumulated in this area, representing thick woodland cover in the Early Mesolithic. In contrast, an open environment existed adjacent to the river channel along the western margins of the site, where the bar had formed, and here Mesolithic flint artefacts were found.

From about 7,000 years ago, the woodland became waterlogged and a marsh developed across the entire site with expanses of standing water. At this time the climate was warm and wetter than today and remained so during the ***Neolithic*** *period, when tufa deposits found in the southern part of the site indicate that a clear, swift-flowing stream crossed this area at that time.*

Prehistoric / Historic

Later in the prehistoric period, the site became wet grassland, subject to overbank flooding and this environment was likely to have continued throughout the historic period.

At the top of the sequence is the remains of the former hay meadow.

7) NATURAL

Type: Floodplain alluvium

Height above Ordnance Datum: 32.45m OD

8) LOCATION OF ARCHIVES

a) Please provide an estimate of the quantity of material in you possession for the following categories:

Notes	95	BUlk find	1box
Plans	5	SMall finds	1box
Photos	20	SOil samples	10
Ngatives	20	OTher (please specify)	
Slides	20		
Correspondence	5		
MScripts (unpub reports, etc.)	1		

The archive has been prepared and stored in accordance with MGC standards and has been deposited in the following location:

Has a security copy of the archive been made? YES/**NO**

Have you arranged for RCHME microfilming? **YES**/NO

9) BIBLIOGRAPHY

Corcoran, J and Howell, I J 2002 Sanderson Site, Oxford Road, Denham, Buckinghamshire: a report on the evaluation. Unpub MoLAS rep

SIGNED: **DATE:** 12th August 2002

NAME (Block capitals): Isca Howell

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