# Archaeological Borehole Survey at Land adjacent to Sedgefield Walk, Catshill, Bromsgrove, Worcestershire



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| Status: | Revision 2 |
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| Project reference: | P4452 |
| Report reference: | 2177 |
| HER reference: | WSM 66264 |

## Contents

# Archaeological Borehole Survey at land adjacent to Sedgefield Walk, Catshill, Bromsgrove, Worcestershire

Graham Arnold

With contributions by Andy Howard

## Summary

An archaeological borehole survey was undertaken at land adjacent to Sedgefield Walk, Catshill, Bromsgrove (NGR SO 9661 7419). It was undertaken on behalf of Fiona McIntosh, Senior Water Management Officer, North Worcestershire Water Management, who intend to create a flood storage area which involves the diversion of the Marl Brook into an area of public open space and associated footpath diversion, for which a planning application has been submitted. A total of eight boreholes were sunk along a transect of the widest part of the site. The cores were wrapped and labelled on site by Worcestershire Archaeology staff. Geoarchaeological analysis of the cores was undertaken by Andy Howard of Landscape Research and Management Limited.

Analysis of the cores showed that there was no Palaeolithic potential within the deposits in the study location and no organic-rich sediment was encountered in any of the boreholes that might indicate palaeoenvironmental potential. Furthermore, no artefactual (lithic) materials were recovered from the sediments that might indicate the presence of humans in this immediate area.

# Report

# 1 Background

## 1.1 Reasons for the project

An archaeological borehole survey was undertaken at land adjacent to Sedgefield Walk, Catshill, Bromsgrove (NGR SO 9661 7419). It was commissioned by Fiona McIntosh, Senior Water Management Officer, North Worcestershire Water Management (The client), who intends to create a flood storage area which involves the diversion of the Marl Brook into an area of public open space and associated footpath diversion, for which a planning application has been submitted to Bromsgrove District Council (reference number B/14/0359).

The proposed development site is considered to include a heritage asset with archaeological interest, the significance of which may be affected by the application (HER ref WSM 56937).

The project conforms to a brief prepared by the Planning Advisory Service of Worcestershire County Council (the Curator) (WCC 2014) and for which a project proposal (including detailed specification) was produced (WA 2014).

The project also conforms to the *Standard and guidance for an archaeological watching brief* (IfA 2008), *Standards and guidelines for archaeological projects in Worcestershire* (WCC 2010),

The event reference for this project, given by the HER is WSM 66264.

# 2 Aims

The Brief indicates that the application area is situated in an area of Palaeolithic potential which has been identified during a recent English Heritage project 'Putting the Palaeolithic into Worcestershire's HER'. This area is known as the Holt Heath Sand and Gravel Member and while Luminescence Dating has been successful, the chronology of deposition of this member is still poorly understood. The following recommendations were identified in the Brief:-

- A minimum of one transect across the widest part of the site using windowless bores.
- Analysis of the borehole samples by a geoarchaeologist and should include dating of any organic material or archaeologically important levels through appropriate means such as Carbon 14 Dating or Luminescence Dating.

# 3 Methods

## 3.1 Personnel

The project was undertaken by Graham Arnold (BA MSc); who joined Worcestershire Archaeology in 2009 and has been practicing archaeology since 2002. The project manager responsible for the quality of the project was Tom Rogers (BA MSc). Illustrations were prepared by Carolyn Hunt. Andy Howard BSc PhD CMIfA contributed the geoarchaeological analysis of the cores.

## 3.2 Documentary research

Prior to fieldwork commencing, the English Heritage and Worcestershire County Council report 'Putting the Palaeolithic into Worcestershire's HER' (Russell & Daffern 2014) was consulted to gain an understanding of the significance and potential of the Holt Heath Sand and Gravel Member.

## 3.3 List of sources consulted

*Documentary sources*

Published and grey literature sources are listed in the bibliography.

### 3.4 Fieldwork strategy

A detailed specification has been prepared by Worcestershire Archaeology (WA 2014).

Fieldwork was undertaken on 2 December 2014. The site reference number and site code is WSM 66264.

A total of 8 windowless cores were located along a transect of the widest part of the site. The location of the trenches is indicated in Figure 2..

### 3.5 Structural analysis

The cores were analysed by Andy Howard (see appendix 1).

### 3.6 Statement of confidence in the methods and results

The methods adopted allow a high degree of confidence that the aims of the project have been achieved.

## 4 The application site

### 4.1 Topography, geology and archaeological context

See appendix 1.

## 5 Structural analysis

The locations of the boreholes taken are shown in Figure 2. The results of the structural analysis are presented in Appendix 1.

### 5.1 Environmental analysis, by Andy Howard

The environmental evidence recovered is summarised in Appendix 1.

## 6 Synthesis

No evidence of Palaeolithic potential was found in any of the windowless cores. Modern made ground, topsoil, subsoil and natural gravel substrates were recorded on the site along the transect of the site.

## 7 Publication summary

Worcestershire Archaeology has a professional obligation to publish the results of archaeological projects within a reasonable period of time. To this end, Worcestershire Archaeology intends to use this summary as the basis for publication through local or regional journals. The client is requested to consider the content of this section as being acceptable for such publication.

*An archaeological borehole survey was undertaken at land adjacent to Sedgefield Walk, Catshill, Bromsgrove (NGR SO 9661 7419; HER ref WSM 66264on behalf of Fiona McIntosh, Senior Water Management Officer, North Worcestershire Water Management,).*

*A total of eight windowless bores were sunk along a transect of the widest part of the site. Drilling was undertaken by Spectral Ltd and the cores were wrapped and labelled on site by Worcestershire Archaeology staff. Geoarchaeological analysis of the cores was undertaken by Andy Howard of Landscape Research and Management Limited.*

*Analysis of the cores showed that there was no Palaeolithic potential within the deposits in the study location. No organic-rich sediment was encountered in any of the boreholes that might indicate palaeoenvironmental potential. Furthermore, no artefactual (lithic) materials were recovered from the sediments that might indicate the presence of humans in this immediate area.*

# 8 Acknowledgements

Worcestershire Archaeology would like to thank the following for their kind assistance in the successful conclusion of this project, Fiona McIntosh, Senior Water Management Officer, North Worcestershire Water Management; Spektral Ltd; Andy Howard, Landscape Research and Management; Mike Glyde and Aisling Nash, Planning Advisory Service of Worcestershire County Council.

# 9 Bibliography

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Russell, O & Daffern, N 2014 *Putting the Palaeolithic into Worcestershire's HER: creating an evidence base and toolkit; Final Report and Assessment* Worcestershire Archive and Archaeology Service, Worcestershire County Council, Report project reference P3951

Soil Survey of England and Wales, 1983 *Midland and Western England*, sheet 3, scale 1:250,000 + Legend for the 1:250,000 Soil Map of England and Wales (A brief explanation of the constituent soil associations)

WA 2012 *Manual of service practice, recording manual*, Worcestershire Archaeology, Worcestershire County Council, report **1842**

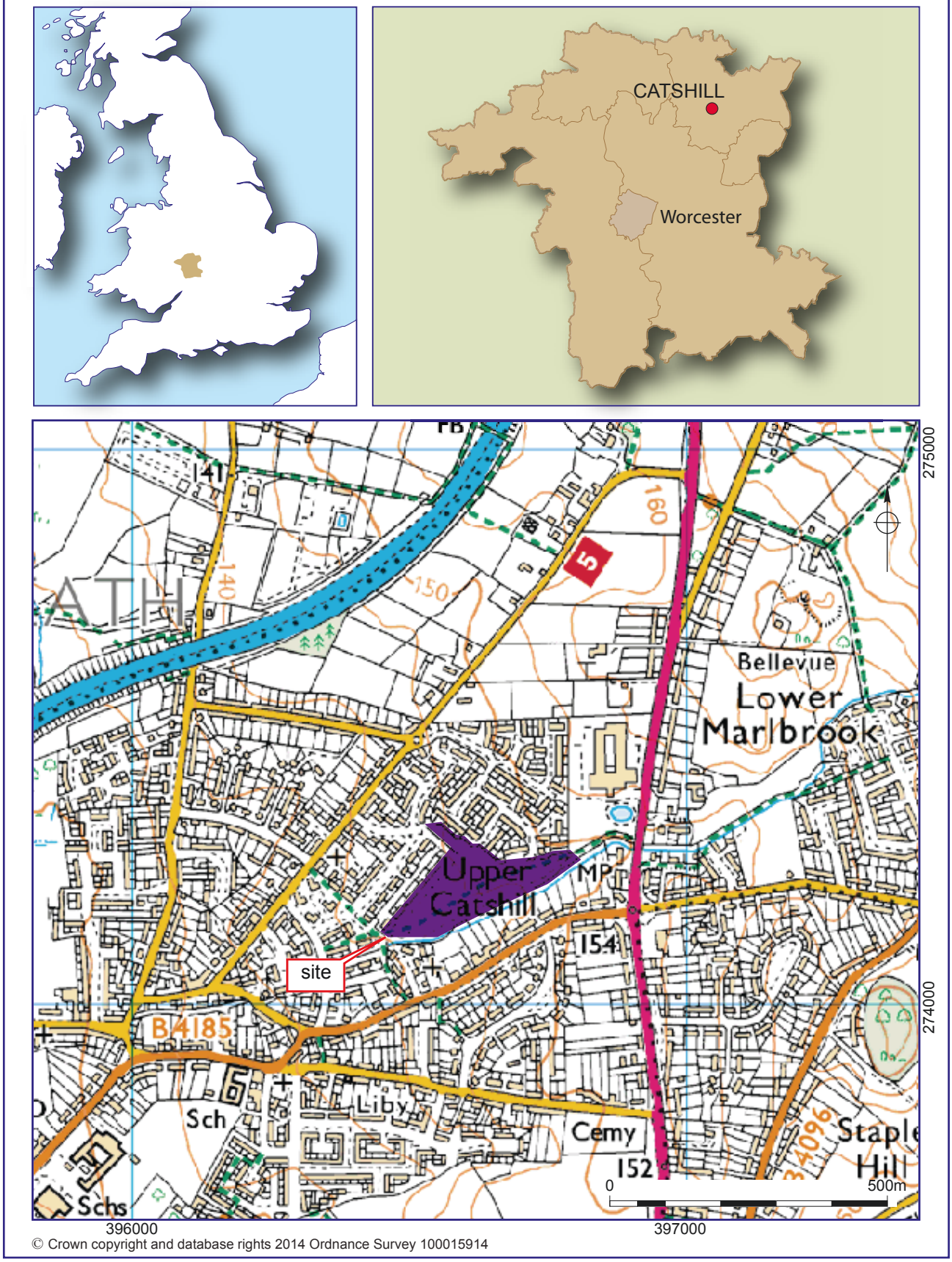
WA 2014 *Proposal for archaeological works at land adjacent to Sedgefield Walk, Catshill,* Worcestershire Archaeology, Worcestershire County Council, unpublished document dated 22 October 2014, **P4452**

WCC 2010 *Standards and guidelines for archaeological projects in Worcestershire*, Planning Advisory Section, Worcestershire Archive and Archaeology Service, Worcestershire County Council unpublished report **604**, amended July 2012

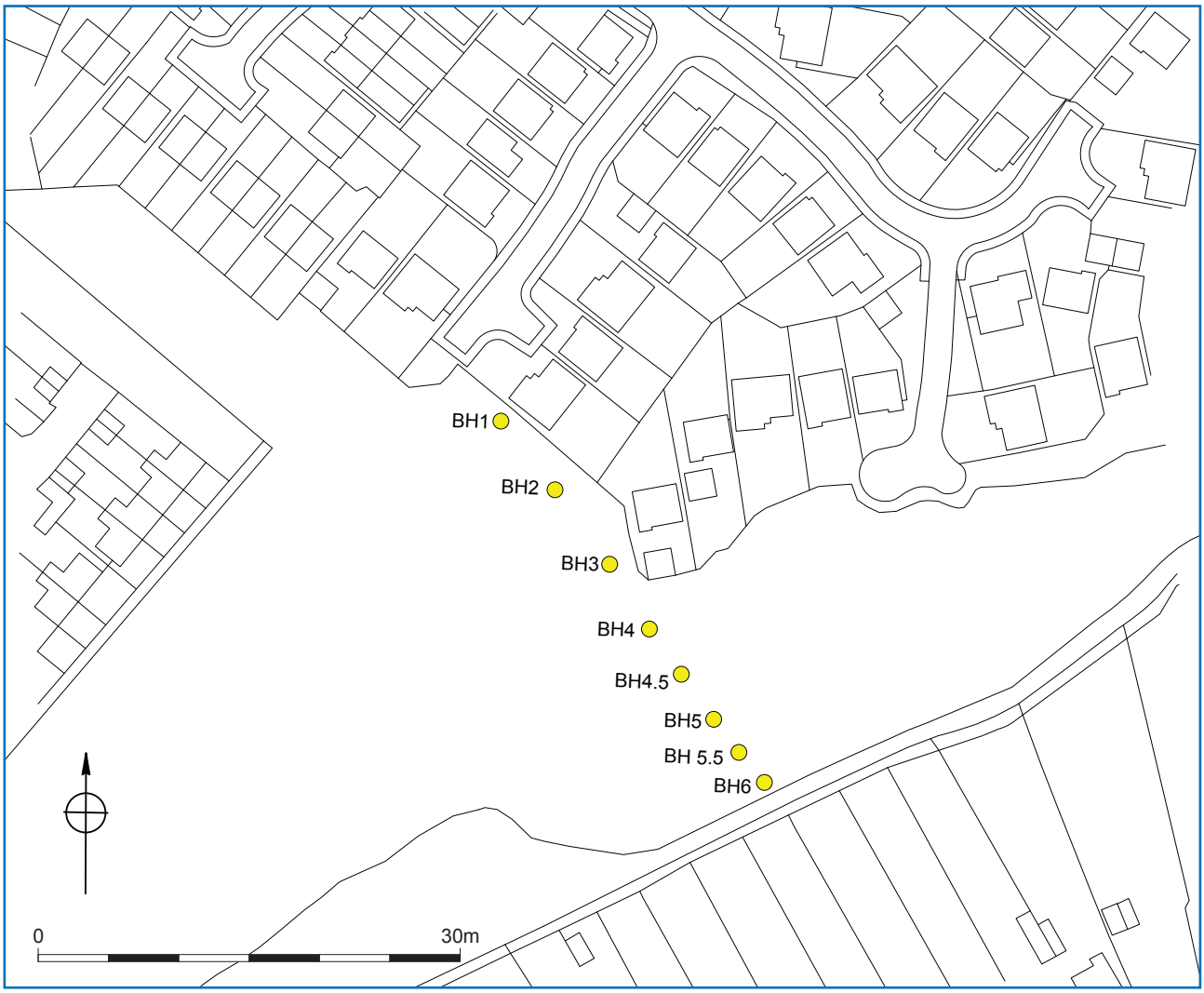
WCC 2014 *Requirements for an archaeological Programme of Work on land adjacent to Sedgefield Walk*, *Catshill*, Information and Advisory Section, Archive and Archaeology Service, Worcestershire County Council unpublished document dated 15 October 2014

Worcester City Council 1999 *Statement of standards and practices appropriate for archaeological fieldwork in Worcester*, Appendix 3 in Supplementary Planning Guidance Number 8: Archaeology and Development, Worcester City Council, document revised June 1999

## Figures




*Location of the site* *Figure 1*




*Borehole locations* *Figure 2*

# Appendix 1 – Geoarchaeology Report

LANDSCAPE RESEARCH & MANAGEMENT

# Description, Analysis and Interpretation of Boreholes from Land Adjacent to Sedgefield Walk, Catshill, Worcestershire

## A Report for Worcestershire Archaeology

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## 1. Introduction

In advance of the proposed creation of a flood storage area for the Marl Brook (Catshill), six boreholes were drilled across its narrow floodplain and western valley side in early December 2014. This work was undertaken in response to a 'Written Brief' from the Historic Environment Planning Officer for Worcestershire County Council (WWC, 2014), which stated that the site is situated in an area of 'Palaeolithic potential' as highlighted by a recent English Heritage project entitled '*Putting the Palaeolithic into Worcestershire's HER*' (http://www.worcestershire.gov.uk/cms/archive-and-archaeology/information-and-advice/projects/palaeolithic-guidance.aspx).

The potential for environmental deposits to be preserved within the floodplain of the Marl Brook, specifically, deposits of the Holt Heath Member of the Severn Valley Formation (see Section 2), led to this programme of environmental sampling with the aims of:

- Assessing the potential for the deposits in the proposed development area to preserve organic sediments capable of providing proxy evidence of climate, vegetation and Upper Palaeolithic human activity.
- Assessing the potential for the deposits in the development area to preserve cultural material associated with Upper Palaeolithic activity.
- Assessing the potential of the sediments to provide knowledge of geomorphic history and hence taphonomic conditions that might affect the preservation of and prospection for archaeological remains in the development area.

## 2. Geoarchaeological Context

The Marl Brook is a tributary of the Battlefield Brook, which in turn drains into the River Salwarpe and ultimately the River Severn. The region is underlain by sandstone bedrock of Triassic age (Wildmoor Sandstone Formation) and overlain by a variety of superficial glacial, periglacial and fluvial deposits. The fluvial sediments that crop out along the Severn and its tributary rivers and streams form part of a suite of deposits known as the Severn Valley Formation (Wills, 1938; Maddy *et al*., 1995; Maddy *et al*., 1999).

In the 'Written Brief', it is noted that the deposits around Sedgefield Walk comprise sediments assigned to the Holt Heath Member of the Severn Valley Formation. This deposit (Stratotype, Holt Heath SO 827627) comprises around 10m of sand and gravel whose surface is around 30m above the modern River Severn. It underlies the Main Terrace of Wills (1938) and the 3rd Terrace of the BGS. The deposit contains significant quantities of erratic material from the Irish Sea Basin, which were introduced into the area during the Late Devensian 'Last Glacial Maximum' (Clark *et al*., 2012); therefore, part of this deposit is certainly attributable to the period *c*.26-17 ka BP.

However, in the valley of the River Salwarpe at Upton Warren fossiliferous sediments of a Middle Devensian interstadial dated to around 42 ka BP (Marine Isotope Stage 3) have been recorded (Coope *et al*., 1961), although this date is probably a minimum age estimate (Bowen *et al*., 1989). These fossiliferous deposits comprised small lenses, which had been cryoturbated during harsh periglacial conditions almost certainly associated with the LGM. Furthermore, at Stourbridge, the remains of Hippopotamus, an indicator of the last interglacial, the Ipswichian, have been recorded at the base of the Holt Heath deposits (Marine Isotope Stage 5e, *c*. 125 ka BP; Maddy *et al*., 1999). Therefore, it seems likely that the Holt Heath Member is probably a composite deposit with a long depositional history.

Whilst it is generally hypothesized that humans did not colonize Britain during the Ipswichian Interglacial (Ashton and Lewis, 2002), lithic evidence and OSL dating does suggest that humans were present at Dartford (Kent) from the early Devensian, between around 88 and 115 ka BP (Marine Isotope Stages 5b-5d) (Wenban-Smith *et al*., 2010). If this hypothesis of early Devensian colonisation is accepted, it is not unreasonable to assume that humans could be in parts of western Britain around this time and certainly over the extended timescale that the Holt Heath deposits were accumulated.

However, inspection of British Geological Survey Digimap data suggests that the spatial distribution of superficial deposits around the Marl Brook is complex. In addition to sediments assigned to the Holt Heath Member, the mapping data also records patches of material interpreted as 'alluvial fan'. These fan deposits form isolated remnants that are heavily dissected by the contemporary (post-glacial) drainage network including the Marl Brook, and they also seem to have close relationship with and respect the edge of the Battlefield Brook (extending no further westwards). The age of these fans is unclear though the relationship of these deposits to the Holt Heath Member along the Battlefield Brook and generally similar altitude suggests that they may well belong to a similar time period representing localised drainage and sedimentation off the Lickey Hills under periglacial conditions. However, the Lickey Hills also has glacial till remnants across its surface that were deposited by pre-Devensian icesheets and therefore some of these deposits might conceivably be earlier. Whatever age, alluvial fan deposits represent immature sediments laid down under high-energy aqueous conditions with elements of debris flow. Therefore, they are not deposits that are likely to have significant palaeoenvironmental potential or contain *in situ* or well-preserved archaeological remains.

### 3. Core Recovery

The site was laid down to grass and formed a local amenity area between housing estates. In total, six boreholes (BH) were drilled in a line perpendicular to the current orientation of drainage to provide a cross sectional profile through valley sediments. BH1 was located furthest from the contemporary channel whilst BH6 was located immediately adjacent as practicable to the contemporary brook (Table 1). Cores were recovered in 1m lengths of plastic tubing using a windowless sampling system provided by Spektral Ltd. The positions of the cores (Figure 2) were recorded by Worcestershire Archaeology staff using a Leica NetRover.

| Borehole | Easting | Northing | Ground level m AOD | 1m Core lengths retained |
|---|---|---|---|---|
| BH 1 | 396639 | 274273 | 146.61 | 1 core |
| | | | | |
| BH 2 | 396650 | 274259 | 146.78 | 1 core |
| | | | | |
| BH 3 | 396661 | 274244 | 147.04 | 1 core |
| | | | | |
| BH 4<br>BH 4.5 | 396669<br>396675 | 274231<br>274222 | 146.50<br>145.50 | 1 core<br>2 cores |
| | | | | |
| BH 5<br>BH 5.5 | 396682<br>396687 | 274213<br>274206 | 144.71<br>144.05 | 1 core<br>1 core |
| | | | | |
| BH 6 | 396692 | 274200 | 143.69 | 1 core |

Table 1: Borehole samples recovered from land adjacent to Sedgefield Walk

### 4. Methodology

Sample tubes were sealed and labelled on site by Worcestershire Archaeology staff. For the purposes of this report, cores were reopened, and their sedimentological properties examined and described using a range of standard geological criteria (Jones *et al.*, 1999). These descriptions considered unit colour, texture, internal structure, grain size, lithology, fossil

content, chemical signature and artefactual content. As well as written descriptions, cores were photographed (Appendix 1).

## 5. Results

Boreholes 1-4 were situated on the higher, flatter part of the site, close to the recent housing development of Sedgefield Walk. All four boreholes encountered impenetrable ground conditions in less than 1m and were therefore relatively short. All had a well-developed topsoil layer and generally went down onto reddish brown, matrix-supported sands and gravels. The matrix was generally sandy clay and the gravel was fine to coarse sub-rounded quartzite but with other less local lithologies. The non-local material was angular and had the appearance of crushed aggregate (similar to MOT sub-base used by builders). Boreholes 1 and 3 also contained bright red, clean sand, which might represent degraded Triassic sandstone or could equally be interpreted as building sand. Borehole 3 contained a large piece of degraded wood at 65cm. Therefore, it is concluded that the upper half metre of the sequence is dominated by 'Made Ground', possibly associated with the development of Sedgefield Walk itself or one of the earlier housing developments in the area. Boreholes 1-3 encountered large quartzite gravel below about 70cm and it is concluded that this may well represent the surface of the natural deposits. Certainly, borehole 4 went down to a depth of approximately 1.5m through a sandy, pebbly clay and was bottomed onto a large quartzite pebble crushed during drilling.

The surface of Borehole 5 was approximately 1m below that of Borehole 4, reflecting the declining slope towards the contemporary channel. The borehole penetrated approximately 1.3m of deposits, comprising well-developed topsoil, in turn overlying matrix-supported clayey sand and sandy clay with common medium to coarse, quartzite-rich gravel. The lowest 30cm of the core was characterised by grey-orange, stiff sandy clay, which had a weathered appearance and is similar to deposits often seen overlying gravel terrace deposits; it is often termed 'hoggin' by quarry workers.

Borehole 6 was a further half metre attitudinally lower than Borehole 5 and was at the edge of the contemporary channel. The upper 50cm of sediment had little in the way of topsoil developed and comprised a brown, humic sandy clay with occasional quartzite pebbles. Below this unit, gleyed, grey-brown pebbly clayey sand was encountered, which graded into a clean, medium to coarse, clast-supported gravel unit. This basal unit is the type of material that might be expected to be encountered as the Holt Heath Member.

None of the cores described in this report contained sediments that might be considered to have palaeoenvironmental potential (i.e. peats, organic silts and clays). Furthermore, no artefacts (particularly lithic stone tools) were recovered during core description. Cultural material was restricted to occasional fragments of heavily glazed modern pottery in the upper half metre of Boreholes 1-3.

## 6. Concluding Remarks and Recommendations

Boreholes 1-4 comprised clayey, matrix-supported sands and gravels with some 'Made Ground' materials (wood, possible MOT) mixed in with them. The matrix-supported nature of the material suggests a general immaturity to the sediment and it seems likely that these deposits are anthropogenically modified parts of the 'alluvial fan' complex mapped by the BGS.

Moving towards the contemporary channel of the Marl Brook, Boreholes 5 and 6 encountered material below 1m, which might be expected to correlate with the Holt Heath Member (upper weathered terrace deposits in Borehole 5 and well, sorted, clast-supported sands and gravels in Borehole 6.

However, no organic-rich sediment was encountered in any of the boreholes that might indicate palaeoenvironmental potential of these deposits.

Furthermore, no artefactual (lithic) materials were recovered from the sediments that might indicate the presence of humans in this immediate area.

The Marl Brook has a relatively steep gradient and geological mapping suggests that there has been considerable dissection of this landscape over the post-glacial period. These high-energy conditions may well have affected taphonomic processes and hence the potential for archaeological and/or palaeoenvironmental remains to be preserved within these deposits.

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## Appendix 1: Core Descriptions (all units in cm)

### Sedgefield Walk Borehole 1 (1 tube)

**0-10** – Brown (7.5YR 3/2) silty clay topsoil with well developed fibrous turf layer and root mat. Occasional, small, sub-angular sandstone clasts, matrix-supported. Gradational basal contact.
**11-30** – Reddish brown (5YR 3/3), sandy clay with medium to coarse, sub-rounded quartzite pebbles, matrix-supported. Gradational base.
**31–40** – Matrix-supported but near clast-supported large quartzite pebbles in a sandy clay.
**41-42** – Medium to coarse, clean sand horizon. Clear upper and lower contacts denoted by colour change. Made Ground?
**43-50** – Matrix-supported, fine, angular gravel. Matrix is sandy clay, which can be weathered grey-blue. Gravel is a mixture of local quartzite and more exotic lithologies (reworked from glacial deposits or perhaps MOT sub-base?). Made Ground?
**51-60** – Large quartzite clast retained in core.

End of Borehole (EOB)

### Sedgefield Walk Borehole 2 (1 tube)

**0-12** – Brown (7.5YR 3/2) silty clay topsoil with well developed fibrous turf layer and root mat. Occasional, small, sub-angular sandstone clasts, matrix-supported. Gradational basal contact.
**11-60** – Reddish brown (5YR 3/3), matrix-supported fine to coarse gravel. Sub-rounded quartzite with more angular, non-local exotic material (dolertite; scalpings?). Matrix comprises olive grey sandy clay. Clear base. Made Ground?
**61-65** – Loose, medium to coarse, clast–supported quartzite gravel.

EOB

### Sedgefield Walk Borehole 3 (1 tube)

**0-10** – Brown (7.5YR 3/2) silty clay topsoil with well developed fibrous turf layer and root mat. Occasional, small, sub-angular sandstone clasts, matrix-supported. Gradational basal contact.
**11-30** – Brown, matrix-supported coarse quartzite gravel. Matrix is sandy clay with sharp base denoted by colour change.
**31-63** – Bright red (2.5YR 4/6), matrix-supported quartzite gravel. Matrix is a clean, fine to coarse sand (could be weathered Triassic sandstone or builders sand. Becoming duller reddish brown with depth and with variable sand content. Made Ground
**64-65** – Large piece of degraded modern wood. Made Ground
**66-80** – Large quartzite clast crushed by window sampler.

EOB

### Sedgefield Walk Borehole 4 (3 tubes)

### Part 1 (top 38cm of tube empty)

0-20 - Brown (7.5YR 3/2) silty clay topsoil with well developed fibrous turf layer and root mat. Occasional, small, sub-angular sandstone clasts, matrix-supported. Gradational basal contact.
21-40 – Brown sandy clay with common medium quartzite pebbles.
**41-60** – Reddish brown, clast to matrix-supported M-C quartzite gravel with sandy clay matrix.

EOB

**Part 2 (top 46cm of tube empty)**

**0-20** – Debris from previous core.
**21-36** – Reddish brown sandy clay/clayey sand (M) with matrix-supported, medium quartzite pebbles.
**37-56** – Brown sandy clay (M), with occasional large quartzite pebbles, matrix-supported.

EOB

**Part 3 (top 73cm of tube empty)**

**0-36** – Crushed quartzite pebbles (sampling impact damage).

EOB

**Sedgefield Walk Borehole 5 (2 tubes)**

**Part 1 (top 24cm of tube empty)**

**0-10** - Brown (7.5YR 3/2) silty clay topsoil with well developed fibrous turf layer and root mat. Occasional, small, sub-angular sandstone clasts, matrix-supported. Gradational basal contact.
**11-20** – Red brown medium sand with matrix-supported F-M quartzite pebbles.
**21-65** – Brown clayey M sand with occasional matrix-supported M quartzite pebbles.
**66-80** – Gleyed grey-brown sandy clay with matrix-supported M-C quartzite pebbles. Natural?

EOB

**Part 2 (top 16cm of tube empty)**

**0-50** - Debris from previous core.
**51-88** – Grey orange brown, stiff sandy clay. Natural? Hoggin?

EOB

**Sedgefield Walk Borehole 6 (1 tube)**

**0-50** – Slightly humic onto medium sandy clay. Medium quartzite pebbles, matrix-supported. More humic in places. Sharp basal contact. No topsoil since adjacent to stream.
**51-80** – Gleyed, grey-brown pebbly clayey M-C sand. Becoming M-C clast-supported quartzite gravel at base. (Holt Heath Member?).

EOB


Sedgefield Walk Borehole 1 (P4452)


Sedgefield Walk Borehole 2 (P4452)


Sedgefield Walk Borehole 3 (P4452)


Sedgefield Walk Borehole 4 (P4452)
Part 1


Sedgefield Walk Borehole 4 (P4452)
Part 2


Sedgefield Walk Borehole 4 (P4452)
Part 3


Sedgefield Walk Borehole 5 (P4452)
Part 1


Sedgefield Walk Borehole 5 (P4452)
Part 2


Sedgefield Walk Borehole 6 (P4452)