Archaeological Mitigation Report for

A34 ALDERLEY EDGE BYPASS

For Cheshire East Council

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L-P:ARCHÆOLOGY

Archaeological Mitigation Report for

A34 ALDERLEY EDGE BYPASS

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Abstract

An archaeological watching brief was carried out by L – P : Archaeology on the site of the new A34 Alderley Edge Bypass, between the 26th November 2008 and 23rd June 2009. The site lies to the west of the current A34 which runs through Alderley Edge and Nether Alderley.

The watching brief comprised the monitoring of the topsoil strip across the new roadway along with a series of investigations consisting of a core sample being taken in an area of peat deposit (SJ 8364 7879) and the sieving of 50 ten litre random samples on an area of sand bank (SJ 7861 8371).

The watching brief revealed no archaeological features pre-dating the Post Medieval period. The features recorded included a boundary ditch for Nether Alderley and Chorley a possible infilled pond and a large area of peat.

The sample sieving recovered a number of flint tools, which have been identified as dating to the Mesolithic period.

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1. Introduction

1.1. The site is being developed into the A34 Alderley Edge and Nether Alderley bypass. At present the site area comprises open fields.

1.2. Prior to watching brief being undertaken a series of environmental investigations were carried out. These investigations comprised a core sample being taken in an area of peat deposit (site 29. SJ 8364 7879) and the sieving of 50, 10 litre random samples on an area of sand bank (site 8. SJ 7861 8371). These site numbers are taken from a previous assessment by Giffords (OWEN 2003).

1.3. Following the commencement of site works a watching brief was undertaken during all topsoil stripping.

1.4. This document considers the results of the archaeological investigations carried out on the site between the 26th November 2008 and 23rd June 2009. The site is located between grid references SJ 8430 7961 and SJ 8420 7525 and measured approximately 5km (**FIGURE** 1).

1.5. All topsoil strip was carried out using a machine under the supervision of an experienced archaeologist. All environmental investigations were carried out by hand by a qualified archaeologist.

1.6. This report has been prepared by Claire Statter of L – P : Archaeology on behalf of Cheshire East Council.

1.7. L – P : Archaeology issued the code ALE/A34 08 for the site.

1.8. All archaeological work was undertaken by suitably qualified and experienced personnel.

2. Geology & Topography

2.1. GEOLOGY

2.1.1. The British Geological Survey Index shows the solid geology of the area to be made up of Triassic Mudstones including Keuper Marl. Drift deposits are recorded as till (HTTP://WWW.BGS.AC.UK/GEOINDEX/).

2.1.2. Two sites along the proposed bypass however show geological anomalies. The first site, Site 8 (SJ 7861 8371), consists of a small outcrop of sandy soil amidst the predominant clay. Site 29 (SJ 8364 7879) has been identified as an area of peat deposit (LEAH 2008).

2.2. TOPOGRAPHY

2.2.1. The site lies to the west of the current A34 which runs through Alderley Edge and Nether Alderley.

2.2.2. Alderley Edge and Nether Alderley lie approximately 20km to the south of Manchester and 15km to the north of Congleton at an approximate elevation of 170mOD.

3. Archaeological & Historic Background

TIME-SCALES USED IN THIS REPORT:

PERIOD	FROM	TO
PREHISTORIC		
PALAEOLITHIC	450,000	12,000 BC
MESOLITHIC	12,000	4,000 BC
NEOLITHIC	4,000	1,800 BC
BRONZE AGE	1,800	600 BC
IRON AGE	600	43 AD
HISTORIC		
ROMAN	43	410 AD
EARLY MEDIEVAL	410	1066 AD
MEDIEVAL	1066	1485 AD
POST MEDIEVAL	1485	PRESENT

3.1. It is not the aim of this section to present a complete history of the site from earliest times, nor is it the intention of this report to examine every artefact found in the local area. Rather, the aim is to review readily available sources, both published and unpublished, and determine the general development of the site so that the excavation results can be placed in an historical context.

3.2. Due to the large nature of the site a general historic background of the area has been undertaken.

3.3. PREHISTORIC

3.3.1. The earliest known activity in the site area dates to the Mesolithic period. This evidence is restricted to flint scatters identified in areas containing sandy soils to both east and west of Alderley Edge (ROEDER & GRAVES 1902).

3.3.2. The Neolithic period is better represented according to Roeder and Graves (1902) who discuss three main areas of Neolithic activity in the area. These are Castle Rock, White Barn Farm and Engine Vein. They record a 'neolithic floor' along the footpath to the east of Castle Rock. These sites are all within 1.5km

of the east of the new bypass.

3.3.3. Also recorded in the area of Castle Rock is evidence of Prehistoric fire making, that is a piece of charcoal and a piece of cone-shaped Haematite. The haematite is thought to be a striking stone (MORGAN & MORGAN 2004:28).

3.3.4. The area around Alderley Edge, was heavily mined for copper during the Bronze Age. The first indication of this was seen in Brindlow during mining taking place in the 19th century. A discovery of adzes, hammer heads or axes and mauls along with an oak shovel was made (MORGAN & MORGAN 2004:69). The oak shovel, which showed heavy use, was carbon dated to between 1888 and 1677BC (IBID:71).

3.3.5. Evidence for Prehistoric open cast mining was also recovered by Dawkins in 1874. He discovered over 100 tools and determined the open cast mining extended to a depth of 2.5 to 3.5m below ground level in the area around "the Edge" to the east of the new bypass (MORGAN & MORGAN 2004:70).

3.3.6. It has been suggested by Morgan and Morgan that the Bronze Age mining suddenly ended in Alderley Edge (2004:72) the most likely reason for this was because the ores had become harder to access and new supplies which were easier to mine had been discovered elsewhere.

3.4.ROMAN

3.4.1. There is no direct evidence for Roman activity in the area, although it has been suggested that small scale mining was taking place during this period (LANCASTER UNIVERSITY ARCHAEOLOGY UNIT 1998).

3.4.2. It should be noted that in 1995 a large hoard of Roman coins were found at the site of Alderley Edge Mines by the Derbyshire Caving Club. This hoard contained 564 coins dating from AD 317 to AD 336 (TIMBERLAKE & PRAG 2005).

3.5.EARLY MEDIEVAL

3.5.1. There is no evidence of any activity in the area during this period, however it has been suggested that the name Alderley originates from an Anglo-Saxon terms Aldred and Leah, meaning a meadow or woodland clearing of Aldred, a

personal name (SCHOLES ND: 118).

3.6.MEDIEVAL

3.6.1. Domesday book records Nether Alderley as 'Aldredelie', the land is described as arable land, meadow land, woodland and enclosures. It is thought that the settlement later changed name in 1275 to become 'Alderdelege' (SCHOLES ND:118). The name Nether Alderley is a counterpart name to Alderley Edge indicating a lower settlement, either topographically or in scale. As Nether Alderley lies approximately 60m below that of Alderley Edge it is probable that this area was Aldred's lower clearing.

3.6.2. The first recorded evidence of Alderley Edge is from a charter written in c.1265. Alderley Edge at this time was called 'Chorley' (LANCASTER UNIVERSITY ARCHAEOLOGY UNIT 1998).The name Alderley Edge, which related to the sandstone scarp at Castle Rock, does not come into general use as a name for the town until the mid 19th century.. However, for ease of understanding within this document the town will be referred to as Alderley Edge.

3.6.3. It is thought that before 1640 Alderley Edge was open heathland. It did however have one main function in 1588 as a beacon site for the Armada (SCHOLES ND:12).

3.6.4. There are several buildings around the Alderley Edge and Nether Alderley area dating to the Medieval and early Post Medieval period, such as Chorley Hall in Alderley Edge dating to around c.1330 (SCHOLES 1999:118). The presence of these buildings puts the site into a context of sparse settlement in the Medieval period in an area of large manors rather than an area of large scale settlement.

3.7.POST MEDIEVAL

3.7.1. Alderley Edge and Nether Alderley appear to have remained a largely agricultural area through the Medieval into the Post Medieval period. In 1779 Alderley Edge, described as a 'dreary common', was enclosed and merged with other common grounds in Alderley (STANLEY 1843).

3.7.2. The main development in the area was the introduction of the railway. A station was built in Alderley Edge in 1842. It is thought that following this date the

area grew into a residential area for affluent Mancunians (PEVSNER 2003:56).

3.7.3. This is evidenced by cartographic sources. The Tithe map dating to 1841 shows Alderley Edge as being made up of agricultural land with sparse farm buildings. Nether Alderley on the other hand does show a sparse settlement with building lining the main roads. The surrounding area however is shown as open fields.

3.7.4. Along with the introduction of the railway mining also began again in the 19th century. West Mine was opened in 1857 however after only 20 years of extraction this mine was exhausted (SCHOLES ND:13). Engine Vein Mine was also opened during this time as a cobalt mine, this mine continued to be worked up until the first world war (IBID).

3.7.5. The Ordnance Survey map dating to 1872 shows the expansion of Alderley Edge following the introduction of the railway and the reopening of the mines. Alderley Edge had grown significantly into a residential area with the settlement extended between modern Davey Lane to the north and Whitebarn road to the south. The settlement appears to be bound to the west by the modern A34 and extends approximately 1km to the east. Nether Alderley however has approximately 11 significant buildings.

3.7.6. The following editions of the Ordnance Survey Map, 1899 and 1911, show no significant changes or growth to either Alderley Edge or Nether Alderley. Population records also show that Nether Alderley has not expanded significantly since 1841 when the population was 679 to 1971 where the population was recorded as 659 (TOWNSHIP PACK 36).

3.7.7. The only large development to have been constructed in Alderley Edge during the 20th century was a residential estate built to the south of Brook Lane in the 1960s. This estate now runs directly to the east of the project site. There appear to be no changes to the site area itself during this period.

4. Methodology

4.1. A detailed account of the methodology employed can be found in the specification of works for the site (POOLE 2008).

TOPSOIL TESTING

4.2. A series of 50, ten litre samples were taken by hand along the sand ridge located at site 8 (FIGURE 2).

4.3. A grid was set out on the ridge measuring 25m² . 50 samples were then taken at random within this grid **(FIGURE 3)**.

4.4. All samples were sieved on site using a 10mm mesh in order to maximise artefactual recovery.

4.5. The southwest section of the sample area had a dump of gravel 0.2m thick between the topsoil and sand. The flat area at the base of the slope, to the north, was made up of a silt/clay subsoil underlying a thin humic topsoil covering. Samples were taken from the top of the sand bank, on the slope and at the base of the bank. The slope and top of the bank were made up of a silt sand mix underlying a thin (0.08m) layer of topsoil.

PALAEOLOECOLOGICAL ANALYSIS

4.6. A single core sample was taken from site 29 **(FIGURE 2)** by Birmingham University Archaeo-Environmental Services.

4.7. The full report detailing the results of the core sample can be seen in **APPENDIX 3.**

WATCHING BRIEF

4.8. All topsoil stripping was carried out by a 20 tonne machine excavator and a bulldozer. All machine excavation activities were monitored by a qualified archaeologist.

4.9. Examination and cleaning of all archaeological deposits was carried out by hand using appropriate tools. Archaeological deposits were examined and recorded both in plan and section.

4.10. All finds, artefacts, industrial remains and fauna remains were collected.

4.11. Standard L – P : Archaeology field practice was employed for archaeological monitoring and recording, as defined in the agreed specification of works (POOLE 2008).

4.12. Area 7 was not monitored due to the area being used to house machinery for the construction of the road and the maintenance of the railway.

5. Results

5.1. In this report context numbers are shown as follows: round brackets indicate fills and deposits (01), square brackets indicate cut features [02] and structures are indicated by underlined numbers 03.

TOPSOIL TESTING

5.2. A total of eight of the samples taken contained flint (FIGURE 3). Four samples from the top of the bank contained flint along with two on the slope and two at the base. A full assessment of the flint can be found in SECTION 6 of this document.

5.3. The spread of flint from this sand bank was random, with a scattered appearance. There was no weighting to either the east or west or regarding the top or base of the sand bank.

5.4. A single piece of blue and white ware ceramic was recovered during the sampling.

WATCHING BRIEF

5.5. The topsoil stripping was not carried out from north to south but was undertaken sporadically along the route in order to link each area together. However, for the purpose of this report the results will be discussed along the route way from north to south.

AREA ONE

5.5.1. Area one was located at the northern most end of the route way and measured c.320m. Area one was defined by the roundabout to the north of the route way and an open land drain/ditch to the south (FIGURE 2).

5.5.2. At the northern terminus of the route way the stratigraphy recorded comprised of a 0.2m thick deposit of dark humic topsoil which sealed a red sandy subsoil with rounded stone inclusions.

5.5.3. Towards the south of area one the topsoil had thinned to 0.1m thick which overlay a light brown clay, sandy loam with no inclusions. This loam extended beyond the base of the topsoil strip at a depth of 0.2m BGL.

5.5.4. No archaeological features were recorded within this area. One piece of worked

flint however was recovered, thought to be a Backed Blade dating to the Mesolithic period. This is discussed in more detail in Section 6.

AREA TWO

5.5.5. Area two was located south of area one and defined by the open drain/ditch and Brook Lane. This section of the route way measured c. 430m **(FIGURE 2)**.

5.5.6. This area was stripped to a depth of 0.3m. The stratigraphy in this area was a 0.2m deposit of humic topsoil which sealed a mid brown orange clay loam with infrequent rounded stone inclusions.

Plate 1 - North of Brook Lane. Facing North

5.5.7. Although cartographic evidence shows either farm buildings or out houses within this area close to the body of water, which had been drained during the topsoil strip, no evidence of these buildings could be seen.

5.5.8. No archaeological features were present within this area and no significant finds were recovered.

AREA THREE

5.5.9. Area three was located to the south of Brook Lane. Brook Lane bound this section to the north with a brook to the south **(FIGURE 2)**. This section of the route way measured c.135m.

5.5.10. This area sloped to the south down towards the waterway. It was excavated to a depth of 0.3m at the south. However, in order to construct a temporary road running along the south of Brook Lane, the north area of this section was excavated to a depth of 1.15m.

5.5.11. The stratigraphy shown below the road surface comprises 0.1m paving slab overlaying a 0.25m thick layer of overspill material from the construction of the road. This in turn overlay a brown humic silt measuring 0.4m in depth, this deposit overlay a 0.3m thick deposit of red sand. Below this red sand lay a brown grey clay which extended beyond the base of the excavation at 1.15m BGL (FIGURE 4).

5.5.12. No archaeological features were present within this area and no significant finds were recovered.

AREA FOUR

5.5.13. This area of the route is located to the south of the brook bounding area three and runs to the field boundary to the south (FIGURE 2). This section of the route way measures c. 335m and contains the sand bank, site 8, which was sampled as part of the topsoil testing. Although the bank was not within the routeway itself it was stripped as part of the overall site alteration.

5.5.14. For approximately 180m to the south of the brook the stratigraphy was made up of a thin layer of topsoil measuring 0.21m thick overlying a deep deposit of peat. The peat extended at beyond the base of excavation approximately 1.3m below the base of the topsoil. The excavation of the peat was not monitored as it did not form part of the brief.

5.5.15. Beyond 180m south of the brook the soil make up changes to a clear depositional sequence. A thick layer, c. 0.1m thick, of dark brown humic topsoil overlay a fine, friable, yellow sand clay loam. This extended beyond the base of the topsoil strip at 0.2m below the current ground level.

5.5.16. A number of flints were recovered from area four including blades, a notch and a microlith. Debitage associated with tool production was also identified. These all appear to date to the Mesolithic period and area discussed in detail in

SECTION 6.

AREA FIVE

5.5.17. Area five is located south of the field boundary which defines area four, and terminates to the south at Chelford Road, the area measures c.440m in length **(FIGURE 2)**.

5.5.18. The initial area of topsoil stripping in this area was for the construction of a new access road for the local farm,. This area was stripped to a depth of 0.15 - 0.2m, a brown humic topsoil was removed.

5.5.19. Below the topsoil lay a sandy clay subsoil with moderate rounded stone inclusions. This sub soil also had several oyster shell inclusions, which had not been seen previously on the below the current ground surface.

5.5.20. The remainder of the topsoil strip in this area revealed a similar stratigraphy.

5.5.21. One archaeological feature was however recorded within this section of the site. Cartographic evidence shows an early parish boundary ditch running through this area on an east west orientation, defining the parishes of Chorley and Alderley Edge. This ditch is a prominent feature in the landscape measuring 1m deep by 6m wide.

Plate 2 - Boundary ditch in Area Five. Facing Northwest

5.5.22. The topsoil was stripped from this boundary ditch to a depth of 0.1 – 0.2m deep. The deposits seen were the same as the remainder of this area, humic topsoil overlaying a sandy subsoil.

5.5.23. Below the subsoil was a dark brown red silt and ash deposit which formed the infill of the ditch. This deposit contained a large amount of ceramics dating to the 19th to 20th century. These are outlined in the Finds section of this document.

5.5.24. Located approximately 100m to the north of Chelford Road, along the alignment of the road excavation, a deep section was exposed during excavation. This revealed 1.4m of the natural stratigraphy of the area. Below the topsoil a band of the local sandy clay subsoil, 0.25m thick, was identified. This overlay a layer of fine yellow sand which had clear laminations visible running horizontally along an east west axis. This deposit measured 0.2m deep and in turn overlay a 0.1m thick layer of sand and pebbles.

5.5.25. Below this sand and pebble layer was a 0.2m thick layer of fine, loose, yellow sand which had laminations running horizontally along an east west alignment. These laminations indicate that water had been present in a flowing environment during the deposition of this layer. It is thought, due to the layering of pebbles within the sand, that this deposit represents flooding events flowing from the higher southern area towards the parish boundary to the north.

5.5.26. The lowest exposed deposit, underlying the 0.2m thick laminated sand layer, was a 0.5m thick deposit of fine gravel in a sandy matrix. This appears to be a glacial deposit that extends beyond the base of the excavation.

AREA SIX

5.5.27. Area six was located to the south of Chelford Road and was bound to the south by an early boundary marking the distinction between the parishes of Chorley and Nether Alderley. This section of the route way measured c. 1100m in length **(FIGURE 2)**.

5.5.28. This area was stripped to a depth of 0.25 – 0.3m, within this area the

stratigraphy recorded was an humic topsoil overlaying an orange clay sand sub soil.

5.5.29. This continued until c. 280m south of Chelford Road where a distinct change was seen, adjacent to the existing pond. Here the sub soil changed to an orange brown clay. This whole area was seen to have land drains running through it.

5.5.30. Directly to the south of this clay deposit was a large deposit of ash. This deposit was very wet and waterlogged in place, it contained large amounts of domestic waste such as glass bottles and sherds of ceramics all dating to the Post Medieval period (see Chapter 6). This deposit was seen to extend beyond the extent of the topsoil stripping which measured c.21m east west, its full extent was c. 45m north south. It was not excavated therefore its depth remains unknown. Due to the wet nature of this deposit it was unclear as to what deposit underlay the ash

5.5.31. It is thought that due to the nature of the finds within the deposit and its location next to an existing pond, along with its waterlogged nature, that this deposit is an infilled pond. It is thought that the pond was filled in with domestic waste from a nearby settlement in order to make up the land for agricultural purposes. It is also possible that the existing pond was once much larger and it had been partly infilled for the same purpose.

5.5.32. The south of this area of work was defined by the parish boundary of Chorley and Nether Alderley, this was marked by a narrow stream or brook. Along the bank of this waterway, 18th to 20th century glass and ceramics could be seen.

5.5.33. No further archaeological features were recorded within this area. The stratigraphy remained to be topsoil overlying sub soil to the south of the above described feature.

AREA SEVEN

5.5.34. Area seven was located to the south of area six and was bounded at its southern end by the railway line. This section of the route way measured c. 700m in length **(FIGURE 2)**.

5.5.35. This area was unmonitored due to it housing the machinery for the road

construction and the maintenance of the neighbouring railway line.

AREA EIGHT

5.5.36. Area eight was located to the south of the railway line and continued to the southern terminus of the new bypass. This section of the route way measured c. 1500m in length (FIGURE 2).

5.5.37. The area closest to the railway line had slag waste deposits spread across the field.

5.5.38. This area was stripped to a maximum depth of 0.2m. Only the topsoil was stripped from this area leaving the subsoil exposed.

5.5.39. No archaeological features were recorded within this area.

Plate 3 - Area Eight. Facing South

6. Finds

6.1. The general finds assemblage for the site can be broadly categorised as 19th to 20th century domestic and agricultural waste. The topsoil in each area contained a spread of 19th and 20th century ceramic and glass sherds along with fragments of steel and iron.

6.2. As the finds assemblage could be seen to be late Post Medieval in date no finds were collected from site on agreement with the County Archaeologist.

6.3. Within the infilled pond the finds assemblage was made up of 18th, 19th and 20th century glass bottles and sherds, chamber pots and 18th,19th and 20th century ceramic sherds as well as tin, iron and steel fragments.

6.4. Within the infilled parish boundary the finds assemblage could be seen to match that of the infilled pond, comprising 18th, 19th and 20th century glass bottles and sherds, chamber pots and 18th,19th and 20th century ceramic sherds as well as tin, iron fragments.

6.5. This type of assemblage can clearly be seen to be associated with the surrounding farmhouses. It is often the case that broken glass and ceramics from farm houses be spread across the fields in the past, a practice common into the 20th century. Also, domestic waste from the farmhouses would be used to fill in any disused ponds or to help build up boundary ditches no longer in use.

FLINT ASSEMBLAGE BY BLAIR POOLE

6.6. In the area to the south of Brook Lane, a large sandbank underwent a phase of sieving in order to recover small artefacts see SECTION 5.2. The flint assemblage recovered from this phase of work is discussed below.

6.7. At the location of the sandbank,a collection of three natural flint fragments were recovered during subsequent topsoil stripping.

6.8. In addition to this phase of work a single flint artefacts was recovered during topsoil stripping to the south of the Merlin Roundabout, junction of the A34 by-pass and Alderley Road.

6.9. A total of 18 flint fragments were recovered from the site during two phases of work,

14 of which were recovered during the topsoil sieving phase of work. Of these 18 items, seven could be seen to form part of worked artefacts, 6 were identified as debitage from tool production and five could be seen to be small natural flint nodules.

6.10. The tool assemblage was recovered from a small sandbank located towards the north of the site, excluding a single blade found during topsoil stripping towards the northernmost end of the site.

6.11.A total of nine distinct material types were identified in the assemblage, summarised below. Appendix 2 contains the details of the assemblage.

6.12.MATERIALS

Material	Colour	Texture	Cortex Colour	Cortex Texture
A	Light Brown	Soapy	Cream/Brown	Chalky
B	Light Brown	Smooth	White	Chalky
C	White	Smooth	White	Smooth
D	Grey	Soapy	Dark Grey	Rough
E	Dark Grey	Soapy	Cream	Chalky
F	Laminated Blue/Black	Smooth	None Present	None Present
G	Bright Brown	Smooth	None Present	None Present
H	Light Brown/Cream	Smooth	None Present	None Present
I	Light Grey	Coarse	None Present	None Present

6.12.1. Of these nine materials only four could be seen to be associated with tools or tool production. Materials A and H were associated with tools identified on the site, whereas materials E and G were seen to represent both tool and tool production in the form of debitage.

6.12.2. The variation between the appearance of some of the material types could be explained by the natural variation in colour within a naturally occurring flint deposit. However, a number of the materials are clearly imported with B, C and D all showing signs of fluvial transit. It is probable that these were brought in

during glacial movement or flooding.

6.12.3. Materials F and I could also be imported material and are only represented n the site by naturally struck flakes of flint. These are not tools or part of tool production. More likely these are small pieces of flint that have been brought in with other material and have been knocked by other items or ploughing. This latter suggestion would account for the damage to the items.

6.13.ASSEMBLAGE

Flint	Context	Sample	Method	Form	Conjoin	Retouch	Material	Date
1	Topsoil	3	Sieve	Natural	-	N	F	N/A
2	Topsoil	6	Sieve	Broad Blade	3	Y	G	Mesolithic
3	Topsoil	6	Sieve	Broad Blade	2	Y	G	Mesolithic
4	Topsoil	8	Sieve	Debitage	-	N	E	Meso/Neo
5	Topsoil	26	Sieve	Debitage	-	N	E	Meso/Neo
6	Topsoil	29	Sieve	Debitage	-	N	G	Mesolithic
7	Topsoil	29	Sieve	Debitage	-	N	E	Meso/Neo
8	Topsoil	32	Sieve	Microlith	-	N	G	Mesolithic
9	Topsoil	35	Sieve	Debitage	-	N	G	Mesolithic
10	Topsoil	35	Sieve	Notch	-	Y	E	Meso/Neo
11	Topsoil	38	Sieve	Debitage	-	Y	H	Mesolithic
12	Topsoil	38	Sieve	Natural	-	N	I	N/A
13	Topsoil	47	Sieve	Debitage	-	N	G	Mesolithic
14	Topsoil	47	Sieve	Blade	-	N	G	Meso/Neo
15	Topsoil	38423,37952	WB	Backed Blade	-	N	A	Meso/Neo
16	Topsoil	Site 8	WB	Natural	-	N	B	N/A
17	Topsoil	Site 8	WB	Natural	-	N	C	N/A
18	Topsoil	Site 8	WB	Natural	-	N	D	N/A

6.14. Flints 1 to 14 were all recovered during the topsoil sieving exercise carried out on the sandbank, Area four, located to the south of Brook Lane at grid reference

383715,378611. Flints 15 to 18 were recovered during the watching brief phase of works on the topsoil stripping on site. Of the four recovered during the watching brief 3 were also found at the location of the sandbank noted above, however a single flint (15) was recovered further north within Area one, at grid reference 384231,379521, to the south of the Merlin Roundabout.

6.15. Flints 1, 12, 16, 17 and 18 have all been identified as natural flint items that have been imported onto the site in the past. They show no signs of working, with evidence on flints 16, 17 and 18 to indicate fluvial transit as a means of transport to the site.

6.16. WORKED FLINT

AREA 1

6.16.1. Flint 15 was recovered during the watching brief at grid reference 384231,379527, Area 1, to the south of the Merlin Roundabout. The tool was of material A and took the form of a backed blade. The item had a smooth ventral face with a clear bulb of percussion. The cortex was still present on the 'back' of the blade, on the right edge of the dorsal face.

6.16.2. Tools of this type are present from the Mesolithic into the Neolithic periods. However, in Cheshire these tools are more often associated with Mesolithic scatters (GARNER ET AL 1994).

6.16.3. Due to the isolated nature of the find it is likely that this is a discarded tool and is not part of a wider assemblage or tool working site. As the area has undergone ploughing within the 20th century it is possible that this has brought the tool to the surface from a lower deposit.

AREA 4

6.16.4. Flints 2 and 3, recovered from sample six during topsoil sieving (FIGURE 3), were identified as fragments of a single flint tool. The flint was of material G and had evidence of negative scarring on the dorsal face with some evidence of pressure flaking and retouch at the proximal end. This flint took the form of a broad blade. This form is known to have been in use during the Mesolithic period.

6.16.5. Flint 8 was recovered from sample 32 during the phase of topsoil sieving noted above. The item was of material G and could be seen to be a microlith. Negative scarring on the dorsal face indicate that this item came from a pre worked core. Flint tools of this nature appear to be restricted to the Mesolithic period in this area.

6.16.6. Flint 10, recovered from sample 35 during topsoil sieving, was of material E and could be seen to be the broken fragment of a notched tool. A hinge fracture along the right edge marks the location of the break. The tool would have been larger when in use. The notch, located at the proximal end of the left edge can be seen represented by a curved section of retouch.

6.16.7. Tools of this form date from the Mesolithic into the Neolithic and early Bronze Age. Taking the assemblage as a whole, it is likely that this item dates to the Mesolithic period. The broken nature may indicate that this is a discarded piece.

6.16.8. Flint 14, recovered from sample 47 during topsoil sieving, was of material G. This item was a fragment of a blade tool. The hinge fracture towards the proximal end marks one break. A rough fracture at the distal end marks a second break. The absence of retouch or further working may indicate that this was either a failed tool or broke during use due to imperfections in the flint.

6.16.9. It is thought that this tool may also date to the Mesolithic period due to the nature of the material, similar to other tools within the assemblage, and form.

6.17. DEBITAGE

6.17.1. A series of six flint items were recovered from a number of samples during the topsoil sieving phase of work. The materials identified within the debitage included E, G and H.

6.17.2. This selection indicates that flint tools were being worked at the site as these form waste from tool production. The spread of materials indicate that not all of the tools worked on the site were recovered during this piece of fieldwork.

6.17.3. Material G being present within the debitage as well as within the worked tools ties the debitage and tool assemblage together to an extent. This can help date the debitage, by association, to the Mesolithic.

6.17.4. The absence of tools of materials G and H could be due to the nature of the fieldwork, watching brief in discrete areas and sample sieving of a small area. This could also be explained by the value placed on flint tools. Tools would have been carried with people and as such the tools produced on the site could have been removed in the past.

6.18. SUMMARY

6.18.1. The nature of the assemblage indicates that it is of a Mesolithic date including evidence for tools as well as tool production.

6.18.2. There is clearly a single spread of flint forming a defined assemblage at the sandbank to the south of Brook Lane, in area four. This is made up of blades a notch and a microlith.

6.18.3. Much of this is also from a single material type, G, which is also represented by debitage. The combination of both tool and debitage indicates that the site was used for tool production as a discrete event.

6.18.4. The use of a sandbank overlooking lower ground has been identified as the preferred ground for producing assemblages of this type in this area of Cheshire (GARNER ET AL 1994). This supports the need for work such as topsoil sieving on sample areas of large scale project such as this.

6.18.5. From this assemblage it can be said that Mesolithic activity was present on the site, within area four. The isolated flint found to the south of the Merlin Roundabout, Flint 15, appears to be a spurious find not associated with the main assemblage from area four. However it is likely that it also dates to the Mesolithic period.

6.18.6. At present no further work is advised for this assemblage at this time. The assemblage will form part of the main archive submitted as part of the project and as such will be available for further study in the future if so required.

7. Summary & Conclusions

7.1. This document considers the archaeological watching brief carried out at the site of the new A34 Alderley Edge Bypass (Beginning SJ 8430 7961 to SJ 8420 7525).

7.2. The archaeological works consisted of the machine topsoil stripping of the site. Along with the hand sieving of 50, ten litre samples from the east of Area 4 and a core sample being taken from the peat deposit.

7.3. Historic research and previous archaeological work showed that the site lay within an area of long term/historical agricultural activity.

7.4. Prior to the works topsoil testing and a single core sample were taken within area 4. The toposil testing was carried out on a prominent sandbank. A total of 18 pieces of flint were recovered from the site, 13 of which have been identified as tools or debitage. It has been suggested that each of the flint tools date to the Mesolithic period.

7.5. The core sample (taken and analysed by Birmingham Archaeo-Environmental) produced results relating to the build up of peat on the site. The core produced a vegetation record covering part of the Late-glacial Interstadial and the early Holocene. For more detailed information regarding these results please refer to the complete report by Birmingham Archaeo-Environmental reproduced in **APPENDIX 3**.

7.6. During the watching brief phase of the works the toposil was stripped across the site to a maximum depth of 0.5m. The stratigraphy on site mainly comprised topsoil overlaying subsoil. Three features were identified.

7.7. The features recorded on the site consisted of a large area of natural peat within Area 4. A Post Medieval parish boundary ditch within Area 5, and filled in Post Medieval pond seen in Area 6. No features pre-dating the Post Medieval period were recorded.

FIGURES

FIGURE 1 // Site Location

Scale 1:15,000 @ A4

0 500m

PROJECT // 0794C - A34 Bypass

DESCRIPTION // Site location

DOC REF: LP0794C-AMR-v1

L-P:ARCHÆOLOGY

FIGURE 2 // Map Showing Monitored Areas

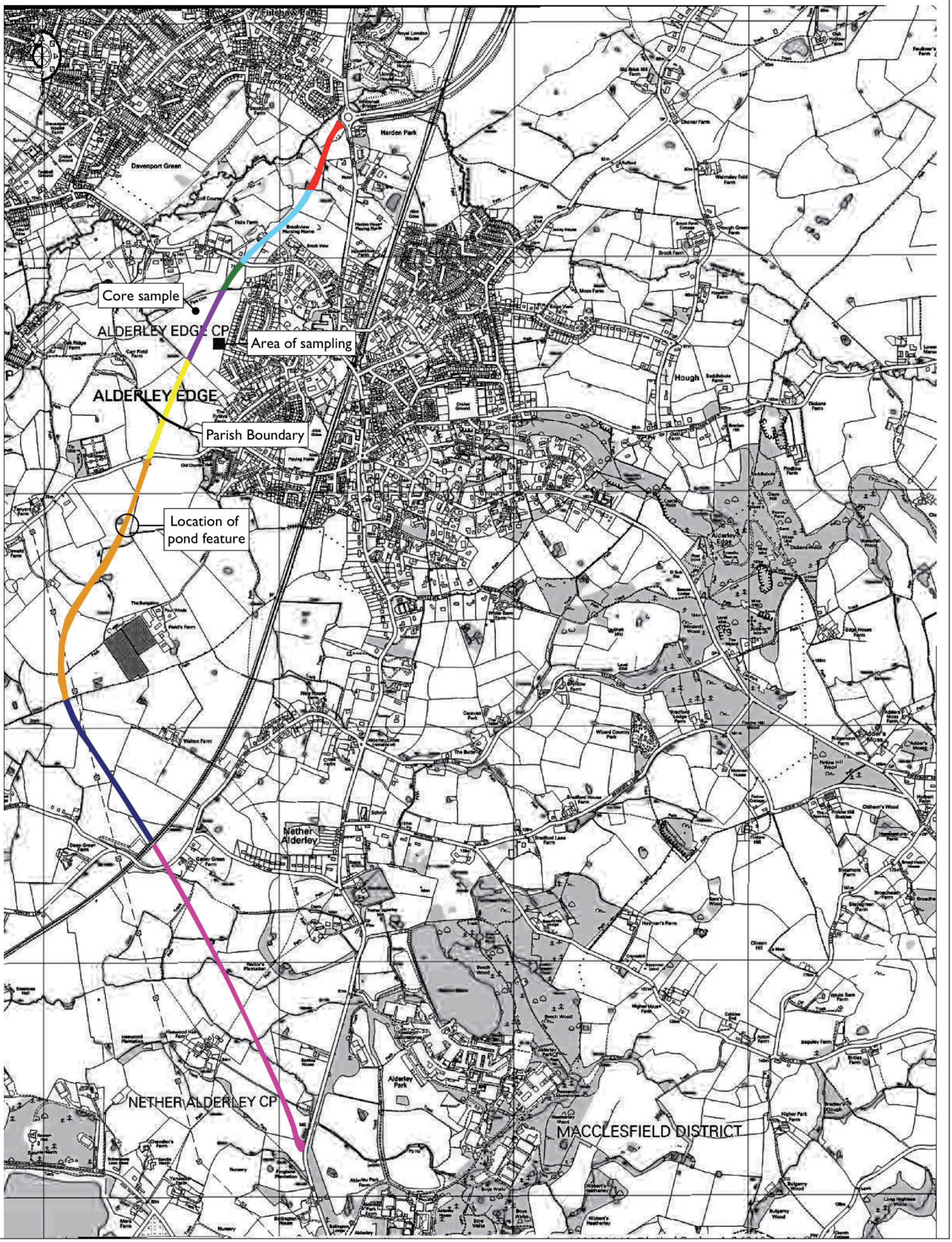
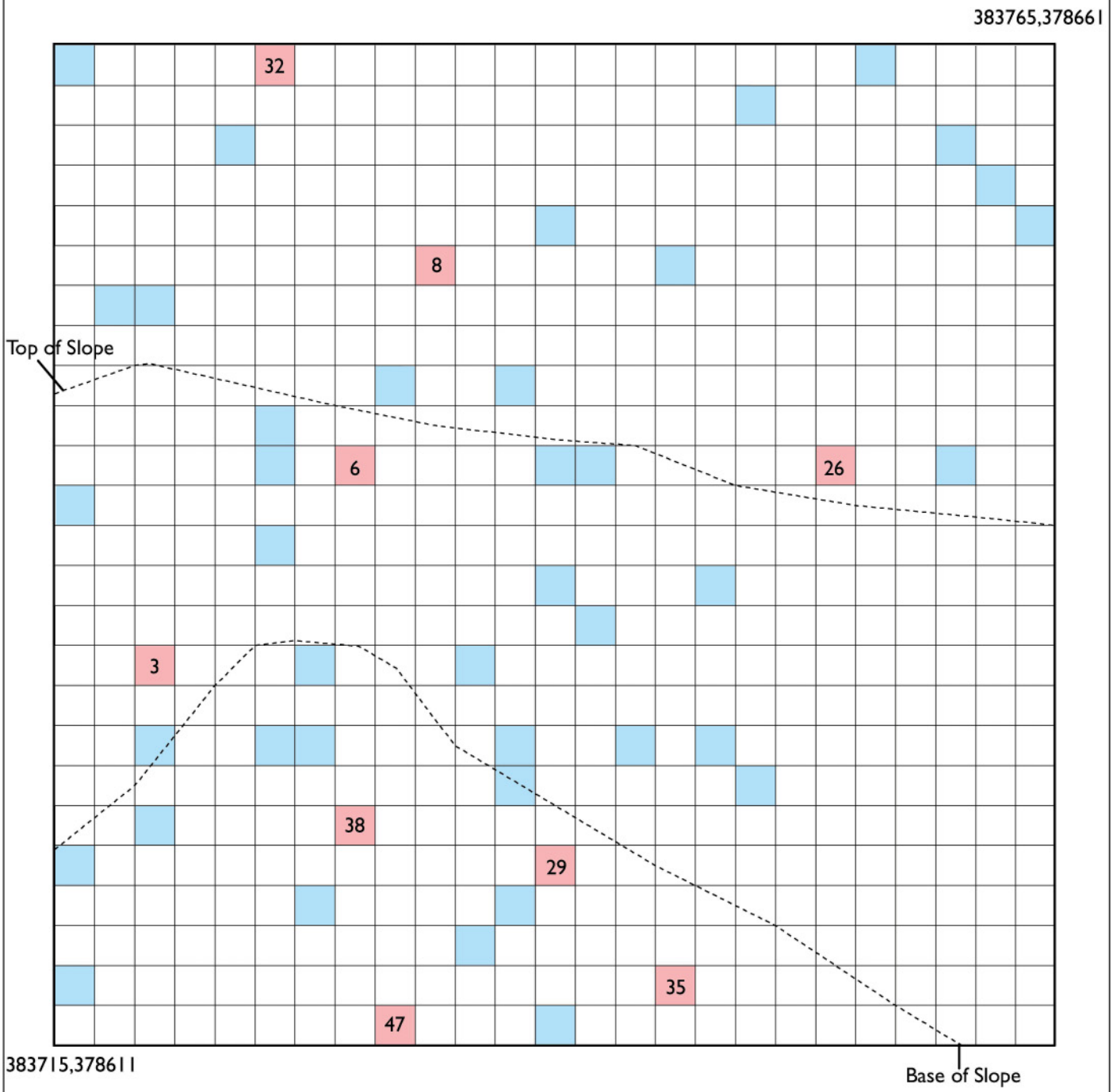


FIGURE 3 // Grid Showing Sieving Areas



Scale 1:300 @ A4

Positive sample

Negative sample

0 10m

N

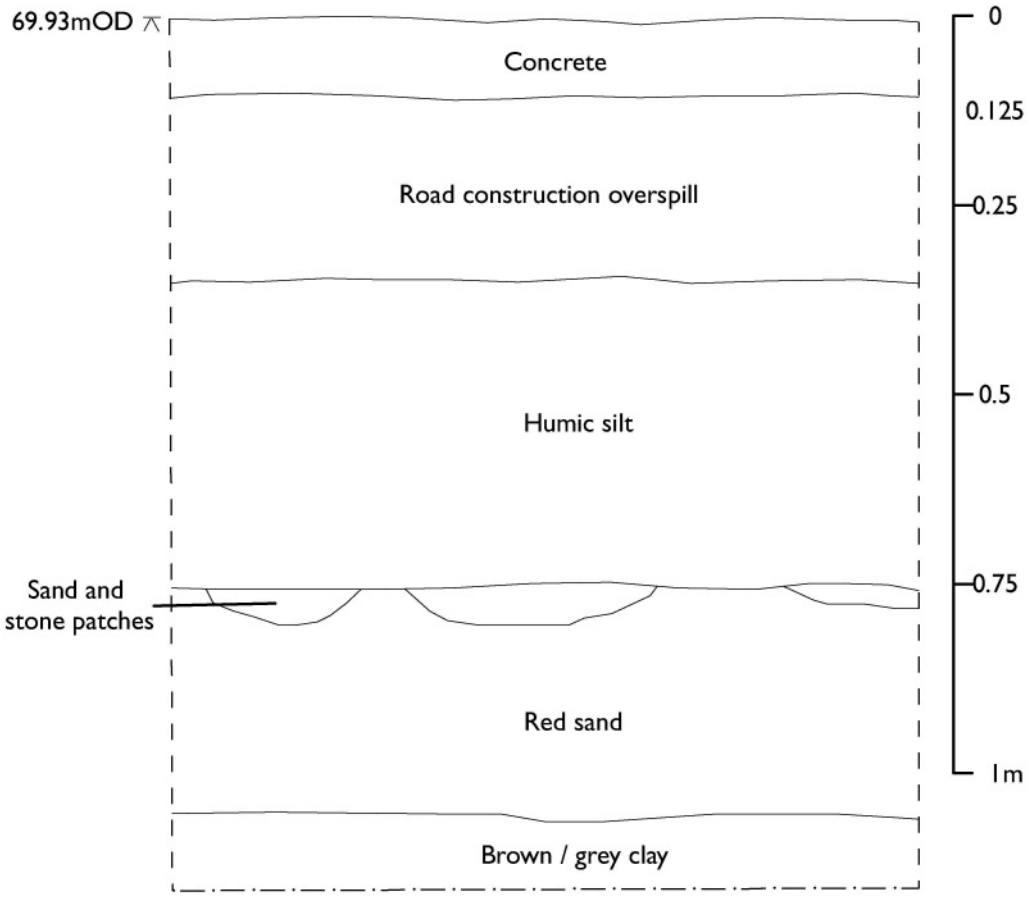
PROJECT // 0794C - A34 Bypass

DESCRIPTION // Grid showing random seiving areas

DOC REF: LP0794C-AMR-v1

L-P:ARCHÆOLOGY

FIGURE 4 // Area 3 Section



Scale 1:10 @ A4

PROJECT // 0794C - A34 Bypass

DESCRIPTION // South facing section of Area 3

DOC REF: LP0794C-AMR-v1

L-P:ARCHÆOLOGY

SOURCES CONSULTED

APPENDIX 1

BIBLIOGRAPHIC

ANDREFSKY, W. 1998. *Lithics: Macroscopic approaches to analysis*, Cambridge: Cambridge University Press

BALLIN, T.B. 2000. "Classification & description of lithic artefacts: a discussion of the basic terminology", *Lithics* **21**

COX, E.W. 1893. "Flints found in Wirral", *Journal of the Architectural, Archaeological and Historic Society for the County and the City of Chester and North Wales* **VOL V, PT I**

CROSBY, A. 1996. *A History of Cheshire*. Chichester: Phillimore

DYER, J. 1997. *Ancient Britain*. London: Routledge

ENGLISH HERITAGE, 2001. *Managing Lithic Scatters*

GARNER, A. PRAG, J. & HOUSLEY, R. 1994. "The Alderley Edge Shovel, an Epic in three acts," *Current Archaeology* **137**, 172-175

GIBSON, A. 2006. "Excavations at a Neolithic Enclosure at Lower Luggy, near Welshpool", *Proceedings of the Prehistoric Society* **72**

HOSFIELD, R.T. & CHAMBERS, J.C. 2003. "Flake modifications during Fluvial Transportation: Three cautionary tales", *Lithics* **24**

INSTITUTE OF FIELD ARCHAEOLOGISTS, 2001. *Standards and Guidance for the collection, documentation, conservation and research of archaeological materials*

LANCASTER UNIVERSITY ARCHAEOLOGY UNIT, 1995a. *Alderley Edge Bypass: archaeological assessment*. Unpublished archive report for Lancaster University Archaeological Unit, Lancaster

LANCASTER UNIVERSITY ARCHAEOLOGY UNIT, 1995b. *Alderley Edge Bypass: archaeological assessment recommendations*. Unpublished archive report for Lancaster University Archaeological Unit, Lancaster

LANCASTER UNIVERSITY ARCHAEOLOGY UNIT, 1998. *Alderley Edge Bypass: archaeological assessment report*. Unpublished archive report for Lancaster University Archaeological Unit, Lancaster

LANCASTER UNIVERSITY ARCHAEOLOGY UNIT, 2001. *Alderley Edge Bypass: archaeological assessment review*. Unpublished archive report for Lancaster University Archaeological Unit, Lancaster

LAWSON, P.H. 1956. "Worked Flints from Hoole", *Journal of the Chester and North Wales Architectural Archaeological and Historic Society* **43**

LORD, JW. 1993. *The Nature and Subsequent Uses of Flint*, John Lord

MALONE, C. 2001. *Neolithic Britain and Ireland*, Stroud: Tempus

MATTHEWS, K.J. QUINNEY, P.S. & SINCLAIRE, A.G.M. 1997. "Prehistory in the park", *Past Uncovered Winter 1997*

MORGAN V & MORGAN P, 2004. *20 Prehistoric Chshire*. Landmark Publishing Ltd, Ashbourne

OWEN P, 2003. *A34 Alderley Edge & Nether Alderley Bypass: Report on an archaeological evaluation.*

Unpublished archive report for Gifford and Parnters, Chester

PEVSNER, N & HUBBARD, E, 2003. *The Buildings of England Cheshire*. Yale University Press, London

POOLE, B, 2008. *Written Scheme of Investigation for land at A34 Alderley Edge Bypass*. Unpublished archive report for L – P : Archaeology

ROEDER C & GRAVES F S, 1902. "Recent Archaeological Discoveries at Alderley Edge" in *The Transactions of Lancashire and Cheshire Antiquaries Society*, **Vol 23**

SCHOLES, R, 1999. *Towns & Villages of Britain*. Cheshire. Sigma Lesuire, Wilmslow

STANLEY, L D, 1843. *Alderley Edge and its Neighbourhood*. Swinnerton, Macclesfield

TIMBERLAKE, S. & PRAG, J. 2005. *The Archaeology of Alderley Edge*, John & Erica Hedges Ltd, Oxford

TOWNSHIP PACK 36, 1993. *Nether Alderley*. Cheshire Libraries and Archives, Chester

VARLEY, W J, 1964. *Cheshire Before the Romans*. Cheshire Community Council, Chester

WADDINGTON, C. 2004. *The Joy of Flint*, Newcastle-upon-Tyne: Museum of Antiquities

CARTOGRAPHIC

BRAUN & HOGENBERG. 1581. *Plan of Chester*

SPEED. 1610. *Plan of Chester*

LAVAUX. 1745. *Plan of Chester*

HUNTER. 1789. *Plan of Chester*

STOCKDALE. 1796. *Plan of Chester*

COLE. 1805. *Plan of Chester*

NEELE. 1809. *Plan of Chester*

BATENHAM. 1821. *Plan of Chester*

COLE. 1836. *Plan of Chester*

THOMAS. 1853. *Plan of Chester*

ORDNANCE SURVEY. 1872. 1:25" *map of Chester*

ORDNANCE SURVEY. 1911. 1:25" *map of Chester*

ORDNANCE SURVEY. 1960. 1:5,000 *map of Chester*

ORDNANCE SURVEY. 2006. 1:5,000 *map of Chester*

FLINT ASSEMBLAGE

APPENDIX 2

Flint Assemblage

Flint	Context	Sample	Recovered	Form	Conjoin	Retouch	Bulb	Cortex	Material	Dimensions (mm)	Date
1	Topsoil	3	Sieve	Naturally struck	-	N	N	N	F	13.1x11.6x6	N/A
2	Topsoil	6	Sieve	Broad Blade	3	Y	N	N	G	15.6x6.7x4.8	Mesolithic
3	Topsoil	6	Sieve	Broad Blade	2	Y	N	N	G	14.1x10.1x4.8	Mesolithic
4	Topsoil	8	Sieve	Debitage	-	N	N	Y	E	19.4x14.6x10.8	Mesolithic/Neolithic
5	Topsoil	26	Sieve	Debitage	-	N	Y	Y	E	25.6x27.3x9.9	Mesolithic/Neolithic
6	Topsoil	29	Sieve	Debitage	-	N	N	N	G	107x8.9x3.8	Mesolithic
7	Topsoil	29	Sieve	Debitage	-	N	Y	N	E	16.7x9.3x5.0	Mesolithic/Neolithic
8	Topsoil	32	Sieve	Microlith	-	N	N	N	G	16.3x9.2x3	Mesolithic
9	Topsoil	35	Sieve	Debitage	-	N	N	N	G	14.2x5.8x3.8	Mesolithic
10	Topsoil	35	Sieve	Notch	-	Y	N	N	E	30.7x4.4x6.6	Mesolithic/Neolithic
11	Topsoil	38	Sieve	Debitage	-	Y	N	N	H	12.8x7x1.5	Mesolithic
12	Topsoil	38	Sieve	Naturally struck	-	N	N	N	I	21.2x15.6x6.2	N/A
13	Topsoil	47	Sieve	Debitage	-	N	N	N	G	10.5x12.8x1.5	Mesolithic
14	Topsoil	47	Sieve	Blade	-	N	N	N	G	16.5x14.1x5.9	Mesolithic/Neolithic
15	Topsoil	384231,379527	Watching Brief	Backed blade	-	N	Y	Y	A	33.7x19.9x7.2	Mesolithic/Neolithic
16	Topsoil	Site 8	Watching Brief	Naturally struck	-	N	N	Y	B	31.9x20.3x8.5	N/A
17	Topsoil	Site 8	Watching Brief	Naturally struck	-	N	N	N	C	25.5x19.4x8.7	N/A
18	Topsoil	Site 8	Watching Brief	Naturally struck	-	N	N	Y	D	37.1x12.8x12.1	N/A

Dimensions recorded as:

Length *Between proximal & Distal ends*

Width *Between left & right edges*

Thickness *Between Dorsal & Ventral faces*

Material

Materials	Flint colour	Flint Texture	Cortex Colour	Cortex Texture
A	Light brown	Soapy	Cream/Brown	Chalky
B	Light brown	Smooth	White	Chalky
C	White	Smooth	White	Smooth
D	Grey	Soapy	Dark grey	Rough
E	Dark grey	Soapy	Cream	Chalky
F	Laminated blue/blac	Smooth	None	N/A
G	Bright brown	Smooth	None	N/A
H	Light brown/cream	Smooth	None	N/A
I	Light grey	Coarse	None	N/A

Material spread by form

Form	A	B	C	D	E	F	G	H	I
Natrual		x	x	x		x			x
Blade							x		
Backed Blade	x								
Broad Blade							xx		
Debitage							xxx		
Notch					x				
Microlith							x	x	

Dating

Flint	Form	Date	Description
1	Naturally struck	N/A	Small fragment of flint with multiple fractures. This appears to be a naturally struck flint.
2	Broad Blade	Mesolithic	Both 2 and 3 form a single broad blade tool. Retouch is present at the proximal end and on both left and right sides. Multiple scars on dorsal face indicate previous flaking to form the blade.. Evidence of pressure flaking on dorsal face.
3	Broad Blade	Mesolithic	See Flint 2
4	Debitage	Mesolithic/Neolithic	Fractured fragment of flint. Numerous negative scars on both dorsal and ventral faces indicate previous flaking activity from a core or fragment. Cortex present on right side.
5	Debitage	Mesolithic/Neolithic	Deliberately struck flint from a nodule.. Cortex present at proximal end on dorsal face. Negative scars on dorsal face indicate prior knapping activity. Two negative scars on ventral face indicate that this flake may have come from shaping a tool rather than straight off a core.
6	Debitage	Mesolithic	Debitage from either tool or core. Small fragment could be waste flake or fractured flint. Damage to piece restricts interpretation
7	Debitage	Mesolithic/Neolithic	Waste fragment from tool working. Bulbar scar present. Rough nature of flint towards bulb area indicates that the flake fragmented, hence waste.
8	Microlith	Mesolithic	Small fragment of microlith. Two negative scars on dorsal face clearly deliberately struck. Smooth ventral face. No bulb present. Both proximal and distal areas have been snapped off.
9	Debitage	Mesolithic	Waste flake from tool production. Multiple scarring on all faces indicate that this is a waste flake created in the production of a tool.
10	Notch	Mesolithic/Neolithic	Scratching on ventral face, potential ware on tool. Multiple flake scars on dorsal face indicate that this has come from a worked core and been shaped/ Retouch present on right side, struck from ventral face. Notch section seen at proximal end, broken at notch.
11	Debitage	Mesolithic	Fragment of microlith. Hinge fracture on distal end indicates direction as no bulb remains. The proximal end has been broken off. Single flake scar on both dorsal and ventral faces. Section of retouch remains at right edge of dorsal end.
12	Naturally struck	N/A	Small fragment of flint with multiple fractures. This appears to be a naturally struck flint.
13	Debitage	Mesolithic	Fine fragment of flint. Waste flake from tool shaping.
14	Blade	Mesolithic/Neolithic	Broken fragment of a blade. Both proximal and distal ends missing. Dual parallel negative scars on dorsal face indicate tool forming, smooth ventral face indicates flaking from a core. Form indicative of blade.
15	Backed blade	Mesolithic/Neolithic	Backed blade. Smooth ventral face with bulb of percussion visible at proximal end. Cortex present on right side. Removal of a single flake has created the tool.
16	Naturally struck	N/A	Naturally struck flint fragment. Smooth surface indicates fluvial transport.
17	Naturally struck	N/A	Naturally struck flint fragment. Smooth surface indicates fluvial transport.
18	Naturally struck	N/A	Naturally struck flint fragment. Smooth surface indicates fluvial transport.

EVIRONMENTAL REPORT

APPENDIX 3

BIRMINGHAM ARCHAEO-ENVIRONMENTAL

BAE

Palynological analyses of deposits from Alderley Edge (A34 Bypass)

By

Emma-J. Hopla and Dr Benjamin R. Gearey MIfA

LP-01-09

Palynological analyses of deposits from Alderley Edge (A34 Bypass)

By

Emma-J. Hopla and Dr Benjamin R. Gearey MIfA

October 2009

Summary

This report describes the palynological analyses and associated radiocarbon dating of a sediment core (1.5m deep) recovered from Gazeteer site 29 on the route of the A34 bypass. Radiocarbon dating indicates that the basal segment of the pollen diagram dates from c. 14,000 cal. Years Before Present (BP) to c. 13,000 cal. BP, or during the climatic amelioration of the Windermere Interstadial. Sediment accumulation began in a shallow body of water prior to a shift to peat accumulation in a fen system. The local vegetation consisted of sedges and wetland plants with birch and willow scrub and herbs typical of dry conditions and immature soils present in the wider landscape. After c. 13,000 cal. BP, pollen concentrations were significantly reduced, probably reflecting climatic deterioration and the transition to the cold conditions of the Loch Lomond Stadial. There is an hiatus in the vegetation record the early Holocene (c. 10, 000 cal. BP), when Scots pine became established on the mire surface. This tree was replaced by alder fen carr, probably around 7,500 cal. BP, with deciduous woodland consisting of lime, oak, elm and hazel also having expanded into the wider landscape by this time. There is no evidence for human activity in the pollen record. The pollen record does not extend far into the mid-Holocene with more recent sediments probably having been removed by peat cutting or agricultural improvement of the area.

KEYWORDS: Alderley Edge, pollen analyses, vegetation change, Late Glacial, Holocene

Frontplate: The sampling site looking north

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Palynological analyses of deposits from Alderley Edge (A34 Bypass)

1. INTRODUCTION

Birmingham Archaeo-Environmental were subcontracted by LP Archaeology to recover and analyse a sediment core from a site (Gazetteer 29) on the line of the A34 Alderley Edge and Nether Alderley bypass. Previous assessment of deposits at the site (Carrott 2002) had suggested that palynological analyses had the potential to provide significant palaeoenvironmental information.

2. METHODS

2.1 Field work and sampling

A sediment core 1.50m deep was recovered at site 29 (NGR SJ 83642 78798) using a standard pattern Russian corer. The cores were extruded into plastic drain pipes and the wrapped in tin foil and cling film for transport to the laboratory.

2.2 Pollen Assessment

The stratigraphy of the core (see Appendix 1) was recorded and sub-samples were extracted from the core at 0.04m intervals. Pollen preparation followed standard techniques including KOH digestion, HF treatment and acetylation (Moore *et al.*, 1991). At least 300 total land pollen grains (TLP) excluding aquatics and spores were counted for each sample. However, pollen concentrations were low in a number of samples and a full count was hence not possible. Palynomorphs were entirely absent from samples between 0.55-0.95m (see Table 1).

2.3 Radiocarbon Dating

A total of four samples (Table 2; Appendix 2) were submitted for radiocarbon dating to Beta Analytic Inc., Florida, to establish the chronology of sediment accumulation. Samples were taken from four depths which were determined on the basis of biostratigraphic changes (see below). Three bulk samples of sediment and one macrofossil sample (wood) were submitted. Each sample underwent acid/alkali/acid treatment prior to AMS dating.

3. RESULTS

3.1 Pollen Results

The results of the pollen analyses are presented as a pollen diagram (Figure 1) produced using the computer programme TILIA and TILIA*GRAPH. All percentage figures are of total land pollen (TLP) unless otherwise specified. To facilitate discussion, the diagram has been divided into four local pollen assemblage zones with the site prefix 'ALD' (Table 3). Pollen nomenclature follows Moore *et al.* (1991) with modifications suggested by Bennett *et al.* (1994).

3.2 Radiocarbon Dating

A summary of the radiocarbon dates is provided in Table 2. Radiocarbon dates were calibrated using Intcal04 (Reimer

et al., 2004). All analyses are reported as having proceeded normally.

The sequence would appear to cover the Late-Glacial Interstadial into the early Holocene. The basal date (1.39m) is 12190±60 BP (Beta-264068, cal. BC 12210-11980) and that from 1.14m is 11290±60 BP (Beta-264070, cal. BC 11320-11140). This indicates that peat accumulation began at the sampling site during the Late glacial Interstadial, with the subsequent absence of pollen from above a depth of 1.0m (ALD-2). probably corresponding to the climatic deterioration of the Loch Lomond Stadial (see below).

The pollen record recommences at c. 0.55m (ALD-3) with the date of 8590±50 BP (Beta-264071, cal. BC 7660-7550) demonstrating to an early Holocene timeframe. The uppermost date of 5730±40 BP (Beta-264069, cal. BC 4690-4470) is almost certainly too young for its associated biostratigraphic context, probably as a result of the incorporation of younger carbon via rootlet penetration (see below).

3.3 Interpretation

The basal zone (ALD-1) is bracketed by the radiocarbon dates of 12190±60 BP (1.39m, Beta-264068, cal. BC 12210-11980) and 11290±60 BP (1.14m, Beta-264070, cal. BC 11320-11140). The zone is dominated by herbaceous taxa, predominantly Poacaeae (grasses) and Cyperaceae (sedges) but with other herbs namely *Artemisia* (mugworts), *Rumex* (docks), *Thalictrum* (meadow rue) *Caltha* (marsh marigold) and *Filipendula* (meadow sweet) relatively well represented. A range of other taxa are recorded sporadically, including Apiaceae (carrot family), *Helianthemum* (rock rose), *Ranunculus* (buttercups) and *Galium*-type (cleavers). Tree/Shrub pollen is represented by *Betula* (birch) with lower values of *Salix* (willow) and *Pinus sylvestris* (Scots pine).

The basal stratigraphy (1.40-1.50m) consists of grey clayey silt indicating sediment deposition in a waterbody. Aquatic taxa including *Myriophyllum* spp. (milfoils) and *Sparganium* (bur-reeds) indicate the presence of macrophytic vegetation with lower values of *Typha latifolia* (reedmace) implying the presence of this plant. It is also probable that the Poaceae curve includes pollen from wetland grasses such as *Phragmites* (reed). Other taxa recorded were probably also associated with damper conditions. The species of *Filipendula* represented, for example, is likely to be *F. ulmaria*, which was able to colonise the fringes of the wetland, rather than *F. vulgaris* (*cf.* Day, 1995: 13), a species more common in calcareous grassland.

The only significant tree/shrub cover locally was *Betula* (birch) with perhaps some *Salix* (willow) which tends to be poorly represented palynologically. Both of these trees/shrubs may have been growing on or near to the sampling site. The range of herbs recorded in ALD-1 includes taxa typical of damper contexts (*Rumex, Caltha*, *Ranunculus*, *Potentilla*, Apiaceae) and hence probably also associated with fen vegetation in and around the incipient wetland.

Thalictrum is also recorded in ALD-1 but interpretation is hindered by of lack of knowledge of the species involved. Day (1993) regarded *T. minus* and *T. alpinum* as the most likely to be represented by this pollen type in the Late-glacial at Star Carr, with both being typical of open habitats in cold climates (Godwin

1975). Other herbs such as *Artemisia*, (mugwort) *Helianthemum* (rock-rose) indicate drier, immature soils beyond the wetland edge. The implied dryland vegetation in the wider landscape was probably therefore an 'open steppe' scrubby grassland community.

The transition from silt to humified peat at a depth of 1.28m corresponds to the disappearance of the aquatic taxa, reflecting the infilling of the shallow waterbody and a transition to a semi-terrestrial peatland system. Shortly after this point (1.16m) the pollen record is curtailed. The absence of pollen in ALD-2 can be attributed to the impact of the climatic deterioration of the Loch Lomond Stadial (see discussion) on the local vegetation. Pollen concentrations increase again around 0.55m. ALD-3 is characterised by pronounced increases in *Corylus avellana*-type (probably largely hazel) and *Pinus sylvestris* (Scots pine) shortly before the date of 8590±50 BP (Beta-264071, cal. BC 7660-7550, 9610-9500 cal. BP), indicating an early Holocene timeframe. Other trees including *Ulmus* (elm) and *Betula* (birch) are present at lower values.

Percentages of Poaceae (grasses) and Cyperaceae (sedges) are relatively low and few other herbs are recorded. This zone reflects the spread of woodland during the early Holocene, with Scots pine dominant locally, probably expanding onto the mire surface itself, leading to both an impoverished understorey and also effectively 'screening out' pollen from vegetation beyond the wetland edge. The increase in Pteropsida (ferns) indicates the presence of a damp, shady understorey. Hazel seems to have formed the major component of the woodland cover on the drier soils with elm and birch of lesser significance.

A date of 5730±40 BP (Beta-264069, cal. BC 4690-4470) is available for the ALD-3 to 4 zone boundary. However, it is probable that this date is too young for its biostratigraphic context. Although the rise in *Alnus glutinosa* (alder) which defines the opening of this zone tends to be diachronous (Bennett and Birks 1990), it is generally recorded around 7000 BP (e.g. see Leah *et al.* 1997: the 'Boreal-Atlantic' transition) in central England. The radiocarbon determination was carried out on a bulk sample of sediment and it is possible that this was 'younged' by rootlet penetration or downward movement of humic acids.

Other trees specifically *Quercus*, *Ulmus* and *Tilia* (lime) also display increases at the opening of ALD-4, whilst *Pinus* shows a marked fall and *Corylus* declines steadily. The rise in *Alnus* is generally associated with the development of colder and wetter conditions although local factors are also important in its establishment. An isolated spike in *Sphagnum* (bogmoss) at the close of ALD-3, might suggest increased mire surface wetness and acidity. Shallower watertables would have created wetter conditions suitable for the expansion of alder at the expense of Scots pine.

The final zone thus reflects the demise of Scots pine and establishment of alder fen carr on and around the sampling site and the presence of mixed lime-oak-elm-hazel woodland in the wider landscape. Lime tends to be poorly represented palynologically and percentages in ALD-4 are hence sufficient to indicate that this tree was a dominant component of the dryland forest cover. Other than Cyperaceae herbaceous taxa are very scarce; this again must reflect dense woodland with few natural openings. Sedges were probably growing locally as part

of the fen vegetation. The only other taxa to demonstrate clear increases in this zone are *Polypodium vulgare* (common poylpody) and Pteropsida. Ferns tend to flourish in shady, undisturbed woodland. The former is often found as an epiphyte in oak woodland and the concomitant rise of *Quercus* and *Polypodium* might suggest that this was the situation.

The pollen diagram terminates at some point during the earlier Holocene. Whilst the upper section of the sequence was not radiocarbon dated due to potential problems with re-worked or intrusive organic material, it can be stated from the record of *Ulmus* pollen at relatively high values to the close of the sequence that the record does not extend as far as the Elm Decline (ca. 5000 cal. BP).

4. DISCUSSION

The Alderley Edge pollen diagram covers part of the Lateglacial Interstadial period (ALD-1: Greenland Interstadial 1- GI-1 in the GRIP icecore sequence: Lowe *et al.* 2001; Walker *et al.* 1999) and the Loch Lomond Stadial (ALD-2: GS-1 of the GRIP sequence) and into the early Holocene (ALD-3 and 4). Sediment accumulation at the sampling site began shortly before 12190±60 BP (1.39m, Beta-264068, cal. BC 12210-11980, 14160-13930 cal. BP), or perhaps just after the thermal maximum of the Lateglacial Interstadial (Walker *et al.* 2003).

Sediment accumulation appears to have commenced in a shallow pool, with fen vegetation developing on and around the site. It is possible that a severe water deficit during the earlier part of the Interstadial (e.g. Hughes *et al.* 2000) inhibited The implied vegetation is typical of Late-glacial Interstadial sequences (e.g. Gearey, 2009; Walker *et al.*, 1994; Beckett, 1981; Day, 1996), with birch-willow scrub and fen vegetation associated with the wetland and open grassland including herbs typical of disturbed, unstable soils in the wider landscape.

Walker *et al.* (2003) dated the period of maximum birch woodland cover at Llanilid, Wales to between 13,600-13,200 years BP. *Betula* was apparently already established locally from the opening of ALD-1, although it is unclear whether this was the tree or shrub form or both. Hughes *et al.* (2000) found macrofossil evidence for both the tree and shrub forms during this period at Church Moss, Davenham.

Pollen concentrations fall significantly in the sub-samples above the radiocarbon date of 11290±60 BP (Beta-264070, cal. BC 11320-11140, 13270-13090 cal. BP) and hence a vegetation record is not available after this point. It is very likely that the absence of pollen reflects the transition to the cold conditions of the Loch Lomond Stadial and the subsequent impact on vegetation biomass and pollen production. There is evidence from elsewhere in the British Isles for dry conditions during the Loch Lomond Stadial especially in upland areas (e.g. Walker 1995) but also in the lowlands, for example, with widespread cover sand deposition during this period in North Lincolnshire and the Vale of York in east England (Bateman and Buckland 2001). However, despite the absence of countable pollen concentrations, peat appears to have continued to accumulate indicating that locally at least, drought conditions cannot have been too severe.

The subsequent rise in pollen concentrations during ALD-3 indicates the climatic amelioration of the Holocene with Scots pine woodland established on or very close to the sampling site by c. 9500 cal. BP. The Holocene pollen record is dominated by the on- and near sampling site vegetation, Scots Pine (ALD-3) and then alder (ALD-4), with the replacement of the former by the latter attributable to changing edaphic conditions associated with autogenic (e.g. peatland expansion) and/or allogenic (e.g. climatic) factors. By the time alder had expanded onto the wetland, mixed woodland had become established in the wider landscape. Establishing the precise structure of the vegetation is not possible using the current data.

There is no evidence in the pollen diagram for the presence or impact of human communities on the vegetation, as has been suggested for the earlier Holocene elsewhere in Cheshire (e.g. see Leah *at al*. 1997). The highly localised nature of the pollen record at this site means that any small scale anthropogenic disturbance to the local environment would not be clearly resolved.

5. CONCLUSIONS

Palynological analyses and associated radiocarbon dating of the Alderley Edge sediment core has produced a vegetation record covering part of the Late-glacial Interstadial and the early Holocene. The absence of pollen in the central segment of the core has been attributed to the impact of the Loch Lomond stadial The pollen record does not extend far into the mid Holocene. Later deposits have evidently been removed, presumably by peat cutting/wastage or the effects of agriculture. No further analyses are recommended on this material. Any further exposures in this area revealed during ground works at the site should be recorded and sampled for future assessment and analyses.

6. ARCHIVE

All remaining samples and pollen sub-sample residues and paper records pertaining to this work are stored at BA-E.

REFERENCES

Bateman, M.D. and Buckland, P.C. (2001). Late Quaternary record beyond the icesheets. In: Bateman, M.D. Buckland, P.C. Friedrick, C. and Whitehouse, N.J. (eds) *The Quaternary of East Yorkshire and North Lincolnshire*. Field Guide, Quaternary Research Association, London, 13-21

Beckett, S.C. (1981). Pollen diagrams from Holderness, North Humberside. *Journal of Biogeography* 8, 177-198.

Bennett, K.D. and Birks, H.J.B. (1990) Postglacial history of Alder (*Alnus glutinosa* L.) in the British Isles. *Journal of Quaternary Science* 5, 123-133.

Bennett, K.D., Whittington, G. & Edwards, K.J. (1994) *Recent plant nomenclature changes and pollen morphology in the British Isles*. Quaternary Newsletter 73, 1-6.

Carrott, J. (2002) Evaluation of the preservation of biological remains from deposits sampled by coring at Gazeteer sites 9 and 29 as part of the Alderley Edge and Nether Alderley bypass archaeological works, Cheshire. PRS Report 2002/48.

Day, P. (1993). Preliminary results of high resolution palaeoecological analyses at Star Carr, Yorkshire. *Cambridge Archaeological Journal* 3, 129-133.

Day, P. (1996). Devensian Lateglacial and early Flandrian environmental history of the Vale of Pickering, Yorkshire, England. *Journal of Quaternary Science* 11, 9-24.

Gearey, B. R. (2008). Lateglacial vegetation change in East Yorkshire: a radiocarbon dated pollen sequence from Routh Quarry Beverley. *Proceedings of the Yorkshire Geological Society* 57, 2, 113-122.

Godwin, H. (1975) *History of the British Flora.* Cambridge: University Press.

Hughes, P. D. M. Kenward, H. K., Hall, A. R. and Large, F. D. (2000). A high-resolution record of mire development and climatic change spanning the Late glacial-Holocene boundary at Church Moss, Davenham (Cheshire, England). *Journal of Quaternary Science* 15**,** 697-724.

Leah, M.D., Wells, C.E., Appleby, C. and Huckerby, E. (1997) *The Wetlands of Cheshire*. Lancaster: Lancaster Imprints.

Lowe, J.J., Hoek, W.Z. and INTIMATE Group (2001). Inter-regional correlation of palaeoclimatic records for the last Glacial-Interglacial transition: a protocol for improved precision recommended by the INTIMATE project group. *Quaternary Science Reviews* 20, 1175-1187.

Moore, P.D., Webb, J.A. and Collinson, M.E. (1991) *Pollen Analysis*. London: Blackwell.

Reimer, Paula J., Baillie, Mike G.L., Bard, Edouard, Bayliss, Alex, Beck, J Warren, Bertrand, Chanda J.H., Blackwell, Paul G., Buck, Caitlin E., Burr, George S., Cutler, Kirsten B., Damon, Paul E., Edwards, R Lawrence, Fairbanks, Richard G., Friedrich, Michael, Guilderson, Thomas P., Hogg, Alan G., Hughen, Konrad A., Kromer, Bernd, McCormac, Gerry, Manning, Sturt, Ramsey, Christopher Bronk, Reimer, Ron W., Remmele, Sabine, Southon, John R., Stuiver, Minze, Talamo, Sahra, Taylor, F.W., van der Plicht, Johannes, Weyhenmeyer, Constanze E. (2004) IntCal04 *Terrestrial Radiocarbon Calibration 0-26 Cal Kyr BP*. Radiocarbon 46, 3, 1029-1058.

Walker, M.J.C. (1995). Climatic changes in Europe during the last glacial-interglacial transition. *Quaternary International* 28, 63-76.

Walker, M.J.C. Bohncke, S.J.P, Coope, G.R. O'Connell, M. Usinger, H. and Verbruggen, C. (1994). The Devensian/Weichselian Lateglacial in North-west Europe (Ireland, Britain, North Belgium, the Netherlands, North-west Germany). *Journal of Quaternary Science* 9, 109-118.

Walker, M.J.C. Bjorck, S. Lowe, J.J. Cwynar, L.C. Johnsen, S. Knudsen, K.-L. and Wohlfarth, B. INTIMATE Group (1999). Isotopic 'events' in the GRIP ice core: a stratotype for the Late Pleistocene. *Quaternary Science Reviews,* 18, 1143-1150.

Walker, M.J.C. Coope, G.R. Sheldrick, C. Turney, C.S.M. Lowe, J.J. Blockley, S.P.E. and Harkness, D.D. (2003). Devensian Lateglacial environmental changes in Britain: a multi-proxy environmental record from Llanilid, South Wales, UK. *Quaternary Science Reviews* 22, 475-520.

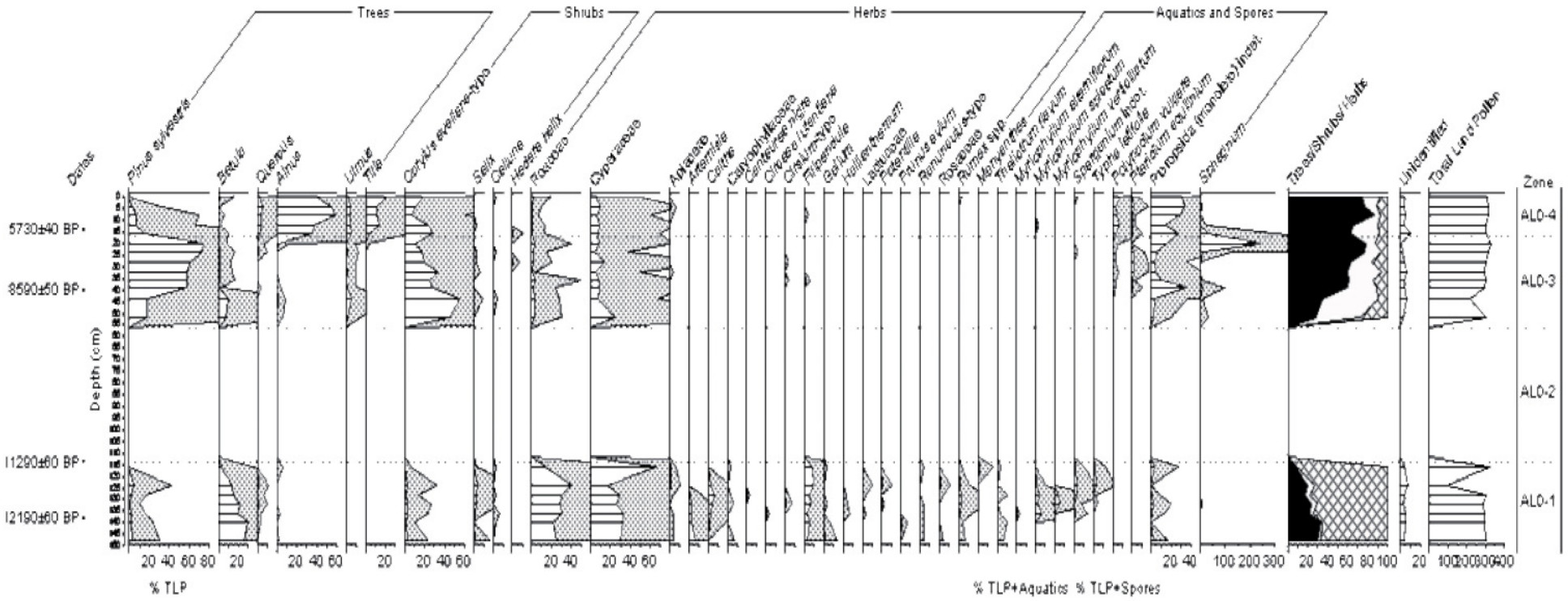


Figure 1: Alderley Edge Percentage Pollen Diagram. Shading = exaggeration x 10

Depth/m	Preservation	Concentration	TLP	Comments
0	Good (4)	Good (4)	300+	
0.04	Good (4)	Medium-Good (3/4)	300+	
0.08m	Medium (3)	Good (4)	300+	
0.12m	Medium (3)	Low-Medium (2/3)	300+	
0.16m	Low-Medium (2/3)	Medium (3)	300+	
0.20m	Good (4)	Good (4)	300+	
0.24m	Good (4)	Good (4)	300+	
0.28m	Good (4)	Medium (3)	300+	
0.32m	Medium (3)	Medium-Good (3/4)	300+	
0.36m	Good (4)	Medium (3)	300+	
0.39m	Medium (3)	Low (2)	300+	Count from 2 slides
0.44m	Medium (3)	Low-Medium (2/3)	222	Count from 2 slides
0.48m	Very Low (1)	Very Low (1)	5	Too low for pollen count
0.52m	Good (4)	Good (4)	300+	
0.56m	Very Low (1)	Very Low (1)	6	Too low for pollen count
0.60m	Very Low (1)	Very Low (1)	4	Too low for pollen count
0.64m	Very Low (1)	Very Low (1)	-	
0.68m	Absent (0)	Absent (0)	-	No pollen
0.72m	Absent (0)	Absent (0)	-	No pollen
0.76m	Absent (0)	Absent (0)	-	No pollen
0.80m	Absent (0)	Absent (0)	-	No pollen
0.84m	Very Low (1)	Very Low (1)	3	Too low for pollen count
0.88m	Very Low (1)	Very Low (1)	1	Too low for pollen count
0.92m	Absent (0)	Absent (0)	-	No Pollen
0.96m	Medium (3)	Very Low (1)	12	Too low for pollen count
1.00m	Medium (3)	Low-Medium (2/3)	300+	2 slides to obtain full count
1.04m	Very Low (1)	Very Low (1)	2	Too low for pollen count
1.08m	Very Low (1)	Very Low (1)	4	Too low for pollen count
1.12m	Very Low (1)	Very Low(1)	2	Too low for pollen count
1.16m	Medium (3)	Low-Medium (2/3)	300+	
1.20m	Very Low (1)	Very Low (1)	-	
1.24m	Medium (3)	Low (2)	94	Too low for full analysis
1.28m	Good (4)	Medium-Good (3/4)	300+	
1.32m	Medium (3)	Low-Medium (2/3)	300	2 slides to obtain full count
1.36m	Medium (3)	Low (2)	300+	2 slides to obtain full count
1.40m	Good (4)	Medium-Good (3/4)	300+	
1.44m	Medium (3)	Low (2)	24	Too low for pollen count
1.48m	Medium (3)	Low-Medium (2/3)	300+	2 slides to obtain full count

Table 1. Pollen samples from the Alderely Edge core. TLP=total land pollen.

Sample depth/m	Code	Sample	Sample pre-treatment	13C/12C Ratio o/oo	Conventional radiocarbon age BP	Calibrated range BC/AD (2 sigma - 95% confidence)
0.14-0.18	Beta-264069	peat	acid/alkali/acid	-27.7	5730±40	Cal. BC 4690-4470
0.40-0.42	Beta-264071	wood	acid/alkali/acid	-25.9	8590±50	Cal. BC 7660-7550
1.14-1.16	Beta-264070	peat	acid/alkali/acid	-34.5	11290±60	Cal. BC 11320-11140
1.39-1.42	Beta-264068	organic silt	acid/alkali/acid	-27.6	12190±60	Cal. BC 12210-11980

Table 2: Results of radiocarbon dating of the Alderley Edge core

Depth/Zone	Dates	Description of main features
150-114cm ALD-1	139-142cm 12190±60BP 114-116cm 11290±60BP	Cyperaceae-Poaceae-*Betula-Filipendula* Herbs dominate this zone with values over 65% at the base increasing to over 90% at the top. Cyperaceae (up to 40%) and Poaceae (up to 40%) dominate with *Filipendula* accounting for up to 10%. All other herbs are recorded at low values. Trees and shrubs are dominated by Betula up to 30% with *Pinus, Quercus, Alnus, Corylus* and *Salix* present at trace values.
114-56cm ALD-2		Pollen absent (see Table 1)
56-17cm ALD-3	40-42cm 8590±50BP	*Pinus sylvestris-Corylus*-Cyperaceae Tree and Shrub pollen dominates this zone up to 90%, the bulk of which consists of *Pinus* (climbing from 20% at the base to 70% at the top) and *Corylus* (up to 50% at the base and 15% at the top). Other trees include *Betula, Ulmus* with *Quercus* and *Alnus* at trace values. Herbaceous pollen is dominated by Cyperaceae (up to 20%). Poaceae has fallen to values <10% and all other herbs are absent apart from occasional grains of *Cirsium* and *Filipendula.*
17-0cm ALD-4	14-18cm 5730±40BP	*Alnus-Corylus-Tilia*-Cyperaceae Tree and shrub pollen continues to dominate with values over 90%. *Alnus* accounts for up to 55% with *Corylus* (up to 30%) and *Tilia* (up to 20%). Other trees include *Betula, Quercus* and *Ulmus*. Cyperaceae is recorded up to 10%. Poaceae and *Filipendula* are present at trace values but all other herbs are absent.

Table 3: Summary of Alderley Edge vegetational changes in each zone. All values are % TLP (Total Land Pollen)

APPENDIX I

Core Stratigraphy (Troels Smith system)

0-1.28m	Nig	Strf	El	Sicc	UB
	4	0	0	2	-
	Sh3 Th1 Dg+ Dl+				
	Dark brown well humified peat with monocot remains and occasional wood fragments				
1.28-1.40m	Nig	Strf	El	Sicc	UB
	2	0	0	2	1
	Sh2 Ag2 Dg+				
	Light grey peaty silt				
1.40-1.50m	Nig	Strf	El	Sicc	UB
	2	0	0	2	1
	Ag3, As1, Sh+				
	Light grey clayey silt				

APPENDIX II

AMS Radiocarbon Date Certificates

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-27.6:lab. mult=1)

Laboratory number: **Beta-264068**

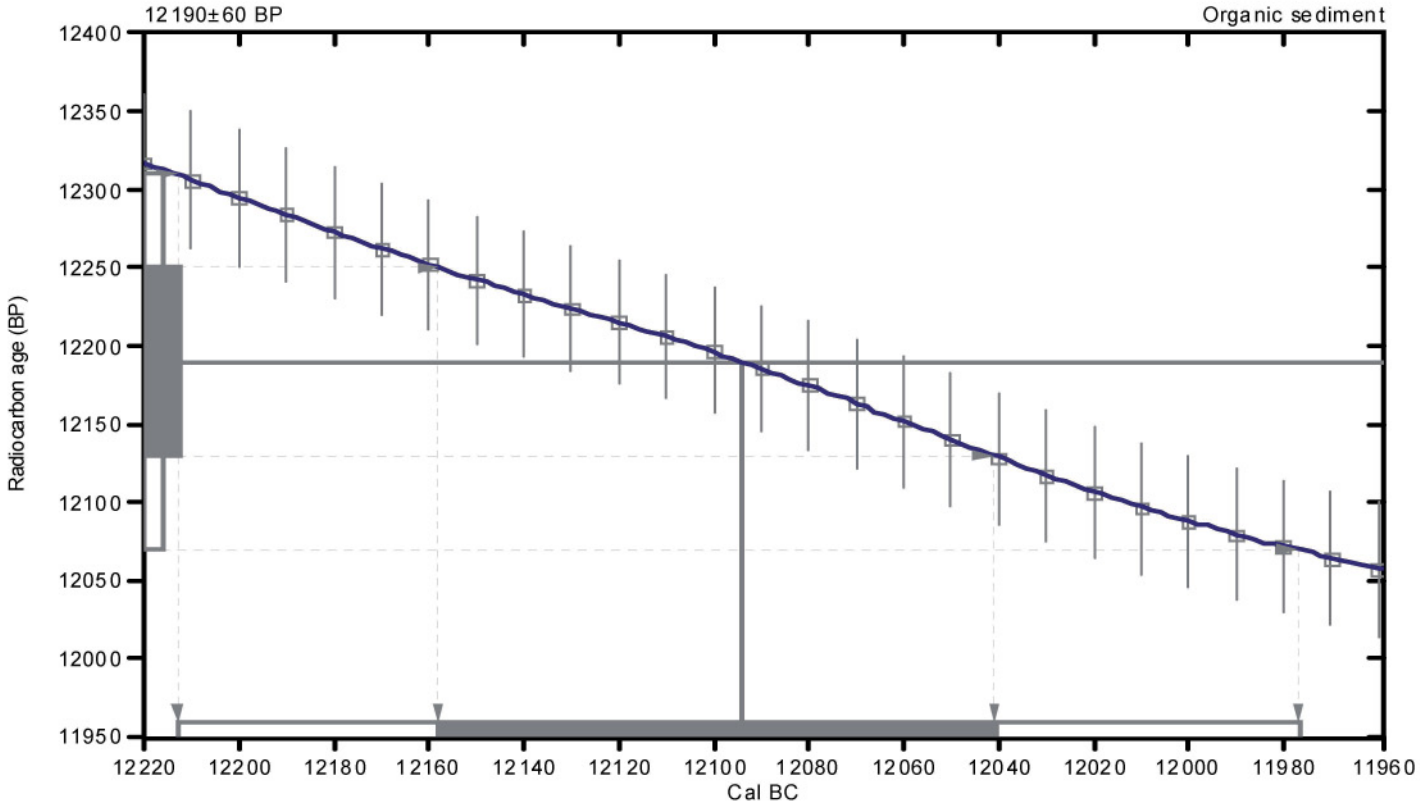
Conventional radiocarbon age: **12190±60 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 12210 to 11980 (Cal BP 14160 to 13930)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 12090 (Cal BP 14040)

1 Sigma calibrated result: (68% probability) Cal BC 12160 to 12040 (Cal BP 14110 to 13990)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-27.7:lab. mult=1)

Laboratory number: **Beta-264069**

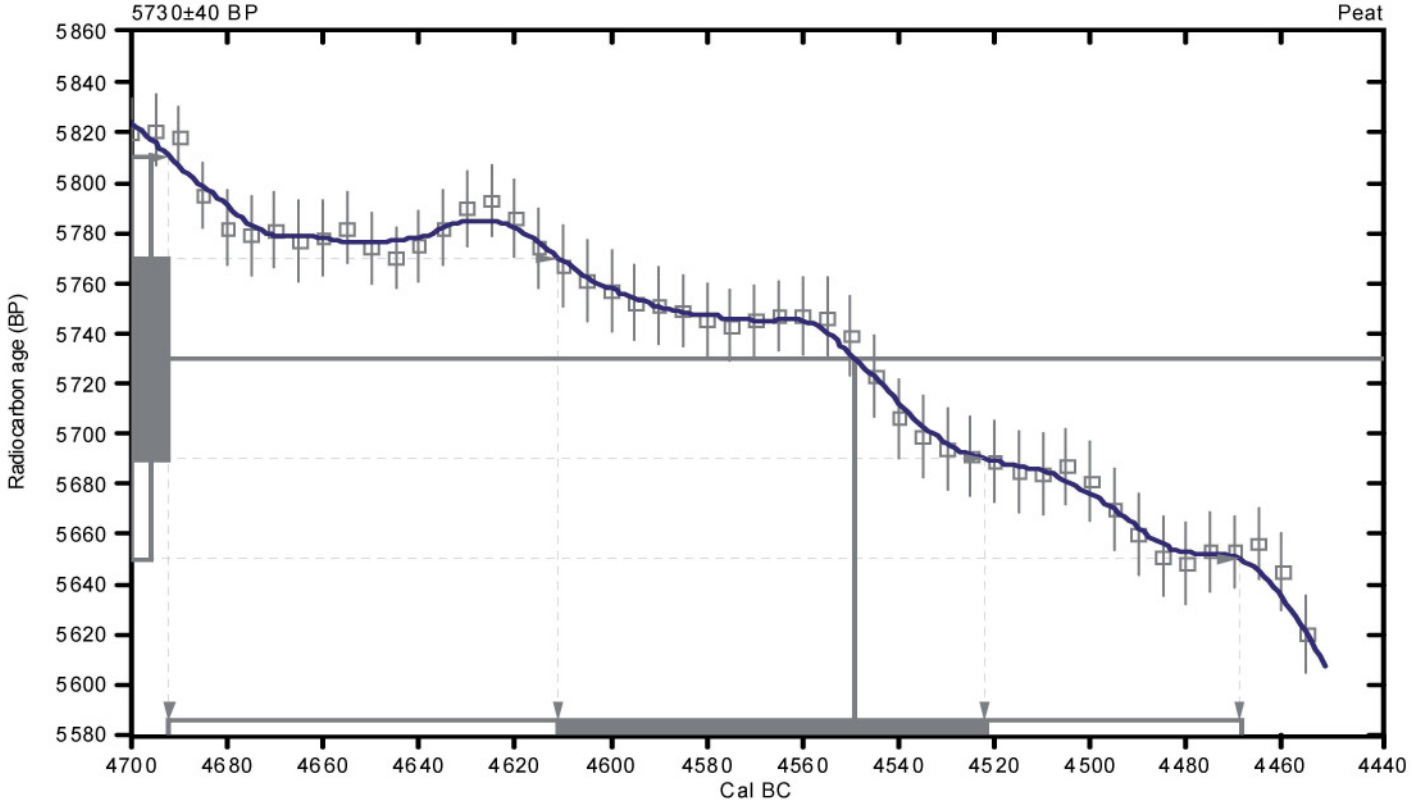
Conventional radiocarbon age: **5730±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 4690 to 4470 (Cal BP 6640 to 6420)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 4550 (Cal BP 6500)

1 Sigma calibrated result: (68% probability) Cal BC 4610 to 4520 (Cal BP 6560 to 6470)



References:

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IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-34.5:lab. mult=1)

Laboratory number: **Beta-264070**

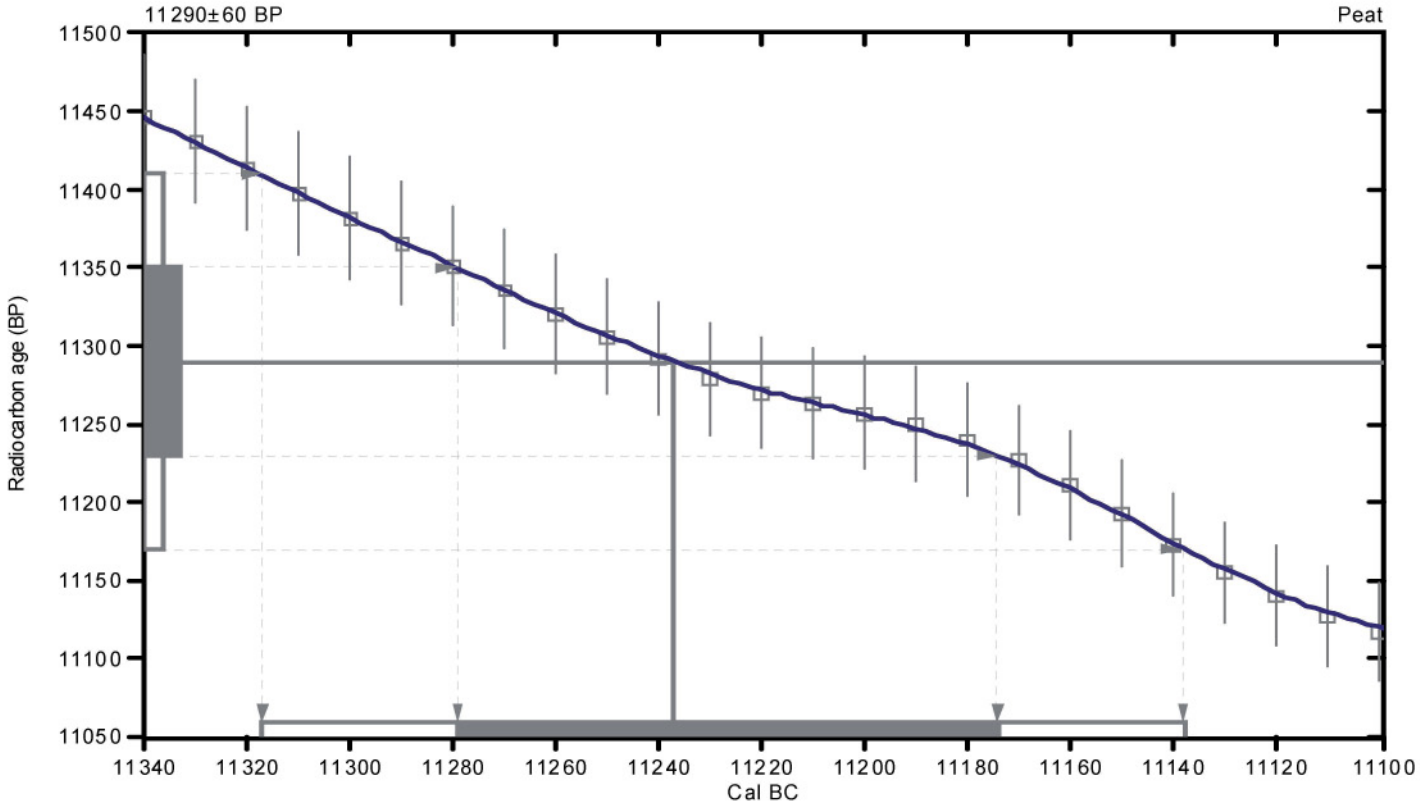
Conventional radiocarbon age: **11290±60 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 11320 to 11140 (Cal BP 13270 to 13090)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 11240 (Cal BP 13190)

1 Sigma calibrated result: (68% probability) Cal BC 11280 to 11170 (Cal BP 13230 to 13120)



References:

Database used

INTCAL04

Calibration Database

INTCAL04 Radiocarbon Age Calibration

IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.9:lab. mult=1)

Laboratory number: **Beta-264071**

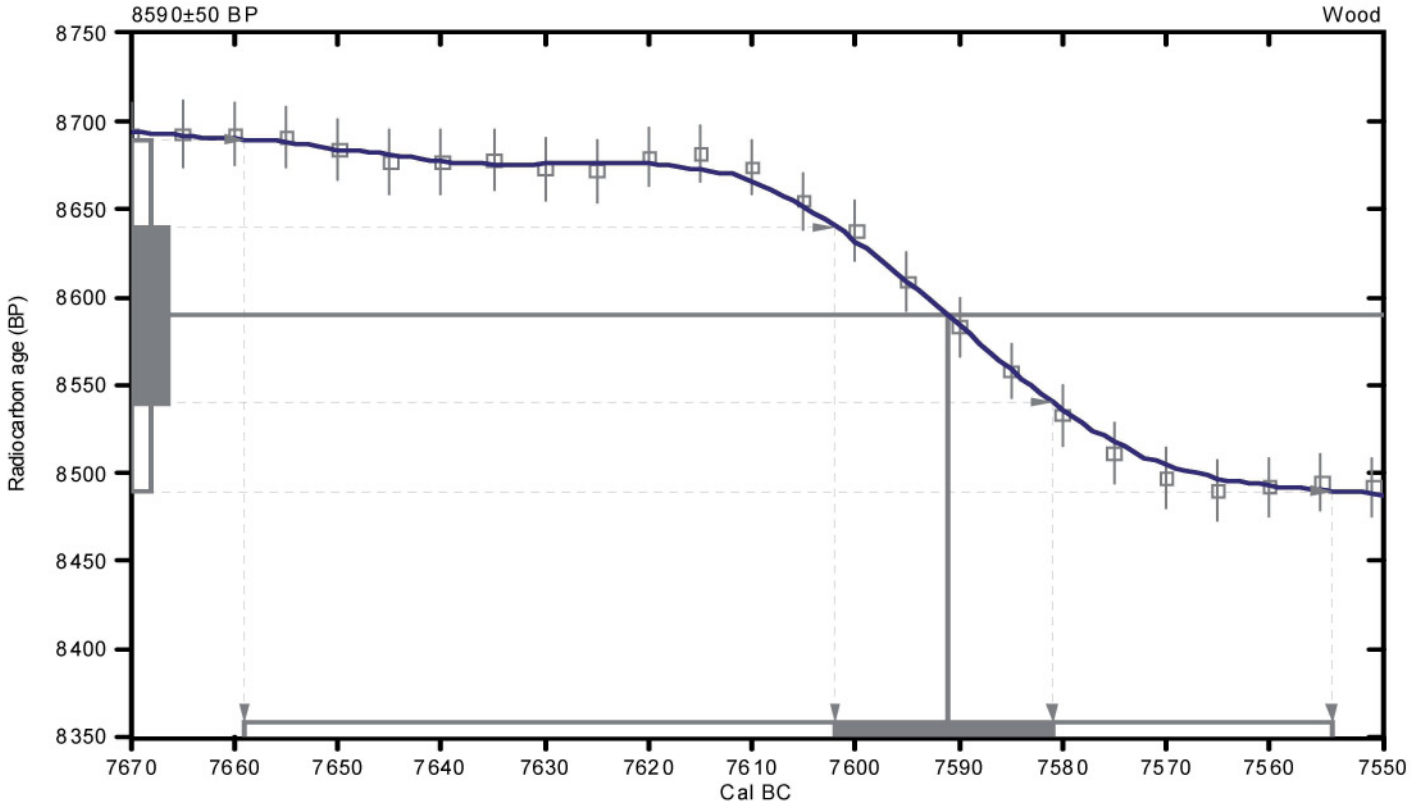
Conventional radiocarbon age: **8590±50 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 7660 to 7550 (Cal BP 9610 to 9500)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 7590 (Cal BP 9540)

1 Sigma calibrated result: (68% probability) Cal BC 7600 to 7580 (Cal BP 9550 to 9530)



References:

Database used

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IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).

Mathematics

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OASIS FORM

APPENDIX 4

OASIS DATA COLLECTION FORM: England

Printable version

OASIS ID: lparchae1-65980

Project details

Project name	A34 Alderley Edge Bypass
Short description of the project	Watching Brief comprising the monitoring of the topsoil strip of the routeway for the new bypass. Prior to the watching brief a series of environmental samples were taken. A single bore core was taken and analysed, along with the hand excavation and sieving of 50, 10 litre samples along the sand bank identified by previos work on the site.
Project dates	Start: 26-11-2008 End: 23-06-2009
Previous/future work	Yes / No
Any associated project reference codes	NOCMS 2009.101 - Museum accession ID
Any associated project reference codes	ALE/A34 08 - Sitecode
Type of project	Recording project
Site status	None
Current Land use	Cultivated Land 1 - Minimal cultivation
Monument type	NONE None
Monument type	NONE None
Significant Finds	NONE None
Significant Finds	NONE None
Investigation type	'Watching Brief'
Prompt	Direction from Local Planning Authority - PPG16

Project location

Country	England
Site location	CHESHIRE MACCLESFIELD ALDERLEY EDGE A34 Alderley Edge Bypass
Study area	5.00 Kilometres
Site coordinates	38430 37961 38430 00 00 N 37961 00 00 E Point
Site coordinates	38420 37525 38420 00 00 N 37525 00 00 E Point

Project creators

Name of Organisation	L - P : Archaeology
Project brief originator	Local Planning Authority (with/without advice from County/District Archaeologist)
Project design originator	L - P : Archaeology
Project director/manager	Claire Statter
Project supervisor	Blair Poole
Type of sponsor/funding body	Cheshire East Council
Name of sponsor/funding body	Cheshire East Council

Project archives

Physical Archive Exists?	No
Digital Archive Exists?	No
Paper Archive recipient	Cheshire Museum Service
Paper Archive ID	NOCMS 2009.101
Paper Contents	'other'
Paper Media available	'Notebook - Excavation',' Research',' General Notes','Photograph','Report','Unpublished Text'

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Archaeological Mitigation Report for A34 Alderley Edge Bypass
Author(s)/Editor(s)	Statter, C and Poole, B
Other bibliographic details	LP794C-AMR.v1.3
Date	2009
Issuer or publisher	L - P : Archaeology
Place of issue or publication	Chester
Description	A4 spiral bound report

Entered by	Claire Statter (c.statter@lparchaeology.com)
Entered on	20 October 2009