



**Geodiversity Data for Bromsgrove District Council Strategic
Development Sites & Bromsgrove Town Redevelopment**

Areas

IR 2010-07

January 2011

Methodology

This report is our response to Information Request 2010/07 received by the Geological Records Centre, to identify the geological, geomorphological and soil features, data gaps, constraints and geological conservation opportunities for the strategic development sites and Bromsgrove Town redevelopment areas identified by Bromsgrove District Council. The work was carried out as a desktop study and is therefore not based on any recent field information.

The following methodology was used:

- 1) Location of each site within the District
- 2) Identification of the bedrock, superficial deposit(s) and soil feature(s) of each site
- 3) Identification of any data gaps
- 3) Verification of the presence of any existing geological conservation designation on or immediately adjacent to a site
- 4) Determine whether there are records of extraction of a resource on the site, or if a natural outcrop or potential exposure of a geodiversity resource might occur
- 5) Establish whether the geodiversity resource would merit further investigation and if so, what level of additional work is required.

For each site a table of information is provided, as well as a basic site map:

Bedrock Geology	Formal name(s) for rock unit(s) underlying site
Superficial Deposits	Type of unconsolidated material directly underlying site (if applicable)
Soil Type	Type of soils (generic nomenclature and formal name)
Soil Permeability	Relative permeability of soil underlying site. <i>Please see below</i>
Commentary	Summary of site with any constraints/opportunities highlighted

Soil Permeability - at the request of the Council and using desktop information from the relevant soil memoirs and bulletins, the relative permeability of each soil can be determined.

<i>Slowly Permeable</i>	Effectively impermeable and seasonally waterlogged
<i>Moderately Permeable</i>	Lack clear evidence of permeability, or may exhibit variability
<i>Permeable</i>	Naturally well drained or responds well to drainage measures

It should be stressed however that further expert advice be sought for the suitability of a particular development site for SUDS. Reference to the ecological evidence base should be made in the first instance.

General guidance for all developments

Designated sites and nature conservation (SSSI, Local Sites) - If any development is proposed on or within 100m of a SSSI (Burcot Lane SSSI for example), then Natural England must be consulted, alongside the relevant local conservation organisation (the Wildlife Trust for biological/ecological sites and the Earth Heritage Trust for geological sites). For Local Sites, the relevant designation body should be consulted - again this is the Wildlife Trust for Special Wildlife Sites and the Earth Heritage Trust for Local Geological Sites. Reference should also be made to Planning Policy Statement 9:

<http://www.communities.gov.uk/publications/planningandbuilding/pps9>

http://www.naturalengland.org.uk/information_for/sssi_owners_and_occupiers/default.aspx

<http://www.worcswildlifetrust.co.uk/>

<http://www.earthheritagetrust.org/>

Geodiversity Action Plan - developments should be considered as opportunities for contributing to the Geodiversity Action Plan for Worcestershire:

<http://www.earthheritagetrust.org/blog/LocalGAPs>

Soil Guidance - Worcestershire County Council is producing a soils technical research paper that should be studied prior to any development taking place. Similarly Defra has further guidance on soils:

http://www.worcestershire.gov.uk/cms/environment_and_planning/strategic_planning/planning_for_soil.aspx

<http://www.defra.gov.uk/environment/quality/land/soil/index.htm>

Minerals and Building Stones - Reference should be made to the saved Minerals Plan for Worcestershire, alongside Minerals Policy Statement 1, which gives further and guidance on building and roofing stone policy. The County Archaeological Services should also be consulted:

<http://www.worcestershire.gov.uk/cms/environment-and-planning/archaeology.aspx>

<http://www.worcestershire.gov.uk/cms/environment-and-planning/minerals-and-waste-policy.aspx>

<http://www.communities.gov.uk/documents/planningandbuilding/pdf/152993.pdf>

In all cases, if there are any noticeable geological features or exposures, the Earth Heritage Trust should be consulted at the earliest stage.

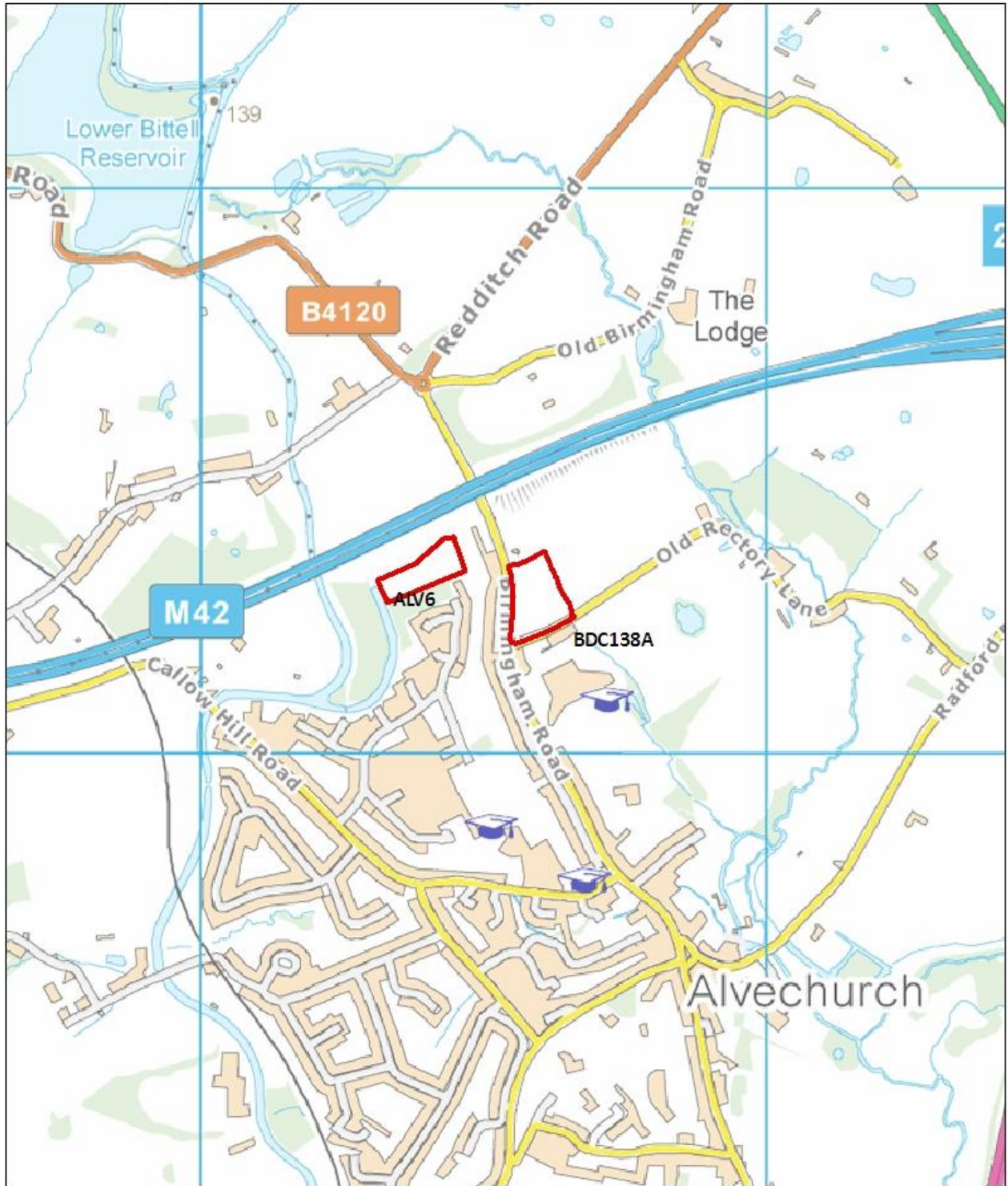
Geological Evidence for Strategic Development Sites in Bromsgrove District


ALV 6

Bedrock Geology	Mercia Mudstone Group
Superficial Deposits	Alluvial Fan Deposits
Soil Type	Typical stagnogley soils (Brockhurst Series)
Soil Permeability	Slowly Permeable
<p>Commentary</p> <p>The site is underlain by Mercia Mudstone which gives rise to typical stagnogley soils. There is no record of any extraction. The eastern edge of the site appears to be underlain by alluvial fan deposits, which are rarely exposed due to their unconsolidated nature. Any development would be expected to uncover these deposits. As a result, it would be informative to record these features during any development phase, though it is not anticipated that any long-term conservation would need to take place.</p>	

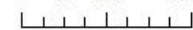
BDC 138A

Bedrock Geology	Mercia Mudstone Group
Superficial Deposits	Alluvial Fan Deposits
Soil Type	Typical stagnogley soils (Brockhurst Series)
Soil Permeability	Slowly Permeable
<p>Commentary</p> <p>The site is very similar to ALV6, being underlain by Mercia Mudstone which gives rise to typical stagnogley soils. There is no record of extraction. The site is also underlain by alluvial fan deposits. These deposits are rarely exposed, due to their unconsolidated nature. Any development would be expected to uncover these deposits. As a result, it would be informative to record these features during any development phase, though it is not anticipated that any long-term conservation would need to take place. A fault - the Hopwood Fault - is marked as running through the site.</p>	



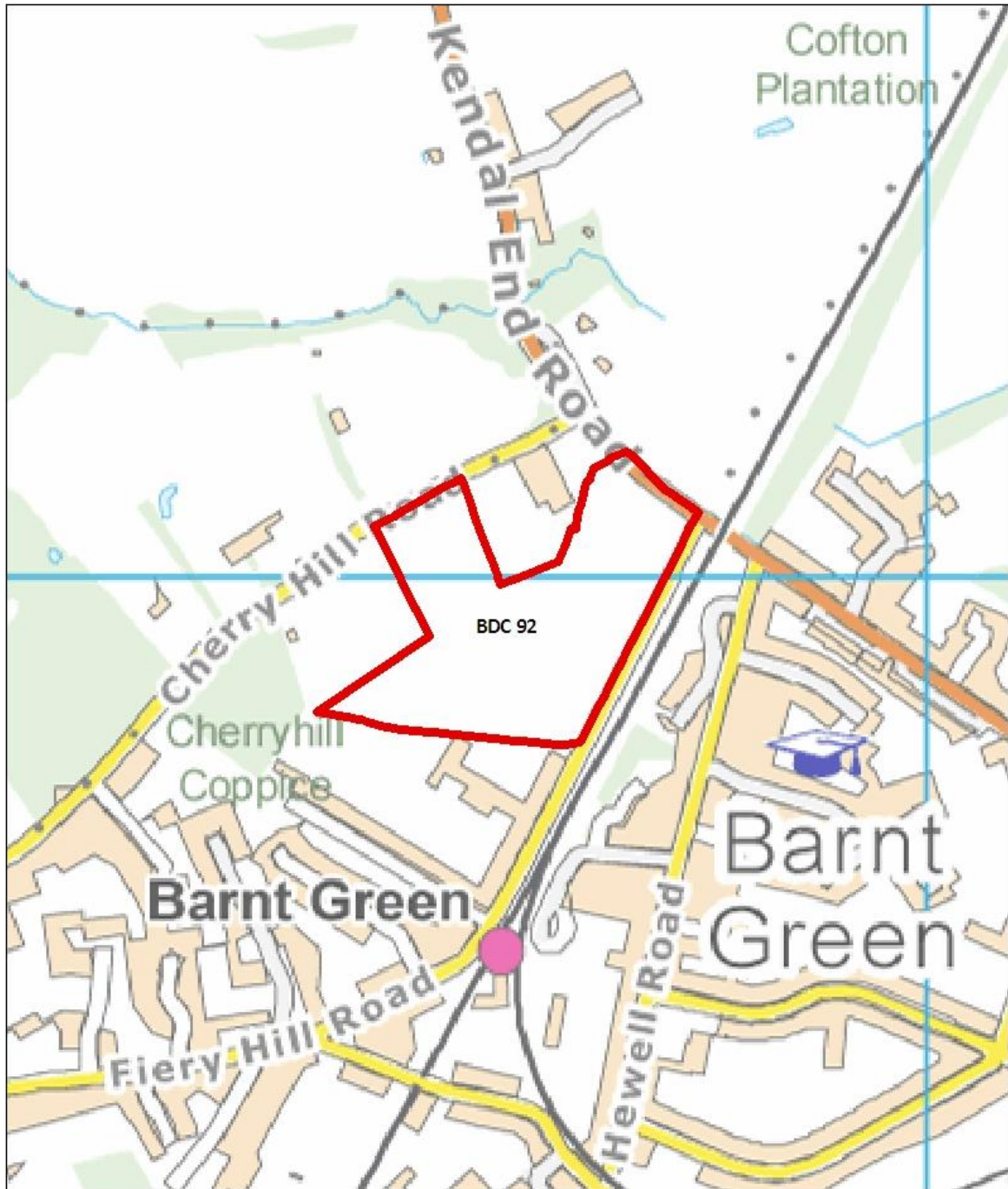
 Strategic Development Site



0 60 120 240 Metres


BDC 92

Bedrock Geology	Wildmoor Sandstone Formation Kidderminster Formation
Superficial Deposits	None recorded
Soil Type	Stagnogleyic argillic brown earths (Whimble Series)
Soil Permeability	Moderately Permeable
Commentary The site is underlain by the Wildmoor Sandstone and Kidderminster Formations, which gives rise to brown earth soils. A deposit of till occurs just west of the site boundary and a geological fault runs across the western edge of the site. There is no record of any extraction. However, the site is in an interesting geological location due south of the Lickey Hills ridge. In the immediate vicinity of the site, outcrops of the Lickey Quartzite and Barnt Green Volcanics Formations are found; both geological units are unique in the country. A site visit should be made by the Earth Heritage Trust if any bedrock is revealed during any development.	



 Strategic Development Site



0 30 60 120 Metres

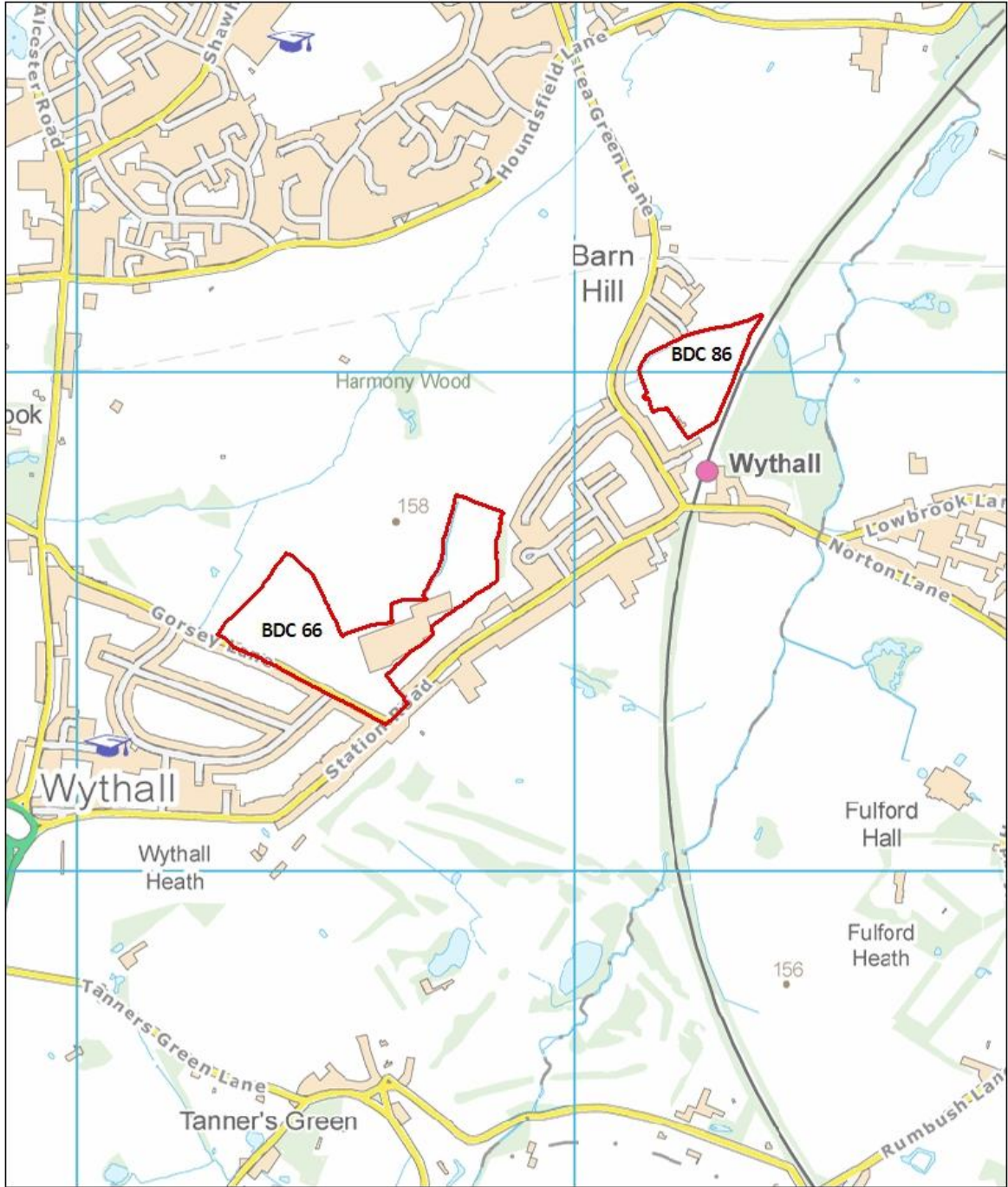

Contains Ordnance Survey data © Crown copyright and database right 2010

BDC 66

Bedrock Geology	Mercia Mudstone Group
Superficial Deposits	Till and Fluvioglacial Deposits
Soil Type	Paleo-argillic stagnogley soils (Oak Series)
Soil Permeability	Slowly Permeable
Commentary The bedrock is Mercia Mudstone, whilst most of the site is directly underlain by till deposits, which gives rise to stagnogley soils. There is no record of any extraction. Till deposits are rarely exposed due to their unconsolidated nature. Any development would be expected to uncover these deposits. It would be informative to record these features during any development phase; though it is not anticipated that any long-term conservation would need to take place.	


BDC 86

Bedrock Geology	Mercia Mudstone Group
Superficial Deposits	Till & Glaciofluvial Deposits
Soil Type	Stagnogleyic argillic brown earths (Oak Series)
Soil Permeability	Slowly Permeable
Commentary The bedrock is Mercia Mudstone, with till and glacio-fluvial deposits directly underlying the site. This gives rise to stagnogley soils. There is no record of any extraction. Till and glacio-fluvial deposits are rarely exposed due to their unconsolidated nature. Any potential development would be expected to uncover these deposits. It would be informative to record these features during any development phase, though it is not anticipated that any long-term conservation would need to take place.	



 Strategic Development Site



0 75 150 300 Metres


Contains Ordnance Survey data © Crown copyright and database right 2010

BDC 20

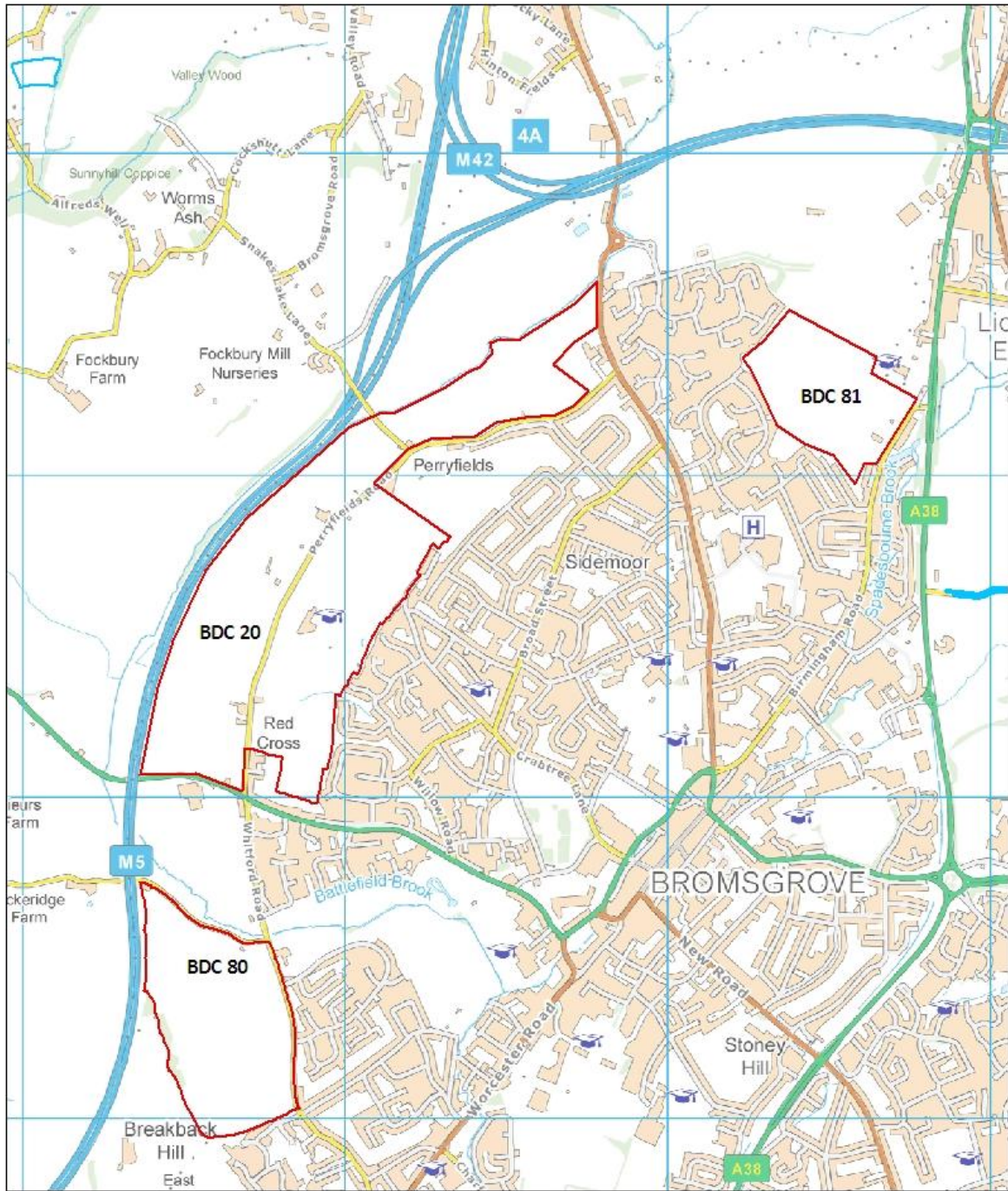
Bedrock Geology	Bromsgrove Sandstone Formation
Superficial Deposits	None recorded
Soil Type	Typical brown earths (Bromsgrove Series)
Soil Permeability	Permeable
Commentary The site is underlain by Bromsgrove Sandstone and gives rise to typical brown earths. Within the site, there are records of brickworks. Bromsgrove Sandstone is however a historically important local building material, with many structures in the district made from the stone. Despite no record of any building stone extraction having taken place within either site, when considering development, the issue of sterilisation of potential local sources of building material should be considered.	

BDC 80

Bedrock Geology	Bromsgrove Sandstone Formation
Superficial Deposits	None recorded
Soil Type	Typical argillic pelosols (Worcester Series) Typical brown earths (Bromsgrove Series)
Soil Permeability	Slowly Permeable Permeable
Commentary The site is underlain by Bromsgrove Sandstone, with a small deposit of alluvium running alongside the Battlefield Brook at the northern edge. The variation in recorded soil types on the site is in part due to the slope and aspect of the location. A geological fault - the Western Boundary of Fairfield Fault - is marked as running adjacent to the western edge of the site. Although there are no records of any extraction having taken place, there is a record of a landfill immediately adjacent to the western boundary alongside the motorway. There are also records of former building stone quarries located around Hill Top and Fox Lane, due south of the site. The proximity of former building stone quarries to the proposed development site suggests that the bedrock underlying the site may be of a suitable quality for building material. Bromsgrove Sandstone is a historically important local building material, with many built structures in the District made from the stone. Despite no record of any building stone extraction having taken place within the site, when considering any development, the issue of sterilisation of potential local sources of building material should be considered.	

BDC 81

Bedrock Geology	Bromsgrove Sandstone Formation
Superficial Deposits	None recorded
Soil Type	Typical Brown Earths (Bromsgrove Series)
Soil Permeability	Permeable
Commentary The site is underlain by Bromsgrove Sandstone, which gives rise to a typical brown earth soil. There is no record of extraction having taken place within the site. Bromsgrove Sandstone is a historically important local building material, with many built structures in the District made from the stone. Despite no record of any building stone extraction having taken place within the site, when considering any development, the issue of sterilisation of potential local sources of building material should be considered.	



- SSSI
- Bromsgrove Town Strategic Development Site

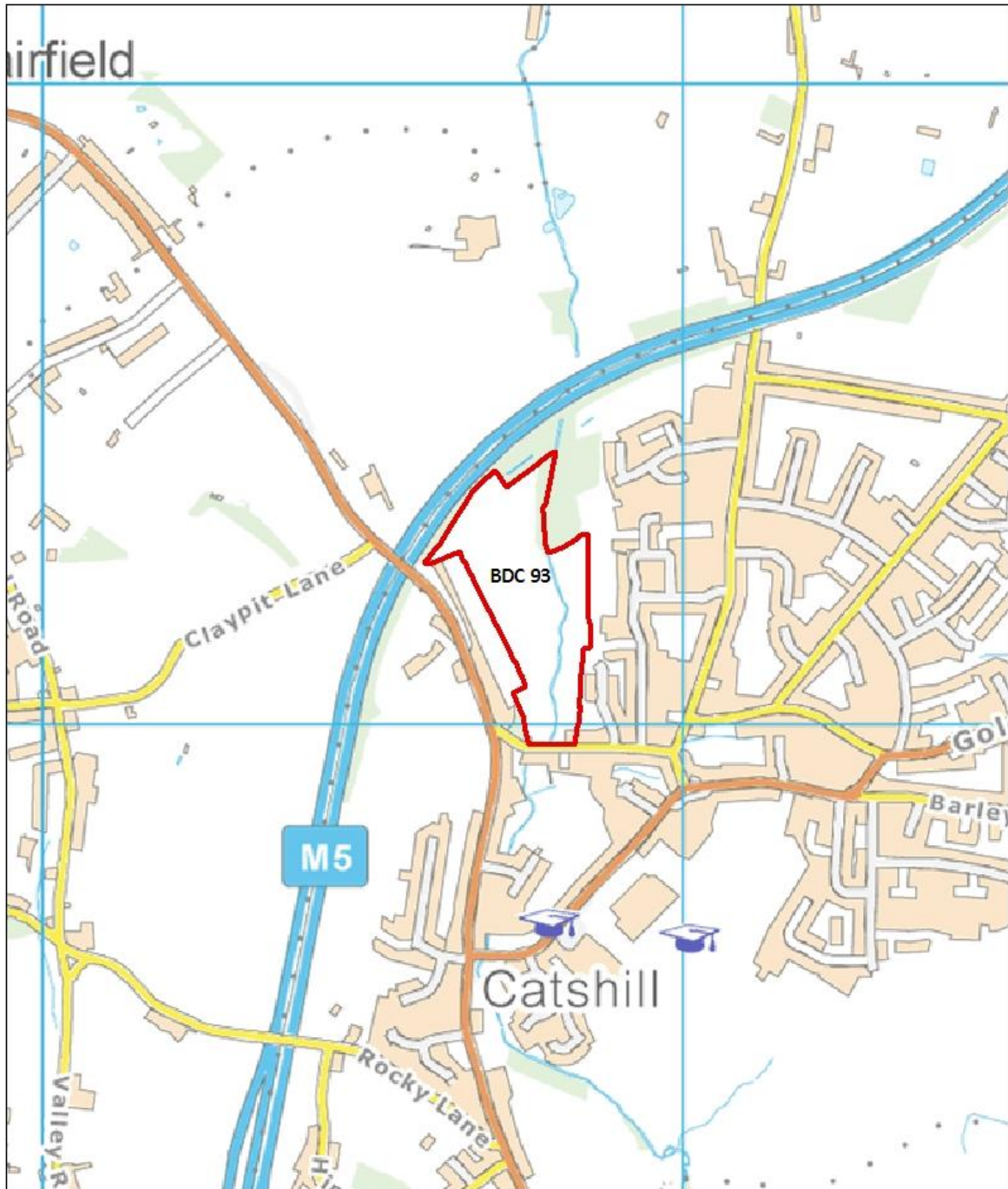


0 90 180 360 Metres

Contains Ordnance Survey data © Crown copyright and database right 2010
 Contains, or is based on, information supplied by Natural England

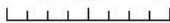
BDC 93

Bedrock Geology	Bromsgrove Sandstone Formation Wildmoor Sandstone Formation
Superficial Deposits	Alluvium Holt Heath Member (River Severn Terrace 3)
Soil Type	Typical brown earths (Bromsgrove Series) Typical cambic gley soils (Wigton Moor Series)
Soil Permeability	Permeable Moderately Permeable
Commentary	<p>The western half of the site is underlain by Wildmoor and Bromsgrove Sandstone Formations. In the eastern half, these units are overlain by river terrace and alluvium deposits which run parallel to the course of the stream. This gives rise to brown earth and gley soils. There is no record of any extraction.</p>



 Strategic Development Site

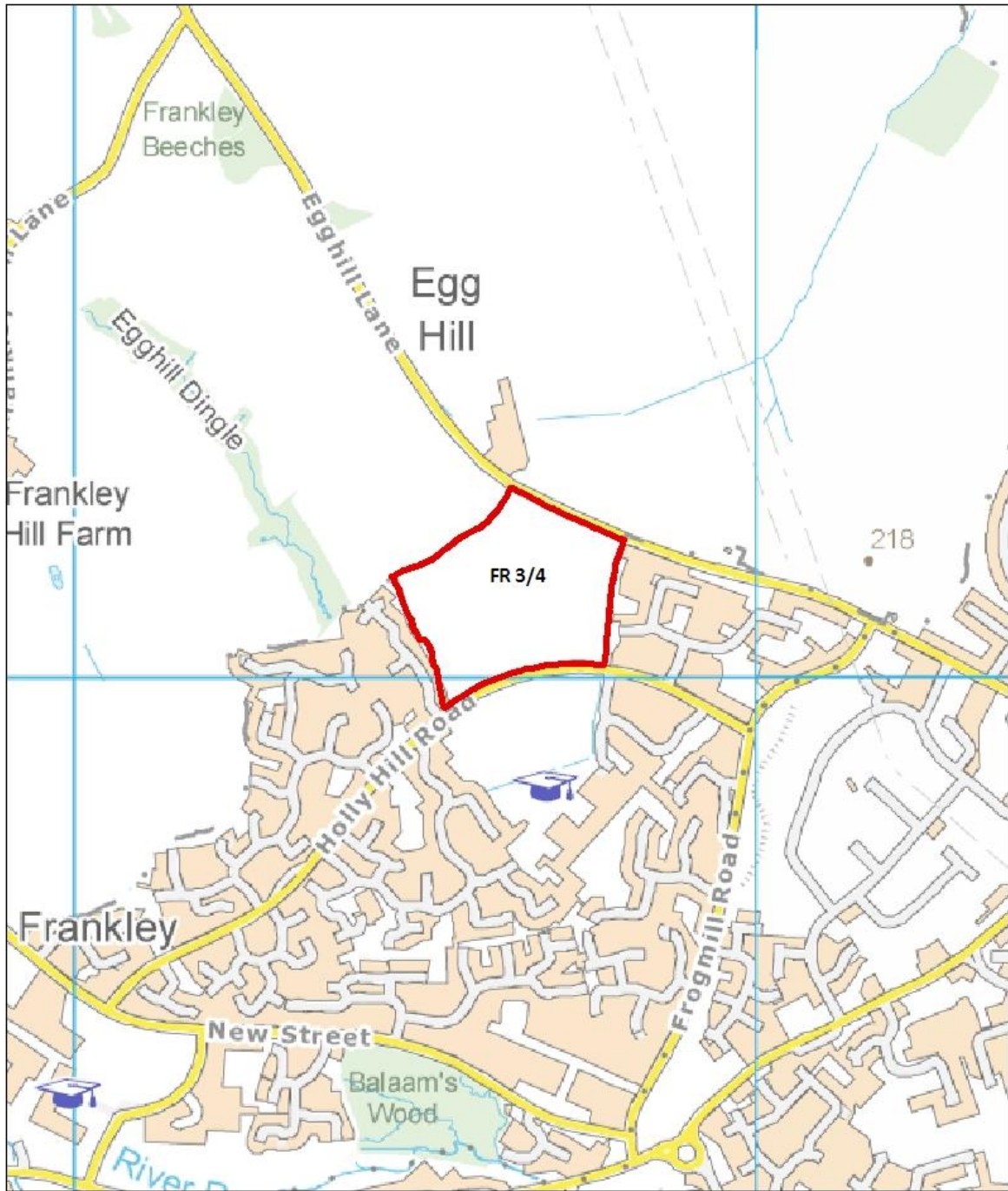


0 55 110 220 Metres


Contains Ordnance Survey data © Crown copyright and database right 2010

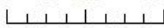
FR 3/4

Bedrock Geology	Salop Formation
Superficial Deposits	None recorded
Soil Type	Stagnogleyic argillic brown earths (Hodnet Series)
Soil Permeability	Slowly Permeable
Commentary	On the sloping edge of Frankley Hill, the site is underlain by mudstones and sandstones of the Salop Formation, giving rise to an argillic brown earth soil. There is no record of any extraction.



 Strategic Development Site

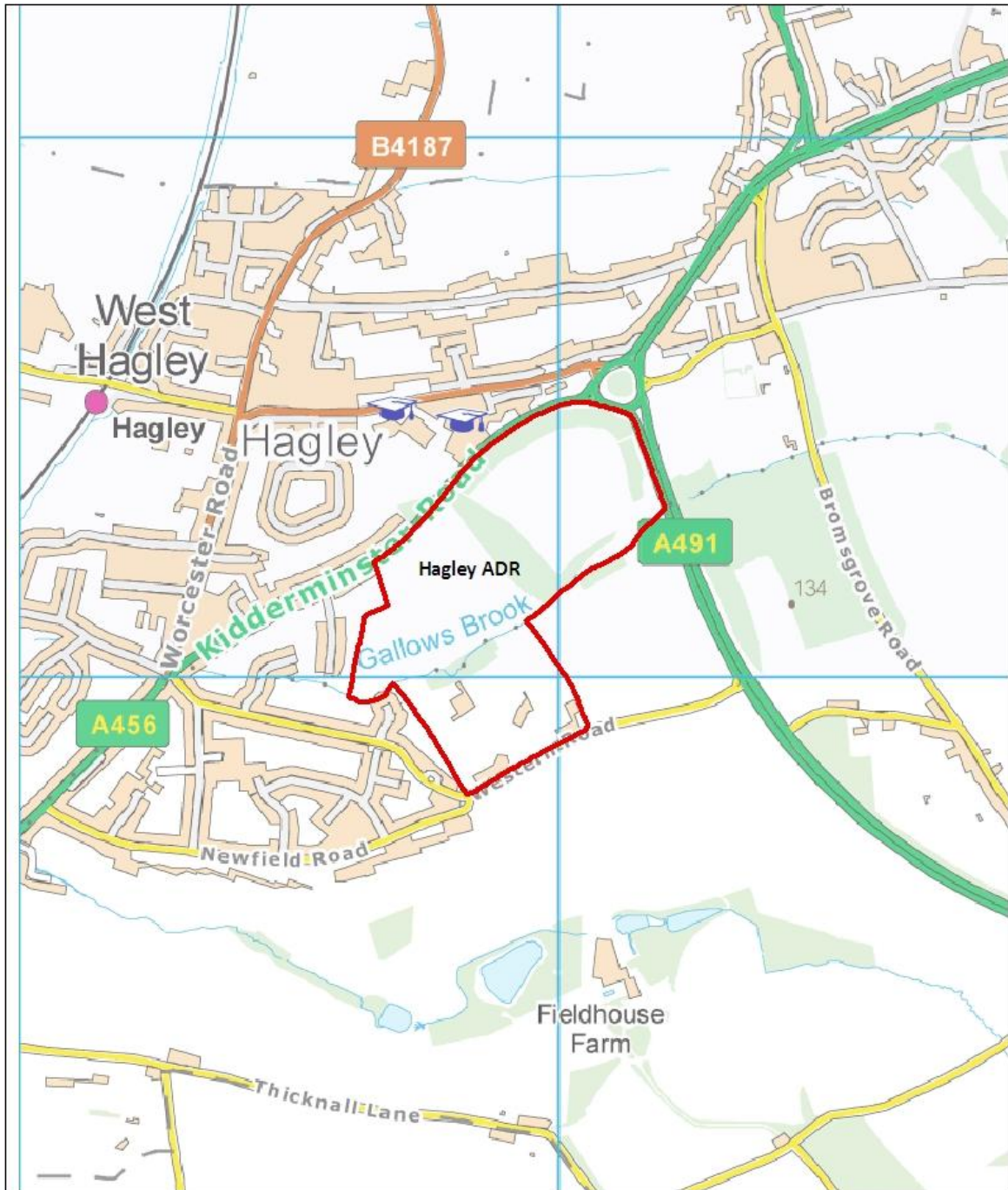


0 50 100 200 Metres


Contains Ordnance Survey data © Crown copyright and database right 2010

Hagley ADR (BDC35B, BDC49, BDC51, BDC188, BDC189)

Bedrock Geology	Bromsgrove Sandstone Formation
Superficial Deposits	Alluvium
Soil Type	Typical brown earths (Bromsgrove Series)
Soil Permeability	Permeable
Commentary The site is underlain by Bromsgrove Sandstone, giving rise to a typical brown earth soil. Alluvium deposits are found along the course of the Gallows Brook, which runs east-west through the site. There is no record of any extraction. Bromsgrove Sandstone is a historically important local building material however, with many built structures in the district made from the stone. Despite no record of any building stone extraction having taken place within either site, when considering any development, the issue of sterilisation of potential local sources of building material should be considered.	



ADR



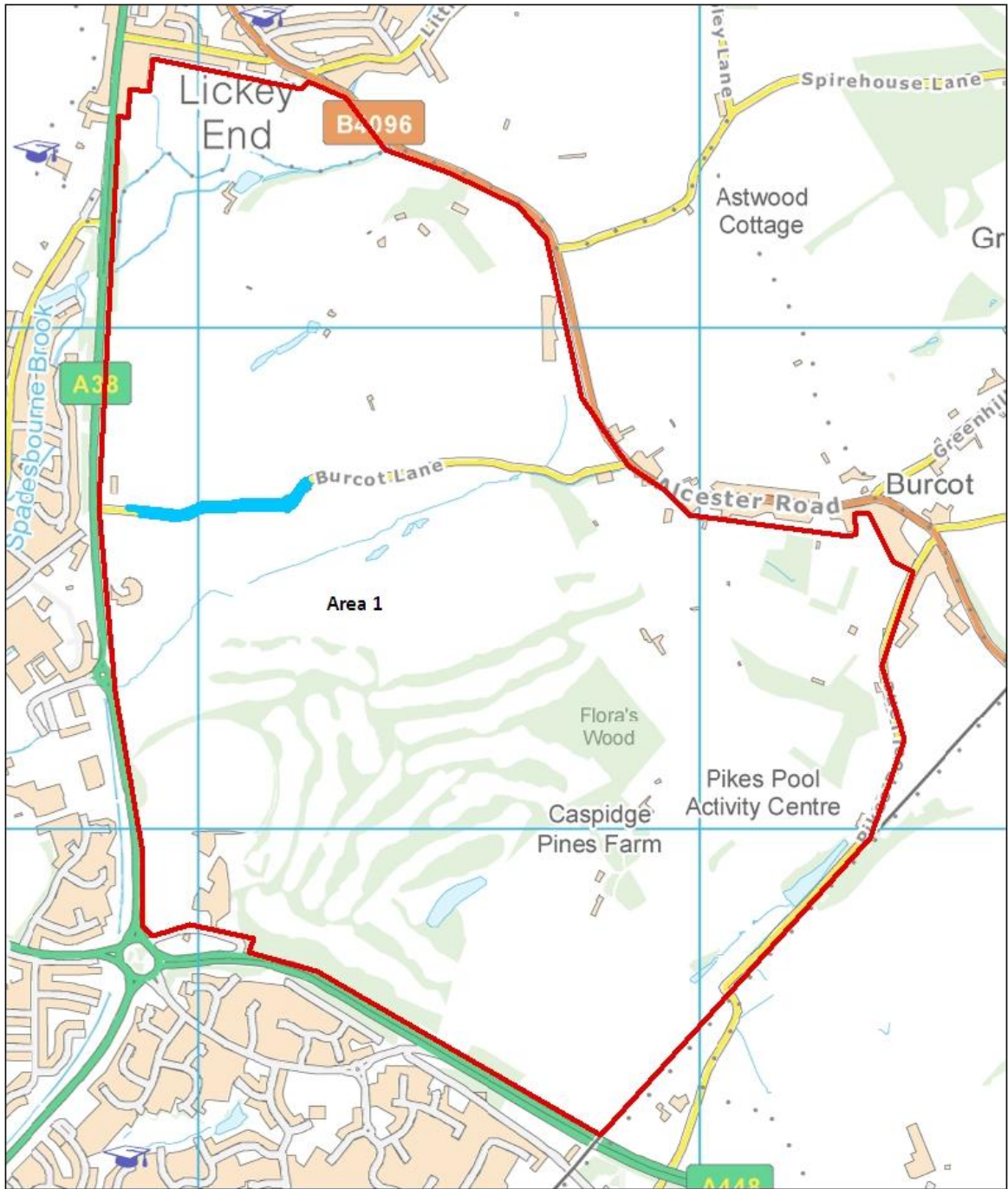
0 65 130 260 Metres

Contains Ordnance Survey data © Crown copyright and database right 2010

Geological evidence for potential strategic development sites around Bromsgrove Town

AREA 1

Bedrock Geology	Bromsgrove Sandstone Formation Wildmoor Sandstone Formation
Superficial Deposits	Alluvium
Soil Type	Typical Brown Earths (Bromsgrove Series) Typical Brown Sands (Bridgnorth Series)
Soil Permeability	Permeable
<p>Commentary</p> <p>Most of the area is directly underlain by Bromsgrove Sandstone, but with Wildmoor Sandstone underlying a thin slice of the eastern edge. This gives rise to typical brown earths and sand soils forming in the western and eastern half of the area respectively. The watercourses running through the area have alluvial deposits flanking their courses. The Lickey End Fault runs through the site, its NW-SE trend passing the north eastern edge of the golf course. The watercourse that runs just south of Burcot Lane marks the presence of the NE-SW trending Burcot Fault, whilst Pikes Pool is marked as the southern limit of the similarly NE-SW trending Pikes Pool Fault.</p> <p>There are several important geological exposures within the area that need identifying and protecting. The first and most important of these is the road cutting in Old Burcot Lane. This cutting is a geological SSSI and exposes the contact between the Wildmoor and Bromsgrove Sandstone Formations. As a result, any development would need to ensure that the road cutting is protected. It also represents an opportunity to enhance the SSSI. Natural England and EHT must be consulted with respect to this site if there is any proposed development in the area. There are various other cuttings and exposures in the south eastern edge of the area around Pikes Pool Lane. A number of these exposures are potential Local Geological Sites, and would therefore be preferable if these exposures were retained or enhanced, should any development occur. The most important of these is the quarry immediately due east of the railway line at SO 9836 7094. The quarry was formerly used to extract building stone to build the railway bridges along this stretch of the line. Development would represent an opportunity to enhance the quarry, either through reopening as a sustainable source of local material, or through the provision of geological interpretation. Consultation with EHT should be undertaken prior to any development.</p>	



- SSSI
- Bromsgrove Town Strategic Development Site

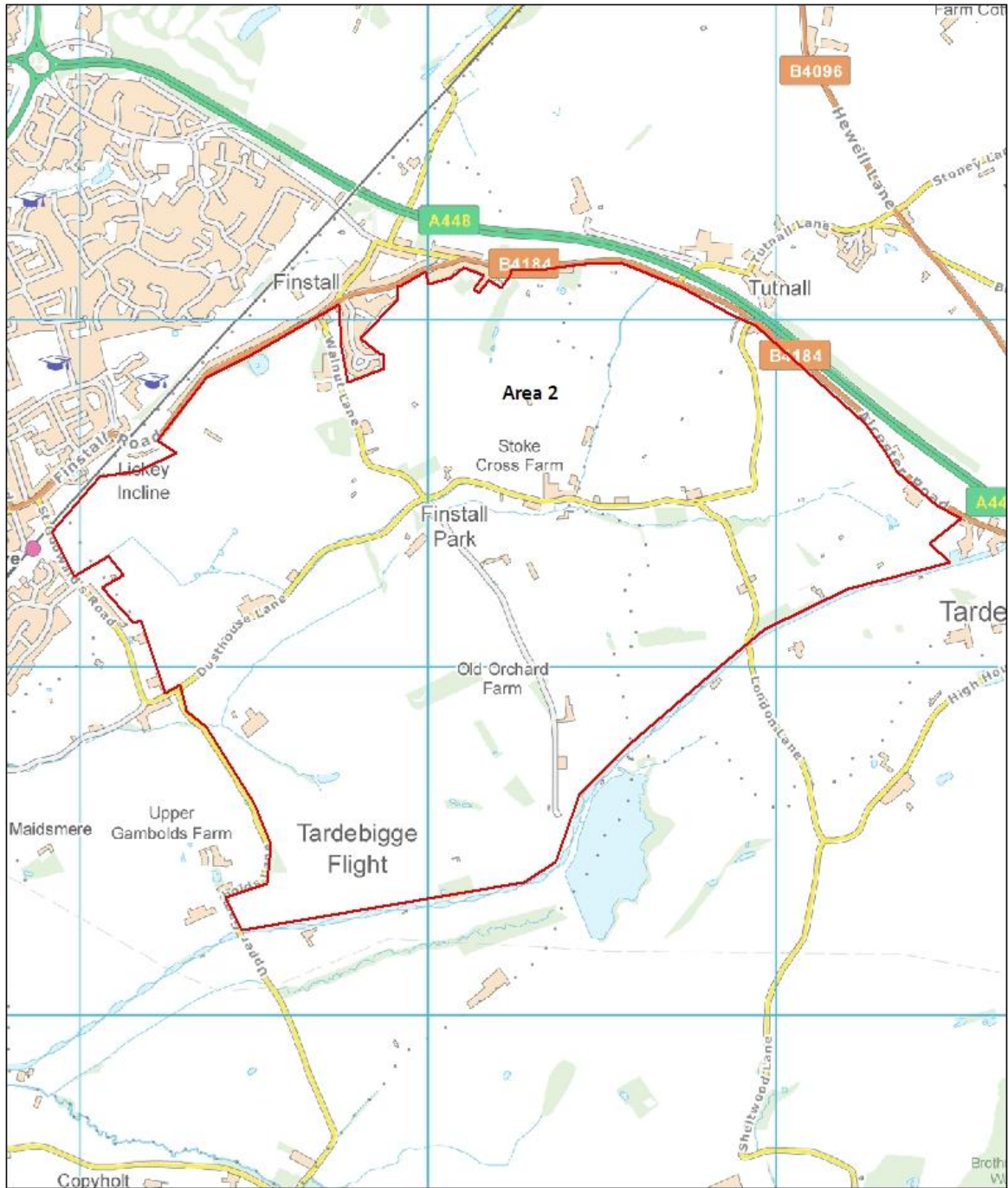



0 60 120 240 Metres

Contains Ordnance Survey data © Crown copyright and database right 2010
 Contains, or is based on, information supplied by Natural England


AREA 2

Bedrock Geology	Mercia Mudstone Group Bromsgrove Sandstone Formation
Superficial Deposits	None
Soil Type	Typical Brown Earths (Bromsgrove Series) Stagnogleyic Argillic Brown Earths (Whimble Series)
Soil Permeability	Permeable Moderately Permeable
Commentary <p>Bromsgrove Sandstone underlies the ground in the northern half of the area, with Mercia Mudstone to the south. This gives rise to typical and stagnogleyic argillic brown earths. The Lickey End Fault runs almost parallel with the A448 on the eastern edge of the area.</p> <p>There are records of three major sites where extraction has taken place. The former Tardbigge brickworks is located at the south, close to Bridges House. Two former building stone quarries in the Bromsgrove Sandstone are located east of Dusthouse Cottages and directly south of the Alcester Road and Fininstall Road junction. Both of these locations may still hold reserves of Bromsgrove Sandstone, which has been widely used as a building material in the area, with its characteristic orange-red colour being seen in many churches, houses and boundary walls in the District. A site survey should be undertaken and discussions had with any developer to identify the potential for enhancement or use of these two quarries.</p>	



 Bromsgrove Town Strategic Development Site




0 95 190 380 Metres


Contains Ordnance Survey data © Crown copyright and database right 2010

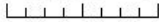
AREA 3

Bedrock Geology	Mercia Mudstone Group Bromsgrove Sandstone Formation
Superficial Deposits	Alluvium Till Deposits
Soil Type	Typical Brown Earths (Bromsgrove Series) Stagnogleyic Argillic Brown Earths (Whimple Series)
Soil Permeability	Permeable Moderately Permeable
Commentary <p>This area of land incorporates what was known as Bromsgrove 5C, which has been approved for development. Most of the area is underlain by Mercia Mudstone, giving rise to brown earth soils. There is a small patch of till centred around Stoke Pound Farm. The brook running east-west through Stoke Pound is flanked by alluvium. The NW-SE trending Stoke Pound Fault runs almost parallel to the course of the River Salwarpe. Ordnance Survey mapping indicates a number of small pits dug into the Mercia Mudstone.</p> <p>There are no major geological conservation constraints on this site. However should any development take place, it would be informative to record any features that may be exposed.</p>	



 Bromsgrove Town Strategic Development Site

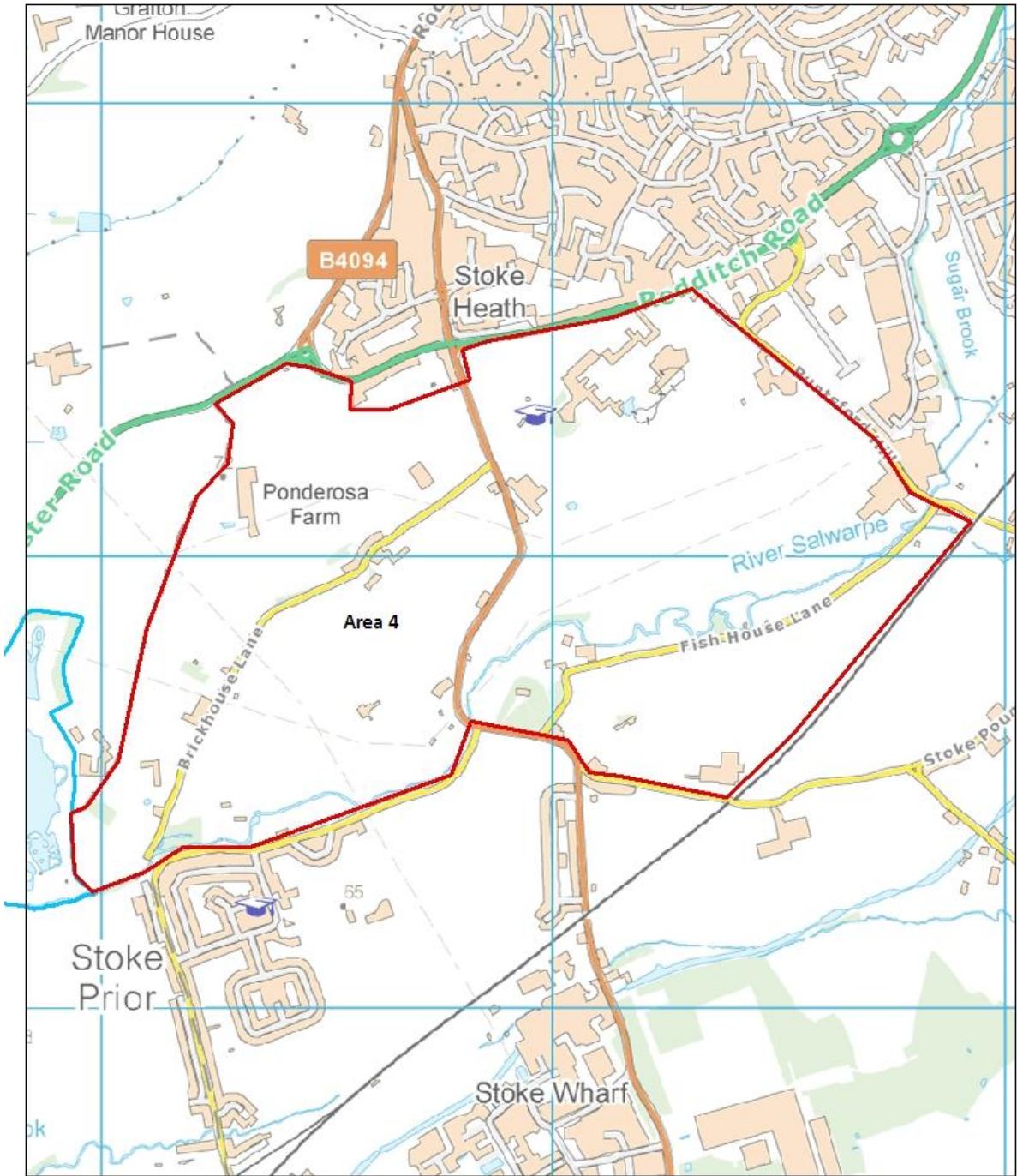


0 125 250 500 Metres


Contains Ordnance Survey data © Crown copyright and database right 2010

AREA 4

Bedrock Geology	Mercia Mudstone Group
Superficial Deposits	Alluvium
Soil Type	Stagnogleyic Argillic Brown Earths (Whimple Series)
Soil Permeability	Moderately Permeable
Commentary The entire area is underlain by Mercia Mudstone, which gives rise to argillic brown earth soils. Alluvium deposits occur along the course of the River Salwarpe. There are no known major geological conservation constraints on this site. However, Upton Warren SSSI and LGS lie immediately adjacent to the site and the affect on these features should be considered prior to any development taking place.	



- SSSI
- Bromsgrove Town Strategic Development Site

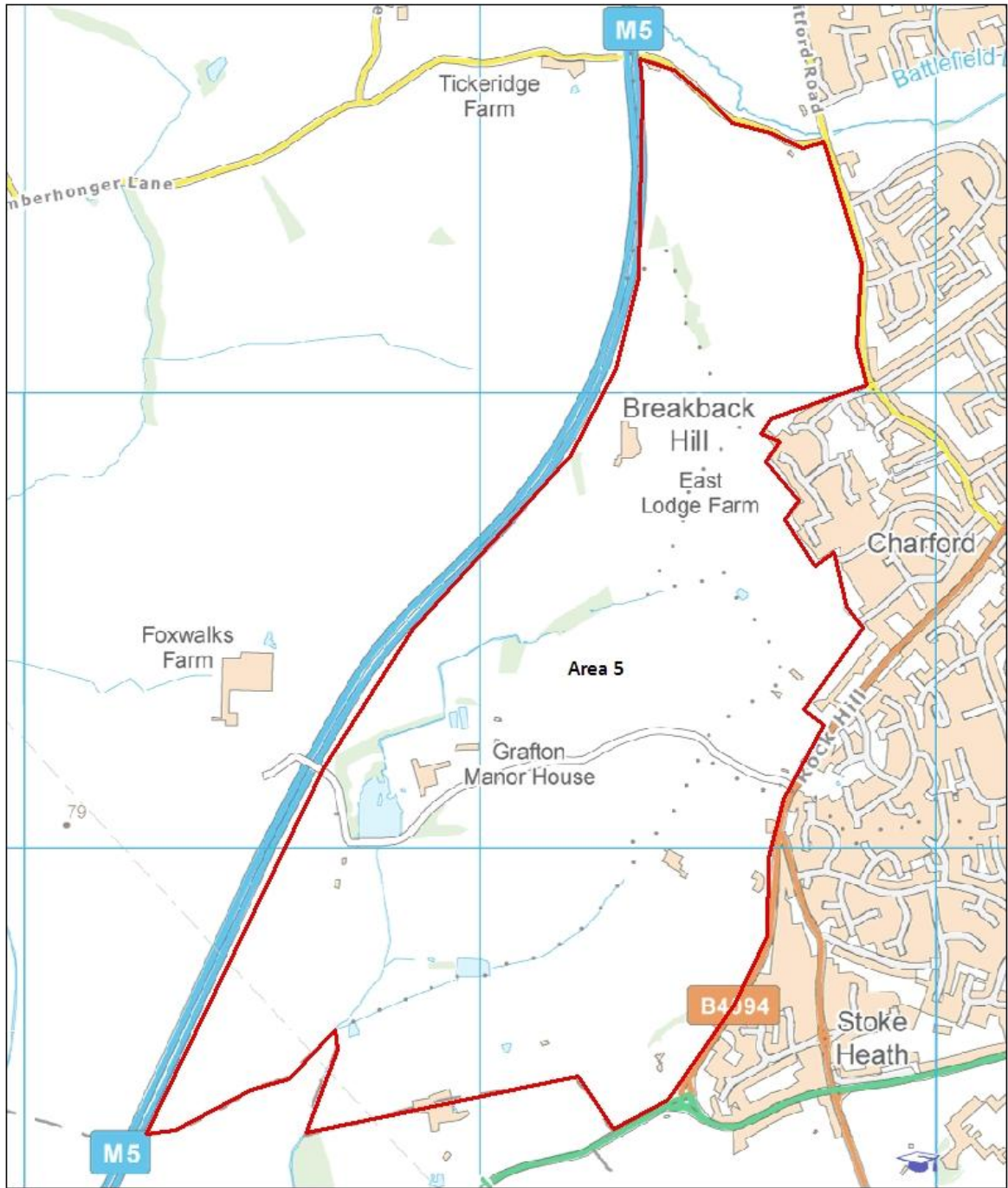



0 65 130 260 Metres

Contains Ordnance Survey data © Crown copyright and database right 2010
 Contains, or is based on, information supplied by Natural England

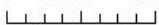
AREA 5

Bedrock Geology	Mercia Mudstone Group Bromsgrove Sandstone Formation
Superficial Deposits	Alluvium
Soil Type	Typical Brown Earths (Bromsgrove Series) Stagnogleyic Argillic Brown Earths (Whimple Series) Typical Argillic Pelosols (Worcester Series)
Soil Permeability	Permeable Moderately Permeable Moderately Permeable
Commentary <p>The area is underlain by Mercia Mudstone in the south and by Bromsgrove Sandstone north of Breakback Hill. Soils on the site are recorded as typical and stagnogleyic argillic brown earths and typical argillic pelosols. Alluvial deposits occur along the course of the Battlefield Brook. Strategic Development Site BDC 80 occurs within this area. There is a record of an old landfill around Bowling Green Farm.</p> <p>There are no known major geological conservation constraints. The commentary provided for the BDC 80 should be referred to here.</p>	



 Bromsgrove Town Strategic Development Site

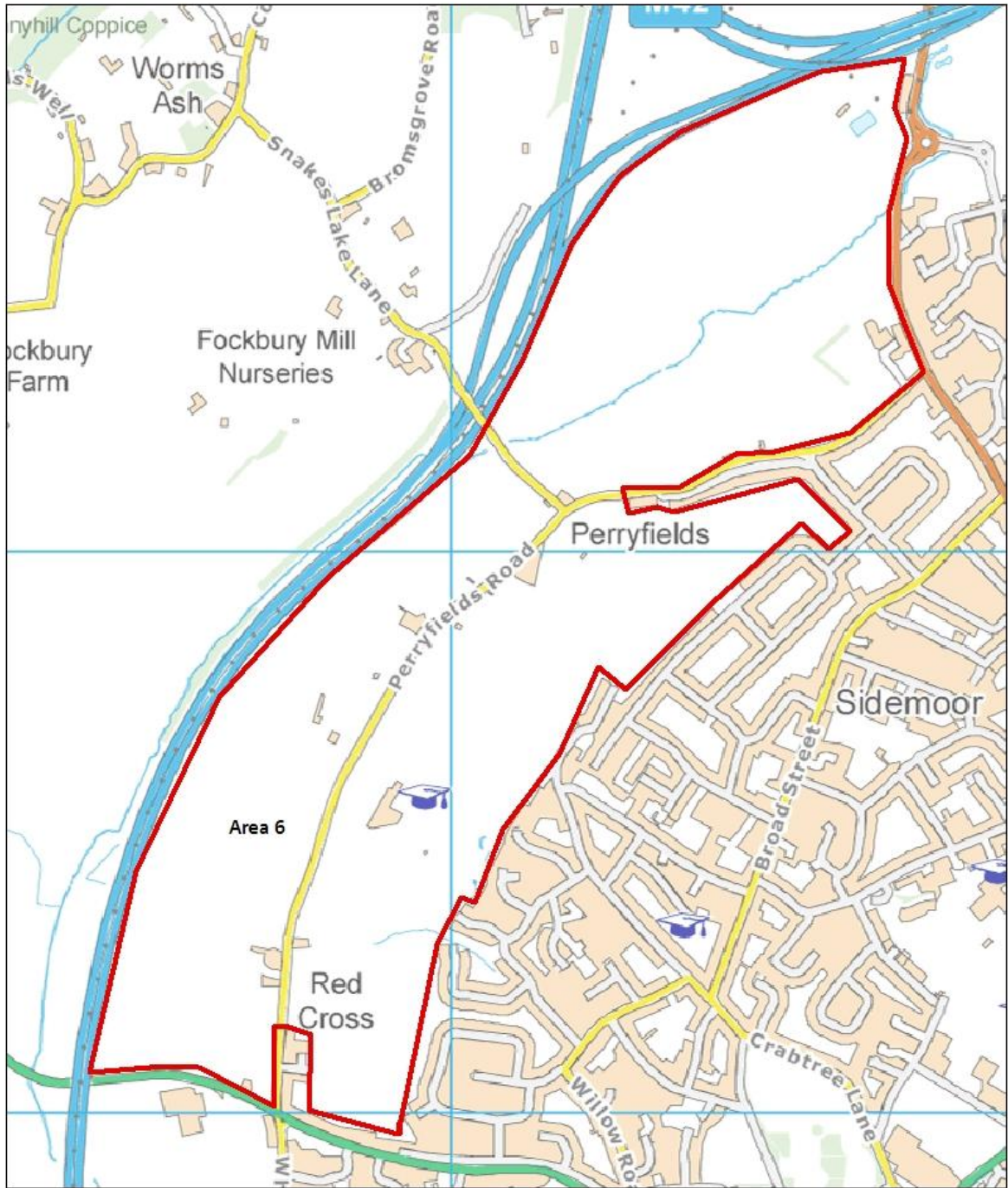



0 70 140 280 Metres


Contains Ordnance Survey data © Crown copyright and database right 2010

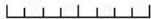
AREA 6

Bedrock Geology	Bromsgrove Sandstone Formation
Superficial Deposits	Alluvium Holt Heath Member (River Severn 3rd Terrace)
Soil Type	Typical Brown Earths (Bromsgrove Series) Typical Cambic Gley Soils (Wigton Moor Series)
Soil Permeability	Permeable Moderately Permeable
Commentary <p>The land is underlain by Bromsgrove Sandstone, which gives rise to typical brown earth soils. River terrace and alluvial deposits flank the Battlefield Brook, which run through the area. Site BDC 20 has a very similar boundary to this area and therefore that commentary should also be referred to.</p> <p>There are no known major geological conservation constraints. Bromsgrove Sandstone is, however, a historically important local building material, with many structures in the district made from the stone. Despite no record of any building stone extraction having taken place within either site, when considering development, the issue of sterilisation of potential local sources of building material should be considered.</p> <p>The river terrace deposits are potentially of value, as they were laid down during the diversion of the River Severn from a northern to its present day southerly course, as the glacial sheets retreated at the end of the last ice age. Any development would be expected to uncover these deposits. It would be informative to record these features during any development phase, though it is not anticipated that any long-term conservation would need to take place.</p>	



 Bromsgrove Town Strategic Development Site

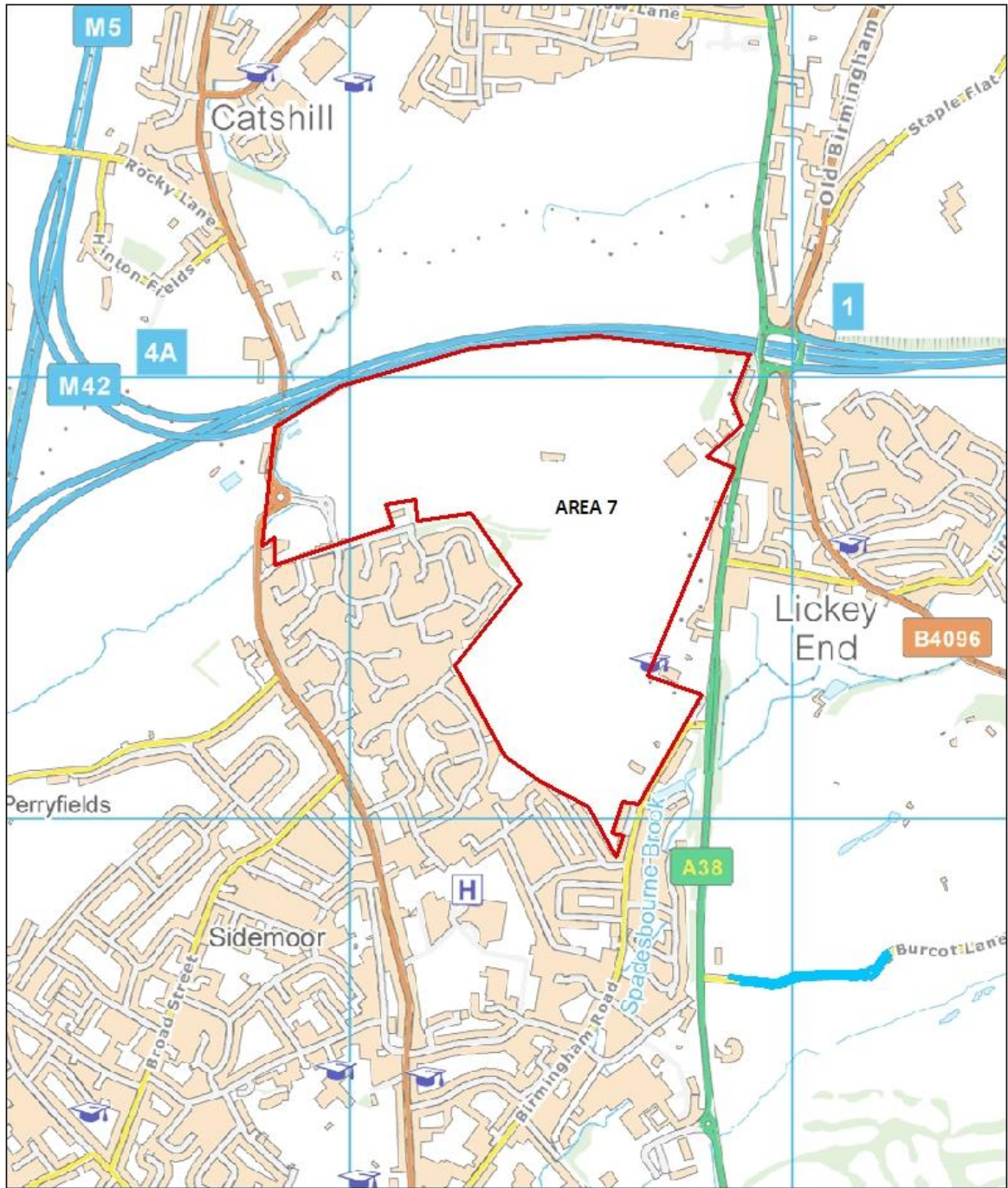


0 55 110 220 Metres


Contains Ordnance Survey data © Crown copyright and database right 2010

AREA 7

Bedrock Geology	Bromsgrove Sandstone Formation Wildmoor Sandstone Formation
Superficial Deposits	Alluvium Alluvial Fan Deposits Holt Heath Member (River Severn 3rd Terrace)
Soil Type	Typical Brown Earths (Bromsgrove Series) Typical Cambic Gley soils (Wigton Moor Series)
Soil Permeability	Permeable Moderately Permeable
Commentary <p>The northern part of the area is underlain by Wildmoor Sandstone, with the remainder of the site comprising Bromsgrove Sandstone. Alluvial fan, river terrace sand and gravels and alluvium occupy land alongside the Stourbridge Road. These deposits give rise to typical cambic gley soils. Elsewhere on the site, the absence of superficial deposits results in a typical brown earth, as derived from the Wildmoor and Bromsgrove Sandstones. The NE and NW edges of the area are bordered by a NW-SE trending fault (Lickey End Fault) and a NE-SW trending fault (Barnsley Hall Fault), respectively.</p> <p>There is no record of any extraction having taken place in the area. However, a small road cutting in the Bromsgrove Sandstone along the Stourbridge Road at SO 9580 7247 has been recorded. If this section of road is improved due to development, then there is an opportunity to improve or re-expose this feature. Consultation with EHT should be undertaken in this instance.</p> <p>Alluvial fan deposits are rarely exposed due to their unconsolidated nature. Any potential development on the site would be expected to uncover such deposits. As a result, it would be informative to record these features during any development phase, although it wouldn't be expected that any long-term conservation would need to take place.</p>	



- SSSI
- Bromsgrove Town Strategic Development Site

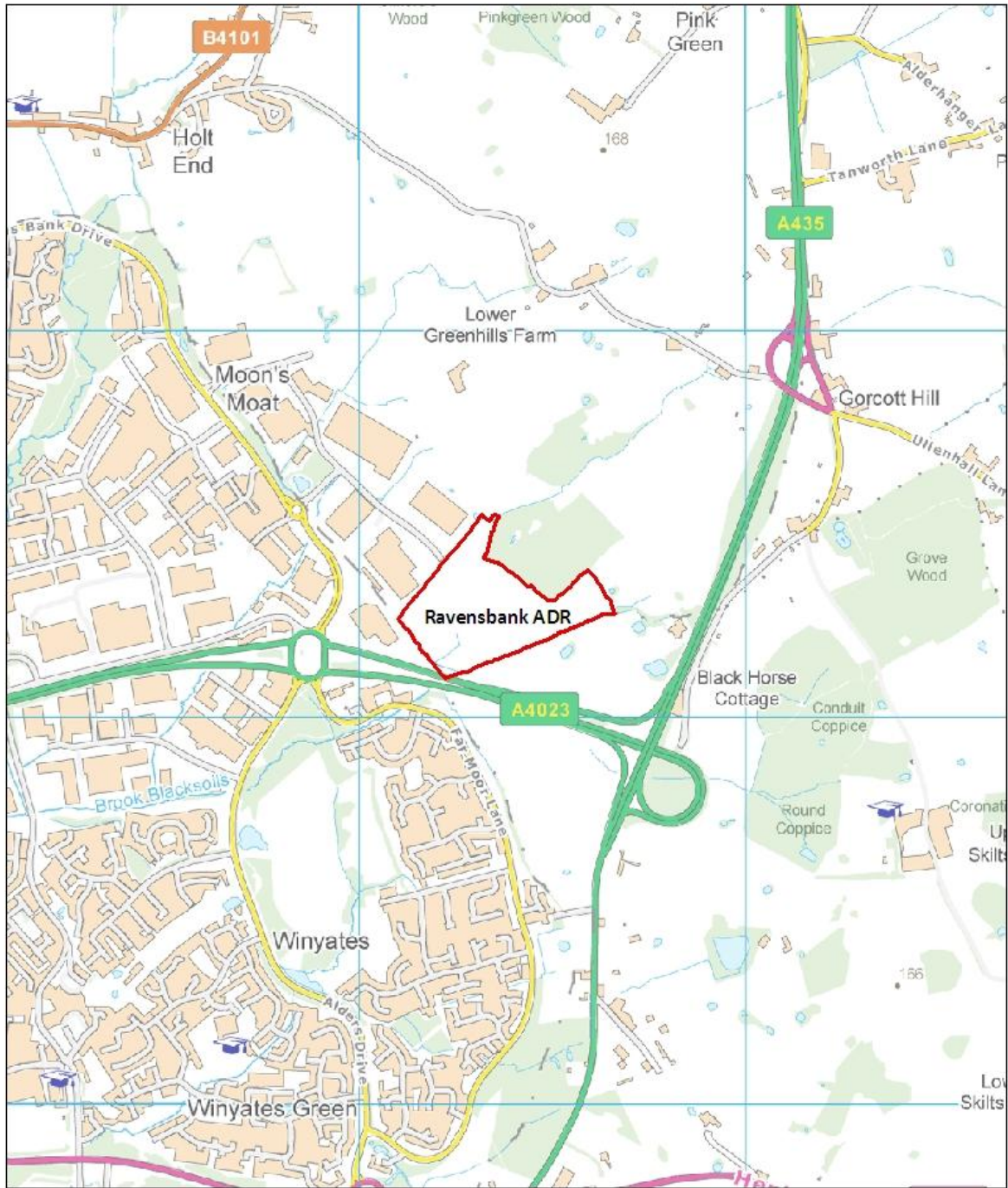


0 65 130 260 Metres

Contains Ordnance Survey data © Crown copyright and database right 2010
 Contains, or is based on, information supplied by Natural England

Ravensbank ADR

Bedrock Geology	Mercia Mudstone Group
Superficial Deposits	Alluvial Fan Deposits
Soil Type	Stagnogleyic argillic brown earths (Whimple Series)
Soil Permeability	Moderately Permeable
Commentary The site is predominantly underlain by alluvial fan deposits, which overlie the Mercia Mudstone. Ordnance Survey maps mark a number of old pits surrounding the site. These would most likely have been worked for sand and gravel from the alluvial fan deposit, or as clay pits working the Mercia Mudstone. Alluvial fan deposits are rarely exposed due to their unconsolidated nature. Any development on the site would be expected to uncover these deposits. As a result, it would be informative to record these features during any development phase , though it is not anticipated that any long-term conservation would need to take place.	



ADR



0 85 170 340 Metres

Contains Ordnance Survey data © Crown copyright and database right 2010

Selected References

Beard, G.R. Cope, D.W. Jones, R.J.A. Palmer, R.C. & Whitfield, W.A.D. 1984. Soils of Worcester and the Malverns District. Memoir of the Soil Survey of Great Britain.

Eastwood, T, Whitehead, T H and Robertson, T, 1925. The geology of the country around Birmingham. Memoir of the British Geological Survey, Sheet 168 (England and Wales)

Mitchell, G H, Pocock, R W and Taylor, J H, 1962. Geology of the country around Droitwich, Abberley and Kidderminster. Memoir of the British Geological Survey, Sheet 182 (England and Wales).

Ragg, J.M., Beard, G.R. George, H. Heaven, F.W. Hollis, J.M. Jones, R.J.A. Palmer, R.C. Reeve, M.J. Robson, J.D. & Whitfield, W.A.D. 1984. Soils and their use in Midland and Western England. Bulletin no. 12 Soil Survey of England and Wales.

Old, R A, Hamblin, R J O, Ambrose, K and Warrington, G, 1991. Geology of the country around Redditch. Memoir of the British Geological Survey Sheet 183 (England and Wales).

Whitehead, T H and Pocock, R W, 1947. Geology of the country around Dudley and Bridgnorth. Memoir of the British Geological Survey, Sheet 167. (England and Wales)