

Site Name

Smithcombe, Sharpenhoe and Sundon Hills

| BEDFORDSHIRE LOCAL GEOLOGICAL SITE DESIGNATION FORM | | |
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| SITE LOCATION, ACCESS, OWNERSHIP, STATUS & SUITABILITY | | |
| (1) Name of site: Smithcombe, Sharpenhoe and Sundon Hills, Bedfordshire | | |
| (2) National grid reference: TL 063 298 (central location) | | |
| (3) Unitary authority: Central Bedfordshire | | |
| (4) Site access and local amenities Good parking and picnic facilities are available at both Sharpenhoe Clappers (off the Sharpenhoe to Streatley road) and Sundon (off the Harlington to Upper Sundon road). Both car parks have height restriction bars and there are no toilets or other amenities. The site is traversed by a well-defined footpath, the Icknield Way, that runs the length of the Chilterns. It lends itself to a linear walk, although a network of footpaths to the north and south allow circular walks to be devised. | | |
| (5) Site ownership: National Trust | | |
| (6) Mineral rights ownership: N/A | | |
| (7) Is permission needed to access the site? | a. No ✓ | b. Yes |
| (8) Site status: Active Disused Historical Managed ✓ Restored New Other | | |
| (9) Suitable for visits by: | a. General public ✓ | b. Small parties ✓ |
| | d. Primary school ✓ | e. National Curriculum ✓ |
| | g. Adult ✓ | h. Undergraduate teaching |
| | | i. Research |
| (10) Site suitable for frequent visits by parties? | a. No | b. Yes ✓ |
| (11) Should collecting and hammering be encouraged at the site? | a. No ✓ | b. Yes |

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| SITE DESCRIPTION | | |
|--|-----------------------------|-----------------------|
| (12) Exposure type: | a. Inland natural outcrop ✓ | b. Road cutting |
| c. Railway cutting | d. Active quarry/pit | e. Disused quarry/pit |
| f. Old mine workings | g. Mine dump | h. Active mine |
| (13) Dimensions of area of interest: 86 hectares (213 acres) | | |
| (14) Main interest(s): | a. Structural | b. Geomorphological ✓ |
| | c. Mineralogical | |
| | d. Palaeontological | e. Petrological |
| | | f. Stratigraphical |
| (15) Summary description and reason for designation The area between Smithcombe and the Sundon Hills forms spectacular countryside and yet is less than 10 kilometres north of Luton. It provides an excellent example of a chalk scarp and dip slope, features which rely on the topographic expression of gently dipping chalk beds over a large area to be seen and appreciated. Fine views are afforded over the clay vale to the north and there is a strong link between rock type, scenery, soil type and vegetation. | | |
| (16) What threats exist for the site? The site, which is also a SSSI for chalk grassland flora and fauna, is managed from a nature conservation viewpoint, which should also safeguard the geomorphological interest. Sharpenhoe Clappers is an Iron Age hillfort and Scheduled Ancient Monument. Any building or forestry which restricts the views along the escarpment would be detrimental to the site. Over-use does not appear to be a problem here as these hills are less popular than the Dunstable Downs. | | |
| (17) What additional work is required to enhance the site? Public awareness and the educational value of this Local Geological Site are undermined by the complete absence of explanatory material (interpretation leaflets or information boards) on site. The National Trust already has information boards at the car parks, but they not address landscape development. | | |
| (18) Published/unpublished references to the site and wider area Friend, P. 2008. <i>Southern Britain</i> . HarperCollins Publishers. 414 pages. Shephard-Thorn, E.R. et al. 1994. <i>Geology of the country around Leighton Buzzard - Memoir for 1:50 000 geological map Sheet 220 (England and Wales)</i> . HMSO, London. <i>Smithcombe, Sharpenhoe and Sundon Hills SSSI notification</i> . 1985. English Nature. www.english-nature.org.uk <i>Discover the Chilterns</i> . www.chilternsaonb.org | | |

| SCIENTIFIC SIGNIFICANCE | | |
|--|--------------------------|--------------------------|
| (19) Does the site exhibit features of local/regional importance? | a. No | b. Yes ✓ |
| (20) Is the site already a designated SSSI? | a. No | b. Yes ✓ (Biological) |
| (21) Collector interest: | a. Rare species | b. Common species |
| | c. Local significance | |
| | d. Regional significance | e. National significance |
| (22) List of confirmed fossils, minerals, etc: N/A | | |

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| HISTORICAL/AESTHETIC VALUE | | |
|---|---------|----------|
| (23) Does the site have important historical associations? | a. No ✓ | b. Yes |
| (24) Does the site form a key part of an attractive or evocative landscape? | a. No | b. Yes ✓ |
| <p>(25) Full description of site and its significance</p> <p>This sinuous escarpment north of Luton forms part of the Chiltern Hills. It is an excellent example of a chalk scarp and dip slope, features which rely on the topographic expression of the gently dipping chalk beds over a large area to be seen and appreciated. The chalk (as with all the rocks in Bedfordshire) dips towards the SE at only 3-4°, but the result is an impressive escarpment and dip slope that are heavily dissected by dry valleys.</p> <p>The escarpment is formed by relatively hard and resistant chalk. The pronounced break of slope at the foot of the escarpment coincides with softer, more clay-rich chalk and still further north the lowland between Barton-le-Clay and Westoning is underlain by Gault Clay. Isolated outliers of chalk with cappings of glacial deposits form the low, linear ridges around Harlington and Pulloxhill. Beyond them the Greensand Ridge is visible.</p> <p>The steep slope of the escarpment is enhanced by two relatively resistant bands of chalk known locally as the Totternhoe Stone (close to the foot of the slope) and the Melbourn Rock (near the top of the slope). These two horizons can be traced for long distances in both directions.</p> <p>There is a thin layer of glacial till preserved on top of the chalk, evidence that the Anglian ice sheet locally overtopped the ridge and advanced southwards through pre-existing channels or 'gaps'. The till is decalcified and weathers to a yellow-brown, stony clay soil, quite different from the soil that develops on the chalk itself. Deeper down the till becomes darker and contains abundant poorly sorted clasts of chalk, flint and sandstone. Occasional clasts of igneous and metamorphic rocks indicate that the ice sheet drained a vast area further north and transported sediment enormous distances.</p> <p>The chalk escarpment is strongly sinuous and dissected by many dry valleys known as coombes. The most spectacular are Smithcombe Valley and Watergutter Hole, both at the eastern end of the site. They may have been cut by semi-permanent streams at a time when the regional water table in the Chalk was higher than at present, or during a permafrost period when the frozen ground would have enhanced surface run-off and erosion (Shephard-Thorn <i>et al.</i>, 1994).</p> | | |

| RECORDER'S DETAILS | |
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| (26) Name: Dr Jill Eyers | (27) Organisation: Consultant geologist working on behalf of B&LGG |
| (28) Date of designation: April 2006 | |

| CURRENT SITE CONDITION |
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| (29) Site condition at March 2009 is GOOD; assessed by Malcolm Oliver. |

| NOTES |
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| (30) Form revised and updated by Dr Martin Whiteley, B&LGG Local Geological Site Manager, November 2009. For further details contact mjwhiteley@yahoo.co.uk |