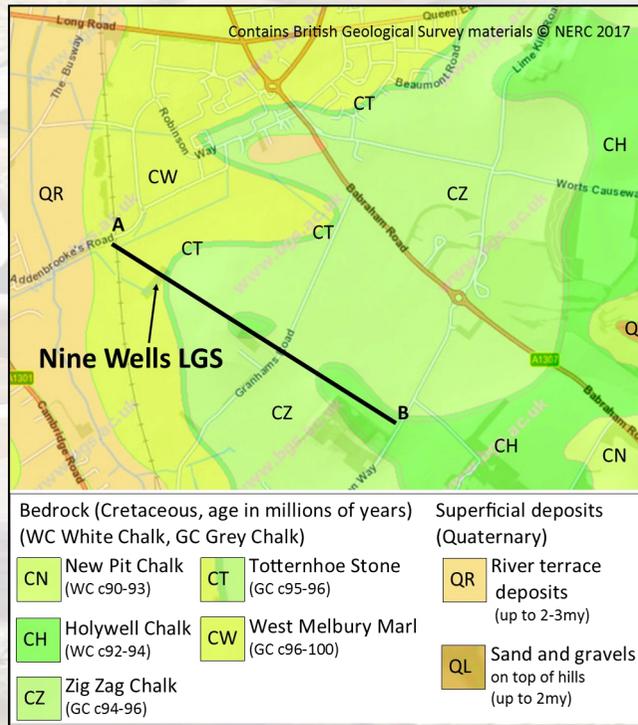


Local Geological Sites (LGS)

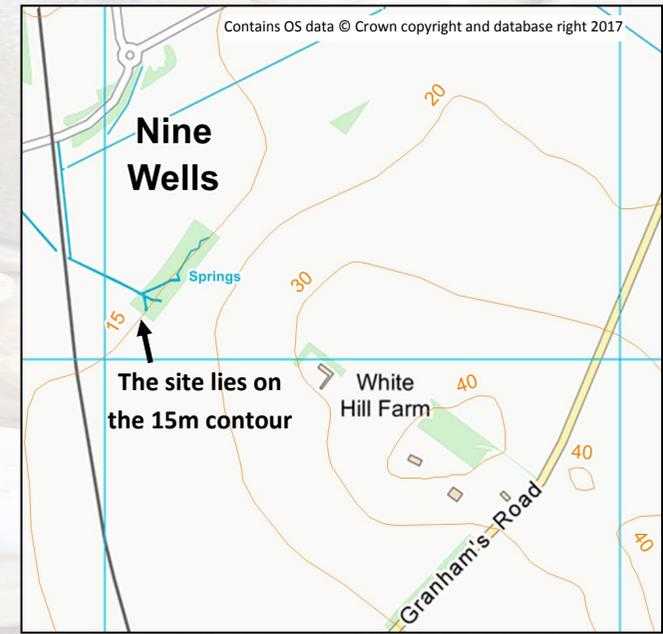
LGS are recognised for their local geological diversity and earth heritage value. The Nine Wells LGS was designated because of its unique blend of geology, geomorphology, hydrology, ecology, history and education value. It is also a Local Nature Reserve (LNR) managed by the Cambridge City Council for conservation and public access. It is important historically as its springs are the main source of water for Hobson's Conduit which flows northwards some 4kms into the centre of Cambridge. Built in the 17th century to provide good quality drinking water to the city, this is a Scheduled Monument. On the site there is a memorial to Thomas Hobson, its funder, and to the College Masters and City Councillors who worked together to create this important new water supply.



Geology map showing Nine Wells in relation to the Chalk formations and the deposits in the Cam Valley

underlying West Melbury Marl (a clayey Chalk). There is a spring line at the level of the Totternhoe Stone along its outcrop in the south of the county.

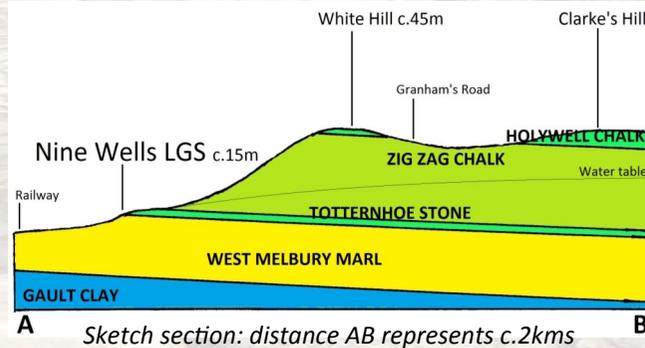
At Nine Wells the water emerges at four main springheads and many minor fissures, combining to form the Chalk stream, Hobson's Brook. The front page upper photograph shows the spring head



OS map showing Nine Wells at foot of White Hill
Scale: the side of an OS grid square represents 1km

located in the north-east corner of the site. The springs emerge a few metres behind the line of trees (see photograph below) along the south-east boundary of Nine Wells, which lies on the structural terrace associated with the Totternhoe Stone (see sketch section). Here, the land levels off between 20 and 15m OD at the foot of White Hill which rises to c.45m off to the right of the photograph, and which is capped by an outlier of the younger Holywell Chalk (the lowest stratum of the White Chalk).

Nine Wells: The landscape



Nine Wells is situated in the Cam River Valley at the base of the Gog Magog Hills, south of Cambridge. The regional dip of the strata is to the south east, with the surface slope from the top of White Hill down through Nine Wells towards the railway and the River Cam forming the scarp slope of the major Chalk escarpment that runs from the Chilterns to the north Norfolk coast. The geological map and sketch section show the location of Nine Wells on the Cretaceous Grey Chalk where the thin stratum of Totternhoe Stone outcrops between the Zig Zag Chalk and the



The rock

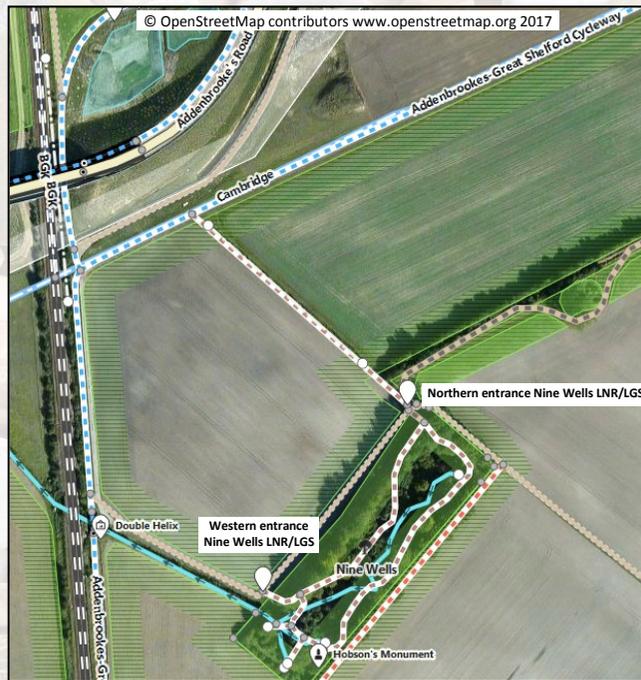
Totternhoe Stone is typically a hard, fissured, fine grey sandy Chalk limestone consisting mainly of small, even-sized shell fragments of the extinct bivalve mollusc *Inoceramus*, indicative of shallow-water conditions during its formation. The flow of water down through the permeable Zig Zag Chalk and Totternhoe Stone is held up by the underlying relatively impermeable Marl. The water travels along fissures in the Totternhoe Stone, reaching the surface and emerging through springs at its base.

At Nine Wells, the channels and springheads are confined within artificially-steepened banks a metre, or more, high. The clearly bedded and fractured bedrock is exposed in places along the water's edge (front page lower photograph). Elsewhere, it is covered by vegetation or material that has slipped down the banks. The Totternhoe Stone is also known as Burwell Rock due to it having been quarried in Burwell for use as building stone (clunch).

Water and life

Due to the water's quality and character, the springs are very important ecologically, as are the many Chalk springs in the south of the county. Nine Wells was once designated a Site of Special Scientific Interest (SSSI) due to its high biological value but lost this status after the summer drought of 1976 when the springs dried up and *Crenobia alpina* (a flatworm) and *Agapetus fuscipes* (a cased-caddisfly) failed to survive. The temperature of the spring water is a constant 10.4°C, being cool enough for the flatworm and warm enough for the caddisfly.

For many decades, spring flow at Nine Wells has been inexorably reduced by over-abstraction from the Chalk aquifer at Babraham, a contributory factor in 1976. Work began in 2017 on a project, managed by the Environment Agency, to compensate for this by pumping water from the aquifer into injection boreholes along the south-east-facing boundary so that it emerges through the nearby springheads.



Nine Wells is best approached from the Rosie Maternity Hospital, along the Addenbrookes-Great Shelford Cycleway about a 15 minutes walk (footpaths - brown, cycleways - blue). Channel shown from spring in north east corner.

To visit, check the [Cambridge City Council website](#). Note access and safety information on site.

Also known as Geosites (or RIGS), LGS are the most important local geoconservation sites. Further information on LGS and the geology of Cambridgeshire can be found on the [CGS website](#).

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www.cambsgeology.org
info@cambsgeology.org

