

As detailed from the British Geological Survey (BGS), the Superficial Geological ground conditions here indicates River Terrace Deposits (undifferentiated) of sand, silt and clay over Bedrock of the Lewes Nodular Chalk Formation usw. The bedrock was not encountered in either the Groundwater Monitoring BoreHoles or the Percolation Test Trial Pits. From the BGS, the 3 closest Borehole Scans show chalk was encountered at between 3.5 metres and 11.7 metres below ground level. Karst erosion surfaces are those present in Limestone (Yorkshire Dales) or Dolomite geology. Locally Chalk doesn't generally exhibit Karst erosion and as such no Paleokarstic Surfaces are considered to be present. In addition it is considered that there is very minimal (or none) ground instability locally. It is considered that the underlying chalk bedrock not to be low density. Thus where the proposed infiltration structures are located on the site, above the existing bedrock geology, no additional easement is required for the garage, other outbuildings, or house, in this instance.

A BRE365 a trial pit of size 1020mm long by 370mm wide and to a depth of 810mm was excavated at the approximate location of the proposed rear soakaway and a BRE365 a trial pit of size 1010mm long by 340mm wide and to a depth of 825mm was excavated at the approximate location of the proposed front soakaway.

Investigations :-

- The actual increase of impermeable roof area, for the proposed planning application, is very small, however it is very difficult to split out the proposed changes to roof structures and this majority of the existing roof area which drains into the foul system ideally has to be removed. The proposed front porch, of roof area of 3 square metres only, will drain into a small soakaway in the front garden. The design achieves all of the requirements, with betterment to all the existing roof areas, such that the property now achieves current drainage standards and requirements.

Two 400mm deep, rectangular geocellular soakaways have been designed. One in the rear garden, 6.00 metres long x 2.50 metres wide, with a cover of 500mm, which will be suitable to drain all of the proposed changed roof areas, totalling a combined full Roof Area of 99 square metres. A small soakaway, in front garden, has been designed, 1.00 metre long x 0.50 metres wide, with a cover of 400mm, to drain the proposed front porch of 3 square metres, both without flooding above ground level on a 1 in 100 year rainfall return event plus 40% climate change addition.

Both soakaways should be sited a minimum of 5 metres from any habitable building to avoid any saturation of the ground and settlement affecting the building structure. Best Practice has also been applied to maintain 2½ metres distancing to any boundary

	GWP Groundwater Monitoring Test Point.
	TP Soil Infiltration Testing BRE365 Trial Pit.
	Proposed 250mm diameter surface water inspection chamber. Osma shallow IC or similar approved. Cover & Frame loading class A15 to BS EN 124
	Proposed silt trap inspection chamber. Polypipe Ridgistor Basic or similar approved. Minimum Sump Depth to be 435mm Cover & Frame loading class A15 to BS EN 124
	Proposed surface water drainage. 100mm diameter PVC pipe. Minimum fall of 1:100 or as detailed on the layout.

GL ###	Ground level at detailed items
CL ###	Cover level of surface water chambers
IL ###	Invert level of surface water drains
GSL ###	Soffit (top) level of Geocell infiltration structure
GBL ###	Base level of Geocell infiltration structure

NOTE
This drawing had been produced for discharge of planning conditions only. All levels and details need to be checked for Building Regulations approval and constructional purposes.

TP#1 BRE365 Trial Pit
1020mm long x 370mm wide x 810mm deep

The Minimum Rate used in the calculations from the three tests within the Trial Pit TP# was 1.211 E-05 metres / second.
Test #2 was started within 30 minutes of completion test #1.
A Factor of Safety of 1.5 was used in the calculations for the design (with a $C_v=1.0$).

TP#2 BRE365 Trial Pit
1010mm long x 340mm wide x 825mm deep

February	24th	2022	--	2.202 E-05 m/s
February	24th	2022	--	9.375 E-06 m/s
February	25th	2022	--	1.188 E-05 m/s

The Minimum Rate used in the calculations from the three tests within the Trial Pit TP#2 was 9.375 E-06 metres / second.
Test #2 was started within 60 minutes of completion test #1.
A Factor of Safety of 2.0 was used in the calculations for the design (with a $C_v=1.0$).

The full graphical data and calculations for the Soil Infiltration are submitted separately

03	Drainage Engineers Comments	RC	21-06-22
02	Final	RC	02-04-22
01	Original	RC	05-03-22
Rev.	Description	Drn.	Date

Client	Mr David Cook & Ms Charlotte Carter
Drawing Title	Surface Water Drainage

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Scale	As Shown	Drawing Original	A2
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Drawing Number MGS -- M/141/21 -- rev03