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Percolation/Infiltration (hydraulic calculations) @ Wade Court Cottage, Wade Lane, Havant. PO92TB. Ref: Percolation velocity/drainage field "sizing" calculations for a Graf One2Clean 5 Person Sewage Treatment Plant (STP) suited to a 3-bedroom dwelling as required by British Water/Environment Agency/Building Regulations. Installation to be inspected and certified by Building Control (West Sussex).

Reference: Drainage Field area calculations to suit a Graf One2Clean 5 Person Sequential Batch Reactor Sewage Treatment Plant suited to a domestic dwelling.

Position of test pit.

Pit Position Latitude 50°50'35.47"N Longitude 0°58'38.33"W

Test Pit dimension according to Section H2 of the Building Regulations (Sewage and Drainage issues) and BS 6297: 2007 + Amendment 1 2008

Test pits were excavated to dimensions 300mm width x 300mm length x 900mm depth (or 300mm below invert of STP outlet) and test runs measured over a vertical fall of 150mm below 750mm depth from surface and at least 75mm above pit base.

Velocity of drainage measured as an average over 3 x runs over 150mm vertical fall.

Test Pit: Average of 3 x runs = 8766 seconds

Average percolation velocity over = 8766 seconds

Percolation value (V) velocity = $8766 \div 150\text{mm} = 58\text{sec/mm}$

V = the time is seconds for the water in the test hole to drop by 1mm.

The percolation test calculations for a sewage treatment plant discharge to drainage field are as follows:-

Area (A), = $V \times P \times 0.20$ for sewage treatment plants

V, = the time is seconds for the water in the test hole to drop by 1mm.

P, = the max. number of persons that the unit is designed to serve.

The calculation gives the AREA in SQUARE METRES required for the drainage field.

V = 58secs

P = 2 persons

$58 \times 2 \times 0.2 = 23\text{m}^2$

Drainage field area required = 23m^2

Graf infiltration tunnel equivalent to $23\text{m}^2 = 4 \times$ tunnel sections