

Guidance on Percolation Tests for Septic Tank Drainage Systems and Package Wastewater Treatment Plants – Serving a Single Dwelling

A drainage field serving a wastewater treatment plant or septic tank should be located:

- At least 10m from any watercourse, ditch or permeable drain;
- At least 50m from the point of abstraction of any groundwater supply and not in any zone 1 groundwater protection zone;
- At least 7m from any building; consider prevailing wind direction.
- At least 2m from the boundary to the adjoining site or land.
- Sufficiently far from any other drainage fields, drainage mounds or soakaways so that the overall soakage capacity of the ground is not exceeded.

The disposal area should be downslope of groundwater sources.

No water supply pipes or underground services other than those required by the disposal system itself should be located within the disposal area.

No access roads, driveways or paved areas should be located within the disposal area.

A preliminary assessment should be carried out including consultation with the Environment Agency and local authority to determine the suitability of the site. The natural vegetation on the site should also give an indication of its suitability for a drainage field.

BS6297:2007 + A1:2008 should be consulted for fuller information in respect of the design and installation of a drainage field for use in wastewater treatment.

A trial hole should be dug to determine the position of the standing ground water table. The trial hole should be a minimum of 1m² in area and 2.1m deep and a minimum of 1.5m below the invert of the proposed drainage field pipework. The ground water table should not rise to within 1m of the invert level of the proposed effluent distribution pipes. If the test is carried out in the summer, the likely winter groundwater levels should be considered. A percolation test should then be carried out to assess further suitability of proposed area.

Percolation test method – Excavate at least three holes 300mm square to a depth 300mm below the proposed invert level of the effluent distribution pipe spacing the holes along the proposed line of the subsurface irrigation system.

- Saturate the local soil by filling each hole with water to a depth of at least 300 mm and allow the water to seep away completely.
- If the water drains rapidly (within 10 minutes) the hole should be refilled up to maximum of 10 times. If the water continues to drain away rapidly the ground is unsuitable.
- If the water has not soaked away within 6 hours the area is not suitable.
- Determine the percolation rate by refilling each hole with water to a depth of at least 300 mm and observe the time in seconds for the water to seep away from 75% full to 25% full (ie a depth of 150mm).
- Divide this time in seconds by 150; this gives the average time in seconds required for the water to drop 1mm.
- Repeat the test at least three times in each hole in the location of the proposed trench(es).
- Take the average figure from the tests to produce the percolation value V_p (in seconds).
- Obtain the average figure for the percolation value (V_p) by summing all the values and dividing by the number of values used.
- The result from the percolation test should be tabulated below.
- Where V_p results vary widely (50% above or below the average figure) make further tests on a minimum of three different locations in the area of the proposed drainage field.
- Drainage field disposal should only be used when percolation tests indicate average values of V_p between 15 and 100 and the preliminary assessment of the trial holes has been favourable.

Calculating Trench Area and Trench length

Septic tank – $A = P \times V_p \times 0.25$

A = required drainage floor area in square metres (M²)


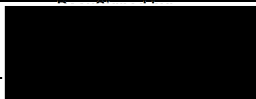
TREWIN DESIGN ARCHITECTS

P = number of people served by the tank. This should be the maximum number of people that could live in the dwelling
 Vp = percolation value

Package wastewater treatment plants – $A = p \times Vp \times 0.2$

The floor area "A" should be converted to a linear trench based on the width of the trench which should be between 0.3m to 0.9m.

The completed test results table together with a plan indicating the location of the test holes and the proposed area of the effluent drain should be returned to the Building Control Department at the address below.

Applicant's Name and Address:			Dr T Farquhar Southlands Residential Home, Bridgerule, Devon, EX22 7EW					
Site Address:			Southlands Residential Home, Bridgerule, Devon, EX22 7EW					
Building Regulation No: (if known)			N/A					
Hole No:	Test Date:	Test No:	Start Time:	Finish Time:	Elapsed Time			Vp (s/mm)
					Hours / Minutes (H/Mins)	Minutes (Mins)	Seconds (S)	Seconds divided by 300mm
1	22/12/2020	1	10.25	11.57	1/32	92	4752	31.68
	22/12/2020	2	12.10	14.06	1/56	116	5940	39.6
	22/12/2020	3	14.15	16.45	2/30	150	8280	55.2
Average VP for Hole 1								42.16
2	22/12/2020	1	10.35	12.45	2/10	130	7560	50.4
	22/12/2020	2	12.50	15.33	2/43	163	8748	58.32
	22/12/2020	3	15.40	18.42	3/02	182	10872	72.48
Average VP for Hole 2								60.4
3		1						
		2						
		3						
Average VP for Hole 3								
Test Carried Out By:			Dr. T Farquhar			Date:	06/01/2021	
Address:			Southlands Residential Home, Bridgerule, Devon, EX22 7EW			Tel No:		
Signed:						Lynne Abbott		