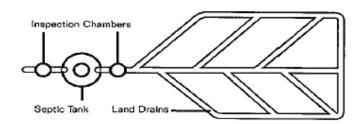


## **GUIDANCE NOTE 2**

GUIDE TO PERCOLATION TEST REQUIREMENTS

## What is a Septic Tank?

Septic tank systems are an alternative method of sewage disposal from properties, usually in rural areas, not served by public sewers. A septic tank is basically a holding tank into which the sewerage from a dwelling drains. The liquid part of the waste is separated and then leaves the tank via a system of land drains while the solids are held within the tank.



The use of septic tanks will only be considered when no suitable public sewers are available within 30m of the site.

## What is a percolation test?

A percolation test must be carried out on the area of land chosen and the test results forwarded to your Building Control Surveyor. To carry out a percolation test follow these steps:

- 1. A trial hole should be dug to determine the position of the standing ground water table. The trial hole should be a minimum of 1m<sup>2</sup> in area and 2m deep, or a minimum of 1.5m below the invert of the proposed drainage field pipe work. The ground water table should not rise to within 1m of the invert of the proposed effluent distribution pipes. If the test is carried out in summer, the likely winter groundwater levels should be considered. A percolation test should then be carried out to assess the further suitability of the proposed area.
- 2. Excavate a hole 300mm square to a depth of 300mm below the proposed invert level of the effluent distribution pipe. Where deep drains are necessary the hole should conform to this shape at the bottom, but may be enlarged above the 300mm level to enable safe excavation to be carried out. The holes should be roughly in the area where you propose to lay the outfall drainage.
- 3. Fill the 300mm square section to a depth of at least 300mm with water and allow to seep away overnight.
- 4. Next day, refill the test section with water to a depth of at least 300mm and observe the time in seconds, for the water to seep away from 75% full to 25% full (i.e. a depth of 150mm). Divide this time by 150mm. The answer gives the average time in seconds (Vp) required for the water to drop 1mm.

/cont over

- 5. The test should be carried out at least three times with at least two trial holes. The average figure from the tests should be taken. The test should not be carried out during abnormal weather conditions such as heavy rain, severe frost or drought.
- 6. Drainage field disposal should only be used when percolation tests indicate average values of Vp (see attached form) of between 12 and 100 and the preliminary site assessment report and hole tests have been favourable. This minimum value ensures that untreated effluent cannot percolate too rapidly into groundwater. Where Vp is outside these limits effective treatment is unlikely to take place in a drainage field. However, provided that an alternative form of secondary treatment is provided to treat the effluent from the septic tanks, it may still be possible to discharge the treated effluent to a soakaway.

# How do I calculate the required length of outfall drains?

To convert your test result into the floor area of subsurface drainage trench (m<sup>2</sup>), use the following formula:-

# Number of persons served by the tank\* X the percolation value (Vp) X 0.25

(a worked example is shown on the following page)

\* Number of persons served by the tank - this is the potential number of occupants of the dwelling. For instance, if a four bedroomed house is proposed and each bedroom is large enough to accommodate a double bed or two single beds the number of persons used for this calculation will be 8. If you are aware that bunk beds will be provided in smaller rooms please allow for this in your calculation as inaccuracies at this stage may result in the septic tank system not working effectively and possibly necessitating the need for costly remedial work at a later stage.

### How are outfall drains constructed?

The outfall land drains should generally be laid in a closed herringbone design, using rigid perforated pipe laid in trenches of a uniform gradient which should not be steeper than 1/200. Pipes should be laid on a 300mm layer of clean shingle or broken stone between 20mm and 50mm. The trenches should be filled to a level 50mm above the pipe with an impervious sheeting laid over the aggregate to separate the soil. Drainage trenches should be from 300mm to 900mm wide and areas of undisturbed ground 2.0m wide should be maintained between parallel trenches.

If you require any further information of assistance in completing the percolation test result form included with this guidance note please contact your local Building Control Services office:

• 3/5 Barn Lane, **Bodmin**, PL31 1LZ. T: 01208 265658

Email: buildingcontrol.east1@cornwall.gov.uk

 Luxstowe House, Liskeard, PL14 3DZ t: 01579 341170 Email; buildingcontrol.east2@cornwall.gov.uk

Pydar Street, Truro, TR1 1EB T: 01872 224305
 Email: buildingcontrol.central1@cornwall.gov.uk

• Penwinnick Road, St Austell, PL25 5DE T: 01726 223456

Email: buildingcontrol.central2@cornwall.gov.uk

St Clare, Penzance, TR18 3QW T: 01736 331166
 Email: buildingcontrol.west1@cornwall.gov.uk

• Dolcoath Avenue, Camborne, TR14 8SX T: 01209 614420

Email: buildingcontrol.west2@cornwall.gov.uk



# PERCOLATION TEST RESULTS (A worked example is shown overleaf)

Applicant name: Site address:	
Building Regulation application number:	_

STAGE 1 - Calculation of the average time for the water to soakaway and calculation of the Vp

	Hole 1	Hole 2	Hole 3	Total Time (Seconds)
Time taken in seconds for the water level to drop from 75% full to 25% full (225mm to 75mm)				

Total time (seconds)			Average time			
	÷	3 =		÷ 150	=	Vp

# STAGE 2 - Calculation of the area of the drainage trench required (M²)

Potential number of occupants*	Percolation test result (Vp)					
	X	=	X	0.25	=	M <sup>2</sup>

<sup>\*</sup> Potential number of occupants – this number must represent the number of people who **could** occupy the dwelling. For instance, where it is proposed that 3 people will occupy a dwelling which has 4 bedrooms each of which is of sufficient size to accommodate a double bed or two single beds the potential occupancy will be 8.

Please return your completed form to your area office – see above



#### **EXAMPLE PERCOLATION TEST RESULTS**

# Proposed dwelling containing 3 double bedrooms

Applicant name: Mr A Mann

Site address: Plot 1, Rose Lane, Bodmin

**Building Regulation application number:** 9999/2007

# STAGE 1 - Calculation of the average time for the water to soakaway and calculation of the Vp

	Hole 1	Hole 2	Hole 3	Total Time (Seconds)
Time taken in seconds for the water level to drop from 75% full to 25% full (225mm to 75mm)	8400	9500	9100	27000

Total time (seconds)				Average time		<b>&gt;</b>		
27000	÷	3	=	9000	÷ 150	=	60	Vp

# **STAGE 2 -** Calculation of the area of the drainage trench required (M<sup>2</sup>)

Potential number of occupants*	Percolation test result (Vp)							
6	<b>X</b> 60	=	360	X	0.25	=	90	M <sup>2</sup>

<sup>\*</sup> Potential number of occupants – this number must represent the number of people who **could** occupy the dwelling. For instance, where it is proposed that 3 people will occupy a dwelling which has 4 bedrooms each of which is of sufficient size to accommodate a double bed or two single beds the potential occupancy will be 8.

Please return your completed form to your area office - see above