

## PERCOLATION TEST PROCEDURE & FORM

Use the following instructions to conduct a percolation test. This is the procedure for a percolation test in BC; other provinces and states may use a different procedure:

1. Perc test holes should be made at points and elevations selected as typical in the area of the proposed absorption field.
2. Typically, test holes are dug at each end of the area of the absorption field and near the centerline. Testing of the receiving area may also be necessary. Further holes could be needed, depending upon the nature of the soil, the results of the first tests and the size of the proposed dispersal area.
3. Test holes should be 30 cm (12") square or 36 cm (14") round and excavated to the proposed depth of the absorption field (or as instructed by the designer). It is generally easiest to dig a larger hole part way down, then dig a 18 to 20 cm (7 to 8") deep accurately sized test hole in the base of the larger hole.
4. To make the percolation test more accurate, any smeared soil should be removed from the walls of the test holes. This is best achieved by digging the hole approximately 5cm undersized (2") and then enlarging the hole to the accurate size as follows: using a rigid knife, insert the blade into the top side of the hole opposite you approximately 2.5cm (1") deep, holding the blade with its cutting edge vertical. Pull the blade away to break out a chunk of soil, repeat about an inch (2.5cm) apart around the hole, then repeat for another 1/2 inch below until reaching the base. The result will be a hole with a ragged inner surface which looks like a freshly broken clod of soil.
5. The base of the hole should be cleaned of debris and be approximately flat, use a metal scoop or similar. It should also be picked to present a natural surface. Note that a picking action (use a pointed tool) is needed, not a scratching action (which just produces smears that are indented).
6. Place 5 cm (2") of clean fine gravel in the bottom of the hole. If the sidewalls are likely to collapse, use a paper basket to support the sidewalls (see note below). Place a piece of white plastic or similar provided with clear marks at 5" and 6" from the bottom of the test hole prior to adding the gravel. For greater accuracy a float and pointer arrangement can be set up.
7. If the soil contains considerable amounts of silt or clay, and certainly for any soil with 1/2 clay as part of the texture description, the test holes should be pre-soaked before proceeding with the test. Pre-soaking is accomplished by keeping the hole filled with water for 4 hours or more. The water should be added carefully and slowly to avoid disturbing the soil (including the sidewall soils). The test should be carried out immediately after pre-soaking;
8. To undertake the test, fill the test hole (the accurately sized test hole) with water. The water should be added carefully and slowly to avoid disturbing the soil (including the sidewall soils). When the water level is 5" or less from the bottom of the hole, refill the hole to the top. No recording of time needs to be done for these 2 fillings.
9. When the water level, after the second filling (procedure (8)) is 5" or less from the bottom of the hole, add enough water to bring the depth of water to 6" or slightly more. Note that these measurements are from the base of the soil bottom (using the marker installed in step (6)), not the gravel layer.
10. Observe the water level until it drops to the 6" depth, at precisely 6", commence timing, when the water level reaches the 5" depth, stop timing, record the time in minutes.

11. Repeat procedures (9) and (10) until the last 2 rates of fall do not vary more than 2 minutes per inch or by more than 10% (whichever is less).
12. Report slowest rate for each hole.
13. Backfill the holes with the excavated soil and flag and label their locations so you can pick them up for the plan.

If a test hole is discarded due to flow in a root channel or similar, record the information and make a replacement test. If there is a large variation (greater than or equal to 50%) between tests in the same soil layer, increase the number of tests.

#### **Paper basket to protect hole**

If sidewalls of the hole are likely to collapse, one option is to make a paper basket to protect and support the sidewalls as follows:

1. Cut the bottom out of a large paper bag (grocery bag) and cut the bag open along a side.
2. Lay bag on a soft surface. Punch holes in the bag about 5 to 7.5 cm (2 to 3 inches) apart using a pencil or similar.
3. Roll into a tube, with the short dimension being the axis of the tube, and place in the test hole.
4. Open the tube until the paper is in contact with the sidewalls of the test hole, then roll the top of the tube over to stiffen it.
5. After placing the tube in the hole, place the plastic marker and add the base gravel layer.

#### **Percolation rate for design**

Select the percolation rate to be used for sizing of the dispersal area. This will be the median (middle) value from all the tests conducted.

**Percolation test form on the next page...**

**Percolation test form**

Location (address):							File #:	
Date:		Tested by:						
Weather:								
Test number	Depth of base of hole from surface (cm)	Timings, mins per inch for water to drop from 6 to 5 from base of hole.						Lowest rate (min per inch)
		#1	#2	#3	#4	#5	#6	
1								
2								
3								
4								
5								
6								
7								
8								
Percolation rate for system sizing								
Notes:								