ITEM 191.62 PERCOLATION TESTING EACH

GENERAL

The work under this item shall consist of testing the percolation of the subgrade at proposed infiltration areas at the locations shown on the Plans or as requested by the Engineer.

CONSTRUCTION METHODS

The Engineer shall be notified at least 24 hours prior to percolation testing.

At the bottom of the excavation for the infiltration area, contractor shall perform a minimum of (1) one percolation test per infiltration or (1) one percolation test for every 5,000 square feet of infiltration area, whichever is greater.

In accordance with 310 CMR 15.105, percolation tests shall be conducted by performing the following steps in sequence:

1. Prepare the test holes at the locations shown on the Plans or as otherwise directed by the Engineer. The test hole shall have a diameter of 12 inches, as precisely as possible, with vertical sides 18 inches deep not including any allowable liners or filter layers on either the bottom or sides.

2. Establish a fixed point at the top or bottom of the test hole from which all measurements will be taken.

3. Scratch the bottom and sides of the test hole to remove any smeared soil surfaces, taking care not to significantly change the hole dimensions. Add two inches of coarse sand to protect the bottom from scouring or insert a board or other impervious object in the hole so that water may be poured down or on it during the filling operation. A mesh or perforated liner designed to maintain the test hole dimensions in extremely loose soils while allowing essentially unrestricted flow of water may be used with permission of the Engineer.

4. Carefully fill the hole with clear water to a minimum depth of 12 inches from the bottom of the hole. Maintain this minimum 12 inch or greater water level by adding water as necessary in order to saturate surrounding soils for a period of no less than 15 minutes after first filling the hole.

5. After saturation, let the water level drop to a depth of nine inches and then measure the length of time in minutes for it to drop from a depth of nine inches to a depth of six inches. If the rate is erratic in the opinion of the Engineer, the hole shall be refilled and soaked until the drop per increment of time is steady. The time for the level to drop from a depth of nine inches to a depth of six inches, divided by three, is the percolation rate in minutes per inch.

6. In certain soils, particularly coarse sands, the soil may be so pervious as to make a percolation test difficult, impractical, and meaningless. At the discretion of the Engineer, the percolation test may be discontinued and a rate of two minutes per inch or less can be assumed provided that at least 24 gallons of water has been added to the percolation hole within 15 minutes and it is impossible to obtain a liquid depth of nine inches.

Percolation tests shall be performed by a Massachusetts Registered Professional Engineer, Massachusetts Registered Sanitarian, or a Soil Evaluator.

All percolation testing shall be performed in the presence of the Engineer.

Additional percolation tests may be required as determined by the Engineer.

Minimum infiltration rate shall be at least 0.17 inches/hour.

Contractor shall report the findings to the Engineer.

METHOD OF MEASUREMENT

Percolation Testing will be measured for payment per each, complete in place.

BASIS OF PAYMENT

Percolation Testing will be paid for at the Contract unit price per each, which price shall include all labor, materials, equipment, and incidental costs required to complete the work. No separate payment will be made for excavation, preparation of test holes, coarse sand, water, and reporting, but all costs in connection therewith shall be included in the Contract unit price bid.