FOR MORE DETAILED INFORMATION REGARDING INFILTRATION TRENCHES SEE LINKS BELOW:

- DESIGN DETAILS
- SAMPLE SPECIFICATIONS
- MAINTENANCE REQUIREMENTS
- PLANT LIST
- PERFORMANCE DATABASE
- REGIONAL EXAMPLES
SITING AND DESIGN CONSIDERATIONS

**Pretreatment Needs**
To ensure the long term effectiveness of infiltration trenches, pretreatment should be used to prevent the facility from clogging. Pretreatment is most effective when multiple practices are used in series. These practices include vegetated filter strips, grass swales, grit chambers, sedimentation basins and sediment traps or forebays. The pretreatment system should be designed to remove 25-30% percent of sediment loads. Accessibility to accommodate periodic maintenance is a critical design factor for pretreatment systems.

**Contributing Drainage Area**
Typically, infiltration trenches are designed for small sites (e.g. five acres or less) but can be applied to larger areas if designed properly. Consideration should be given to the slopes of the contributing drainage area.

**Ponding Area**
The ponding area provides temporary runoff storage prior to infiltration, filtration, or evaporation. Ponding depths vary with size, treatment area and infiltration capacity of insitu soils but should be able to drain before the next storm event. Drain times between 6 and 72 hours ensure satisfactory pollutant removal and further capacity for the next storm.

**Observation Well**
A perforated pipe should be installed in the infiltration trench to monitor water levels and drawdown time. The pipe should be flush with the bottom of the trench and should be anchored by a foot plate. The top of the well should be capped and locked.

**Storage Area**
Use 1-3 inch washed stone aggregate that is open-graded and of a narrow size range so that voids between aggregates are not filled by smaller particles, thus contributing to lower efficiencies or clogging. Filter fabric on the sides and top of the trench help prevent surrounding soil from clogging the facility. The transmissivity of the filter fabric should be considered (e.g. no less than 100 gpm). An optional layer of pea gravel on top of the filter fabric at the top of the trench, can maximize sediment and pollutant removal and easily be replaced if the facility starts to clog. Typical trench depths range from 3’-12’.

**Bypass and Outlets**
Infiltration trenches should be designed with a bypass to direct excess flow away from the trench to appropriate locations downstream. This can be done overland or in storm pipes, but should minimize concentrated erosive flow.

**Insitu Soil**
Soils may be the most important factor in infiltration trench site suitability. To verify existing soils information, perform 1-3 soil borings in the location of the proposed infiltration practice to confirm permeable soils, and depth to the seasonally high water table, bedrock or other impeding layer. Soil borings should be performed to a minimum 5’ below the bottom of the proposed infiltration trench. Soils should have low clay and silt content and have infiltration rates greater than 0.5 in/hr.

**Depth to Water Table and/or Bedrock**
Provide a minimum 3’ distance below the bottom of the practice and the water table or bedrock (Protecting Water Quality in Urban Areas: A Manual, Minnesota Pollution Control Agency. March 1, 2000). This separation is required to maintain groundwater quality and the hydraulic capacity of the practice.

**Siting of Facility**
Each site should be considered unique. Infiltration trenches should be strategically located to collect sheet flow from impervious surfaces such as roads, sidewalks, down spouts, etc. Generally, water that enters as sheet flow should be perpendicular to the main axis of the trench. Water entering as channel flow should be parallel to the main axis and direction of flow. Trenches should be located at least 100 feet upgradient from private wells (greater for public wells), 100 feet from septic fields, 25 feet from building foundations and 100 feet from surface waters.