Small Project Storm Water Facilities

Infiltration Trench

An infiltration trench is one means of controlling storm water runoff and is typically associated with parking lots. The trench is designed to capture water that first flows through a grass filter strip to improve water quality and filter pollutants. The depth of the trench and stone volume will determine the amount of storm water that can be infiltrated. Such systems are commonly employed for 1" rain events. For additional information on trench design please refer to http://www.metrocouncil.org/environment/Water/BMP/CH3_STInfilTrenches.pdf on the internet. Variations of the trench concept include ***wet gardens***. For more information on this topic do an internet search or contact the City Bureau of Planning.

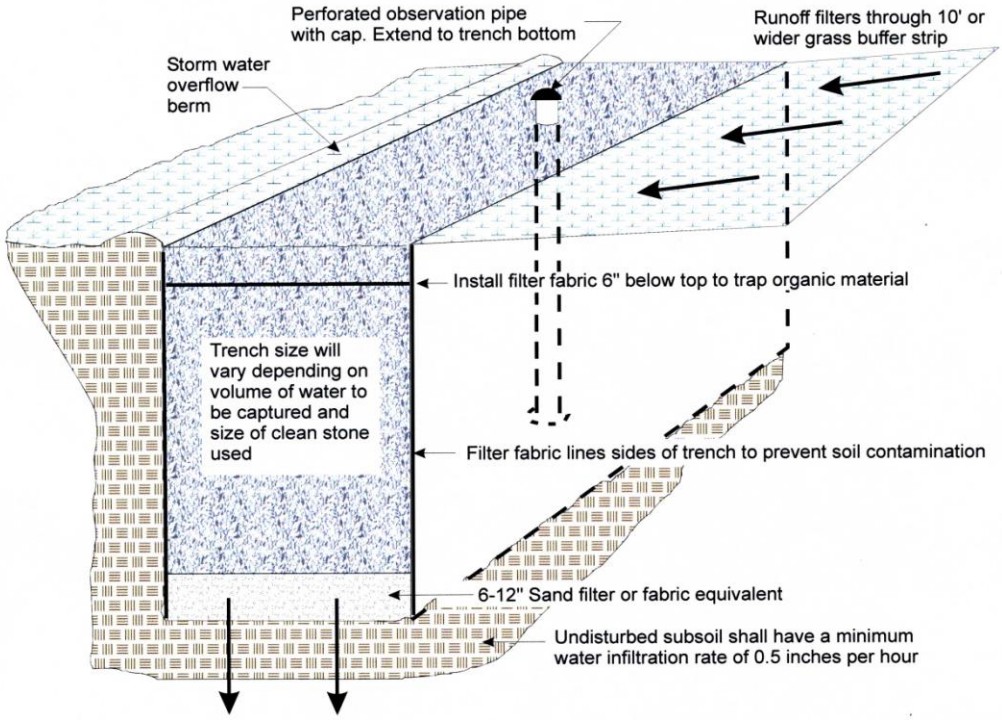

Figure 1: Typical InfiltrationTrench Design

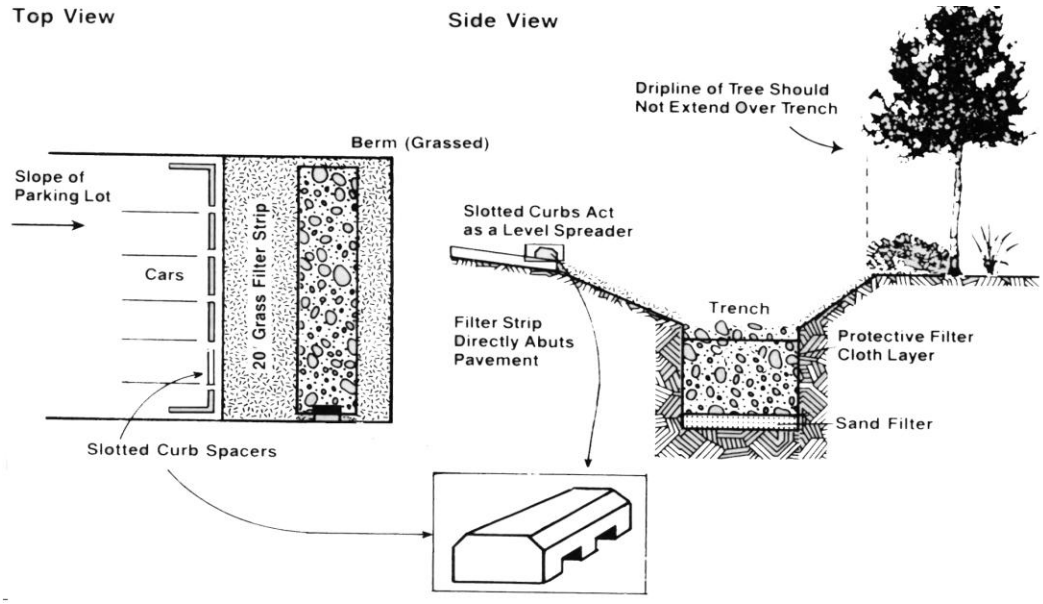

Figure 2: Parking Lot Perimeter Trench Drain

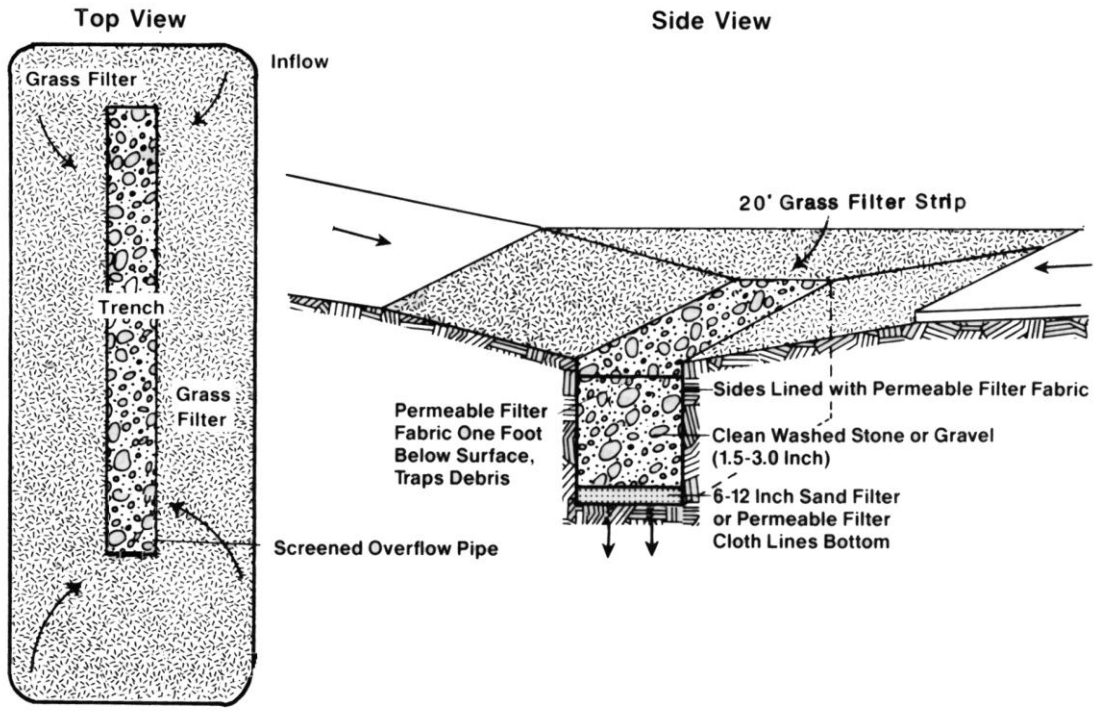

Figure 3: Median Strip Trench Design

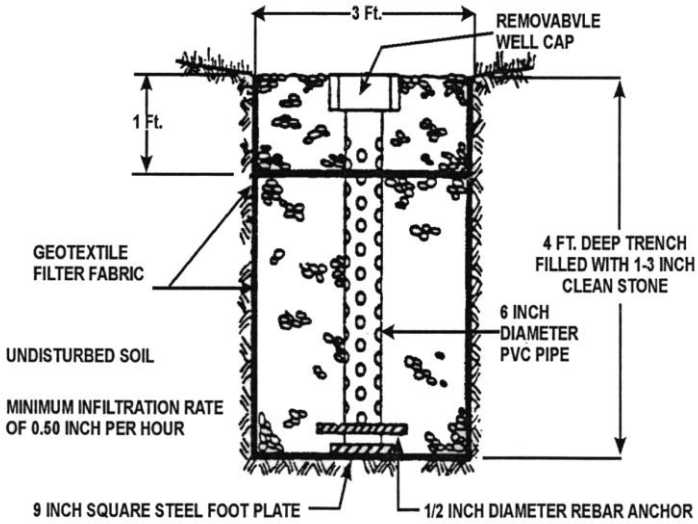

Figure 4: Observation Well Detail

An observation well located at the center of the trench is recommended. The well pipe should be 4-6" diameter PVC and anchored vertically to a foot plate at the bottom of the trench. The cap should be lockable.

TRENCH ADVANTAGES

- Reduces volume of runoff from drainage area
- Effective in removing sediment and pollutants
- Reduces impact to combined sewer system
- Reduces local flooding
- Appropriate for sites less than two acres
- Can be utilized in narrow areas

LIMITATIONS

- Potential failure if not properly maintained especially if pretreatment grass areas are not maintained or incorporated into design
- Not appropriate for industrial or commercial sites where high concentrations of pollutants is possible
- Susceptible to clogging by sediment
- Requires frequent inspection and maintenance

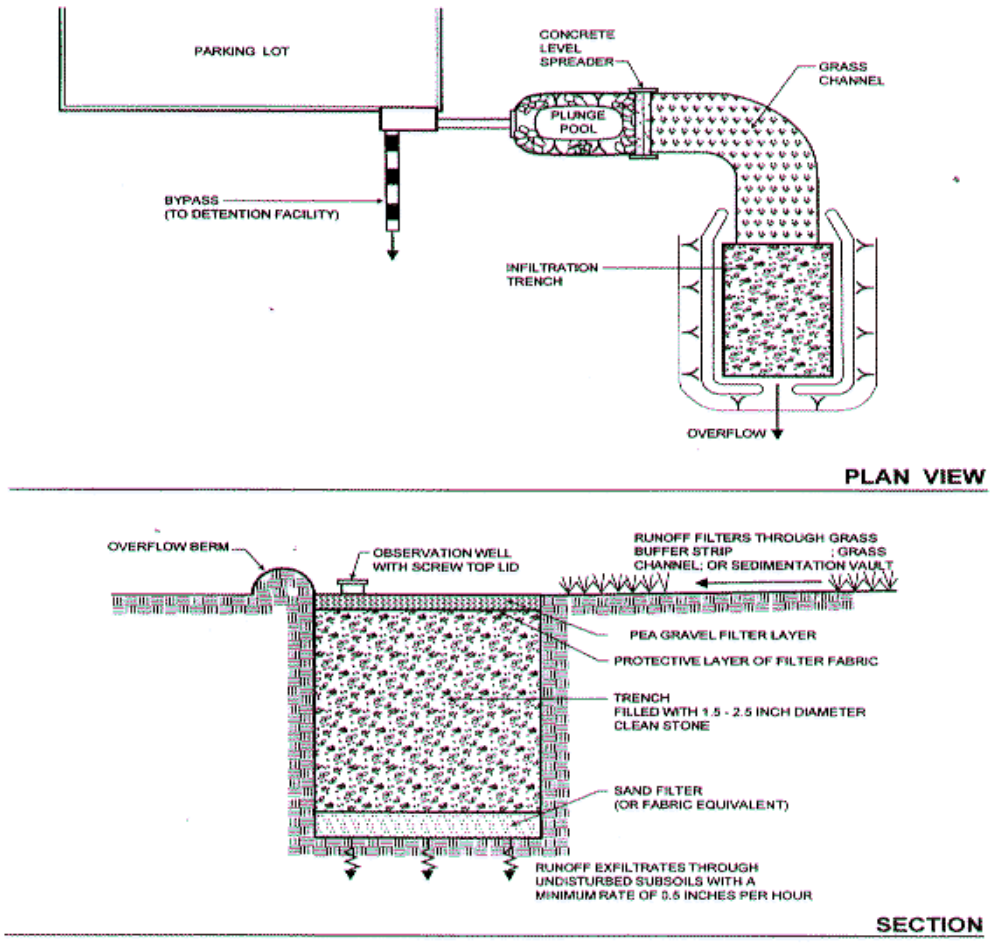

FIGURE 5: Trench Design Variation

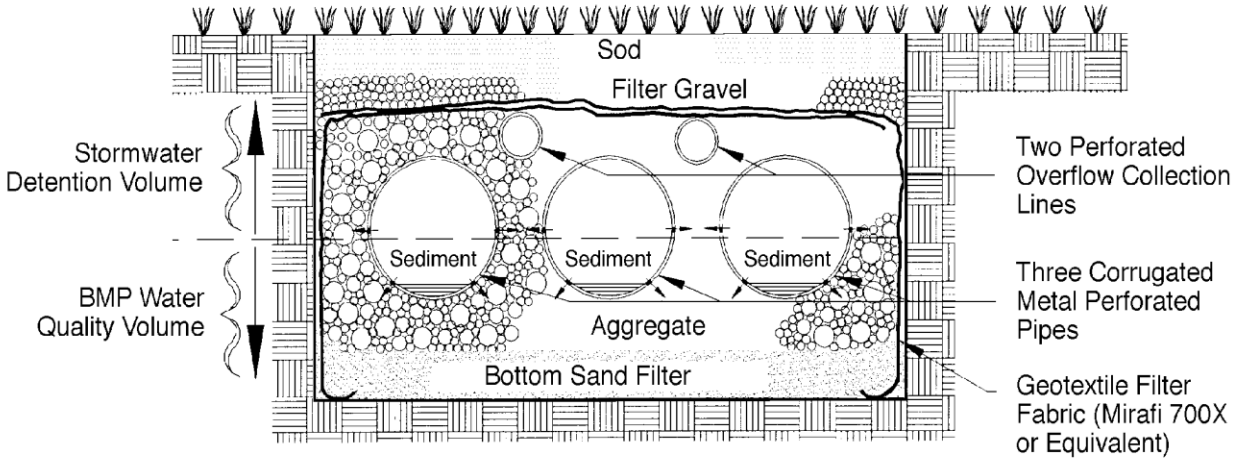

FIGURE 6: Pipes may be used to increase water storage volume

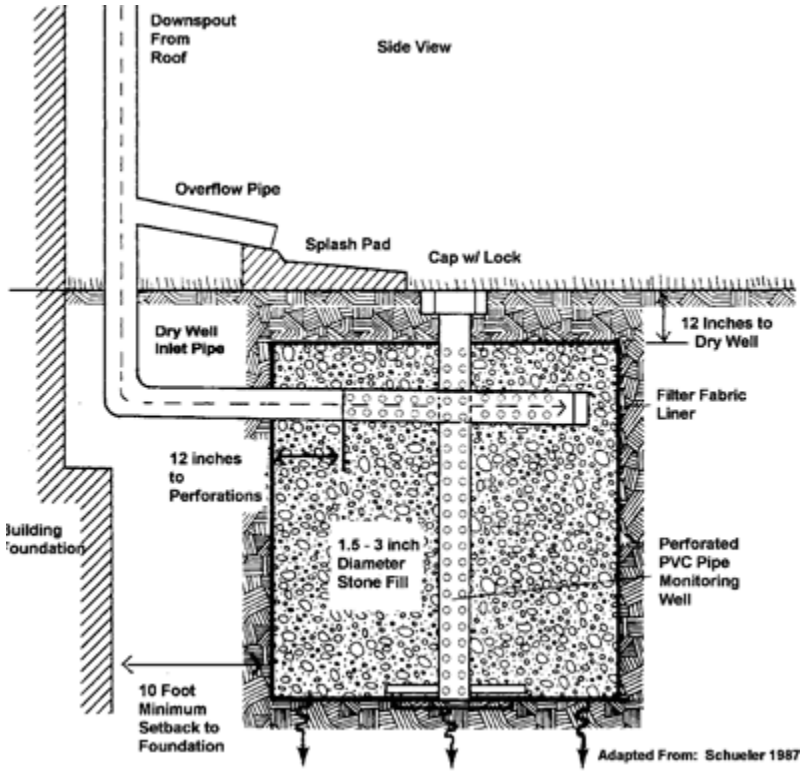

FIGURE 7: Infiltration trench filled with stone connected to downspout

PIPE VOLUME CHART

Size	Volume (cf per L.F.
4”	0.0871
6”	0.196
8”	0.349
10”	0.545
12”	0.785
15”	1.227

FIGURE 9: Provides the storage volume of various pipe sizes. Typically pipes are installed end to end or side by side with sealed joints. All pipes within infiltration beds shall be perforated.

Volume and Weight

One cubic foot of water equals 7.48 gallons
One gallon weighs 8.345 pounds
One cubic foot weighs 62.427 pounds

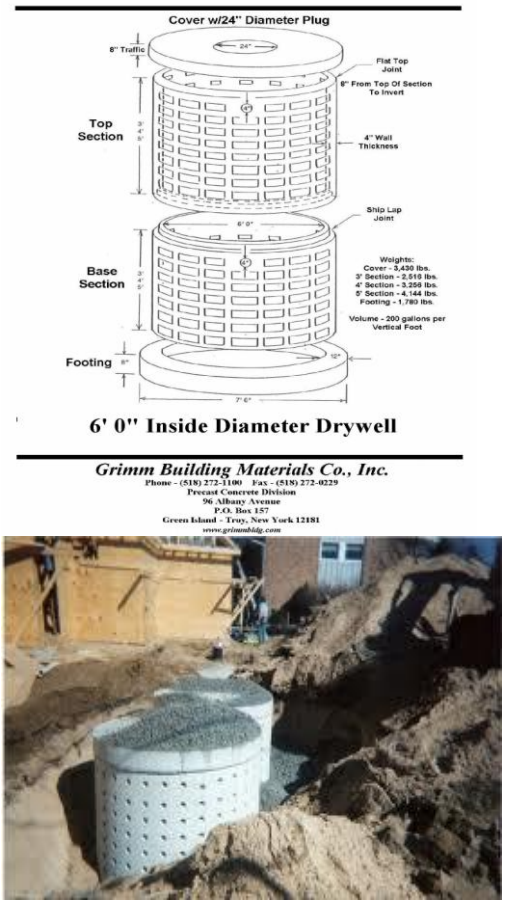

FIGURE 8: Perforated dry wells hold more water and take up less space but are more expensive to install

FIGURE 10: Water barrels may be an option for small roof areas