Infiltration Trench

Description: Shallow, excavated, stone-filled trenches in which stormwater runoff is collected and infiltrated into the ground. Infiltration trenches can be constructed at a ground surface depression to intercept overland flow or can receive piped runoff discharged directly into the trench.

BMP Information

BMP Type: Runoff Reduction

Targeted Pollutants: Bacteria, sediment, phosphorus, nitrogen, metals

WQV / Disconnection Credit

Runoff Retention Credit: 100%

Treatment Credit: 0%

Disconnection Credit: 100%

Design Criteria

Drainage Area: 2 acres or less recommended

Sizing: Volume equal to water quality volume

Trench Depth: 2 to 10 feet recommended

Pretreatment: A scour hole or sediment forebay should be provided for concentrated inflow.

Soils: NRCS Hydrologic Soil Groups A and B

Infiltration Rate: $\geq$ 0.30 in/hr recommended

Drain Time: 12 hours min / 48 hours max

Design Porosity: For #3 stone use 30% porosity

Separation: Foundations and roadway subbase shall be $\geq$ 2' above ponded elevation if adjacent

Overflow: An emergency overflow or a path for overland relief shall be provided to avoid flooding adjacent facilities / roadways

Trench must be designed in accordance with CTDOT Drainage Manual including but not limited to, storm frequency, freeboard, velocity, width and depth.

Limitations

No aquifer protection areas

No brownfield areas unless coordinated with Office of Environmental Compliance

Seasonal high water table must be $\geq$ 2' below bottom

Infiltration facilities should not be located below or immediately adjacent to a roadway base/subbase or foundation

Maintenance Requirements

Bi-annual inspections

Mowing grass areas

Remove trash and debris

Clean sediment forebay

Cost Considerations:

Capital Cost: Moderate

O&M Cost: Moderate to High

Notes:

All infiltration BMP's require a field inspection to verify soil type, design infiltration rate and ground water depth

Do not use infiltration trench areas as temporary sediment traps during construction

References:

2004 Connecticut Stormwater Quality Manual - http://www.ct.gov/deep/cwp/view.asp?a=2721&q=325704

Massachusetts Stormwater Handbook - https://www.mass.gov/files/documents/2016/08/qi/v2c2.pdf

New Jersey Stormwater BMP Manual - http://www.njstormwater.org/bmp_manual2.htm

Virginia Stormwater BMP Clearinghouse - http://www.vwrrc.vt.edu/swc/NonProprietaryBMPs.html

Washington State DOT Highway Runoff Manual - https://www.wsdot.wa.gov/publications/manuals/fulltext/M31-16/highwayrunoff.pdf