PC-27 INFILTRATION TRENCH

Reference: Maryland Stormwater Design Manual.

BMP Objectives

- ☒ **Perimeter Control**
- ☐ **Slope Protection**
- ☐ **Borrow and Stockpiles**
- ☒ **Drainage Areas**
- ☒ **Sediment Trapping**
- ☐ **Stream Protection**
- ☒ **Temporary Stabilizing**
- ☒ **Permanent Stabilizing**

Definition and Purpose

An infiltration trench is used to capture and treat a volume of stormwater runoff. This BMP consists of a stone-filled trench in which runoff is collected and percolated to the surrounding soils. Grass channels, filter strips, or forebays can be used to reduce sediments entering the trench. Generally, the trench is 3 to 8 feet deep and filled with 1.5- to 2.5-inch-diameter clean stone or bank run gravel.

Appropriate Applications

- Structures are prone to clogging by suspended solids and are best used in conjunction with other BMPs that are more effective in removing suspended solids.
- Bottom of the trench should be 4 feet higher than the seasonal high water table or bedrock.
- Trenches:
  - Can be used to enhance stormwater quality, reduce peak discharges, and recharge groundwater.
  - Should not be used on or adjacent to steep slopes and are typically used for drainage areas less than 5 acres.
  - Should only be used in well-drained soils of Hydrologic Soil Groups A or B. However, they can be used in Hydrologic Soil Groups C and D soils if used for a very small drainage area, such as the backyard of a single-family residence.

- Recharge surface runoff directly to groundwater, and they should not be used in areas where there are concerns about contamination of surface runoff with dissolved pollutants.
- Should not be installed in highly permeable sand or gravel seams that are directly connected to aquifers.
- Can be connected to parking lot drains, roof downspouts, or inlet structures.

Design Parameters

- Generally, trenches are designed to infiltrate retained runoff within a 48-hour period.
- Dewatering methods need to be designed in the event of a failure.
- No vehicular traffic and minimal pedestrian traffic should be allowed over the trench.
- Observations should be made to determine the time needed for water to infiltrate into the soil after a storm event.
- Periodic observations should also be made to monitor any decrease in performance.

Maintenance and Inspection

- Conduct inspections as required by the NPDES permit or contract specifications during construction.
- Periodic inspection and maintenance will be required based on post-construction site conditions.
- Make any repairs necessary to ensure the measure is operating properly.
- Accumulated sediments render the trench ineffective. These sediments must be controlled to lengthen the effective life span.