Stormsewer Daylighting using Bioinfiltration Basins

How do bioinfiltration basins help manage stormwater?

Bioinfiltration basins are shallow, vegetated depressions designed to capture and hold a volume of stormwater runoff and allow it to infiltrate into the underlying soils over several days. The design of bioinfiltration basins is simple and they are used as an "end of pipe" method to catch stormwater from swales or storm sewer systems. Bioinfiltration basins allow the stormwater to infiltrate into the soil and recharge groundwater rather than discharging directly into sewers and rivers.

Bioinfiltration basins are very effective at removing pollutants and reducing the volume of runoff from impervious surfaces such as parking lots. Utilizing the Illinois Environmental Protection Agency's Estimating Pollutant Load Reductions for Nonpoint Source Pollution Control Best Management Practices (BMPs) worksheets, the bioinfiltration basins can remove approximately 75% of the total phosphorous, 61% of the total nitrogen, 75% of total suspended solids, and 40-67% of metals.

Where and how can Bioinfiltration Basins be located?

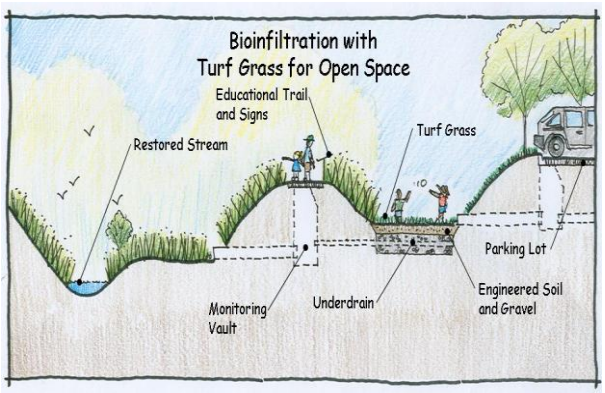
Scale ☐ Watershed/County ☐ Town/Village ☒ Neighborhood ☒ Lot

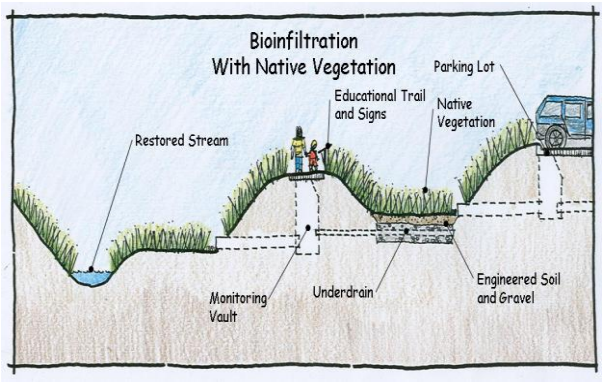
Applications

☒ Retrofit	☒ New	
☒ Preventative	☒ Remedial	☒ Ongoing/Maintenance
☒ Parking lots	☒ Streets	☒ Driveways
☐ Roofs	☐ Lawns	☐ Sensitive Areas

Effectiveness

☒ Runoff Rate Control	☒ Runoff Volume Control	☐ Habitat Preservation/ Restoration
☒ Sediment Control	☒ Nutrient Control	☒ BOD/COD Control
☒ Other Pollutant Control		





Design Considerations

- Bioswales must be sized and designed to account for drainage area and soils.
- Infiltration storage should be designed to drain in 24 hours.
- Filtration benefits can be improved by planting native-deep rooted vegetation.
- Topsoil should be amended with compost and/or sand as a means of improving organic content for filtering and to achieve adequate infiltration.

Additional Benefits of Bioinfiltration Cells

Bioinfiltration cells provide much more than just stormwater management. They also:

- Enhance the aesthetics of the local landscape
- Provide habitat for wildlife
- Provide open space

Maintenance

The maintenance on bioinfiltration cells includes the periodic inspection and cleaning in order to ensure that the system is operating properly. The system should be inspected for clogging of the discharge pipe and sediment accumulation on the basin surface. If a clog is found, rehabilitative maintenance should be conducted immediately to restore its proper operation. In addition, to preventing and repairing clogs, management of the vegetation including mowing, weeding, and replanting sparse areas should also be conducted.

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