BIORETENTION CELL COMPONENTS



- Street inlet with pre-treatment sump to capture sediment and debris
- Gutter inlet carrying roof water
 - Curb cut inlets
- 4

Plants protect the soil and take up water and nutrients

5 Overflow standpipe with perforated tile subdrain to ensure a maximum ponding depth of 6-9"

- 6
 - Shredded hardwood mulch layer (2-3" thick)



Modified soil layer consisting of sand, topsoil, and compost (18-30" thick)



Stone aggregate choker layer consisting of 3/8" chip (2" thick)



Stone aggregate base layer consisting of 1" rock (8-12" thick)

BIORETENTION PRACTICES

Bioretention practices in Iowa include bioretention cells, basic rain gardens, enhanced rain gardens, and bioswales. Bioretention cells, enhanced rain gardens and rain gardens are constructed with a level bottom. They capture and infiltrate runoff, but they do not have a conveyance function. Large runoff events either bypass bioretention cells or exit via the overflow standpipe. Bioswales have a conveyance function, and are constructed with a sloping bottom. Bioswales capture and infiltrate small rains and convey large rains.







BIORETENTION CELLS

- Recommended when percolation rates are less than 0.5 inches/hour.
- Feature a fully engineered subgrade.
- Rely on specified soil media and rock to filter stormwater.
- Design guidelines are in the lowa Stormwater Management Manual.

ENHANCED RAIN GARDENS

- Recommended when percolation rates are at or near 0.5 inches/hour.
- Have a partially engineered subgrade.
- Rely on specified soil media and native soils to filter stormwater.
- Design guidelines are in the Iowa Rain Garden Design and Installation Guide.

RAIN GARDENS

- Recommended when percolation rates are 1 inch/hour or greater.
- Rely on native soils to filter stormwater.
- 6 inches of amended soil may be specified.
- Design guidelines are in the Iowa Rain Garden Design and Installation Guide.



- Recommended where there is concentrated flow of water, positive grade, and larger drainage areas.
- Use below ground cross section of an enhanced rain garden.
- Relies on rock or earth berms to hold and infiltrate small rains.
- Provides an alternative to storm sewers.
- Design guidelines are in the Iowa Stormwater Management Manual.



Cedar Rapids neighborhood bioswale.