

Bioswales

What are bioswales?

Bioswales are storm water runoff conveyance systems that provide an alternative to storm sewers. They can absorb low flows or carry runoff from heavy rains to storm sewer inlets or directly to surface waters. Bioswales improve water quality by infiltrating the first flush of storm water runoff and filtering the large storm flows they convey.

The majority of annual precipitation comes from frequent, small rain events. Much of the value of bioswales comes from infiltrating and filtering nearly all of this water.



Designing a bioswale

For best results, enhance and utilize existing natural drainage swales whenever possible. Existing swales can be enhanced with native plants. The thicker and heavier the grasses, the better the swale can filter out contaminants. Additionally, subgrade drains and amended soils may be needed to facilitate infiltration.

Other considerations when designing or maintaining bioswales:

- Costs vary greatly depending on size, plant material, and site considerations. Bioswales are generally less expensive when used in place of underground piping.

- Deep-rooted native plants are preferred for infiltration and reduced maintenance.

- Soil infiltration rates should be greater than one-half inch per hour.

- A parabolic or trapezoidal shape is recommended with side slopes no steeper than 3:1.

- Avoid soil compaction during installation.

- Swales should be sized to convey at least a 10-year storm (or about 4.3 inches in 24 hours).

Maintaining a bioswale

Once established, bioswales require less maintenance than turf grass because they need less water and no fertilizer. Native grasses and forbs are adapted to Iowa rainfall patterns. Natives also resist local pests and disease.

For More Information

Find more information about low impact development and bioswales by visiting the following websites:

www.iowasudas.org 

www.lid-stormwater.net 

www.cwp.org 

www.iowastormwater.org 