

Site 12: Riverbend Environmental Education Center

BMPs:

Porous asphalt
parking lot
Bioswale

Address: 1950 Spring Mill Rd., Gladwyne, PA 19035

Property owner: Riverbend Environmental Education Center

Website: www.riverbendeec.org

Watershed: Schuylkill

Planning your visit:

No requirements for visitation

Contact Info:

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Directions: Directions are available at

www.riverbendeec.org

Parking:

Visitors parking is available in the porous parking lot



Riverbend, a non-profit environmental educational center serves nearly 12,000 visitors of all ages each year. The center offers a full slate of educational programs for schools, including field trips, classroom , and teacher trainings. Children explore environmental issues at Riverbend’s Summer and year-round camps. As part of its mission, Riverbend champions the positive effects that exposure to nature has on healthy childhood development.

In 2004, Riverbend completed a master site planning process to help guide an exciting course of habitat restoration and program expansion. As outlined in this assessment, Riverbend completed several projects in 2006, namely the October installation of a state-of-the art porous pavement parking lot and beneficial bioswale. This project was selected to benefit both the education center and the environment.



The BMPs at Riverbend help control stormwater runoff into Saw Mill Run, near its confluence with the Schuylkill River. First, water will infiltrate through porous pavement and then discharge through a “bio-swale” where wetland plants further filter the outflow before it discharges into Saw Mill Run. The process of plants’ evapo-transpiration will also help reduce the volume of storm water.



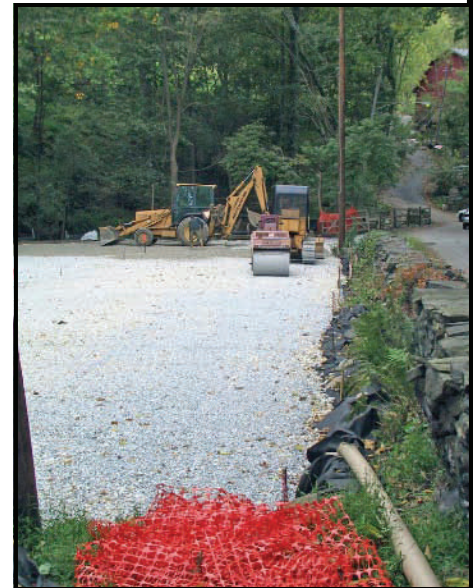
Riverbend is located in a steep valley conducive to frequent flooding. The dense population and paved areas uphill and upstream from Riverbend exacerbate the volume and velocity of runoff that impacts the grounds during heavy rain events. Riverbend has directly suffered the associated effects of erosion. In the fall of 2004, a heavy flood destroyed a bridge, which served as the primary route to reach the main facilities. Each coming year witnesses further damaging effects of erosion on the streambanks, causing concern for public safety and property damage in Lower Merion Township.

Riverbend prioritized completion of the parking lot project for multiple reasons. The parking lot was in the greatest need of improvements, and the Saw Mill Run is adjacent to the parking lot. With stormwater runoff comes the threat of oils, road salts and fertilizers entering the stream.

The environmentally conscious engineering and use of BMPs will improve water quality, increase the

biodiversity of aquatic organisms, and slow the effects of erosion. The porous parking lot and bioswale also present a unique educational opportunity for young learners as well as for municipal officials, contractors and the general public.

Riverbend restructured the drainage at the side of Spring Mill Road to capture stormwater runoff. The use of permeable asphalt and its underlying recharge bed will help absorb the runoff water. Sublevel soil was loosened to further encourage percolation from the storage bed into the natural substrate. Construction of a bioswale, which utilizes soil and plants to absorb and filter out pollutants such as heavy metals and dissolved organics helps purify the stormwater runoff prior to its re-entry to Saw Mill Run.



Bioswale planting list

Shrub and Tree Species

- Summersweet – *Clethra Alnifolia*: shade and flood tolerant. Plant in center of swale with Arrowwood.
- Gray Dogwood – *Cornus Racemosa*: shade and partial flood tolerant. Plant on side slopes of bio-swale.
- Arrowwood – *Viburnum Dentatum*: shade and flood tolerant. Plant in center of swale with Summersweet.
- Mountain Laurel – *Kalmia Latifolia*: shade and flood tolerant. Grows 12'-20'. Plant below parking lot.
- Sweetbay Magnolia – *Magnolia Virginiana*: Shade and flood tolerant. Grows 12'-20'. Plant below parking lot.

Planting sequence:

1. Complete grading of bio-swale, and seed with wetland mix, install matting per Cahill design specifications.
2. Allow one month for germination of seed to occur.
3. Plant Arrowwood, and Summersweet, followed by Gray Dogwood on side slopes.
4. Trees can be planted outside of swale below parking lot.

Custom Seed Mix from Ernst Seeds Included:

- Fox Sedge
- Virginia Wild Rye
- Nodding Sedge (gynandra)
- Swamp Dock
- Sensitive Fern
- Cosmos (Bristly) Sedge
- Lurid (Shallow) Sedge
- Many Leaved Bulrush
- Green Bulrush
- Blue Flag
- Northern Long Sedge
- Bladder (Star) Sedge
- Squarrose Sedge
- Wood Bulrush
- New England Aster-Sub for A. umbelatus
- Bailey's Sedge
- Hop Sedge
- Eastern Lesser Bur Reed
- Joe Pye Weed
- Cardinal Flower
- Marsh (Dense) Blazing Star (Spiked Gayfeather)
- Purplehead Sneezeweed