



Green Infrastructure & Stormwater Management CASE STUDY

The Black Rock Sanctuary

Location: Phoenixville, Chester
County, PA

Client: Chester County Department of
Parks and Recreation

Design Firm(s): KMS Design Group,
LLC, The Major Group

**Landscape architect/Project
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ASLA Chapter: Pennsylvania/Delaware



Project Specifications

Project Description: The Black Rock Sanctuary project began as a restoration/reclamation project. The goal was to reclaim and create wetland areas within a decanting basin that was built by the Commonwealth of Pennsylvania in the 1940's. The site was used as a repository for dredge spoils taken from the Schuylkill River, the majority of which was coal silt. The project, constructed over a period of 10 years, resulted in approximately 47 acres of new or enhanced wetlands, 10 acres of native plant meadows. Additional stormwater related BMPs included rain gardens, vegetated swales (both armored and unarmored), porous pavement areas, biofilters, a forebay system and curbless paved areas.

Project Type:

Open Space-Park

A retrofit of an existing property

Design features: Bioretention facility, rain garden, bioswale, porous pavers, curb cuts, forebay system, and porous pavements (in addition to pavers).

This project was designed to meet the following specific requirements or mandates: To meet funding criteria, developer/client preference, PA Department of Education for teaching environmental science to K-12 students

Impervious area managed: 1 acre to 5 acres

Amount of existing green space/open space conserved or preserved for managing stormwater on site: Greater than 5 acres

The regulatory environment and regulator was supportive of the project.

Did the client request that other factors be considered, such as energy savings, usable green space, or property value

enhancements? The entire project was predicated on the development of a sustainable site devoted to the preservation and enhancement of habitat for wildlife, particularly migratory waterfowl. Usable green space was designed to encourage the observation of wildlife and/or education of park users about wetland environments and wildlife.



Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$100,000-\$500,000 (Public funding: Federal, state, regional, private foundation)

Was a green vs. grey cost analysis performed? No

Cost impact of conserving green/open space to the overall costs of the site design/development project: It did not. The park is dedicated open space and the wetland/stormwater BMP work was key to the development of the site.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Did not influence costs.

Number of jobs created: 10 temporary (construction related)

Job hours devoted to project:

Planning and Design: 5,000

Construction: 10,000
Annual Maintenance: 500

Performance Measures

Stormwater reduction performance analysis:

2-year: 100% 5-year: 100% 10-year: 100% 25-year: 100% 50-year: 100% 100-year: 100%

Community & economic benefits that have resulted from the project: The community has gained an amenity that has translated into increased visitorship to the community and the park. It has also increased the environmental quality in the area.

Project Recognition

2006: People's Choice Award for Sustainable Design; 2011: PA Recreation and Park Society "Green Park of the Year"; 2008: PA Dept. of Conservation & Natural Resources Case Study for Sustainable Park Design; US Dept. of the Interior NPS Exemplary Project for Sustainable Design

Additional Information

Links to images: http://www.nps.gov/ncrc/programs/lwcf/exemp_prijts/LWCF_PA.pdf

<http://www.chesco.org/ccparks/cwp/view.asp?a=1550&q=616465>

<http://www.chesco.org/ccparks/cwp/view.asp?a=1578&q=621974>

<http://www.chesco.org/ccparks/cwp/view.asp?a=1578&q=627266>



This property is a one of a kind development that takes advantage of its location along the East Coast Flyway to provide high quality wetland environments/breeding and nesting habitat for migratory waterfowl, educational opportunities for users, open space for refreshment and exercise, water quality improvement and important storm water control.