



# Green Infrastructure & Stormwater Management CASE STUDY

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## Bamboo Brook Historic Water System Restoration

**Location:** Morris County, NJ

**Client:** Morris County Park Commission

**Design Firm(s):** Heritage Landscapes LLC

**Landscape architect/Project contact:**

Patricia M. O'Donnell, FASLA, AICP

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**ASLA Chapter:** Vermont and Connecticut



### Project Specifications

**Project Description:** The 100-acre Merchiston Farm, known today as the Bamboo Brook Outdoor Education Center, is the former home of Martha Brookes (Brown) Hutcheson, FASLA. Hutcheson is an

important pioneer in the profession and holds a place among the first three women who pursued early training in landscape architecture in the United States. Applying the principles laid out in her book, *The Spirit of the Garden*, the farm landscape embraces ingenuity and sustainability became a physical manifestation of Hutcheson's design skill from 1911 to the early 1950s. The complexity and significance of the water system of pools in close proximity to the house and a rock-edged stream and spillway, as designed and implemented by Hutcheson, stood out as one important focus of the recent restoration of this important cultural landscape. Heritage Landscapes identified an approach to implementation following Hutcheson's innovative surface stormwater capture concept and using many of the remaining components of her surface and subsurface system. Added elements included storage tanks for increased water harvesting and contemporary water lines with filtration and recirculation. New Jersey environmental compliance review was completed and approved. Reconstruction of the complex and unique system of scenic pools, stream, and swimming tank was completed in 2009. The water system and features of the storage tanks, upper pond, swimming tank, watercress tank and stream reflect the sky, and water music flows through Hutcheson's gardens once again. Visitors are informed, engaged and excited by their experience of this restored water system landscape.

**Project Type:**

Open space - garden/arboretum  
A retrofit of an existing property

**Design features:** Bioswale and rainwater harvesting - the project restored and updated an innovative historic rainwater harvesting system that filled cisterns and provided water for ponds, streams, water cress tank and lower basin. The system provided for filtered, recirculated make-up.

**This project was designed to meet the following specific requirements or mandates:**

State statute, NJ DEP and Highlands environmental reviews

**Impervious area managed:** 1 acre to 5 acres

**Amount of existing green space/open space conserved or preserved for managing stormwater on site:** 1 acre to 5 acres. The property is an historic landscape designed by pioneer woman landscape architect Martha Brooks Hutcheson, stewarded by the Morris County Park Commission. The water system project restored and adapted the innovative 1920s historic



rainwater harvest system and waterfeatures associated with that system.

**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?** Water conservation measures and a native plant palette for education programs to highlight both the historic innovative

water harvest system and the contemporary modifications to improve water quality, increase water harvest volume and add a water re-circulation system.

**Cost & Jobs Analysis**

**Estimated Cost of Stormwater Project:** \$1,000,000-\$5,000,000 (Public funding: State, local, New Jersey grant and Morris County Park Commission funding)

**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:** This was a restoration project on an existing but deteriorated historic property.

**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:** 7 employment years using 2,080 hours

**Job hours devoted to project:**

Planning and Design: 6,346 hours

Construction: 6,820 hours

Annual Maintenance: 4,000 hours

**Performance Measures****Stormwater reduction performance analysis:**

System can capture more than the 2-year storm event.

**Community & economic benefits that have resulted from the project:** Yes, enhanced public landscape for community education and recreation.

**Project Recognition**

President's Award for Excellence, Vermont ASLA, Bamboo Brook Historic Landscape Report

**Additional Information**

**Links to images:** <http://www.heritagelandscapes.com/Content.asp?Key=22>

<http://www.heritagelandscapes.com/Project.asp?PID=57&CID=12>

ASLA published an illustrated article on this project in LAND in November 2010 -

<http://www.asla.org/ppn/Article.aspx?id=23958>