Green Infrastructure & Stormwater Management CASE STUDY

Hidden Oaks Nature Center

Location: Bolingbrook, IL
Client: Bolingbrook Park District
Design Firm(s): Wight & Company
Landscape architect/Project contact: Jay Womack, ASLA, LEED AP
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ASLA Chapter: Illinois

Photo: Suzanne Caraker

Project Specifications

Project Description: Hidden Oaks Nature Center, nestled within century old oaks, personifies and mimics the oak woodland in which it resides. Taking nature as its cue, all stormwater is infiltrated where it falls through modern day technologies to encourage and re-establish seeps through the north facing slopes that support a mesic woodland.

Project Type:
Nature center
Part of a new development

Design features: Rain garden, bioswale, green roof, porous pavers, and restoration of the oak woodland so that rain that falls on the woodland is infiltrated and/or absorbed by native plants. Check damns were built by Boy Scouts in drainage swales to slow runoff through a series of ravines.

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

Impervious area managed: less than 5,000 sq/ft

Amount of existing green space/open space conserved or preserved for managing stormwater on site: The entire site is part of the stormwater management system. Permeable roads, rain gardens, a green roof help manage the built environment. Management of the existing woodlands to be a productive and restored oak woodland will manage the water that falls on itself.

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? No one wanted a detention basin on the site so all measures were taken to eliminate an above-ground detention facility.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: $100,000-$500,000 (Public funding: State, regional, local)

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: You cannot put a price tag on a century-old oak nor on a childs smile when they walk onto the roof of the nature center and are in the canopy of trees. The project also received numerous grants and donations due to the amount of green incorporated.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Slightly reduced costs (1-9% savings).

Number of jobs created:

Job hours devoted to project:

Planning and Design: >1,000
Construction: >1,000
Annual Maintenance: Not available

Performance Measures

Stormwater reduction performance analysis:
100% of the rain that falls on the site is retained but released through groundwater recharge into a local river.

Community & economic benefits that have resulted from the project: The nature center is loved by everyone that visits it. Pre-school classrooms in the center are full. The woodlands have been saved for future generations.

Project Recognition

ACEC - Illinois Honor Award, National Honorable Mention, Chicago Building Congress - Merit Award

Additional Information

Links to images: http://bolingbrook.patch.com/articles/hidden-oaks-nature-center-a-bolingbrook-gem#video-1857925
http://www.dailyherald.com/article/20101021/entlife/710229960/photos/AR/
http://www.google.com/search?sourceid=navclient&aq=0&oq=hidden+Oaks+&ie=UTF-8&rlz=1T

This project was not about the landscape architect coming up with ideas for stormwater management. It was a collaboration with numerous disciplines and stakeholders. In fact, the best collaboration was the landscape architect with the civil engineer to develop the stormwater scenarios and have it permitted.