

Sustainable Stormwater Management: Validating Quality and Quantity

by Judith Nitsch, PE, LEED AP, Nitsch Engineering, Inc. Boston MA

Abstract

One tenet of the LEED process is integrated design, where the architects and engineers collaborate to develop the project. While over 25% of the 69 possible LEED credits for new construction relate to the site elements, the focus of most architects and owners has been on the building systems. This Grant Application will allow research and analysis to be performed to bring validation to sustainable site applications built over the past 5 years. This study will bring attention to sustainable sites, increasing their use on future building projects. Additionally, we hope to demonstrate how combining form and function of the site of building projects will enhance the architects' buildings, prevent landscape features from being value-engineered out at the end of construction, and provide environmental benefits at lower cost than from using traditional engineered stormwater systems. Project: A northeast engineering firm specializing in sustainable site design assisted a major southeastern public university in developing an innovative regional approach to stormwater management (SWM) on their campus. Implementing this plan was critical to the university's planned expansion and its goal of sustainability in an urban community while meeting the mounting regulatory pressures to protect the local streams and downstream receiving waters. The regional SWM projects subsequently implemented (daylighting of stream channels and creating a landscape featuring a pond, wetlands, streams, and floodplains; grassy swales, bio-filtration, and other environmentally sensitive, low-impact Best Management Practices) created stormwater credits for both water quality and quantity, providing "banked" capacity for near- and long-term development projects on campus. Research: The engineering firm and the university (using engineering and science professors, facilities staff, and students) will monitor and evaluate the actual performance of the regional SWM system for water quantity mitigation and water quality treatment capacity. Funding: The engineering firm granted the university \$10,000 but this will only cover a portion of the costs. A grant from the BSA will allow this important cutting-edge research to be initiated at the right moment in time. Funding of this research will enhance the knowledge of sustainable site design and thereby improve the quality of our built environment.