



# Green Infrastructure & Stormwater Management CASE STUDY

## Constitution Square - 1st Street Streetscape

**Location:** 1st Street NE east side between M and N streets, NE, Washington, D.C.

**Client:** Stonebridge

**Design Firm(s):** HOK (architecture), SK&I (architecture)

**Landscape architect/Project contact:** ParkerRodriguez / Alit Balk

**Email:** [abalk@parkerrodriguez.com](mailto:abalk@parkerrodriguez.com)

**ASLA Chapter:** Potomac

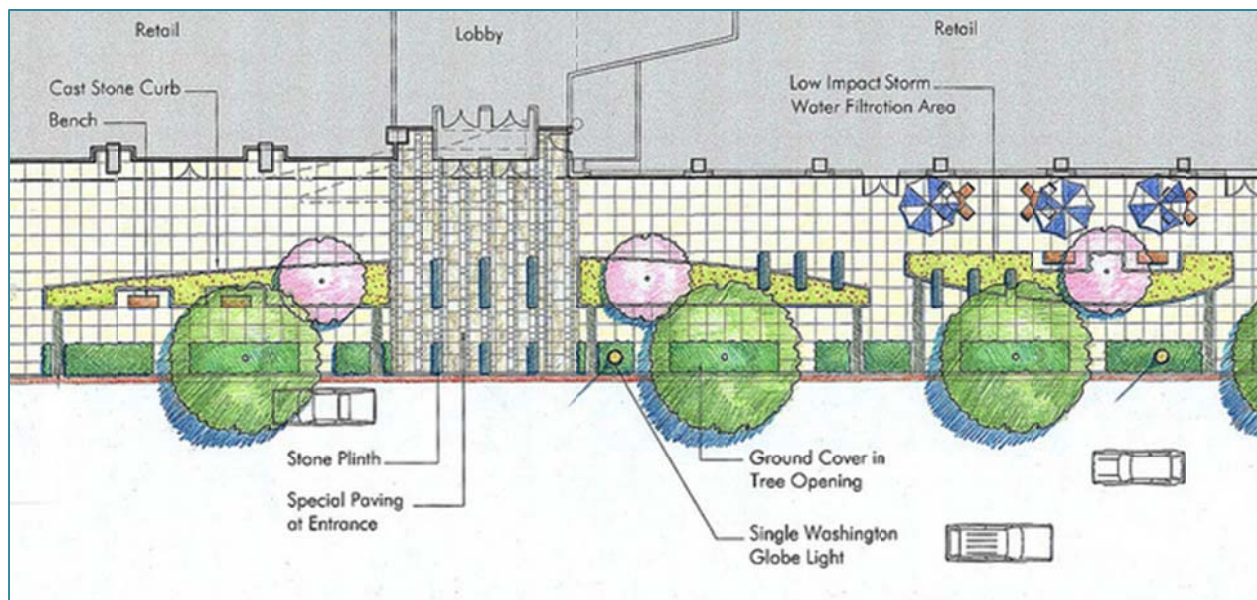


Image: Alit-Work

### Project Specifications

**Project Description:** ParkerRodriguez designed the streetscape in the public space working within the design guidelines that the NOMA business improvement district created for this neighborhood. The design created rain gardens between the curb and face of building that receive stormwater runoff from the street gutter and surface runoff from the sidewalk. The rain gardens are arranged as a series of sunken areas that follow the natural slope of the street to circulate stormwater in to and out of the basins as it moves down the street, ultimately slowing the runoff, removing trash and particulates and reducing the amount of runoff entering the storm system.

**Project Type:**

Other (please specify)

Part of a new development

**Design features:** Rain garden, bioswale, and curb cuts. Design creates a series of sunken rain gardens that collect street (gutter) runoff via curb cuts with trench drains and sidewalk runoff via small curb cuts as well.

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

Local ordinance, developer/client preference

**Impervious area managed:** 5,000 sq/ft to 1 acre

Photo: Alit-Work

**Amount of existing green space/open space conserved or preserved for managing stormwater on site:** The focus of this was just for within the streetscape which did not contain any existing green space.

**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, the developers agreed to the design concept early on when we presented it to them. The developers agreed to take on the additional expense of the rain gardens as part of the overall "green" new construction of the adjacent

mixed-use development by the same developer, all of which achieved various LEED certifications.

## Cost & Jobs Analysis

**Estimated Cost of Stormwater Project:** \$50,000-\$100,000 (Public funding: None - all private developer funding)

**Related Information:** Construction costs only

**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:** The streetscape portion of the project that incorporated the rain gardens was a new streetscape as part of the overall block new development. There was no existing green space within the streetscape to preserve so there weren't really cost implications in that way.

### **Cost impact of conserving green/open space for stormwater management over**

**traditional site design/site development approaches (grey infrastructure)?** Did not influence costs. Conserving green space did not impact the cost, but the creation of the rain gardens was certainly a cost increase versus other traditional planted areas in the public right of way.

**Number of jobs created:** Not available

### **Job hours devoted to project:**

Planning and Design: 120 hours

Construction: 250 hours labor, install, management

Annual Maintenance: 120 hours

## Performance Measures

### **Stormwater reduction performance analysis:**

No data available.

**Community & economic benefits that have resulted from the project:** Overall the rain gardens have been received very well and are a talking point amongst tenants and users of the streetscape and new adjacent businesses. The city of Washington, D.C. has increasingly been trying to incorporate low impact development, rain gardens, etc. but there is currently little to no incentive for the private developer to do so. This project was the first within the NOMA BID and due to its success there is talk of making it a part of their (required) design guidelines for future

development.

## Additional Information

**Links to images:** Project images: <http://www.flickr.com/photos/alit-work/sets/72157626400555316/detail/>

Project overall site: <http://www.constitutionsquaredc.com/>

The rain gardens are underdrained which eventually tie into catch basins in the city's combined storm/sewer water system. There is a recurring hesitancy to allow rain gardens and low impact development with drainage infrastructure to connect directly to the city's (WASA) storm system. This project among others are helping to push for more awareness from the city to allow for these type of stormwater runoff reducing projects as they help with sewer overflow issues that drain into the Anacostia River.

