Green Infrastructure & Stormwater Management
CASE STUDY

The Muses Apartments

Location: New Orleans, LA
Client: Gulf Coast Housing Partnership and LDG Development
Design Firm(s): Mathes Brierre Architects
Landscape architect/Project contact: Keith A. Scarmuzza, ASLA
Email: kscarmuzza@mathesbrierre.com
ASLA Chapter: Louisiana

Image: Mathes Brierre Architects

Project Specifications

Project Description: The Muses Apartment Homes, a dense urban infill multifamily project, is an integral part of the revitalization of inner-city New Orleans. The entire project is a LEED Registered development, and the site design and landscape architecture of the project features numerous innovative firsts for the region. The sustainable landscape design precedents set by

this project will be instrumental in establishing new benchmarks for site design in south Louisiana.

Project Type:
Multifamily residential
Part of a redevelopment project

Design features: Rain garden, bioswale, porous pavers, and curb cuts.

This project was designed to meet the following specific requirements or mandates:
Developer/client preference

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 regulatory environment and regulator was indifferent to 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 LEED certified, including buildings. The tight urban site had to look like a pleasant space for residents of the development, and function for multiple outdoor uses as well.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: $500,000-$1,000,000 (Public funding: GO Zone Tax Credits)

Related Information: We do not have a breakdown at this time.

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: We retained areas surrounding the parking lot pavement for use as bioswale filtration areas. These spaces were featured as the primary landscape garden feature of the site. The costs to plant these swales was no different from typical landscaping costs.

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: Not available

Job hours devoted to project:

Planning and Design: 250
Construction: Not available
Annual Maintenance: Not available

Performance Measures

Stormwater reduction performance analysis:

The existing site was more than 50% impervious. The stormwater design resulted in a 25% decrease in the volume of stormwater runoff for the two-year, 24 hour design storm. It qualified for LEED Credit 6.1

Community & economic benefits that have resulted from the project: This project is a key part of the revitalization of Central City, a blighted urban neighborhood of New Orleans. Increased investment and property values of the surrounding area will likely occur in the near future.

Project Recognition

President's Award of Excellence, LA ASLA Chapter; Overcoming Significant Obstacles Award - Novogradac Journal of Tax Credits

Additional Information

Links to images:

http://www.mathesbrierre.com/news/images/stories/Muses_Landscape_Brochure.pdf

All of the parking lot surfaces drain into garden bioswales or through pervious pavement areas. Bioswales have never before been developed in New Orleans, where heavy rainfall volumes, high water table, dense clay soils, and very low elevations combine to make the typical bioswale design unfit. The landscape architect implemented a modified bioswale design with elevated catch basins in each swale to allow for overflow to the storm drain during very high volume storms. The swales also feature perforated drain lines several feet below the bottom of the swales to allow for a slow flow out of the swale to prevent water from being retained on the site long enough to cause pavement or foundation failure. In each of the seven bio-swales, different native plant groupings were installed so that the project team can test the performance of various species for this application.

The planting was selected to be drought and flood tolerant in order to adapt to the many weather situations presented in the New Orleans area. In all, there are over 40 different species of native and adapted plants used in this project, with no irrigation system needed. Research

done will become helpful for future work in the region, and the landscape architect is also working with the developer to ensure that proper maintenance is performed.

The parking lots were designed to reduce the urban heat island effect by using materials with a high solar reflectivity rating. The combination of concrete and light colored pervious paving blocks achieved LEED points for heat reduction. But the landscape architect also wanted the parking lots to become shady amenity areas at the center of the project, so the layout and design of the parking areas allows for tree and shrub planting throughout. Areas of the parking lot where pervious block paving has been installed feature a field of perforated drain lines several feet below the paving to prevent paving failure from water-logged clay soils.

The base course for the pervious block paving consists of CU Structural Soil, a proprietary aggregate and clay mixture with a binder that provides a compacted base course while also providing a growing medium for shade trees, which are planted in the center of the fields of pervious paving. These shade trees will thus have a greater chance of growing full size, and less chance of buckling the surrounding pavement. This was the first installation in Louisiana of the CU Structural Soil, developed at Cornell University. The landscape architect worked with the suppliers of the product to develop a local supply chain that allowed the product to be mixed locally for use on this project.