Green Infrastructure & Stormwater Management CASE STUDY

Apache Nitrogen Solar and Rainwater Project

Location: Benson, AZ
Client: Apache Nitrogen Products, Inc.
Design Firm(s): Solar Gain, Inc.
Landscape architect/Project contact: Melissa Black
Email: melissa@solargaininc.com
ASLA Chapter: None

Photo: Solar Gain, Inc.

Project Specifications

Project Description: Solar Gain, Inc was initially hired to install 42 kwatt of solar electric system and because of design constraints solar shade structures were designed and installed. These structures offered the perfect opportunity to harvest rainwater and created a new and unique outdoor environment for the facility. Rainwater was collected from the solar shade structures, directed to underground rainwater storage that feeds a waterfall, fountain and

landscaping. All new landscaping was installed around the facility including swales and waterfalls.

Project Type:
Commercial
A retrofit of an existing property

Design features: Rain garden, bioswale, downspout removal, rainwater harvesting, underground rainwater storage, swales, native landscaping, and permeable catchment area.

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 supportive of the project.

Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements? Yes, complete financial analysis was completed.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: $100,000-$500,000 (Public funding: Federal - American Recovery and Reinvestment Act)

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: Prior to the installation of this project, the outside use of this space was minimal. It is now a lovely outdoor living space used for special events and daily by employees. So existing space was enhanced. (see before and after photos)

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: 15

Job hours devoted to project: Not available
Planning and Design: Not available

Construction: Not available
Annual Maintenance: Not available

Performance Measures

Stormwater reduction performance analysis:
Estimate would be approximately 1/3 of stormwater from around the 100-year old Apache Nitrogen Products, Inc. Administration Building is harvested and used for irrigation and water features. Swaled landscaping captures and directs all of the rainwater around the ANPI Admin Building.

Community & economic benefits that have resulted from the project: This is a model in sustainability design and installation. With solar electric, new shade structures, rainwater harvesting, beautiful landscaping and water features used to create a desirable exterior environment, on a 10- year old historical facility, the general public as well as the employees have a living example of 21-century design implementation. This will off set electric, water and landscaping costs for decades to come. This has brought this old facility into the 21-century adding tremendous increase property value.

Additional Information

Links to images: http://www.flickr.com/photos/33273404@N00/

Project List

- 42 kwatt of solar electric with monitoring and display hub
- Shade structures including new outdoor living area and southern exposure building awnings
- Rainwater harvesting with underground storage, 7500 gal, that feeds a fountain, waterfall and landscaping
- Hardscape and redesign of facility entrances, swales and native landscaping