

US EPA ARCHIVE DOCUMENT



Nonprofit Using Sustainable Design to Convert a Former Gas Station into a Community Center

Sustainability Pilot Background

EPA's Brownfields Sustainability Pilots provide technical assistance to assist communities in achieving greener, more sustainable results when redeveloping brownfields. These pilots also provide models for other communities across the country.

EPA provided the Delta Sigma Theta Sorority in Portland, Oregon with technical assistance in sustainably redeveloping a former gas station into a community center. The Delta Sigma Theta Sorority is a nonprofit organization serving the African-American community. Delta Sigma Theta intends to convert a former gas station into the June Key Delta House, a community center that meets the Living Building Challenge (a green building certification). EPA's technical assistance provided recommendations for sustainable stormwater management and reuse, and sustainable landscape design.



June Key Delta House Project Background

Prior to the purchase of the property by Delta Sigma Theta in 1992, the property was a gas station. An environmental assessment was conducted under EPA's Brownfields Showcase Communities Initiative in the late 1990's.

The June Key Delta House project will increase the functional area of the site and provide additional meeting space. During redevelopment, Delta Sigma Theta intends to use recycled materials in the construction of the community center, including recycling metal cargo containers left onsite. All redevelopment plans are designed to qualify the June Key Delta House for Living Building Challenge certification. The Living Building Challenge outlines criteria such as responsible site selection, net zero energy and water usage, indoor air quality, and minimization of construction waste. To meet Living Building Standards the June Key Delta House must address sustainable design plans including greenspace design and stormwater management.

Project Highlights

EPA's technical assistance for the project began with setting three primary goals for the design and development of the June Key Delta House:

- Design should meet high standards of development that succeed as a teaching laboratory for water conservation and urban ecological sustainability;
- Design and management of the site and landscape should represent the best practices of environmental protection; and,
- Energy and resource efficient building, site design, and operational techniques must be incorporated into the integrated design process.

Working towards these goals, the analyses conducted with EPA's technical assistance included low impact stormwater management, landscape design and stormwater reuse.

Stormwater Management and Reuse

EPA's technical assistance team determined that a series of stormwater management techniques, including custom landscaping, installing a trench drain, and planting grass along sidewalks will result in the management of all potential runoff and prevent any stormwater from reaching the sewers. EPA's technical assistance team provided plans for a rainwater harvesting system to collect and use stormwater for irrigation and flushing toilets.

Challenges and Lessons Learned

Onsite Residual Contamination

The City of Portland required extra analysis to show that the stormwater management and reuse techniques would not mobilize residual contamination.

Local Regulation

Portland's 2008 *Stormwater Management Manual* (SWMM) proved to be a limiting factor for the stormwater management recommendations due to the fact the manual does not allow for sustainable management designs. Delta Sigma Theta will need to find experts to design the basins, swales and planters along SWMM guidelines.

Availability of Materials

The Living Building Challenge has strict criteria for the type of materials that can be used for construction at the site. For the June Key Delta House, a particular material for the electrical wiring must come from a vendor in Texas, which exceeds the "local" requirement of the Living Building Challenge. Delta Sigma Theta and the construction contractor can apply for a waiver from the Living Building Challenge to be able to use this particular product.



The June Key Delta House site before redevelopment construction begins.

Landscape Design

The landscape design plan incorporates planted swales and water retaining cells at tree basins, and recommends installing a rainwater retention system. In addition, the following green landscape design features were recommended: native planting, tree planting, urban forestry, structural soil cells, porous paving and rain gardens.

Sources for Additional Information

For more information on this project, please see the full June Key Delta House technical assistance reports at:

http://www.epa.gov/brownfields/sustain_plts/reports/June_Key_Delta_final_report.pdf

http://epa.gov/brownfields/sustain_plts/reports/Rainwater_Harvesting_System_Design_8_3_09.pdf

Additionally, please see:

Delta Sigma Theta's Project Web site

<http://www.dstportland.org/delta%20house%20project.htm>

City of Portland, OR Web site

<http://www.portlandonline.com/bps/index.cfm?c=44508>

Regional Contact Information

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