RiverEast Center
1515 SE Water Avenue
Portland, Oregon

PROJECT SUMMARY

Project Type:	Commercial office remodel project
Technologies:	Flow-through planters, vegetated infiltration swale, downspout disconnects
Major Benefits:	• Runoff from 98,700 sq.ft. of impervious area is filtered and partially infiltrated, reducing the amount of pollutants entering the public stormwater system. • More than 42,000 sq. ft. of landscaping was added, improving the urban environment and the aesthetic appeal of the property and pedestrian plaza connecting to the Eastbank Esplanade.
Cost:	• Stormwater elements $120,000. IWWP grant $80,000
Constructed:	Winter/ Spring 2007

Overview of the Stormwater System

- Runoff from 43,500 sq. ft. of impervious parking lot and 8,200 sq. ft. of impervious sidewalk drain to the vegetated swales located throughout the project.

- Runoff from 8,000 sq. ft. of public street along Water Avenue drains to the eastern-most vegetated swale through two custom conveyance systems located within the sidewalk.

- Runoff from 39,000 sq. ft. of roof area has been disconnected and flows into two flow-through planters on the south side of the building and then overflows into vegetated swales.

Clay Street from above looking east pre-construction

Clay Street from above looking east post-construction

STORMWATER CAPACITY AND SYSTEM COMPONENTS

System Components

Total area of flow through planters and vegetated infiltration swale: 8,500 sq. ft.

Catchment area: 98,700 sq. ft. (roof and impervious asphalt/ concrete)

Overflow: The facility will fill to a depth of 6 inches before overflowing into the raised area drains. The drain pipe will then direct the water to the public storm system.

Vegetated Infiltration Swales: Four flow-through planters capture and infiltrate on-site and off-site runoff from impervious concrete and asphalt surfaces. They are typically 12 inches deep. One 12-inch deep flow-through planter captures and infiltrates 39,000 sq. ft. of impervious rooftop surface. The flow-through planters occupy 12,000 sq. ft. of landscaping.

Building Rain Drains: Roof runoff is piped down the south face of the building and discharged to two stormwater planters.

Removal and Replacement of Asphalt: A contractor removed 100,000 sq. ft. of existing on-site asphalt. 53,000 sq. ft. was repaved, 2,000 sq. ft. was graveled, and the rest was replaced with landscaping.

South parking lot looking south during construction

South parking lot looking south after construction

Geotechnical Evaluation/Infiltration Test

City staff did not require infiltration testing for the site, but previously collected information adequately documents the site's soil characteristics. The Natural Resource Conservation Service (NRSC) soil survey for Multnomah County classifies the soil as 50A. The predicted infiltration range is 0.6 to 2.0 inches per hour.

Landscaping

- The landscaping includes mostly native plants-trees, shrubs, and grasses selected for their tolerance to the Portland climate and soil conditions.
- Trees and shrubs were placed in strategic locations to minimize erosion and reduce the heat island effect on the plaza area.
- Most soil in the landscaping consists of four inches of loose subgrade with six inches of topsoil added on top.
- All imported topsoil consists of clean soil with added amendments.

- All new landscaping was covered with three inches of wood mulch in planting areas or two inches of rock mulch in the vegetated infiltration swales.

Irrigation

Temporary soaker hoses are installed beneath the mulch to irrigate the plants during the two-year establishment period. After two years, the plants should be established and the irrigation will be disconnected.

Emergency Overflow

At the low point of each swale there is an area drain that is elevated six inches above the ground surface. If the landscape facility reaches capacity, the water will flow into the area drain and be directed to the public storm system.

MAINTENANCE AND MONITORING

The property owner is responsible for maintaining the facilities to ensure proper function and appearance. Maintenance may involve removal of nuisance and invasive plant species, removal of debris and sediment, and preventing impedance of stormwater flow into, or overflow from, the facility.

The Bureau of Environmental Services (BES) will provide periodic visual assessment of the facility to determine plant viability and facility function.

Vegetated infiltration swales east side of site post construction

Vegetated infiltration swale along sidewalk

PUBLIC INVOLVEMENT

Two permanent interpretive signs, one at the entrance to the esplanade and the other at the plaza provide information about the sustainable stormwater management techniques used.

The project is used as an example of innovative stormwater management on the BES website and on tours of sustainable stormwater management facilities.

Public to private inlet at Water Street

SUCCESSES AND LESSONS LEARNED

Positive project example: RiverEast Center is in a highly visible location near the Eastbank Esplanade, a popular pedestrian and bike path that parallels the Willamette River. This project provides opportunities for the public to become more aware of innovative stormwater management techniques. In addition, the center's customers benefit from seeing examples of the kind of on-site stormwater management they can implement on their own properties.

Rain scupper at downspout basin after heavy rain

Public private partnership: This project is the first public-private stormwater management partnership of its kind in Portland. RiverEast Center worked with the city to create a model stormwater system that treats runoff from the roof, parking lot, public plaza and adjoining city streets on private property. In addition, to expand the public's access to the river, a city street was turned into a public plaza connecting surrounding neighborhoods to the esplanade.

Plaza leading to Eastbank esplanade

Stormwater reduction rate: Under Portland's Clean River Rewards program, the onsite stormwater management measures will earn the property owner a stormwater management charge discount.

Sustainable, creative, cost effective approach: The project retained 100% of its original structure and more than 95% of the construction waste was recycled for the sculptures, planters, site grading and fill.

Recycled concrete sculptures