Rain Garden Workshop
Design and Planting

Corley Street Park
Lexington, South Carolina

November 10, 2010

Presented by
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Landscape Architect
Water Gardens vs Rain Gardens

Japanese Garden with Recirculating Water

Rain Garden with Storm Water
Mount Tabor Middle School Raingarden
Portland, Oregon

Illustrative Site Plan

Award Winning Rain Garden
Costs of Sedimentation

Source: Catawba RiverKeeper
Conventional Development
Centralized End-of-Pipe BMPs

BMP Options
- Pipes/Swales
- Ponds
- Media Filters
- Separators
- Screening Devices

BMP Issues
- Trash
- Invasive Species
- Mosquitoes
- Safety
- Maintenance
- Loss of Land $$

Source: Filterra Presentation 2008
Low Impact Development (LID) Decentralized BMPs

LID Options
- Rain Gardens
- Rain Barrels
- Permeable Pavers
- Bio Swales
- Vegetation Strips
- Bioretention Cells
- Filterra®

LID Issues
- Contractor Error
- Poor Media Selection
- High Failure Rates
- Maintenance
- Community Understanding

Source: Filterra Presentation 2008
Typical Rain Garden Detail

Chapter 1 - Introduction to Bioretention

Fig. 1.7a: Typical bioretention cross-section

Source: Prince George's County, MD, 1999
Permeable Pavements

Concrete Paver Block

Castellated Block

Lattice Block

Grass / Gravel Paver Mat
Biofiltration Retention Area
Tight spaces - Good places
Bio Filters = Site Amenities!
Bio Swales
(Linear Rain Gardens)
Water Street - Warren, RI
Temporary Ponding Only
Various Residential Rain Gardens
Formal design
....or Informal
Front Yard Alternatives
Entry Drive or Walks
Along Property Boundaries
Or as focal points in back yards
Parking lots - Dividing Islands
or along perimeters
Roadside solutions
...along walks
Adding Landscape Elements
Bridges
# Plant Recommendations - Trees

<table>
<thead>
<tr>
<th>Red Cedar</th>
<th>Serviceberry</th>
<th>River Birch</th>
<th>Amer. Hornbeam</th>
<th>Redbud</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fringetree</td>
<td>Dogwood</td>
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Native Cedar Varieties

- Red Cedar
- Grey Owl
- Taylor
- Brodie
- Skyrocket

- White Cedar
- Heatherbun
- Red Star
- Winter Wonder
Plant Recommendations - Shrubs

- Chokeberry
- Groundsel
- Buttonbush
- Summersweet
- St. Johnswort
- Possumhaw
- Indigo Bush
- Sweetspire
- Spicebush
- Wax myrtle
- Swamp Azalea
- Carolina Rose
- Dwarf Palmetto
- Elderberry
- Viburnum
Selected Shrubs

- American Beautyberry
- Lactea – Bok Tower
- Welsh’s Pink dich. “Duet”
- Yaupon Holly (Compact)
- Virginia Sweetspire
- Henry’s Garnet
Planting Recommendations – Grasses & Perennials

- Bluestem
- Swamp Milkweed
- Tussock Sedge
- Turtlehead
- Blue Mist Flower
- Joe Pye Weed
- Coral Bells
- Texas Star
- Rose Mallow
- Cardinal Flower
- Lobelia
- Loosestrife
- Beebalm
- Sensitive Fern
- Solomon’s Seal
- Coneflower
- Little Bluestem
- Ironweed
Planting Selections – Grasses & Perennials

Butterfly Milkweed  New England Aster  Canna Varieties  River Oats

Stella D’Oro Daylily  Gay-feather  Muhly Grass  Heavy Metal  Shenandoah

Switch grass  Obedient Plant  Mexican Petunia  Spiderwort  Red  Sweet Kate
Plants for Fragrance!

- Old Man’s Beard
- Sweetbay
- Azalea viscosum
- Anna Bidwell Clethra

- Hayscented Fern
- Mock Orange
- Spicebush
- Monarda
Plants in a local Rain Garden

- Marsh fern (*Thelypteris palustris*) DEAD
- Pickerel weed (*Pontederia cordata*) DEAD
- Lizard’s tail (*Saururus cernuus*) DEAD
- Swamp cyrilla (*Cyrilla racemiflora*) DEAD
- Juncus effuses ‘sprialis’ DEAD
- *Acorus gramineus* DEAD
- *Osmunda* sp. DEAD
- Purple iris (*Iris versicolor*)
- False indigo (*Baptisia australis*)
- Wild petunia (*Ruellia caroliniensis*)
- Pink muhly grass (*Muhlenbergia capillaris*)
- Butterfly milkweed (*Asclepias curassavica & syriaca*)
- Serviceberry (*Amelanchier canadensis*)
- Silky dogwood (*Cornus amomum*)
- Beautyberry (*Callicarpa profusion*)
Residential Rain Garden
Cross Section Detail

ORGANIC MULCH
Shredded Bark
Knits together
NOT nuggets
NO weed matt

PLANT MIX
50% Coarse Sand
20-30% Compost
20-30% Topsoil
Potential Failures

- Sedimentation
- Poor infiltration
- Compacted Soils
- Wrong Plants

- Non access
- Treating areas as liabilities
- Inadequate establishment
- Poor Media Composition
- Poor maintenance
Maintenance Issues

Inspect monthly, but for most treatments - twice a year

- Remove debris & eliminate invasive species
  Glyphosate dribbling technique most effective

- Pruning, thinning, mulching… check inlets & outlets
  Do not over mulch: “Show me your root flare!”

- Mowing large areas – late summer best for regrowth prior to winter. Ornamental areas - wait till early spring.

- Periodic removal of sedimentation build up and replanting established species

- Integrated Pest and Turf Management
  Soil testing for proper fertilization rates
Rain Garden Design Aesthetics
Rice Paddy or Inviting Retreat?
Streetscape Sensitivity Critical to Design
Clean perimeter with well defined edges makes planting look intentional
...messy and untended looks threatening.
While the intent may be good...
...this will be easier to accept.
Other examples
Entire Streetscapes

or pocket parks.
Great Neighborhood Projects!
Corley Street Park
Bing Bird’s Eye

Eroded Swale

Site Survey
Side View

Soil Test Marking Outline
Source: Joe Berg of Biohabitats, Inc.
2010 SC Water Resources Conference
Construction

Swale
Rain Garden – Side View

Swale
Corley St. Plant Palette

- Substitutions due to Availability
- Coral Bean for Milkweed
- Murasaki Aster for New England Aster
- Sweet Kate Spiderwort for variety
Rain Gardens!
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