Save the Rain
Program Overview

Onondaga Lake
Amended Consent Judgment (ACJ)
Compliance Program,
June 2011

Save the Rain

History

- 1988 – Atlantic States Legal Foundation files lawsuit against County
- 1989 – Litigation settled through METRO consent judgment
- 1998 – METRO consent judgment replaced with Amended Consent Judgment (ACJ)
- 1st ACJ amendment May 1998
- 2006 ACJ Amended to include consolidation of ammonia and phosphorus treatment and Harbor Brook conveyances and RTF
- 3rd Amendment April 2008 (Extension)
- 2009 ACJ amended to authorize use of Gray and Green infrastructure

Onondaga Lake Facts

Watershed: 285 Square Miles

1 Mile Wide – 4.6 Miles Long

Average Depth: 35 feet

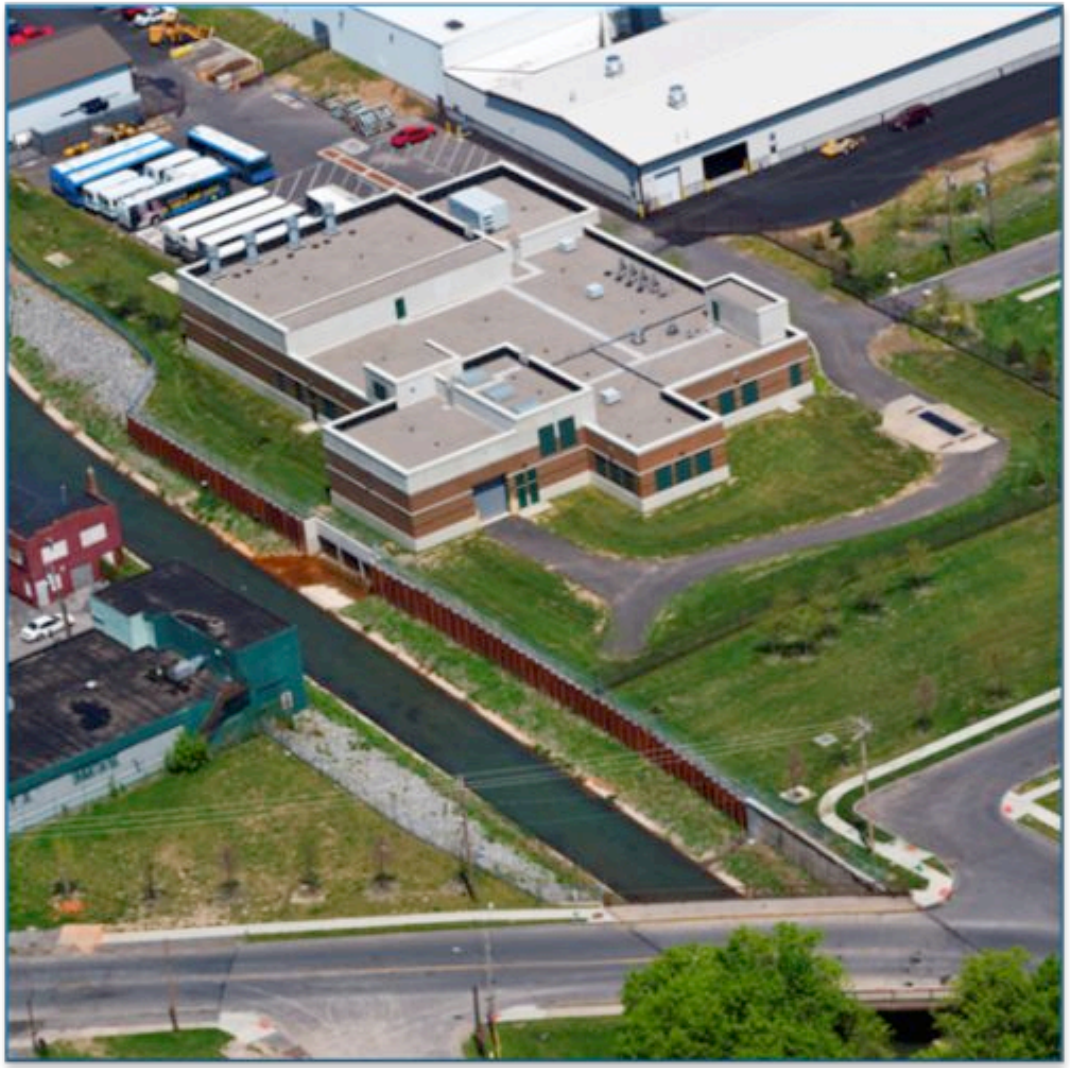
Max Depth: 63 feet

1940 – Swimming Banned

1970 – Fishing Banned

Metropolitan Syracuse Treatment Plant

- Largest Biological Aerated Filter Process in US
- First large scale ballasted flocculation process for phosphorus removal in North East
- Project modified to two phases to save time and money; built on Brownfield site
- Meeting All Permit Requirements
- Upgrades Cost - $135,000,000



Midland Ave RTF

CSO Storage, Treatment and Conveyance Project

5.5 Million Gallons of storage (sub-surface)

Swirl Concentrators

Captures CSOs 039, 041, 042, 043, 044

Midland Regional Treatment Facility under construction

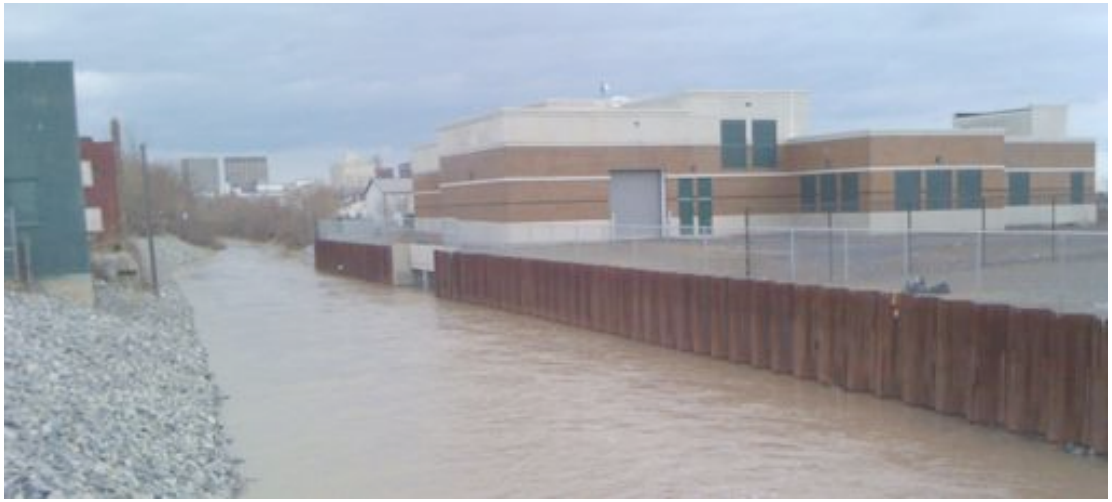
Midland Avenue Regional Treatment Facility (RTF)

- Storage, Swirl Concentrators and Disinfection to capture one year design storm
- Cost: $79.1 mm – Grants $ 54.4 mm, Loans $ 24.7 mm
- Opposed by Many Stakeholders & Local Officials
- Significant community disruption during construction
- Conveyances connect 60% of Midland Sewershed
- Will be Evaluated for Efficiency and Optimization

Environmental Justice

Green Infrastructure means…

- *Injustice of Midland plant will not be repeated*
- *Onondaga Creek & Harbor Brook will be cleaner*
- *Community investment and beautification instead of further disruption*

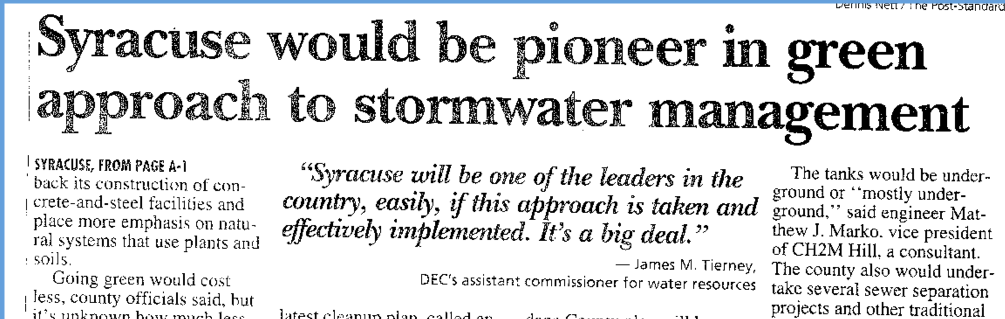


Conveyance project under construction through south side neighborhood causing significant disruption

Large diameter conveyance pipeline dwarfs front end loader and operator

CSO 020 and 021

Sewer Separation



Dennis Nett / The Post-Standard

Syracuse would be pioneer in green approach to stormwater management

SYRACUSE, FROM PAGE A-1

back its construction of concrete-and-steel facilities and place more emphasis on natural systems that use plants and soils.

Going green would cost less, county officials said, but it's unknown how much less.

"Syracuse will be one of the leaders in the country, easily, if this approach is taken and effectively implemented. It's a big deal."

— James M. Tierney, DEC's assistant commissioner for water resources

latest cleanup plan, called an ...

The tanks would be underground or "mostly underground," said engineer Matthew J. Marko, vice president of CH2M Hill, a consultant. The county also would undertake several sewer separation projects and other traditional

Green Infrastructure

- Solution to capacity problems with underground storage – reduce the rain!
- Proposed by Onondaga Nation

Victory!! Onondaga County Scraps Sewage Plants in Favor of Green Infrastructure

Lindsay Speer

Change is in the air, and it smells sweet. Onondaga County Executive Joanne Mahoney announced on May 2, 2008 that the County will not award construction bids for the proposed Clinton Regional Treatment Facility (RTF) in Armory Square. Instead, it will explore more environmentally and economically sound options with the State of New York, Atlantic States Legal Foundation, City of Syracuse, and, for the first time, the Onondaga Nation and other community stakeholders.

Persistence Pays Off

Syracuse has an antiquated combined sewer system, in which stormwater runoff is directed into the sanitary sewers. A heavy rainfall results in Combined Sewer Overflows (CSOs), dumping sewage directly into Onondaga Creek. Onondaga County's previous solution was to treat the sewage ...

... existed year-round, not just after storms, calling into serious question the effectiveness of the RTFs' end-of-pipe solution.

Going Green

In January 2008, the federal Environmental Protection Agency released a report urging municipalities to use green infrastructure, such as rain barrels, green roofs, and other methods to keep stormwater out of the sewer system. These developments combined with new County and State leadership this year to create a perfect storm for revisiting the mandates of the Amended Consent Judgement (ACJ), which dictates the cleanup of sewer pollution in Onondaga Creek and Harbor Brook.

On June 18th, the Partnership for Onondaga Creek gave a presentation to Onondaga County and the NYS Department of Environmental Conservation to outline alternatives to the remaining phase of the Midland plant ...

Rain barrels are a simple solution activists recommend for protecting Onondaga Creek and other waterways.

Partnership for Onondaga Creek
2010 - lspeer@mrss.com

Catch the Rain:

A new strategy for clean waterways in Syracuse

Communication and Education Plan Recommendations for the management of stormwater and combined sewer overflows (CSOs) in Onondaga County, New York

December 2008

This document was developed through a collaborative process by the Green Infrastructure Communications and Education Committee. It is intended to provide a guide or road map for Onondaga County and the many others who are collaborating in this effort on how to inform and educate elected officials, local residents and other stakeholders on: 1) what is being done; 2) why it is being done; and 3) who has what role in carrying it out.

Khris Dodson, Committee Chair, on behalf of the Atlantic States Legal Foundation
David Coburn, Onondaga County Executive's Office
Sarah Eckel, Citizens Campaign for the Environment
Christa Glazier, Office of Congressman Walsh
Stephanie Harrington, New York State Department of Environmental Conservation
Jean Kessner, AIDS Community Resources
Lionel Logan, Partnership for Onondaga Creek
Andy Maxwell, Community Development, City of Syracuse
Amy Samuels, Cornell Cooperative Extension
Lindsay Speer, Environmental Consultant for the Onondaga Nation
Bruno Takahashi, SUNY ESF/ Atlantic States Legal Foundation
Melissa Young, Environmental Finance Center, EPA Region 2

Why Is Onondaga County Using Green Infrastructure?

- Eliminates pollutants at the source
- Reduces discharge volumes to creeks, rivers, lakes, and wastewater treatment facilities
- Reduces flooding

- Reduces consumption, Gray O&M costs, energy and heat island effects
- Improves neighborhood aesthetics, habitat, biodiversity, and air quality
- Can be less disruptive than large Gray Infrastructure projects
- Green Infrastructure is often more cost-effective than Gray Infrastructure

Green Infrastructure Program Summary

- 6.3% annual CSO volume capture
- 247 million gallons
- Multiple Projects Throughout Sewersheds
- Compliments Gray Program
- Total Gray + Green volume capture:
  - 85.2% by 2013
  - 91.4% by 2015
  - 93.0% by 2016
  - 95.0% by 2018
- Extensive monitoring & reporting required

Cities To Watch:

- Philadelphia, PA
- Portland, OR
- Cincinnati, OH
- **Syracuse, NY**
- New York, NY
- Milwaukee, WI
- Chicago, IL
- Kansas City, MO
- Cleveland, OH

Green Improvement Fund (GIF)

Program developed to provide financial incentives to private and 501 (c) 3 property owners for the implementation of green infrastructure.

- 3 million dollar pilot program
- Storm water management on private property is vital to success of green infrastructure program
- Grant funding for targeted sewer sheds in the City of Syracuse (Midland, Harbor Brook, Clinton)
- GIF Program Committee created to review funding opportunities for potential projects
- Applications are reviewed by Program Committee for final recommendation on funding level
- Over $1 Million dollars currently allocated under program

Program Highlights

- 30 Applications submitted to-date
- 7 completed projects in 2010:
  - King & King Architects
  - Dunbar Association
  - Near Westside Initiative (2)
  - St. Lucy's Church
  - Jefferson Clinton Commons
  - Hotel Skyler
- Over 15 Projects slated for 2011

Green Improvement Fund (GIF)

Green Roof at King & King Architects

GIF grant award for the construction of an 11,200 sq ft. green roof on the new King & King Architects facility located in the Near West Side of the City.

Porous Pavement at Dunbar Association

GIF grant award for the re-development of a parking lot at the Dunbar Center. The construction features a porous concrete section that collect storm water from the 12.800 sq. ft surface lot.

Rain Barrel Program for Residences in the CSO 004 Sewershed Grant Funded (Green Innovations Grant Program)

Save the Rain

Green Infrastructure Projects

Save the Rain Program Compliance

Green Projects Completed/Underway

1. Parking Lot #21 (former "Farmer's Market Lot")
2. Pearl Street Parking Lot
3. Parking Lot #3
4. Creekwalk (Jefferson St. to Fayette St)
5. Rosamond Gifford Zoo - Primate Exhibit and Courtyard
6. Rosamond Gifford Zoo - Elephant Building and Grounds
7. Townsend Parking Lot B
8. Townsend Median Reconstruction
9. Hazard Branch Library Green Roof
10. Urban Forestry Grant / Tree Planting Projects
11. Rain Barrel Program Installations
12. Green Improvement Fund Projects
    (20+ applications to date):
    1. Jefferson Clinton Commons
    2. Dunbar Associates
    3. King & King Architects
    4. St. Lucy's Church
    5. Lincoln Supply

    ...and more...

Commercial Green Street,
Harrison Street (OnCenter)

Onondaga County Civic Strip

Greening County Facilities Utilizing Multiple Green Infrastructure Technologies

Location	Green Technology	Impervious Drainage Area (sq. ft.)	Estimated CSO Volume Reduction (gallons)
Court House	Bioretention, Enhanced Street Trees	6,100	88,072
Civic Center	Vegetated Roof	68,600	990,444
War Memorial	Cistern System	20,300	293,090
Convention Center	Vegetated Roof	58,700	847,508
	Pavement Removal/Bioretention	9,650	139,326
	Bioretention	15,100	218,013
Sheriff's Headquarters	Vegetated Roof	15,100	218,013
	Porous Parking Lot	11,550	196,628
Criminal Court House	Vegetated Roof	22,400	323,410
	Porous Parking Lot	30,750	523,491
Public Safety Building	Vegetated Roof	29,000	418,701
Justice Center	Vegetated Roof	53,200	768,099
Steam Station	Vegetated Roof	3,400	49,089
Community Plaza	Bioretention	43,000	620,832
County Parking Lot B	Porous Parking Lot	53,940	918,280
Convention Center Parking Lot	Porous Parking Lot	95,950	1,633,462
Convention Center Garage	Downspout Diversion to Bioretention	72,500	1,046,752
	Pavement Removal/Bioretention	6,650	96,012
S. Townsend St. Median	Enhanced Street Trees	20,520	252,988
	TOTAL	**656,510**	**9,642,210**

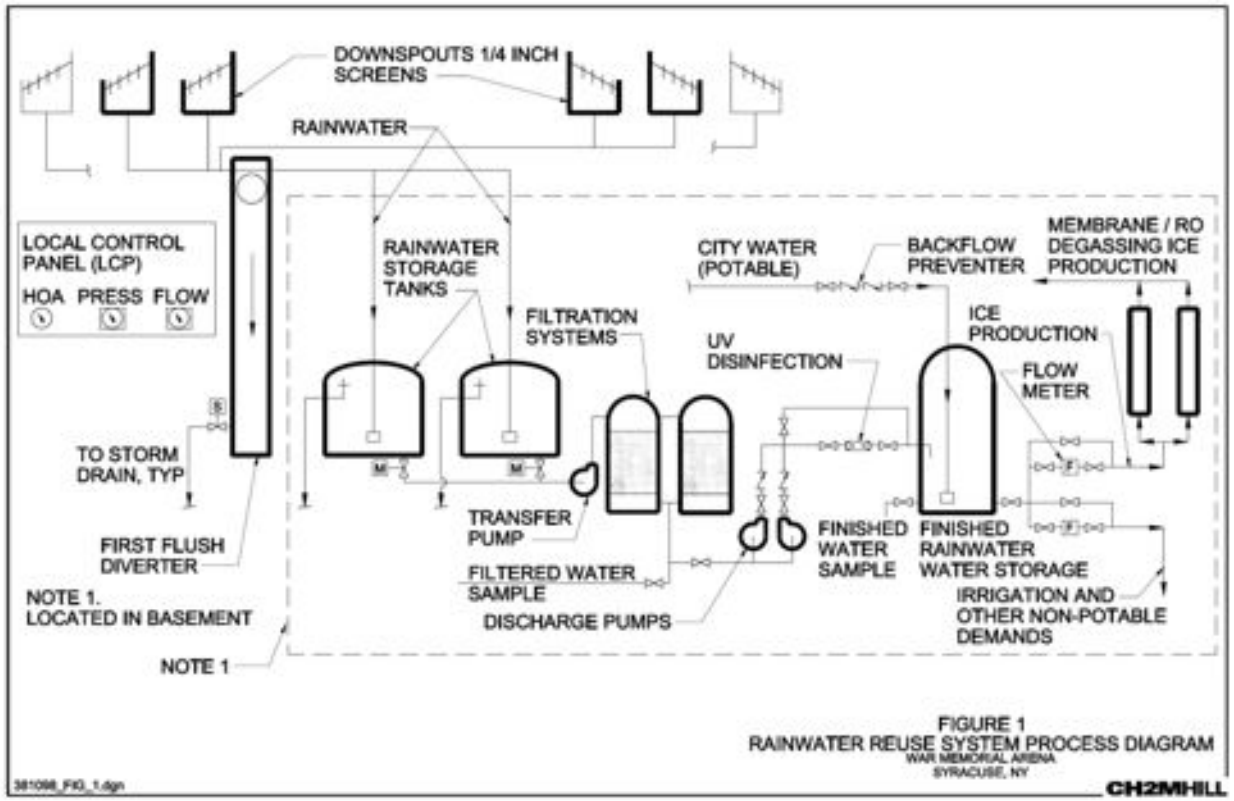
Save the Rain

Green Infrastructure 2011 Signature Projects

OnCenter Convention Center Green Roof

Green Infrastructure 2011 Signature Projects

Water Reuse at OnCenter War Memorial

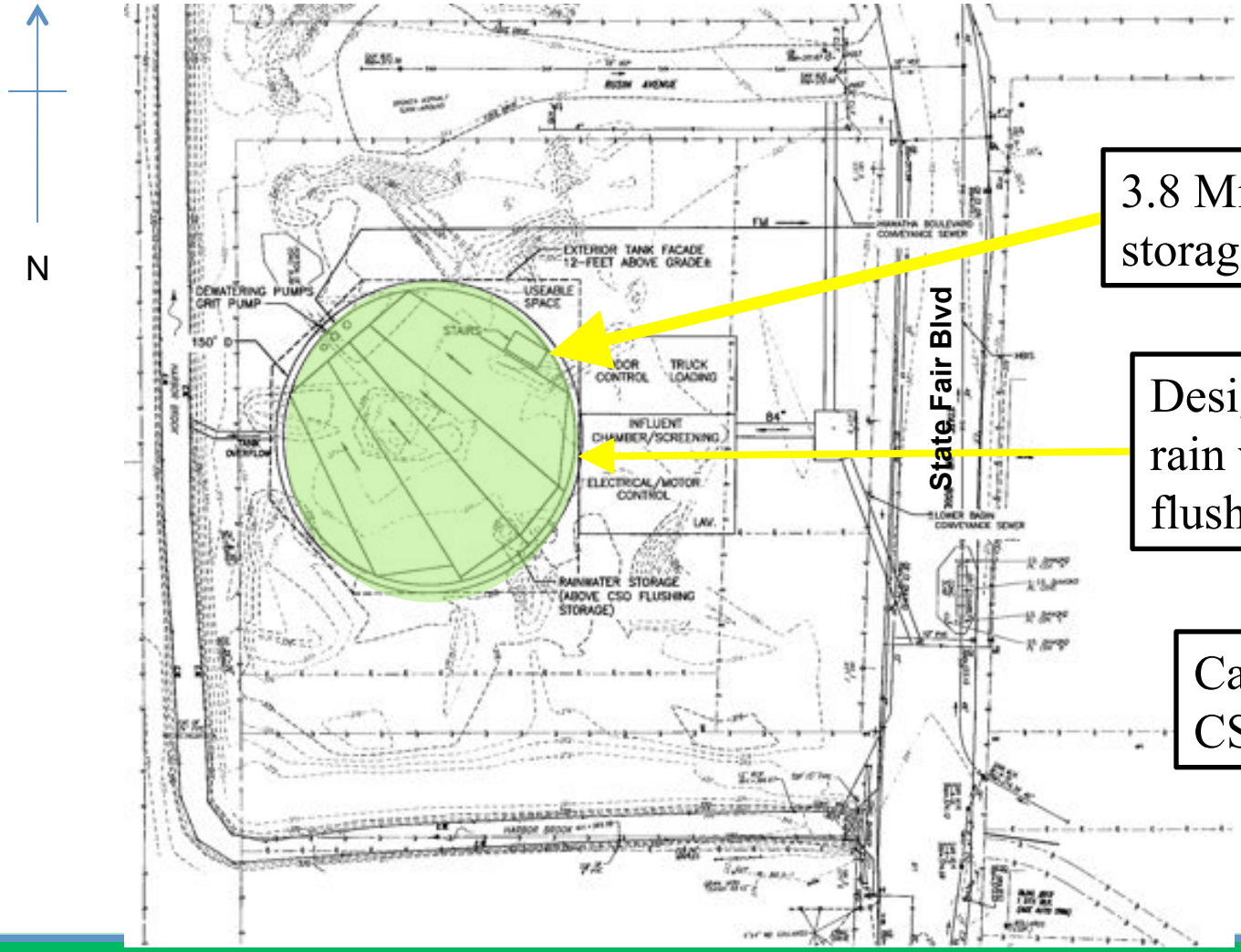


Save the Rain

Green Infrastructure 2011 Signature Projects

Treatment Wetland and Restoration Project

Harbor Brook Storage Project



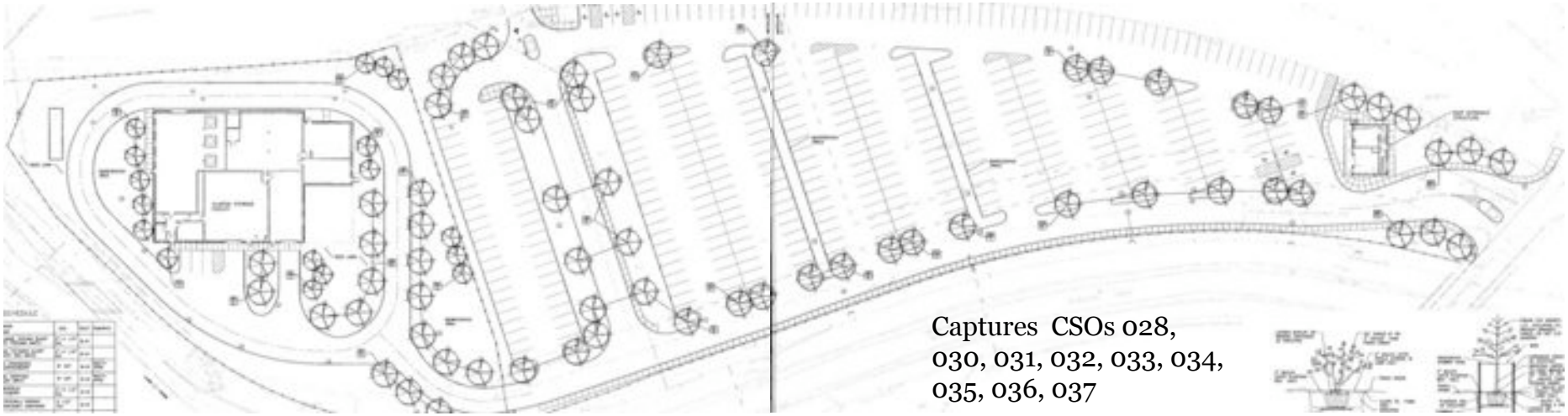
3.8 Million Gallons of storage (sub-surface)

Designed to capture rain water for system flushing/cleaning

Captures
CSO 003, 004, 063

Save the Rain

Clinton Storage Project

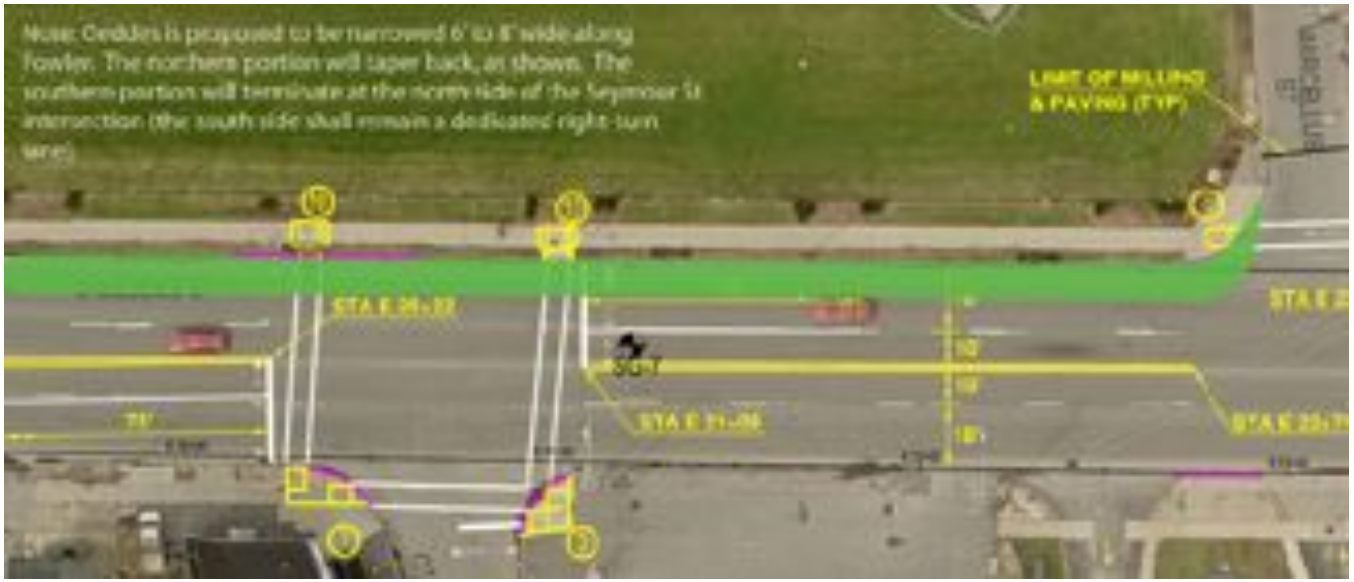


Captures CSOs 028, 030, 031, 032, 033, 034, 035, 036, 037

Designed to capture rain water for system flushing/cleaning

6 Million Gallons of storage (sub-surface)

Greening the Geddes Street Corridor



Parking Lot #21 (Formerly "Farmer's Market Lot")

Before

After

Pearl Street Parking Lot

Parking Lot #3

Porous Concrete
Captures over 700,000 gallons of stormwater annually

Rosamond Gifford Zoo Primate Exhibit and Courtyard

Rain Barrels and Cisterns to harvest runoff from rooftops

Porous Pavement in Courtyard

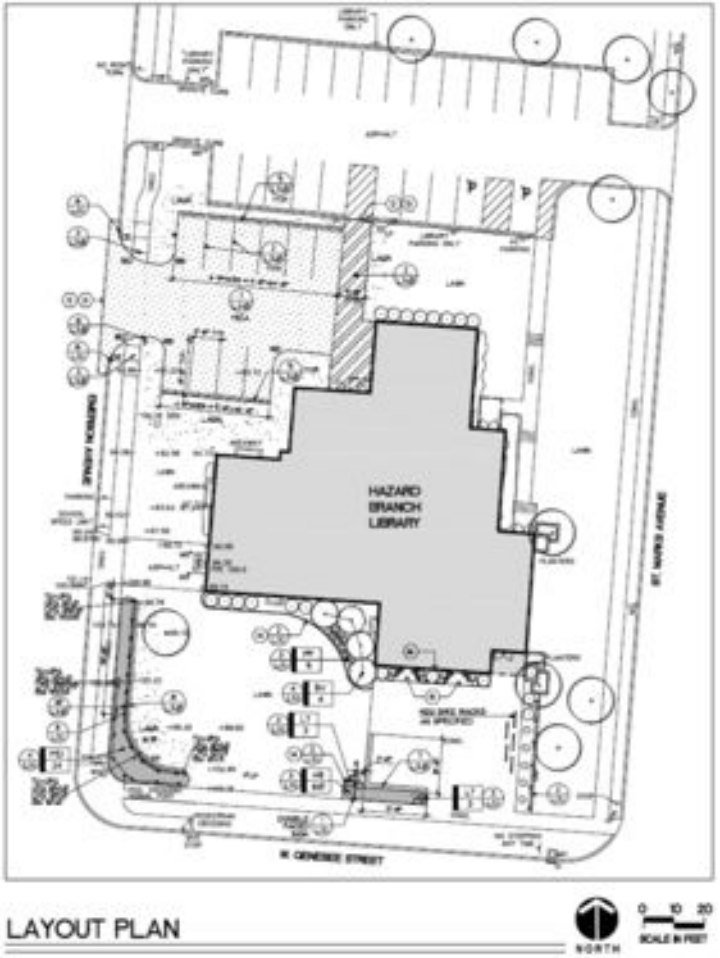
Rain Garden along Primate Exhibit

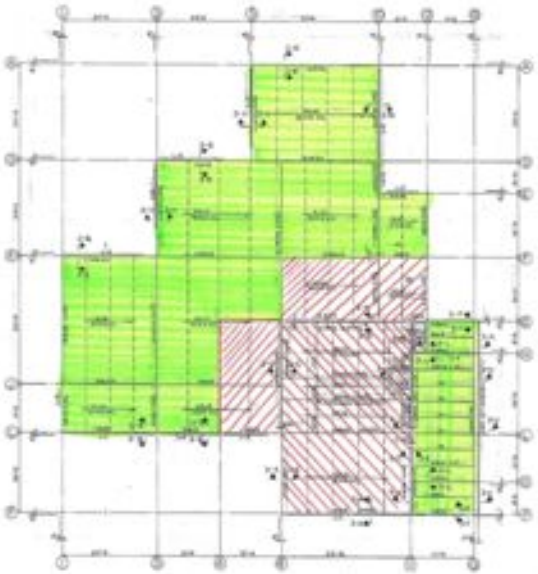
Rosamond Gifford Zoo Elephant Exhibit (summer 2011)

6,000 sq.ft. Green Roof

Enhanced Stormwater Management

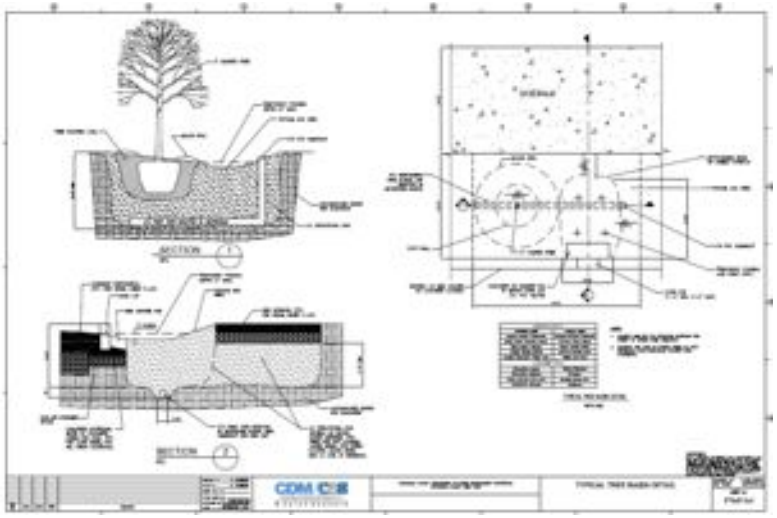
Green Roof at Hazard Branch Library: Roof Membrane 2010; Green Planting, Spring 2011





Green Roof at SUNY ESF

Enhanced Street Trees



Education & Outreach

Save the Rain

Save the Rain Programs

- Workshops
  - Intro to GI for Homeowners and Businesses
    - Topics include basic principles of stormwater hydrology, examples of simple GI for homes (rain barrels and rain gardens), and other GI opportunities for the community and businesses.
  - GI for New Homeowners
    - Provides an introduction to green yard care and residential GI to participants in Home HeadQuarters' (HHQ) home ownership program.
  - Community Workshop
    - Includes hands-on training for design and implementation of residential GI. Residential GI projects will be installed or maintained during each workshop through assistance by workshop participants.

Save the Rain Programs

- Workshops
  - GI for Youth
    - Participants will use and develop games, skits, role-plays, and hands-on opportunities to increase awareness about GI and instill an appreciation for the role young people play in reducing pollution.
  - GI and Art for Children
    - combine crafts and hands-on activities to teach elementary and middle school age children about different kinds of GI: green roof birdhouse, painting a rain barrel, etc..

Save the Rain Programs

- Workshops
  - Rain Barrel
    - Participants at the workshops will learn proper installation techniques, maintenance and the role of rain barrels in reducing combined sewage overflows.
  - Landscape Professionals
    - includes a refresher on stormwater management principles, GI options, examples of local projects, and strategies for marketing GI to landscapers' customers.
  - Pervious Products
    - series of formal and hands-on workshops on the various pervious products available on the market will first provide an overview of the products, their uses and specifications, and installation guidelines.

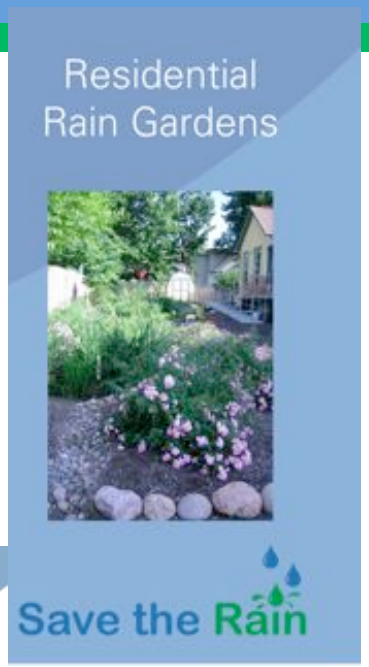
Save the Rain Programs

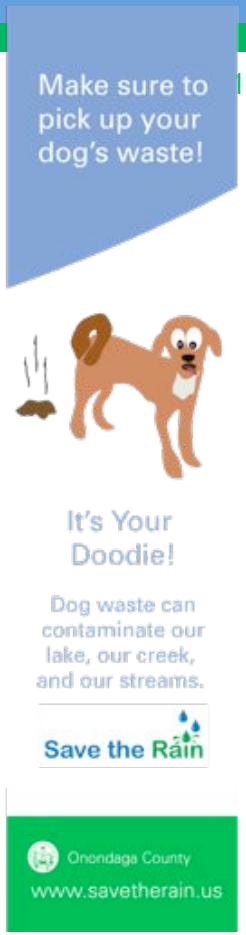
- Design Charettes
  - This process will include community members in the visioning and decision-making process as plans are created to implement a neighborhood-planned and approved green street.
- Demonstration Projects
  - Rain gardens, green roofs, etc.

Save the Rain Programs

- Nature in the City
  - 3rd Grade classes learning about GI throughout SCS. The lessons will be: Traveling Water Drop, Stream Exploration, and Clean Water Matters.
- ESF in the High School
  - High school classrooms learning about GI throughout SCSD
- Exhibiting at Events
  - Come to local events like Blue Rain ECOFest and more to learn about Saving the Rain!

Brochures, activity books, bookmarks, and a board game: “Raindrop Run”





Save the Rain

Save The Rain
New Look

Education & Outreach Partners:

- Environmental Finance Center
- SUNY ESF
- Onondaga Environmental Institute


Save
The Rain
Clean
The Lake
Every drop counts.
We can all make a difference.
Joanne M. Mahoney
Save the Rain
www.savetherain.us
LAMAR

Our many project partners include…

Environmental Finance Center
Syracuse University

Baltimore Woods Nature Center
Nature in your hands

ESF
State University of New York
College of Environmental Science and Forestry

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