



# Maintenance Challenges and Success Stories

Infiltration BMPs in the Ground and  
Working



# Agenda

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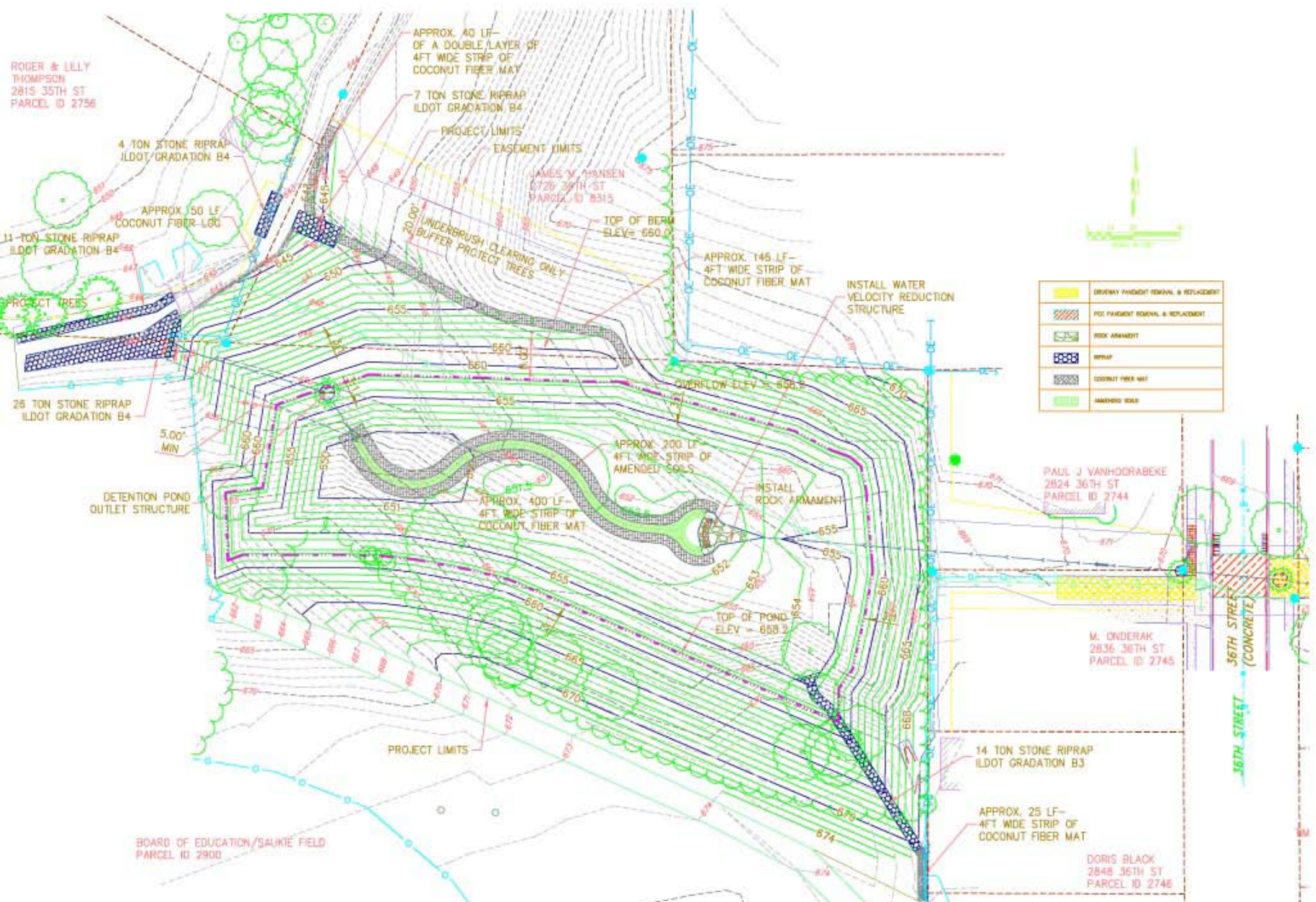
1. City of Rock Island Native Prairie Detention Basin Project
2. City of Rock Island Rain Garden Program (if time allows)

# City of Rock Island Native Prairie Detention Basin

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# NATIVE PRAIRIE DETENTION BASIN ALSO KNOWN AS THE SAUKIE DETENTION BASIN



# Native Plants- Design Seed Mix

Mesic-Dry Prairie		Wet-Mesic Prairie	Wet Prairie
COMMON NAME		COMMON NAME	COMMON NAME
Big Bluestem	<b>Rough Blazing Star</b>	Big Bluestem	Blue Joint Grass
Side-Oats Grama	<b>Prairie Blazing Star</b>	<b>Crested Oval Sedge</b>	<b>Lance-Fruited Oval Sedge</b>
Canada Wild Rye	Common Spiderwort	Brown Fox Sedge	Common Fox Sedge
Little Bluestem	Rigid Goldenrod	Virginia Wild Rye	Brown Fox Sedge Common Mountain
Indian Grass	Old Field Goldenrod	Prairie Switch Grass	Virginia Wild Rye Mint
Northern Drop Seed	Compass Plant	Prairie Cord Grass	Dudley's Rush Cup Plant
Smooth Blue Aster	Rosin Weed	New England Aster	Rice Cut Grass Riddell's Goldenrod
New England Aster	Black-Eyed Susan	White Wild Indigo	<b>Wool Grass</b> Blue Vervain
Canadian Milk Vetch	Yellow Coneflower	<b>Tall Coreopsis</b>	Swamp Milkweed Common Ironweed
White Wild Indigo	Pale Beard Tongue	Showy Tick Trefoil	New England Aster
Golden Cassia	Wild Bergamot	Rattlesnake Master	<b>Bristly Aster</b>
<b>Prairie Coreopsis</b>		False Sunflower	<b>False Aster</b>
Purple Prairie Clover		Prairie Blazing Star	Spotted Joe Pye Weed
Showy Tick Trefoil	<b>Other plants observed</b>	Wild Bergamot	Common Boneset
Pale Purple	<b>but not part of design</b>	Obedient Plant	Sneezeweed
Coneflower	<b>seed mix:</b>	Common Mountain Mint	Halberd-Leaved Rose
Rattlesnake Master	<b>Butterfly Weed</b>	Yellow Coneflower	Mallow
<b>Western Sunflower</b>	<b>White Prairie Clover</b>	Black-Eyed Susan	<b>Southern Blue Flag</b>
Prairie Sunflower	<b>Several sedge species</b>	Sweet Black-Eyed Susan	Prairie Blazing Star
False Sunflower	<b>Bellflower</b>	Compass Plant	Cardinal Flower
Round-Headed Bush	<b>Bull Rush</b>	Prairie Dock	Great Blue Lobelia
Clover		Grass-Leaved Goldenrod	<b>Seedbox</b>
		Rigid Goldenrod	Common Water Horehound
		Purple Meadow Rue	Monkey Flower
		Common Ironweed	Obedient Plant
		Golden Alexanders	

Plants in black have been observed

Plants in red have not been observed



# Native Prairie Maintenance Schedule

YEAR 1						
MONTH	SITE VISIT	SPOT HERBICIDE TREATMENTS	MOWING	COLLECT & DISPENSE SEED	BURN PREPARATION	BURN
MAY	1	X	X			
JUNE	1		X			
JULY	1	X	X			
AUGUST	1	X	X			
SEPTEMBER	1	X	X	X		
OCTOBER	0					
NOVEMBER	1	X	X	X		
DECEMBER-APRIL	0					

YEARS 2 & 3						
MONTH	SITE VISIT	SPOT HERBICIDE TREATMENTS	MOWING	COLLECT & DISPENSE SEED	BURN PREPARATION	BURN
MAY	1	X	X			
JUNE	1		X			
JULY	1	X	X			
AUGUST	1		X			
SEPTEMBER	1	X	X	X		
OCTOBER	0					
NOVEMBER	1	X	X	X		
DECEMBER-APRIL	1				X	X





Existing Condition





**During Construction–  
Facing West**

**During Construction–  
Facing West**





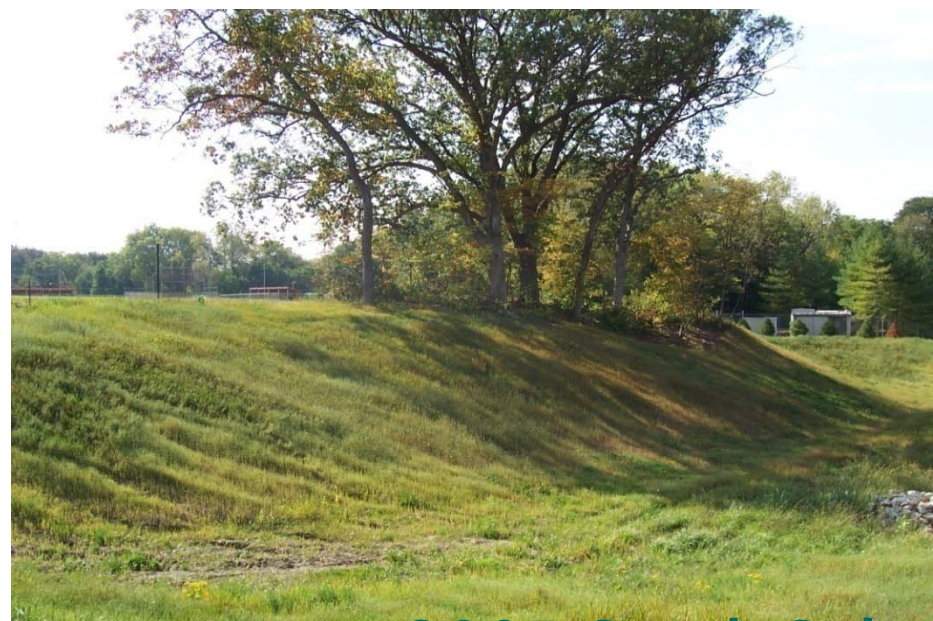
**2005 Facing West**



**2005 North Side**



**2005 East side**



**2005 South Side**



**2006 West side**



**2006 North Side**



**2006 East side**



**2006 Looking NW**



**2006 West**



**2006 Looking West**



**2006 East**



**2006 Looking East**



2007 Facing West



2007 North side



2007 East side



2007 South side



**2008 Burn W back slope**



**2008 Burn looking NE**



**2008 Burn looking E**



**2008 Burn looking SE**



2008 Facing West



2008 North side



2008 East side



2008 South side



2009 Facing West



2009 Facing East



2009 East side

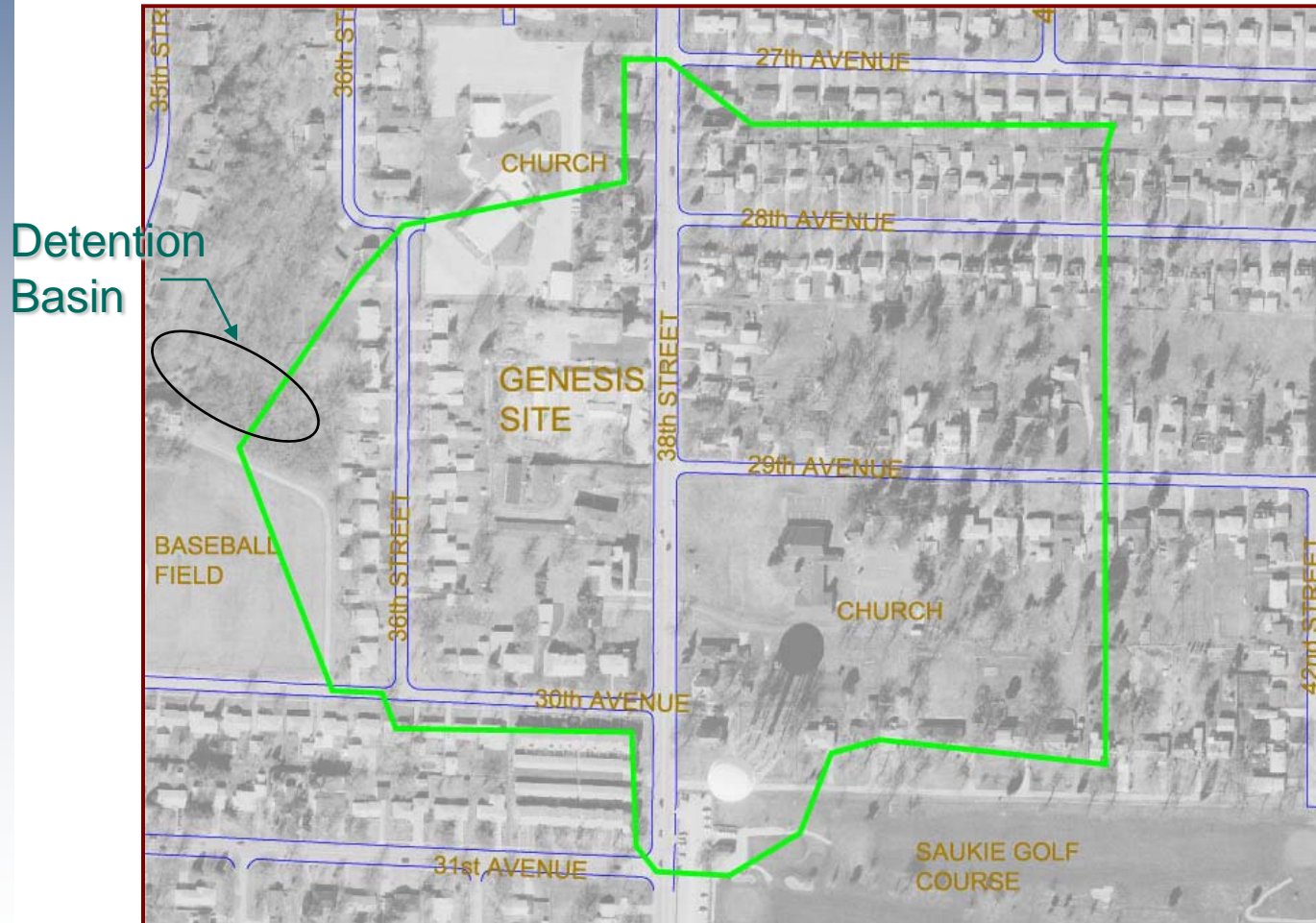


2009 Facing East



# Challenges

1. Retrofit into fully developed urban watershed (47 Ac).

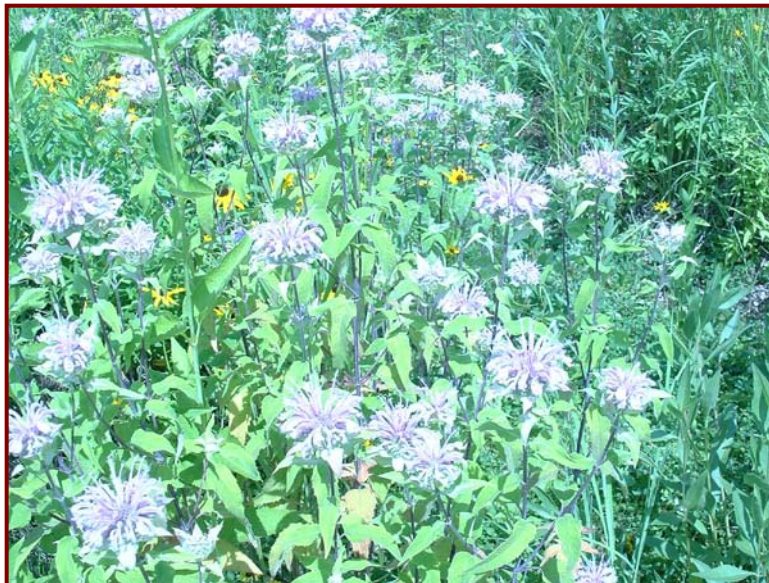




# Challenges

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2. Had to “sell” the project and what it would look like to the neighbors during the design phase.
3. A difficult neighbor lived next to the property.
4. Not everyone likes the look of native plants.





# Challenges

5. It was designed to be a dry bottom basin, but during construction a natural water source was discovered. There is almost always a small amount of water flowing through the basin.
6. The velocity reduction structure blew out after the first large storm.



# Challenges

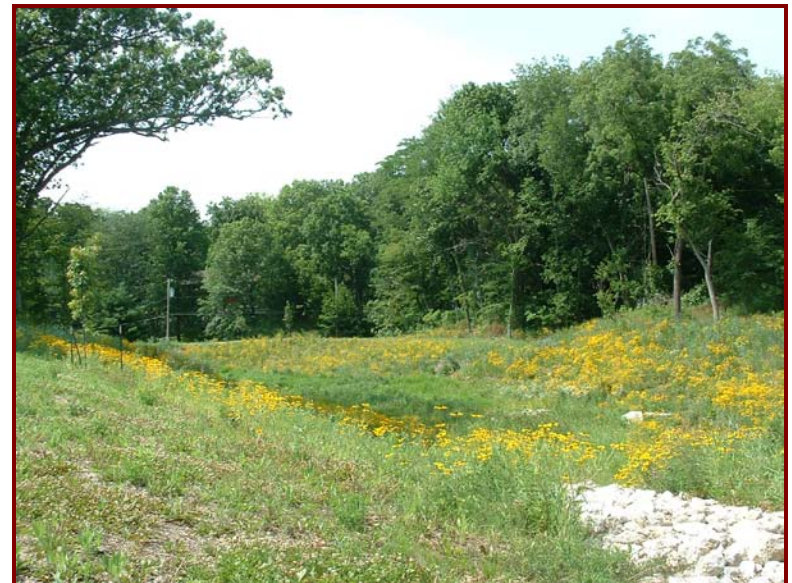
7. It was a challenge to get the maintenance contractor to perform their maintenance work in a timely manner.





# Challenges

8. Currently there is not a system in place to measure the water quality impacts of this basin, or the amount of storm water infiltrated.
9. City staff currently is not trained to maintain native prairie plantings.





# Successes

1. The neighborhood storm water flooding problem has been reduced and the project complies with the storm water control ordinance.



# Successes

2. The site is low maintenance.
3. The native plants are thriving.
4. The biodiversity of the site increased.
5. The increased biodiversity attracts more wildlife and a wider variety of wildlife.







# Successes

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6. Most neighbors like the new look of the site and the wildlife it attracts.
7. The site improves water quality and storm water infiltration.
8. The site is used for public education.





# City of Rock Island Rain Garden Program

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## What is a Rain Garden?

A rain garden is a shallow depression planted with perennial plants that collects storm water runoff.

Rain gardens fill up when it rains and should be dry within 24 to 48 hours after it stops raining.



**Residential Rain Garden**  
*(collects rain from downspout)*



**Residential Rain Garden**  
*(collects runoff from the yard)*



The *Rain Gardens for Rock Island Program* will reimburse property owners **\$4.00 per square foot** for constructing an approved rain garden. A reduction in the storm water utility fee is also available for as long as the rain garden is maintained.

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# Program Requirements:

1. The rain garden must collect and retain storm water runoff.
2. The rain garden must be planted with perennial plants.
  - a. Native plants are encouraged but not required.
3. Rain gardens must be a minimum of 1.6" deep (1 gal/sf)
4. The maximum reimbursement size is 750 sf (\$3,000 reimbursement).





# Program Requirements:

5. The program will pay for construction of new rain gardens. Existing rain gardens are not eligible for reimbursement but can apply for the storm water utility credit.
6. To receive the storm water utility credit, participants must submit the credit application and maintain the rain garden.
7. Rain gardens are inspected each year. If the rain garden is not maintained the credit will be removed.





# Challenges

1. Creating the program.
2. Each year there is not enough money available to accept everyone that wants to participate in the program.



City of Rock Island	
<b>RAIN GARDENS FOR ROCK ISLAND</b>	
<b>APPLICATION</b>	

Property Owner Name (please print): \_\_\_\_\_

Property Owner Address: \_\_\_\_\_

\_\_\_\_\_ Rock Island, IL 61201

Property Owner Telephone: (day) \_\_\_\_\_ (night) \_\_\_\_\_

I request enrollment in the Rain Gardens for Rock Island Program for the property described above and I hereby certify that...

1. I am the owner or contract purchaser of the property.
2. I agree to maintain the rain gardens after they are built for a minimum period of five years.
3. I will not begin building my rain gardens before I have received approval of participation by the City of Rock Island Public Works Department.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Please return your  
application and sketch to:  
City of Rock Island  
Public Works Department  
ATTN: Rain Gardens for Rock Island  
1309 Mill Street  
Rock Island, IL 61201

<b>FOR OFFICE USE ONLY</b>	
<b>DESIGN</b>	SAR #: _____
The rain garden design for the property described above is hereby approved for the Rain Gardens for Rock Island Program.	
There is a rain barrel included in the design. <input type="checkbox"/> YES <input type="checkbox"/> NO	
Rain Garden Program Administrator _____ Date _____	
<b>COMPLETED RAIN GARDEN INSPECTION</b>	
The rain garden for the property described above has been successfully inspected by the City of Rock Island.	
Rain Garden Program Administrator _____ Date _____	
<b>PAYMENT FOR COMPLETED RAIN GARDEN</b>	
The rain garden for the property described above has been approved for payment based on the following:	
_____ square feet X \$4.00 per square foot = \$_____ reimbursement	
Public Works Director _____ Date _____	





# Challenges



3. Staff time to run the program.
4. How to measure the water quality benefits and the quantity of storm water infiltration.





# Successes

1. From 2005-2009 there have been 175 rain gardens constructed by 102 property owners (64,936 sf). There are 13 people on the 2009 waiting list.
2. Anyone can build a rain garden, no special skills are needed.





# Successes

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3. To date all of the rain gardens have been maintained.
4. Rain gardens beautify neighborhoods and sustain wildlife.





# Successes

5. The rain gardens work (even in the native clay soils). They capture storm water and allow it to infiltrate into the ground, even in clay soils. The infiltration reduces storm water runoff, and improves water quality.



# Successes

6. Each rain garden is an opportunity for public education.
7. The rain garden program qualifies as one of the grant programs promised to City Council when the storm water utility was created.





# FOR MORE INFORMATION PLEASE CONTACT



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ROCK ISLAND  
ILLINOIS

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