

Transforming Neighborhoods with Nature Based Stormwater Projects

Presented by Steve Ricci & Sara Churgin
Rhode Island Green Infrastructure Coalition

Made possible by  **van beuren CHARITABLE FOUNDATION**



GroundWork RI

- ▶ Adult Job Training
- ▶ GroundCorp Landscaping
- ▶ Harvest Cycle
- ▶ Green Team Summer Youth Employment
- ▶ Hope Tree Nursery
- ▶ Ring Street Community Garden
- ▶ Prairie Avenue Greenhouse
- ▶ Community Education and Engagement



GROUNDWORK
Rhode Island

GroundCorp

- Employs graduates of job training program
- Engages in both small-scale residential and larger-scale community landscape design and installation projects
- Projects demonstrate urban landscape restoration and stormwater management best practices, contributing to the health and vitality of the people and places in Rhode Island's urban communities



Eastern RI Conservation District

- Quasi-public, non-profit organization created by statute.
- Dedicated to helping municipalities and their residents of Newport and Bristol Counties with their natural resource concerns.
- Work with agricultural community on best management practices.
- On the leadership committee of the Rhode Island Green Infrastructure Coalition.



Eastern Rhode Island
Conservation District

Rhode Island Green Infrastructure Coalition



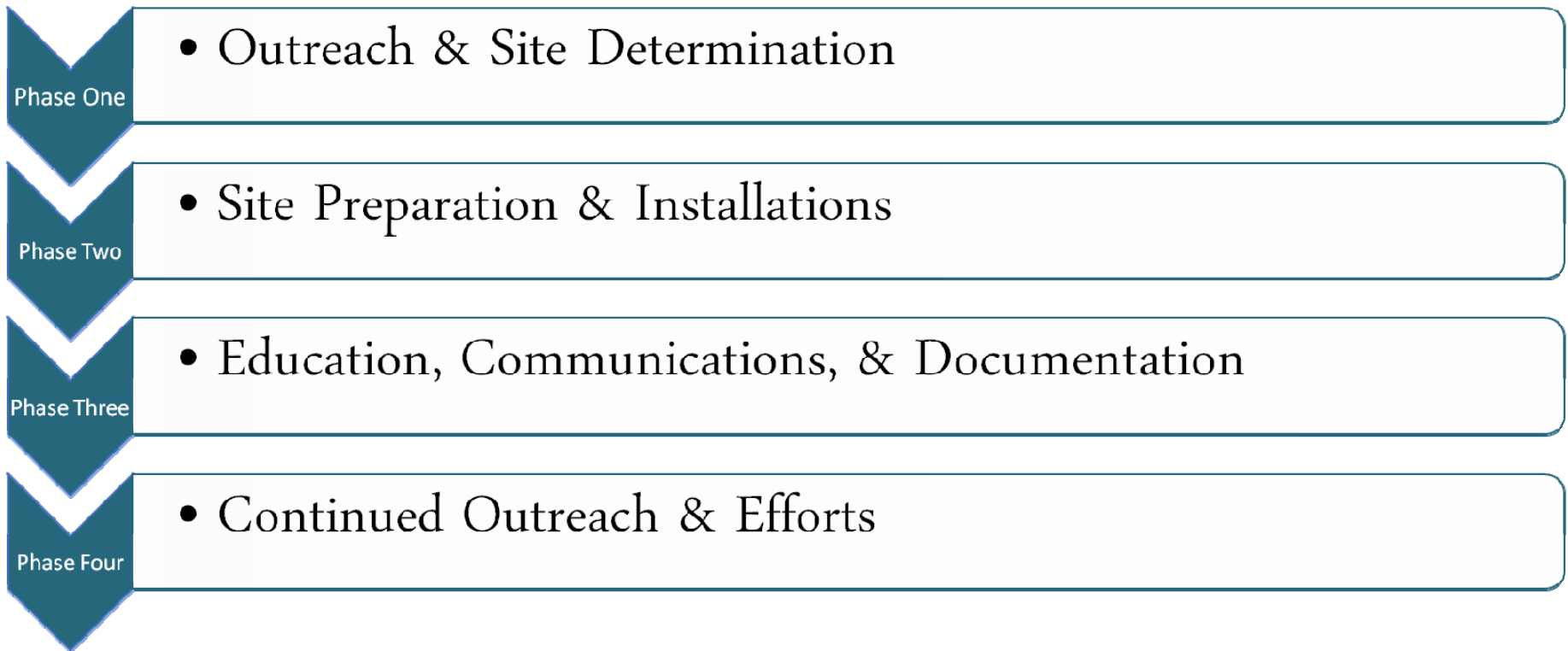
- Coalition of [37 members](#)
- Our projects focus on urban areas of Providence-Metro and the East Bay while our objective is to encourage and acknowledge GI projects statewide.
- We foster implementation of green infrastructure in urban communities to improve the environment and create local jobs.
- We advocate for private, statewide, and municipal funding to plan and build projects that mitigate stormwater flooding, provide climate change resilience, and improve water quality.

Project Summary

Goals:

- Engage and educate Aquidneck Island residential community about stormwater management
- Install residential green infrastructure projects on Aquidneck Island

Process



Phase One: Outreach & Site Determination

Identify Organizational Partners



RHODE ISLAND
GREEN INFRASTRUCTURE
COALITION

vbcf van beuren CHARITABLE FOUNDATION

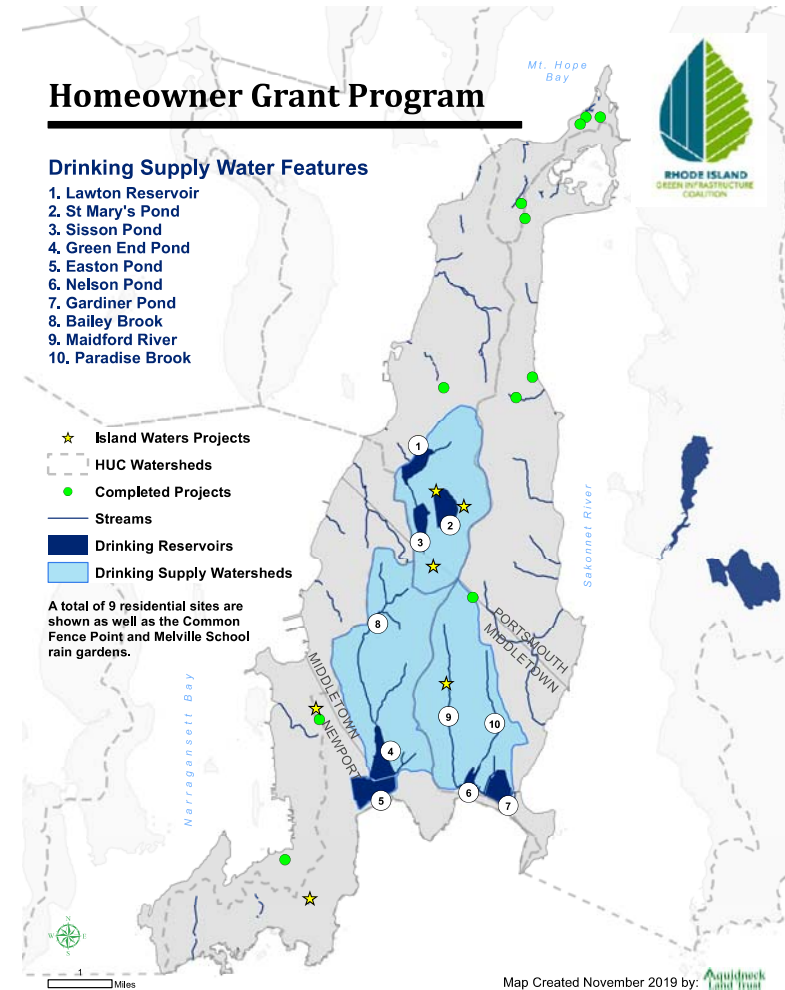


GROUNDWORK
Rhode Island



Phase One: Outreach & Site Determination

- Host five community engagement meetings
 - One in Middletown, RI
 - Three in Newport, RI
 - One in Portsmouth, RI
- City council members attended each meeting



Phase One: Outreach & Site Determination

Social media



The Rhode Island Green Infrastructure Coalition
Published by Lauren Carson [?] · April 2 · 🌐

The RI Green Infrastructure Coalition is seeking two homeowners that want to make a difference in water quality on Aquidneck Island. We want to install 2 additional 10' x 10' rain gardens - to complement our current Aquidneck Island Residential Green Infrastructure Project funded by the van Beuren Charitable Foundation. Spring is here! We need to get these projects in the ground in the next 8 weeks. We are ready to visit your home and see if your property qualifies for this free wonderful rain garden installation project. Post here if you are interested or PM us! thanks!

Turn on job features for this post to reach more applicants. **Turn On**

100 People Reached 6 Engagements **Boost Post**

You and 5 others

Like Comment Share Buffer

Comment as The Rhode Island Green Infrastruc...

Letter to the Editor



Welcome to the Aquidneck Island Bay Friendly Homes Campaign!

Polluted stormwater runoff is unhealthy for our communities on Aquidneck Island. The Rhode Island Green Infrastructure Coalition has a solution and is very happy to invite our coalition members on Aquidneck Island to join our efforts to improve drinking water and the waters of our Narragansett Bay. We want the Aquidneck Island Community to plant rain gardens, use rain barrels, create pervious surfaces, and find other ways to soak up the rain to protect and restore clean water in our local bays, neighborhood streams, and estuaries. We are specifically looking for locations that demonstrate connectivity to the watershed's impaired waters, such as Bailey's Brook, Maidford River and Paradise Brook. We are also looking for projects that will be visible to the public.




Eastern Rhode Island Conservation is a member of [The Green Infrastructure Coalition](#). The Coalition [includes as partners](#) not-for-profit organizations, architects, designers, builders, city planners and other officials, who work together to promote and construct pathways for rainwater, melting snow, and other run-off to avoid pavement and infiltrate earth.

With the generous support of the van Beuren Foundation, the Green Infrastructure Coalition is offering **homeowner grants** this year to make improvements to your property that will use natural and artificial components to "soften" the urban hard structures; to provide climate-change resilience, shade, oxygen, air-quality improvement; and to infiltrate stormwater into the ground.

We are reaching out to our members in Newport, Middletown and Portsmouth across the Aquidneck Island watershed to join our campaign. This is an opportunity to im-

Phase One: Outreach & Site Determination

Homeowner Survey



RHODE ISLAND
GREEN INFRASTRUCTURE
COALITION

Residential Stormwater Runoff Management

1. So that we have correct geographical information and know how to reach you, please provide the following information... (this is only for internal purposes - we will not share your information).

Name

Home Address

City/Town

State/Province

ZIP/Postal Code

Email Address

Phone Number

2. Do you own your home?

3. Would you want to be notified about a rain barrel event on Aquidneck Island?

Selection Criteria

Proposed Criteria for Aquidneck Island residential green infrastructure grantees ver. 2

Rate each criteria 1 -5.

1 = Not a good site, poor candidate

5 = enthusiasm, strong installation site, strong candidate

1. Property owner must demonstrate enthusiasm for the environment, open space and managing storm water runoff on their property.
2. Property owner must sign a memo of understanding with the RI Green Infrastructure Coalition that includes willingness to place an educational sign on the property, have photos taken of their property and permit regular visits to the property by the RI Green Infrastructure.
3. The green infrastructure installation must be visible from the street.
4. Property owners must maintain the green infrastructure installation for at least 5 years in accordance with maintenance protocols endorsed by the Coalition. Training will be provided.
5. Property must be located in an environmentally sensitive area on Aquidneck Island, including a flood plain, a sensitive watershed or agricultural area.
6. Property may be located near a storm drain.
7. Based on calculations provided by the Coalition, the project must meet minimum standards for diverting storm water to the installation.
8. Homeowner financial contribution to the installation will be earn additional points toward the award.
9. Partnerships projects with neighboring properties will earn additional points toward the award.
10. For an award for a permeable driveway, the existing driveway must be in need of repair and the age of the current driveway will be considered.
11. Site must be ready for project installation.

Phase One: Outreach & Site Determination

Homeowner Agreement



AQUIDNECK ISLAND GREEN INFRASTRUCTURE COALITION HOMEOWNERS AGREEMENT & LIABILITY WAIVER FOR

(PROPERTY ADDRESS)

Background

The Aquidneck Island Green Infrastructure Coalition (AI GIC) is working to reduce storm water runoff from residential properties into the Aquidneck Island Watershed. This will reduce storm water pollutants flowing into Aquidneck Island streams which flow into the Bay. In addition to water quality benefits, the program will help reduce flooding. Based on an assessment of your property, the AI GIC proposes installing a rain garden.

Responsibilities of AI GIC

1. Meet with property owner to review in detail the proposed best management practices to be installed
2. Install by the following date: _____ the best management practice(s) at no cost to the property owner.
3. Protect the property from any collateral installation damage. Remove all installation debris.
4. Provide before and after photos of the areas where best management practices are installed.
5. Guarantee installation for one year. Provide any needed repairs of alterations deemed necessary during this one-year period at no cost to the property owner.

Responsibilities of Property Owner

1. Allow AI GIC access to the property for storm water assessment.
2. Allow before and after photos to be taken of the property.
3. Allow AI GIC access to install the proposed storm water management improvements.
4. Allow AI GIC to install a temporary yard sign on the property, at a location mutually agreed to, indicating that the property is a "Green Infrastructure Coalition Friendly Home". The sign shall be no larger than 18" x 24" and will be displayed for at least 1 year.
5. Allow AI GIC to use photos of before and after installation for use in project reporting and program publicity.
6. Provide public inspection of the installed best management practice at a mutually agreeable time for the homeowner and AI GIC when requested by the AI GIC.
7. Provide maintenance training in accordance with the suggested maintenance manual attached to this agreement.
8. Contact AI GIC if unsure of maintenance practices or if the storm water improvements need repair within the first year of installation.
9. Installation will be maintained for at least 3 years.

I have read, understand, and agree to the terms and conditions above.

GIC Leadership Member

Property Owner

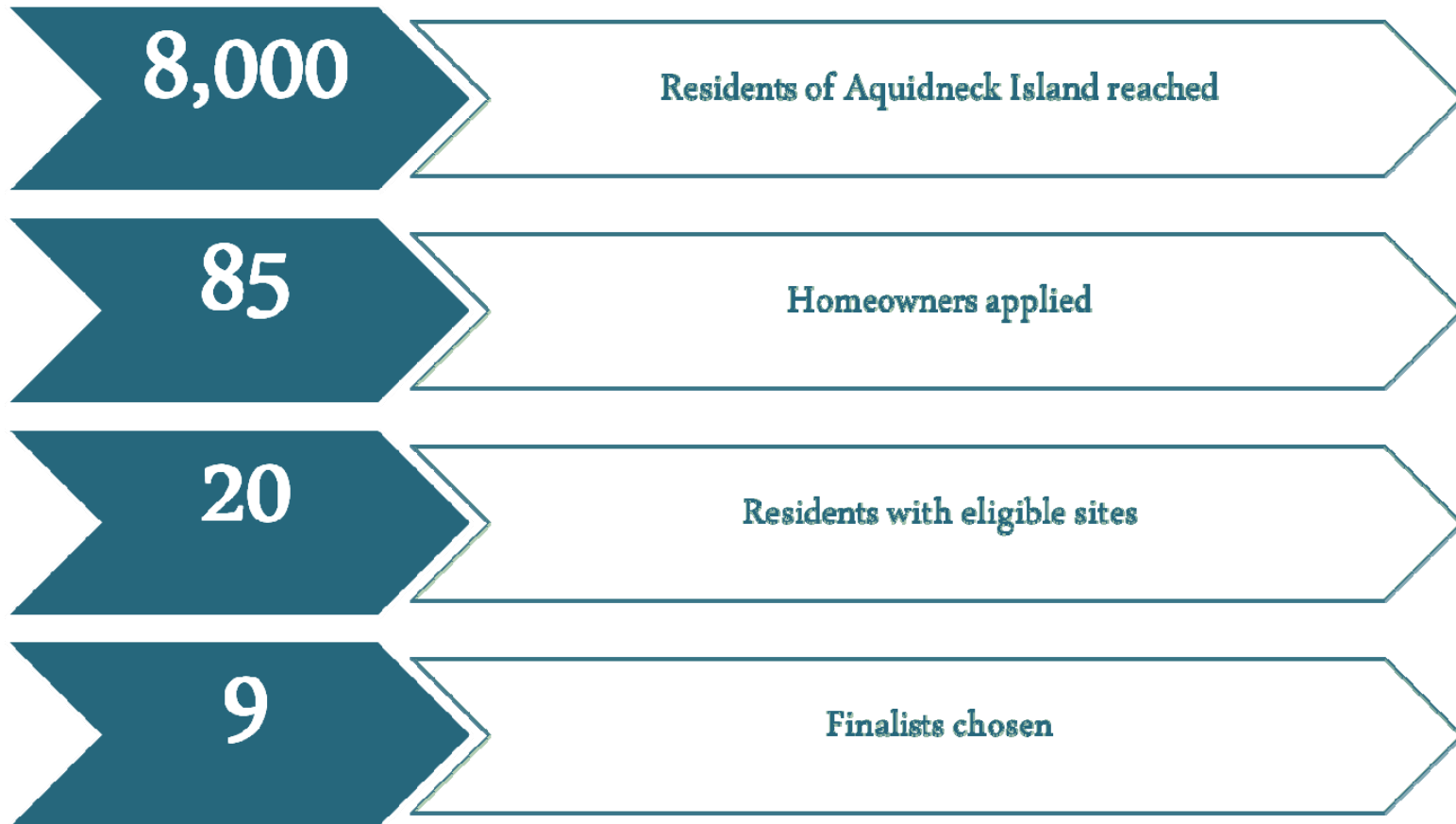
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Date: _____

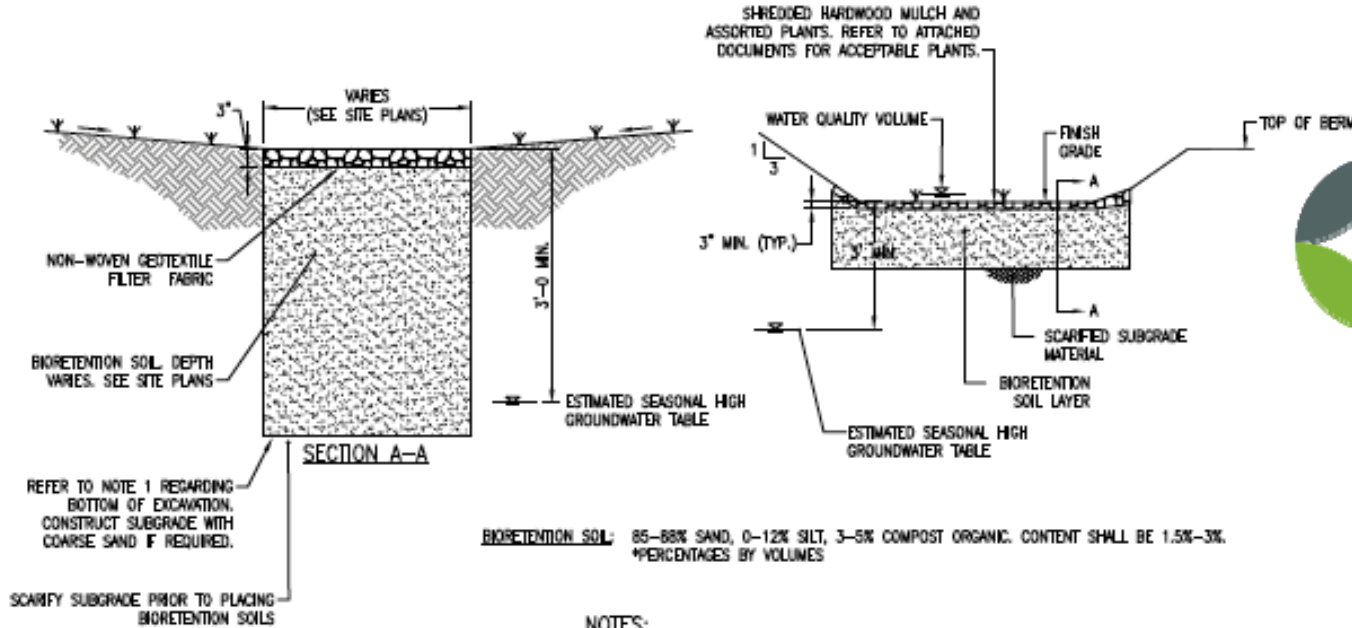
Date: _____

Phase One: Outreach & Site Determination



Phase Two: Site Preparation & Installations

Design 10'x10'
rain garden
template



BIORETENTION SOIL: 85-88% SAND, 0-12% SILT, 3-5% COMPOST ORGANIC. CONTENT SHALL BE 1.5%-3% *PERCENTAGES BY VOLUMES

NOTES:

1. CONTRACTOR SHALL EXCAVATE FILL DOWN TO NATURAL SOILS. AT A MINIMUM, REMOVE ALL "A"-LAYER SOILS.
2. THE SOIL MIX SHALL BE UNIFORM, FREE OF STONES, STICKS, STUMPS, AND ROOTS LARGER THAN 2 INCHES. CLAY CONTENT SHALL NOT EXCEED 5%.



NEW ENGLAND WATER ENVIRONMENT ASSOCIATION
NEWEA
WORKING FOR WATER QUALITY

PARE
CORPORATION
ENGINEERS * SCIENTISTS * PLANNERS

Phase Two: Site Preparation & Installations

Design 10'x10'
rain garden
template

Excavate



Phase Two: Site Preparation & Installations

Design 10'x10'
rain garden
template

Excavate

Fill with high
drainage soil



Phase Two: Site Preparation & Installations

Design 10'x10'
rain garden
template

Excavate

Fill with high
drainage soil

Plant native
plants



Examples of Native Plants Used

- Black Eyed Susan's
- Daisy
- New England Aster
- Tick Seed
- Astilbe
- Hamlin Grass



Phase Two: Site Preparation & Installations

Design 10'x10'
rain garden
template

Excavate

Fill with high
drainage soil

Plant native
plants

Mulch



Phase Two: Site Preparation & Installations

Design 10'x10'
rain garden
template

Excavate

Fill with high
drainage soil

Plant native
plants

Mulch

Maintain



Bayview Before



Bayview After



Greenfield Before



Greenfield After



Chase Rd. Before



Chase Rd. Installation



American Society of Civil Engineers



Chase Rd. After



Roseneath Before



Roseneath After



Hillside Before



Hillside After



Mary Lane Before



Mary Lane After



Birchwood Installation





Birchwood After



Phase Three: Education, Communications, & Documentation

Informed the public and relevant stakeholders through:

- Emailed newsletter to 2,000 Rhode Island GIC members
- Developed map of locations
- Installed educational signage at each site
- Created and distributed video
- Presented at Rhode Island GIC meeting
- Organized 2019 Stormwater Innovation Expo
- This Summit!

GI Maintenance

Post Installation Check-Up

Watering Plants

1st Year - Regularly
2nd Year - Dry Weather Only
3rd Year + - Drought Only

Weeding and Inspection

1st Year - Once a Month
2nd Year - Every 2 Months
3rd Year + - Every 2 Months

Fall/Spring Cleanups

1st Year - Light
2nd Year - Moderate
3rd Year + - Heavy

Routine Maintenance Includes:

Mulching
Debris Cleanout
Seed Runoff
Plant Replacement
Invasive Plant Removal

Pruning and Thinning
Weeding
Watering
Fertilizing
Pest Management

Pet Waste
Sedimentation

Complaints

- Local neighbors, business, and people visiting area with GI projects that are not educated sometimes submit complaints.
- Education to the public along with signage will help them understand these systems that were designed to grow wild.



Educational Signage:



Results

Cost Attribution

- \$2,500 per rain garden (including materials and labor)
 - Average installation time of one day

Outcomes

- Selected and installed eight rain gardens and one permeable driveway at residential properties on Aquidneck Island
- Reached over 8,000 residents with message about the need for stormwater management

Ongoing Outcomes

- Capturing at least 6,107 gallons of stormwater during a one-inch rainstorm

Phase Four: Continued Outreach & Additional Efforts

Design & install 720' rain garden at Common Fence Point Association in Portsmouth, RI

Captures 2,306 gallons of stormwater during a one-inch rainstorm



BEFORE



AFTER

Phase Four: Continued Outreach & Additional Efforts

Distribute 50 rain barrels at two community events in Middletown and Newport



Phase Four: Continued Outreach & Additional Efforts

Presented to newly expanded East Bay Green Infrastructure Coalition

Organized **2019 Stormwater Innovation Expo** to encourage public/private partnerships for green infrastructure

- 90+ people attended
- Vendors included public, private, and non-profit organizations



Links and external documents

Outreach

Letter to the Editor

Social Media Post

Resident Survey

Site Selection

Selection Criteria

Homeowner Agreement

Site Preparation and Installation

Rain Garden Template

Maintenance Manual for Homeowners

Education, Communications, Documentation

Newsletter to State GIC mailing list

Map of Locations of Installation

Educational Signage

Video for Distribution

Links to Organizational Partner Websites

[Groundwork Rhode Island](#)

[Pare Corporation](#)

[Van Beuren Charitable Foundation](#)

[Clean Ocean Access](#)

[Aquidneck Land Trust](#)

[NEWEA](#)

[ASCE Rhode Island](#)