Soak Up the Rain Great Bay

Sustainability Plan

A guide for sustaining a local Soak Up the Rain program in New Hampshire

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Contents

LIST OF ACRONYMS AND ABBREVIATIONS

319 Grant	NHDES Clean Water Act Section 319 Watershed Assistance Grant
BMP	Best Management Practice
GBNERR	Great Bay National Estuarine Research Reserve
NHDES	New Hampshire Department of Environmental Services
NOAA	National Oceanic and Atmospheric Administration
SOAK Great Bay	Soak Up the Rain Great Bay
SOAK NH	Soak Up the Rain New Hampshire
Stewards	Great Bay Stewards

INTRODUCTION

Purpose of this Document

In 2014 the Great Bay Stewards (Stewards) received a New Hampshire Department of Environmental Services (NHDES) Clean Water Act Section 319 Watershed Assistance Grant (319 Grant) to implement a Soak Up the Rain Great Bay Program (SOAK Great Bay). The aim of the grant was to provide education and outreach about residential stormwater management and to install stormwater best management practices (BMPs) based on the state's Soak Up the Rain New Hampshire Program (SOAK NH).

The Stewards was required to develop a program sustainability plan to establish a process for soliciting future program participation and to build capacity to sustain the SOAK Great Bay beyond the scope of the 319 Grant. This SOAK Great Bay Sustainability Plan will present the key findings and challenges met during the execution of the SOAK Great Bay program grant and provide recommendations for sustaining a future program.

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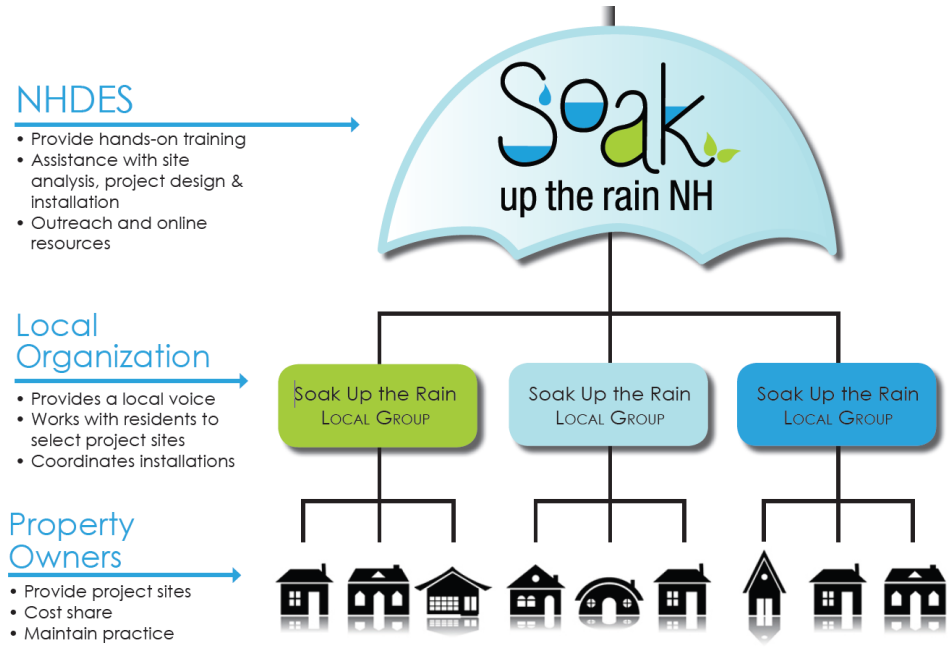
Soak Up the Rain New Hampshire Program Background

SOAK NH is a voluntary program, managed by NHDES, with the goal of protecting and restoring clean water in the state's lakes, streams, and coastal waters from the negative impacts of stormwater pollution.

Over 90 percent of the water pollution problems in New Hampshire are caused by stormwater runoff from impervious (non-porous) surfaces such as roads, buildings, parking lots, and even our homes. The runoff picks up pollutants like trash, fertilizer, oils, and dirt/sediment that can harm our rivers, streams, lakes, and coastal waters. Existing regulatory programs typically address sources of polluted stormwater from federal, state, and municipal roadways, industrial or commercial parking lots and buildings, and new large residential developments such as subdivisions and condominiums. However, stormwater runoff from individual residential lots has the potential to impact our surface waters and is essentially unregulated.

SOAK NH provides information about how our homes create stormwater pollution and how to prevent it with rain gardens, infiltration trenches, and other practices. This is done in two ways: 1) through hard copy and web-based resources aimed at the individual property owners and, 2) through support of local Soak Up the Rain groups conducting outreach campaigns and installing infiltration practices to reduce stormwater runoff and pollutants from private homes and businesses in their area. For a description of local SOAK NH and related programs, see Appendix D. See the figure below for a diagram of the Local Group Structure.

Soak Up the Rain NH Local Group Structure



Great Bay Stewards Organization Background

Based in Southeast New Hampshire, the Stewards is a non-profit local organization focused on protecting the Great Bay estuary. The estuary covers over 10,000 acres with more than 7,000 acres of open water and wetlands. It is both a cultural and environmental keystone for the Seacoast region. The estuary is a nursery for many species of fish that enrich the Gulf of Maine; the protected land bordering the estuary is a wildlife haven; and the estuary protects neighboring towns from storm surges and river flooding.

The Stewards grew out of a successful community effort to stop the development of an oil refinery on the estuary in 1973. In the 1980s that group formed the Great Bay Trust and advocated for the creation of the Great Bay National Estuarine Research Reserve (GBNERR) which was established in 1989. In 1995 the Stewards formed to support GBNERR, and in 1997 the Great Bay Trust merged with the Stewards to combine their strengths and resources.

The Stewards is membership based, with a volunteer Board, and an Executive Director. Members organize annual fundraising events to support the mission of GBNERR, work as volunteer educators at the Great Bay Discovery Center, and undertake other projects to raise public awareness of the estuary, its environmental richness, and its fragility.

Soak Up the Rain Great Bay Program Background

To help support their mission, in 2012 the Stewards became a model SOAK NH Local Group receiving NHDES training in stormwater management concepts and best management practices. In 2014, the Stewards received a 319 Grant to implement the SOAK Great Bay program in the Great Bay estuary watershed (see Appendix A for grant details).

The Great Bay estuary provided a good place to pilot a model Local Group program for several reasons. Researchers at the University of New Hampshire and at GBNERR have documented the negative impacts of increasing regional development on the health of the Great Bay estuary highlighting declining eelgrass beds, increased turbidity, dying oyster beds, and declining fish stocks. Since 1990, impervious surface has grown disproportionately to the general population growth. The 2013 "State of Our Estuaries" report, published by the Piscataqua Region Estuaries Partnership, states that "Since 1990, the amount of impervious surfaces has increased by 120 percent while the population has grown by 19 percent." The report also showed that from 2009 through 2011 over 1,200 tons of nitrogen were delivered annually to the Great Bay.

The greatest public effort to address this problem has focused on the need to upgrade the sewage treatment plants that release effluent into the estuary. However, as reported in the study cited above, the treatment plants are estimated to contribute only about 30 percent of the pollutant problem in the Great Bay estuary watershed. The other 70 percent comes from non-point source pollutants such as excess road salt, fertilizer, chemicals, and animal waste carried by stormwater runoff draining to Great Bay and its tributaries and from nitrogen seeping from septic systems.

Because non-point source pollution is inherently diffuse, it is difficult to target and eliminate. It will take the voluntary actions of many people to address. The Stewards recognized the need for a public education campaign targeting property owners to explain the importance of non-point source pollution and the steps they could take on their own property to reduce the problem. The SOAK NH program offered a model and materials that the Stewards thought could work because it combined public education with practical solutions aimed at individual homeowners and their properties.

EXECUTIVE SUMMARY – Key Findings and Recommendations

The Section 319 Grant required the Great Bay Stewards to conduct outreach, identify potential volunteer resources, assess properties, and design and install stormwater best management practices (BMPs) over a three year period (See Appendix A. Excerpt from Soak Up the Rain Great Bay Grant Agreement for grant details). Over the course of the grant, the Project Manager kept track of barriers, lessons learned, opportunities, and recommendations on how to improve the processes.

The recommendations and lessons learned are documented in this plan to provide guidance for other organizations interested in adopting, managing, or promoting a program similar to SOAK Great Bay; guidance for the SOAK NH program sustainability planning and working with new groups; and for reference for the Stewards to document program management and to identify next steps with SOAK Great Bay.

Three key findings, which are discussed in full in a following section, include:

1. An organization needs to carefully assess its capacity to take on a program of this size.
2. Properties that meet the criteria as appropriate sites for BMP installations may be challenging to identify.
3. The estimated time and money budgeted to a project of this size will likely be greater than expected.

There are numerous recommendations below and throughout this plan on how to address the key findings noted above and on every aspect of the implementation of the 319 Grant from outreach to BMP installations to reporting.

Laura Byergo shows off one of the residential rain gardens she built as the SOAK Great Bay Project Manager.

Key recommendations include:

- If SOAK NH's priority is installing BMPs to help reduce pollution, focus on supporting local groups that already have a large active volunteer corps involved with hands-on projects.
- Shift from general public outreach to working with town officials, conservation commissions, and watershed protection associations who can help identify areas that have the highest potential to contribute to water pollution and provide introductions to property owners in those areas.
- Where possible, target audiences in small geographical areas and piggy-back onto stormwater or environmental projects already going on in an area where there may already be heightened awareness.
- Indicate in the program design that the program needs at least two people to fulfill the different roles: advertiser, volunteer recruiter, BMP installation manager, and reporter/documenter.
- Shift the time emphasis from completing installations to doing education and property assessments for homeowners.
- Consider a program that focuses on the public outreach component providing information, education, and partial funding but requiring the homeowner to arrange for the BMP installation.
- Develop an element in the SOAK program that reaches out to high school students combining a hands-on educational approach with a volunteer opportunity.

The Stewards completed the project tasks by the end of the grant period, but have come to recognize the challenges of running a person-to-person style public education campaign. Encouraging direct action to address an environmental problem was a very good exercise for this membership organization. It was well focused on a clear, specific, growing problem in the watershed, and provided the methodology and materials to offer the membership a chance to participate in a direct action effort. The 319 and NOAA grants gave the Stewards the chance to explore a new model for growing the organization. In 2016 the Stewards Board will be conducting strategic retreat during which it will review the results from this grant, alongside its other efforts, and consider if this type of direct action project is an effective way to make the organization more successful in its mission to help preserve Great Bay.

COMPONENTS OF THE SOAK GREAT BAY PROGRAM

The Section 319 Grant agreement required the Stewards to conduct an outreach campaign, recruit volunteers, do property assessments, and design and install stormwater BMPs in the estuary watershed (See Appendix A. Excerpt from Soak Up the Rain Great Bay Grant Agreement). Specifically, the objectives were to:

- Implement specific outreach materials and methods
- Identify potential volunteer resources
- Assess at least 20 properties
- Draft 20 stormwater BMP recommendations
- Design 15 stormwater BMPs
- Install 10 stormwater BMPs

The Stewards aimed to fulfill the public education goal at both the general public level and at the individual level. They used multiple outreach efforts to describe the problem, advertise the program and attract interest from property owners (See Appendix E. Outreach Efforts and Results Table). Once a property owner contacted the SOAK Great Bay Program Project Manager (Project Manager) and understood the goals of the program, she would meet with them at their property to assess the potential for a BMP installation. During the assessment she explained the connections between rainwater runoff and pollution in Great Bay and highlighted good practices that reduce pollution in runoff in the homeowner's own context.

The property assessment was guided by a SOAK Site Screening Field Sheet (Appendix H) that focused on identifying rainwater runoff problems that could be fixed with a measurable result. For a property to be considered for an installation there needed to be signs of stormwater flowing from the property to a waterbody or stormwater collection system. Additionally, the solution needed to be a size that a homeowner might consider undertaking on their own. Therefore they were limited to something that could be completed with a day or two of work by a handful of volunteers, preferably wouldn't require machine work, would be easy to maintain, and, because the homeowner was to pay for half of the cost, was relative inexpensive.

SUSTAINING SOAK GREAT BAY PROGRAM – Discussion of Key Findings

The three year Section 319 Grant for SOAK Great Bay required several substantial outcomes for the Stewards, including an outreach campaign, volunteer recruitment, property assessments, and design and install of stormwater BMPs (See Appendix A for grant details). The Stewards hired a Project Manager to complete the tasks to accomplish those outcomes. As the Stewards worked on the SOAK Great Bay program, three overarching challenges became clear. Those challenges are outlined and discussed here as three Key Findings.

Key Finding 1. An organization needs to carefully assess its capacity to take on a program of this size.

Although an environmental organization working on water quality related issues such as the Stewards has great potential as a Local SOAK NH Group, some gaps in its capacity became evident, as described below. Additionally, if the Stewards were to consider continuing the program into the future, funding would need to be secured. See Appendix B. Potential SOAK Program Funding Sources for the Great Bay Stewards

Volunteers: The Project Manager aimed to recruit at least five volunteers for each installation. The Stewards hoped that the wider Stewards membership would serve as a pool from which we could recruit volunteers. However, this was not an established expectation of the membership and was not easy to develop quickly. Many of our volunteers were not willing to commit to an on-going program that required regular hours of shoveling and hauling dirt. Our projects were too small and scattered to recruit volunteers from larger sources like corporate volunteer days, Americorps, or United Way. General public outreach events did not help in generating volunteers to help with the installations.

Great Bay Stewards volunteers with SOAK Great Bay and SOAK NH staff installing the Arico rain garden in Exeter.

In order to complete the installations, instead the Stewards Board members increased their commitment and recruited friends and personal contacts in other organizations. NHDES also helped significantly to accomplish installations by supplying three to four SOAK NH team members for each installation and occasionally other NHDES personnel.

Properties: The Stewards thought its membership and the public who visited GBNERR would be a natural pool of interested property owners. However, the initial Kick-Off Campaign did not generate a

strong response, nor did notices about SOAK Great Bay published in GBNERR publication, *The Great Bay Matters*. Personal contacts made by Stewards Board members led to several property assessments but only one property warranted a BMP installation. Challenges to identifying appropriate properties included:

- Members and others who responded to these first outreach efforts were often already well versed in stormwater related issues.
- Members and others tended to have property that was well buffered, had preserved their trees, did not use a lot of fertilizer, and did not have erosion problems.

Recommendations

Identifying capacity within an organization to manage projects, recruit volunteers, and find appropriate properties for BMP installments is crucial. Consider the following:

- If the priority of the SOAK NH program continues to be getting BMPs installed, have a large pool of active volunteers experienced doing hands-on projects.
- Hire or secure an energetic, local champion to manage projects.
- Identify an organization with a volunteer base or board with more than just fundraising goals.
- Secure a commitment from board members willing to volunteer for installations.
- Consider a program that focuses on the public outreach component providing information, education, and partial funding but requiring the homeowner to arrange for the BMP installation.
- Consider partnering with other organizations more appropriate for some of the tasks, e.g., a local business or club that routinely provides volunteers for installations, a watershed group or municipal contact that has already identified residential and small business sites for BMPs.
- Develop an element in the SOAK program that reaches out to high school students combining a hands-on educational approach with a volunteer opportunity.
- Indicate in the program design that the program needs at least two people to fulfill the different roles: advertiser, volunteer recruiter, BMP installation manager, and reporter/documenter. The Volunteer Recruiter could fundraise among the business community to provide a stipend for high school students to help with the installations in the summer.

Key Finding 2. Properties that meet the criteria as appropriate sites for BMP installations may be challenging to identify.

The Project Manager found it a challenge to identify the combination of a property that impacted water quality, had the potential for a BMP that will reduce those impacts, and had a homeowner willing to have the BMP installed.

The Stewards wanted to focus on targeting properties with the potential to make landscape choices that would have an impact on Great Bay water quality and were located where reduced stormwater runoff impacts to Great Bay could be modeled and documented. It was surprising how many sites did not meet

these criteria. While in theory every site with stormwater runoff contributes pollutants, often there were substantial existing buffers or distances to the nearest waterbody which potentially reduced the amount of contributing pollutants and made documenting reductions difficult.

To try to find suitable properties, the Stewards amped up the outreach campaign with mixed results. For example they wrote articles in local publications, sent letters to a community where other stormwater work had been done to clean up a local brook (see Neighborhood Based Outreach Example, page 13), and hosted community events (See Appendix K. Outreach Event Examples).

While the outreach campaign was a key tool, those efforts did not generate enough requests for property assessments, and homeowners with appropriate stormwater problems had to be found by other methods. Of particular use was working with town personnel who were familiar with stormwater issues and could identify good potential BMP locations (See Appendix E. Outreach Efforts and Results Table).

Recommendations

Identify the most efficient methods to find potential BMP locations, such as:

- Contact organizations or individuals such as town officials, conservation commissions, NHDES staff, and watershed associations who can help identify areas that have the highest potential to contribute to water pollution and provide introductions to property owners in those areas.
- Conduct focused comprehensive outreach campaigns in targeted areas such as a neighborhood or community implementing other environmental or water quality work where awareness may already be heightened.
- Use the SOAK NH "Pre-Screening Tool" (Appendix F) to identify possible properties for installations before conducting site assessment visits.

Key Finding 3. The estimated time and money budgeted for a program of this size will likely be greater than expected.

In general, SOAK Great Bay and NHDES underestimated time and resource needs which resulted in over-committing deliverables under the terms of the grant. In addition to implementing improvements in the program, more time and money is required to compensate for the challenges of finding appropriate sites, recruiting and confirming volunteers, and conducting post-installation maintenance activities, as described below.

Finding appropriate properties: Modifying the outreach campaign to reach people in their neighborhoods, as was done in the Berry Brook watershed (see the Neighborhood Based Outreach Example, page 13), was a more time consuming hands-on approach than delivering a presentation to an organization (which was the original plan for soliciting interested property owners). The Project Manager also spent too much time driving to and doing assessments on inappropriate properties.

Installations: It was not only difficult to secure volunteers for installations, but volunteers would not always show up making it more time consuming for the to plan for and complete installations. In some cases, sites for installations were too rocky, too compacted or too large for volunteers to dig so hiring a small excavator was needed to get the heavy digging done, which led increased costs, delays, and the need to organize volunteers for another day.

Maintenance of BMPs: In several cases, there were extreme storm events immediately following installations causing washouts and some plant damage. In addition, some plants needed to be replaced that did not survive on the berms.

Recommendations

Plan, prioritize, leverage, and use existing resources when possible. Specific recommendations include:

- Shift the time emphasis from completing installations to doing education and property assessments for homeowners. Budget at least three hours for each assessment and at least 15 hours for each installation.
- Secure 7 to 10 volunteers per installation.
- Increase efficiency and reduce return site visits by using SOAK NH's "Pre-Screening Tool" (Appendix F) and "Project Checklist and Installation Day Reminders" (Appendix G) for tasks at the first visit.
- If possible, budget to hire a paid coordinator whether through a municipality or organization or with grant funds.
- Consider securing funding to pay board members to more actively participate in the project.
- Budget for printing, postage, advertising, and snacks for community events and incentivizing volunteers.
- Budget time and money for maintenance visits and possible plant or material replacements.

The Great Bay Stewards and the SOAK NH crew taking a break during a rain garden installation.

Additional Recommendations**:** Consider modifying the program to first focus on community outreach and property owner education and then have a separate mini-grant program to encourage homeowners to install recommended BMPs either without the NH SOAK Local Group doing the actual installation or with the Local Group if it has determined it has the capacity.

PROGRAM IMPLEMENTATION SPECIFICS

Identifying Areas to Target SOAK Great Bay Efforts

Purpose

The goal was to be comprehensive in building awareness and changing behaviors relating to water quality and in expanding public awareness of the Stewards and GBNERR. There were three factors to consider when prioritizing areas in the Great Bay watershed for SOAK Great Bay efforts.

1. Which sites or areas have the highest potential to contribute to water pollution?
2. Which sites provide the best educational or demonstration opportunities?
3. Which communities or organizations can help identify potential properties for BMP installations?

Process

The Stewards initially included 13 of the towns in the Great Bay watershed for the project. Research to help identify hot spot areas (areas where stormwater runoff may be directly impacting water quality in Great Bay) for more intensive community outreach within the total watershed was conducted.

The Project Manager reviewed and used the NHDES "2014 Great Bay Nitrogen Non-Point Source Study," University of New Hampshire Cooperative Extension's 2007 publication "Landscaping at the Water's Edge," and Piscataqua Region Estuaries Partnership's "State of Our Estuaries 2013" report as resource materials.

The Project Manager and the Stewards' Executive Director met with experts at the University of New Hampshire Stormwater Center to gather information about potential hot spot areas around the estuary. Newmarket and Durham were highlighted as areas worthy of extra attention but the research was not specific enough to identify individual hot spot neighborhoods.

Lessons Learned

- The watershed research could point to general problem areas but not to specific neighborhoods.
- Public concern about Great Bay was reduced in areas higher up the watershed.
- Properties in more suburban and rural areas often had more vegetative buffering to mitigate pollutants in stormwater runoff.

Recommendations

During the first year of the program, the Stewards reduced the area scope by shifting focus to seven of the towns immediately surrounding Great Bay. It is recommended that significant upfront work be done to identify areas where efforts should be focused.

Outreach Campaign - Target Audiences

Beth and Rick Simpson of Rolling Green Nursery demonstrate rain garden plants at the SOAK Great Bay Kick-off Event held at the Great Bay National Estuarine Research Reserve in Greenland.

Purpose

The purpose of the outreach campaign was to make homeowners aware that stormwater runoff was not just "a wet basement problem" but also a potential source for pollutants going into the estuary and a disruption of the normal water cycle. The goal was to convince homeowners to change how they managed stormwater on their property and to recruit potential participants in the program.

Process

2014: Initial outreach efforts in 2014 started with a Kick-off event at GBNERR Great Bay Discovery Center, announcements in the Great Bay Matters, articles in the Greenland Grapevine (See Appendix I. Press & Promotions), the Stewards Board members spreading the word, and an interview on a local radio environmental show. The next stage focused on contacting local garden clubs and conservation organizations like the Marine Docents and the Natural Resource Stewards and presentations at the Greenland Farmers Market.

These outreach events did not lead directly to a sufficient number of property assessments and potential BMP installations. The first few assessment requests were from people who were interested in conservation but did not necessarily have a stormwater problem and from homeowners with ground water problems that the program could not address. A change was necessary in order to identify appropriate properties to meet the installation goal.

2015: In 2015, a different outreach approach was developed, moving away from public education and focusing instead on talking with town planners, conservation commissions and local watershed groups to help identify hot spot neighborhoods where stormwater problems exist.

This approach moved the program from working where there was interest to working where there was a need. Municipal officials had the necessary information and in some instances helped by organizing neighborhood walks and making contacts directly. Targeting the neighborhoods highlighted by municipal officials generated a "Hot Spot Map" for some areas in the estuary (Appendix J). With a neighborhood approach, the outreach campaign had to be modified to reach people in their neighborhood – a more difficult task than delivering a presentation to an organization.

A more targeted approach was undertaken in the form of a direct-mailing campaign in a neighborhood where it was assumed that recent stormwater and restoration work would have led to an increased

awareness in the neighborhood (see Neighborhood Based Outreach Example, page 13). The direct mailing led to a few interested property owners but only the installation of rain barrels at one property. It also led to a "Rain Barrel Social" which drew a good number of people. However, the "Rain Barrel Social" approach was not continued because the pollutant load reduction from rain barrels cannot be modeled with certainty. See Appendix K for other Outreach Event Examples.

A neighborhood mom and her two boys visit the Berry Brook Rain Barrel Social, Dover, NH. See "Neighborhood Based Outreach Example" for the full story.

2016: In 2016, the more targeted approach continued. With the help of the town of Exeter's Natural Resource Planner, two neighborhoods were identified as hot spots. One of the neighborhoods was chosen for a community outreach event. This led to several assessments and two installations.

Materials used throughout the program included a SOAK NH power point presentation, a SOAK NH large self-supporting tri-fold display board (see Appendix L. Outreach Materials), and talking points and presentation notes developed by the Project Manager for use in interviews and meetings. Usually the format included a question and answer period.

Lessons Learned

The following were found about people's general knowledge:

- Outreach efforts were successful in helping people make the connections between increasing impervious surfaces, losing soil infiltration capacity, and declining water quality.
- Audience members were often aware that stormwater runoff was a problem, especially when they could see erosion, but were less aware of the connection between rain and deposition of atmospheric nitrogen.
- People often recognized that stormwater runoff carried rubbish and pollutants from roadsides but did not see their own roofs and driveways as a contributing part.
- People were often surprised at the high percentage of stormwater that is diverted by hardscapes and drainage systems and prevented from naturally infiltrating into the soil.
- The SOAK NH educational materials were clear and easy to use.

The following are general lesson learned regarding the effectiveness of types of outreach efforts:

- Presentations (power point and display boards) were not effective in finding potential BMP installment sites.

- Presenting to groups with a strong environmental focus (such as marine docents) was more effective than presenting to groups with a weaker environmental focus (such as garden clubs).
- Working with town officials was the most effective way of finding potential installation sites. Their knowledge led to targeted outreach campaigns in areas where there were known drainage issues.

For a complete breakdown of the specific outreach methods and their effectiveness, see Appendix E. Outreach Efforts and Results Table.

Recommendations:

- Work with municipal officials and other local experts who know where awareness may already be heightened and problems are known to exist.
- Identify ways to work where there was a need rather than just where there is interest.

Neighborhood Based Outreach Example – Berry Brook, Dover

The first effort at a neighborhood outreach event was the program's most successful public education effort. It attracted a connected group of neighbors in an area where awareness had already been raised due to recent stormwater and restoration work.

The campaign started with a direct mail letter to the residents in the Berry Brook area - an area where NHDES and the town had recently installed several large scale stormwater BMPs and restored a degraded brook – Berry Brook in Dover. The letter referenced the recent work, told residents about the SOAK Great Bay program, and asked residents to contact the Project Manager if they were interested in the program. Five residents called and three requested property assessments. One homeowner agreed to install a new gutter and two rain barrels and to host a neighborhood "Rain Barrel Social" with an info booth, rain barrel sale, and rain barrel raffle.

The social was advertised via a postcard and a newspaper announcement (see Appendix I. Press & Promotions). There was a short presentation to the 26 attendees on stormwater management, an explanation of the recent work in the neighborhood, plenty of handouts on BMPs and other poster materials. The campaign resulted in the distribution of 20 half-priced rain barrels, five property assessments, and rain barrel installation at another home.

It's recommended that if pollutant reduction is the goal, rain barrels are not the best option. Depending the stormwater reduction model used, there may be no pollutant reduction associated with them. Further, there is no guarantee they will be installed or used properly.

Finding Appropriate Properties and Doing Assessments

Purpose

The properties had to be assessed to ensure that the program's scarce resources and volunteer labor would be used efficiently on BMPs that would have a measurable nutrient reduction and had potential to become models for other homeowners.

Process

The Project Manager used the training and assessment methodology provided by the SOAK NH program (see "Complete SOAK Field Packet" on Resources page at www.soaknh.org) to conduct 23 property assessments.

SOAK Great Bay Project Manager Laura Byergo (left) conducts a site assessment with help from the SOAK NH team.

The property assessment methodology and guidelines provided by SOAK NH were useful, easy to understand and included plenty of examples. Determining the amount of stormwater coming from a roof or a driveway was straightforward. The exercise was more difficult when trying to estimate the runoff from a roadside or a culvert. In such cases, the approach was to estimate the potential runoff as close as possible, then maximize the size and depth of the BMP within the available space and ensure the in-flow and out-flow areas were well fortified.

Lessons Learned

Identifying properties that fit the grant criteria was harder than expected.

- Homeowners requested assessments from an interest in conserving water even when they did not have significant stormwater management problems.
- Homeowners had ground water problems not surface runoff problems.
- The Project Manager was spending too much driving and assessment time on inappropriate properties.

Properties high in the watershed that did not have direct contact with Great Bay or tributaries were difficult to assess in terms of potential pollutant contribution to the Great Bay. SOAK NH advised that stormwater draining to woodland, wetlands, grassy swales, or detention ponds would likely be filtered of excess sediment and nitrogen before it reached the tributaries leading to Great Bay.

The following adjustments were made to increase efficiency of identifying appropriate properties to assess:

- In 2015 SOAK NH and the Project Manager developed a pre-screening questionnaire to use when talking with homeowners before going out to the property. This helped the Project Manager clarify homeowner's issues and identify appropriate properties to assess (see "Pre-Screening Tool" Appendix F).
- The Project Manager assembled a packet of useful information on stormwater and stormwater BMPs (such as the problems with fertilizer and de-icing salt and the use of water-loving native species) to give homeowners, even if no assessment was conducted. These adjustments reduced the number of visits to inappropriate properties.

The following adjustments were made to increase the efficiency of the assessments:

- The Project Manager reduced the number of return visits needed to take measurements, collect soil samples, and record site characteristics such as sun and shade exposure by conducting these activities at the first site visit if it seems to have BMP installation potential.
- The Project Manager and SOAK NH developed a checklist which provides a list of tasks and a recommended timeline (see Appendix G. Project Checklist and Installation Day Reminders).

Recommendations

Before beginning assessments, utilize the tools and lessons learned outlined above to be efficient in choosing properties to assess and complete the assessments. This way, if a property is selected for a BMP installation, much of the needed information is already in hand and fewer return visits will be needed.

The rain garden installed in 2014 at the Woodman Museum in Dover.

Best Management Practice Design

Purpose

The SOAK Great Bay goal was to encourage homeowners to adopt stormwater BMPs by creating designs that fulfill stormwater management standards, and are easy to install, low maintenance, attractive, and affordable for the average homeowner. A second goal was to develop knowledge and skills in stormwater management at the local group level that could be used for new projects in the future.

Process

Once a site was selected and the property owner had confirmed their willingness to do a project, the decision about which BMP to use was made by the SOAK NH team along with the Project Manager. The Project Manager then used the technical standards included in the SOAK NH materials to determine the correct size and location for the installation. For BMPs such as rain gardens that required vegetation, SOAK NH had an agreement with a University of New Hampshire Cooperative Extension horticulturalist to provide advice on design and plant choice. The Project Manager was able to consult with this expert, which increased her capability and confidence in the design process. SOAK NH staff also reviewed designs and offered input.

Lessons Learned

The most difficult area of a rain garden to choose plants for is the raised berm that surrounds the garden and separates it from the surrounding landscape. This area is typically built with sections of old turf and compacted soil and covered with mulch. If the berm is not then planted, it can become weedy and/or eroded. It is an area that tends to dry out quickly and stay dry. Planting a good ground cover on the berm can help stabilize it.

Recommendations

Carefully research and consider ideas for constructing the berm and plants suited to the variable wet and dry conditions. SOAK NH can use this experience to develop berm recommendations for homeowners and landscapers.

Best Management Practices Installations

Purpose

To demonstrate good stormwater management with practical, easy to install, attractive BMPs that would encourage homeowners to adopt these practices on their own.

Process

In addition to SOAK NH staff and the Project Manager, between two and 10 volunteers were involved in each of the BMP installations. Each BMP was installed with guidance from the Soak Up the Rain NH Do-It-Yourself Fact Sheets (see Resources page on www.soaknh.org) with assistance from SOAK NH staff.

Lessons Learned

Happy homeowner Bettina Seitz planting irises in her rain garden.

Volunteers: As noted previously, the most difficult part of building the BMPs was ensuring there were enough volunteers to share the load. Although the Stewards supported the SOAK Great Bay program and several Board members volunteered for each installation, the Board was not large enough to supply sufficient volunteers to do the installations without NHDES support. The Project Manager used the Natural Resource Stewards Network and local contacts to recruit additional volunteers. The Program guidelines suggested five volunteers would be needed for each installation. That was sufficient only if there was additional support from SOAK NH and NHDES.

Homeowner Involvement: In some cases BMPs were installed during work hours and the homeowner was at work and not involved. The Project Manager found that if the homeowner actively participated in the installation that the moral of the team was much higher because there was a greater sense that the homeowner appreciated this as a community volunteer effort to protect the environment. Additionally, homeowners who helped with an installation were more likely to say they would volunteer on a subsequent project. So the Project Manager started encouraging the homeowners early on to plan to be involved with the installation.

Technical help: SOAK NH staff working on the actual installations helped to design and build the difficult inlets and overflow areas. These areas were tested during installation day by running water into them to ensure that the in-flow, ponding, and out-flow functions were working (see Appendix N. Best Management Practice Design Examples).

Recommendations

- Identifying a larger core group of potential volunteers to pull from when needed may be crucial to continuing with installations in the future.
- The volunteer goal should be closer to 10 for an average installation. Then if one or two volunteers do not show up there are still enough people.
- Strongly encourage homeowner involvement in the BMP installation.
- To work more efficiently with the existing volunteers during an installation, provide handouts and a poster to explain the stormwater problem and outline the steps to building a specific BMP. This will serve to orient the volunteers to the project and give them a tool to take away.

Best Management Practice Inspection and Maintenance and Follow-up Evaluations

Purpose

The 319 Grant committed the Stewards to inspect the performance of the BMPs at least once immediately following installation and once after a year. Follow-up inspection visits and maintenance are some of the most important and overlooked steps of a BMP installation project. Rain garden plantings need ongoing care. Erosion or flooding from rain events can damage even the most carefully planned installation. Follow-up also cultivates the relationship with the home or business owner for future installations or program promotion.

This rain garden inlet required an adjustment after the first large storm. Stone was added to capture runoff from a wider area.

Process

In practice, the rain gardens received several checks following installation to verify their performance and endurance specifically after heavy rains. They were also checked more than once the subsequent year to check on the plant survival rate. Where possible, checks also included updates from the property owners. Once the BMPs are well established, the homeowners have the responsibility to maintain them over the long-run. The rain gardens are built to minimize maintenance requirements and should not require any fertilization.

In addition, part of the follow-up included distributing Process Evaluations for participating property owners to identify incentives and barriers to program participation, willingness to promote the program, and leads for outreach audiences. The response rate was about 50% and the results were generally positive. (See Appendix M. Process Evaluations).

Lessons Learned

So far all of the rain gardens and the one dry well have performed very well. One rain garden required some replacement plants on the berm and one needed additional stones placed around inlets to correct erosion during heavy rain events. Two rain gardens weathered unprecedented heavy rain events within a few days following the installations with little impacts to the rain gardens.

Recommendations

- Plant or mulch berms heavily to avoid weeds and or erosion.
- Planting plans and specific maintenance instructions for different types of plants should be provided to the home owner.

Organizational Capacity Necessary for the Program

Purpose

A key goal for the SOAK NH program is assisting local volunteer groups to develop their organizational capacity, experience, and expertise to form a self-sustaining local SOAK program. The Stewards were also interested in expanding their skills and developing new expertise.

Process

This was a new type of project for the Stewards, which during the past few years had engaged primarily on fundraising for GBNERR. Only recently, at the outcome of a strategic retreat in 2010, did the Stewards decide to look for ways to expand their scope to include more direct action engagement with the community on issues relating to the health of Great Bay. The Stewards had new Board members who supported this effort, but it was seen as an additional project that should not affect the board's primary focus on fundraising. It was hoped that this SOAK program would raise the Stewards profile in the watershed towns, appeal to younger people and bring them into the organization, and engage the existing membership more directly.

Lessons Learned

The Stewards found the following:

- They underestimated the amount of effort the SOAK program would entail between public education, volunteer recruitment, designing and then installing the BMPs.
- The 319 Grant was an excellent opportunity to test the group's interest in undertaking extended grant projects.
- This grant gave the Stewards Board practical information on how its membership relates to the organization.
- For future grant proposals the group will have a clearer understanding of the need to discuss during the proposal stage how the group intends to manage the grant.
- If the Board wants to continue working on direct action community events, it needs a more thorough plan for engaging the membership and encouraging them to invest time as well as funds to the organization's work.

The Project Manager found the following:

- The Project Manager developed some team building and delegation skills in this process but still needs to strengthen these skills.
- The 319 Grant's reporting obligations took more time than expected.
- The first cycle or so of reporting required time to build a database that allowed the Project Manager to track chronological hours while also preparing a document that could be used to submit payment requests with dollar amounts based on tasks completed.
- Additional time was required to maintain separate databases for volunteers with contact information and hours and for costs associated with each event and each installation.

Recommendations

The Project Manager can reduce the time spent on preparing the mid-year and annual reports by creating a tracking document that more closely fits the reporting needs.

The Stewards will plan a strategic retreat which will give the group the opportunity to review the pluses and minuses of this grant and use this experience for an in-depth discussion on whether the group wants to continue to develop its capacity for direct action projects.

Budgets

Purpose

To help ensure that grant tasks were identified and that funding was appropriately distributed across the tasks to accomplish the grant goals.

Process

The budget development was a joint process between the Stewards and NHDES during the grant design phase based largely on a model budget. As this was the first time the Stewards had applied for this type of grant, the Board did not request many changes to the model budget. Once the grant was awarded there was no mechanism to adjust the budget allocations. During the process the NHDES suggested that the estimated materials budget be used to pay for 50 percent of the installation costs and the property owners be asked to contribute the other 50 percent. This built into the model a source for match funding and also set an expectation of joint commitment from the property owners participating in the program.

Lessons Learned

Budgeted amounts for BMP materials was sufficient: The cost per installation ranged from $100 for a dry well to $1,000 for the largest rain garden where a small excavator was hired to rough cut the rain garden in heavily compacted urban soil (this rain garden was larger than typical – it was installed at a museum rather than a residential property). On average the rain gardens cost approximately $500 for all the amendments and plants. Plant materials constituted approximately half the materials cost for each rain garden. Most property owners were happy to provide some support for their project.

Management time was underestimated. The 319 Grant called for two very different roles: one for public education and one for BMP installation. The grant identified a small portion of match funds for the Stewards Executive Director to do outreach, but the rest of the tasks were lumped together for the Project Manager. In the future it would be better to designate two separate roles for the outreach and volunteer recruitment efforts and for the installations. While the BMP installations were the main deliverable for the 319 Grant, the other aspects, including reporting, consumed more time.

Planning for events was restricted because cost for printing materials, postage, and food for volunteers were not included in the 319 Grant budget. Adding a small budget line item for these components of community events would give the grantees more ability and flexibility to organize promotion events.

Recommendations

With their skill set, if the Stewards were to continue to work on promoting the importance of good stormwater management, they would likely design a grant project focused on public education outreach and forgo the actual BMP installations.

The grant process required reporting at mid-year and end of year points and a review process to identify problems and make adjustments to improve the actual implementation. A new step to add might be to consider the overall grant budget at those same reporting intervals and allow for adjustments in the allocations to address missing items, like event supplies, or to recognize that certain tasks require more time than anticipated. This budget review might also help grantees better assess their own resource commitments to the grant.

SUMMARY

Motivating people to change their behavior can be challenging. Part of the focus of SOAK NH is to get past barriers and provide incentives to residents for taking action to reduce their impacts to water quality. The program looks to raising awareness, providing examples, and empowering residents on a community and neighborhood scale. SOAK NH partners with local organizations to assist with working at the local hands-on level (See Appendix C. Existing Local Soak Up the Rain Programs in New Hampshire). At this level, the program empowers residents and builds a foundation to allow citizens to make more informed decisions and work toward building political will to support land use change ordinances related to water quality protection

The Stewards are happy that the NHDES Watershed Assistance Section 319 Grant and the NOAA Project of Special Merit Grant gave them the opportunity to reach out to the wider public in a very practical way and to inform people about pollution problems in the Great Bay and the role stormwater plays in contributing to the problem. The grants, along with support from experts at NHDES, provided a methodology so the Stewards could suggest practical solutions to homeowners and enable them to help reduce the pollution problem in a very direct way. This is an empowering model. The Great Bay Stewards Board considers that this retail approach to reaching the public has helped to raise the organization's profile in the surrounding towns through both our own efforts and NHDES' promotion. This opportunity has given the Board the experience to decide if they want to continue to grow the organization in this direction.

Appendix A. Excerpt from Soak Up the Rain Great Bay Grant Agreement

Excerpts from Soak Up the Rain Great Bay Project Grant Agreement

Exhibit A
Scope of Services

The Great Bay Stewards, Inc. shall perform the following tasks as described in the detailed proposal titled Soak Up the Rain Great Bay Project, submitted by the Great Bay Stewards, Inc., dated December 13, 2013:

Objective 1: Create a Site Specific Project Plan (SSPP)
Measures of success: SSPP is created which guides monitoring and load reduction estimations

Deliverable 1: Approved SSPP

Task 1: Coordinate with DES staff to write a draft SSPP. Submit draft to DES for review.

Task 2: Revisions to SSPP - Make necessary revisions based on review by DES and create final SSPP. Submit final SSPP to DES for approval. No monitoring or load reduction estimations will take place prior to SSPP approval.

Objective 2: Identify specific hot spot areas that appear to have high potential for contributing nonpoint source pollution to Great Bay.
Measures of success: Identify up to 10 hot spot areas for recruiting landowners.

Deliverable 2: Map showing priority areas

Task 3: Review current research and identify potential hot spot areas & develop draft map. Use research from Great Bay Nitrogen Nonpoint Source Study (GBNNPSS), UNH Municipal Bioretention Program, Piscataqua Region Estuaries Partnership (PREP), etc.

Task 4: Develop final map - Meet with project partners and confirm hot spot map; finalize the map.

Objective 3: Implement an outreach campaign in priority hot-spot areas to educate and recruit property owners in stormwater runoff management.
Measures of success: High potential sites are identified for screening.

Deliverable 3: Copies of outreach materials, one presentation at Great Bay Natural Estuarine Research Reserve (GBNERR), 6 presentations to local organizations, 5 media interviews, list of high potential BMP sites for screening.

Task 5: Develop outreach materials - Work with DES to utilize SOAK New Hampshire materials as prototypes to develop handouts, PSAs and PP presentations, and to update GB SOAK website.

Task 6: Host kick off presentation at Great Bay Discovery Center (GBDC) - Work with DES to create and publicize kick off presentation agenda to be given during Bayviews (summer lecture series) or other venue for: Great Bay Stewards (GBS) members and mailing list and other targeted audiences. Host kick off presentation including demonstrations at GBNERR and site visit to Mason raingarden. Record interested homeowner contact and site information.

Task 7: Reach out to municipal officials and local media. Present to local community groups, business groups, conservation NGOs, UNH Marine Docents, garden groups, and local media - Contact at least 4 municipal officials and 2 local media outlets to identify potential interested property owners and potential presentation venues. Secure speaking venues with at least 6 organizations. Adapt presentations for specific audiences and present at least 6 presentations and conduct 4 interviews with local media. Continue to record potential screening sites information.

Task 8: Develop list of potential BMP sites - Based on information collected in previous tasks 3 - 7 Create a list of potential property owners and BMPs.

Grantee Initials _____
Date _____

Objective 4: Identify potential sources of volunteers to help with installations
Measures of success: At least five volunteers identified to help with each installation

Deliverable 4: Volunteer source master list with contact information & strategy

Task 9: Contact local companies who organize volunteer days - Contact GBS Board and membership, United Way, UNH Volunteer Stewardship Network, and UNH Natural Resource Stewards to identify best method for securing volunteers on installation days. Contact Lonza and Timberland to identify best method for securing volunteers on installation days. Provide one year GBS memberships to each volunteer who participates.

Task 10: Develop master list of potential volunteer outlets, main contacts, and protocol for securing volunteers - Use information gathered from tasks 9 and 10 to develop a master volunteer list with contact information for each source, directions for contacting the source and/or volunteers, timing considerations, and other requirements.

Objective 5: Select at least 10 sites for BMP installations
Measures of success: At least 20 Planning and Design Assessments performed, of which,15 include completed BMP plans and 5 include BMP recommendations and 10 of the completed BMP plans are selected for installation.

Deliverable 5: 20 Planning and Design Assessments documented, 15 BMP plans, 5 BMP recommendations and list of 10 sites selected for BMP installations, and copies 10 of landowner agreements

Task 11: Contact list of potential property owners to schedule site visits and assessments - Schedule assessment visits with homeowners through phone calls and e-mails. Contact DES staff to assist with at least the first 5 site visits.

Task 12: Conduct initial site screening - Follow the DES SOAK Site Assessment Field Packet and NH Homeowner's Guide to Stormwater Management to make an initial assessment of at least 20 properties.

Task 13: Select and conduct 20 Planning and Design Assessments - Review 20 Site Assessment Field Packets with DES staff to select the 20 potential Planning and Design Assessments sites. Coordinate with DES staff and land owners to schedule Planning and Design Assessments. Conduct 20 P&D Assessments using the DES SOAK P&D Field Packets.

Task 14: Develop 15 design plans and develop written BMP recommendations for 5 sites - Using SOAK info from 20 Site Assessment Planning and Design Field Sheets and DES SOAK Recommendations Template, work with DES to develop plans and designs for 15 sites and written recommendations for 5 sites.

Task 15: Select and prioritize 10 BMP installations - Review the 15 Site Planning and Design Field Sheets with DES staff to select and prioritize the10 BMP installations.

Task 16: Develop and secure land owner agreements for BMP installations - Work with DES to modify a template and secure landowner signatures.

Objective 6: Install 10 BMPs and begin evaluations
Measures of success: 10 BMPs installed

Deliverable 6: BMP designs and materials lists, photos of completed projects, signed landowner maintenance agreements, and Pollutants Controlled Reports (PCR), match sign-in sheets

Task 17: Develop materials list for BMPs - Work with DES staff and homeowners to review the 10 BMP design plans to create a materials list for BMPs. Contact UNH staff for assistance in plant design and plant lists.

Task 18: Schedule installations dates - coordinate with DES, landowners and volunteer groups to schedule installation dates and rain dates.

Task 19 (a): For 3 BMPs - Order BMP materials and secure site for installations - consult with the landowners and DES to place orders with selected vendors following DES guidance. Contact Dig Safe and work with landowners to identify disposal of excavated material. Identify bathroom facilities for installation day. Meet delivery trucks at property. Confirm materials provided by DES and homeowner. Secure and document match funding from homeowner.

Grantee Initials _____
Date _____

Task 19 (b): For 4 BMPs – Same as Task 19 (a), for four additional BMPs
Task 19 (c): For 3 BMPs – Same as Task 19 (a), for three additional BMPs
Task 20 (a): Install 3 BMPs - Co-facilitate volunteers for installation with DES direction. Communicate with homeowners during installation. Install BMP, dispose of excess materials, water plantings, and clean site. One per scheduled day, for at least two installations per planting season = 10 total.
Task 20 (b) Install 4 BMPs – Same as Task 20 (a), for four additional BMPs
Task 20 (c) Install 3 BMPs – Same as Task 20 (a), for three additional BMPs
Task 21: Document installation - Using DES Photo SOPs document BMPs before and after installations.
Task 22: Document match - Collect volunteer sign-in sheets and homeowner receipts to document volunteer match and homeowner cost share in DES match documentation forms.
Task 23: Program review and project assessments - Utilize the winter months to review the program, continue outreach, and finalize BMP evaluation protocols.
Task 24: Obtain signed maintenance agreements - Coordinate with DES staff to develop and secure DES approval of maintenance agreements for each BMP. Obtain signatures on the agreements from all landowners who installed BMPs. Provide copies to DES.
Task 25: Estimate Load reductions and submit Pollutants Controlled Report (PCR) - Work with DES staff to use the NH Residential Loading Model to estimate load reductions for installed BMPs; use model output to develop PCRs for BMPs and submit to DES according to reporting schedule.

Objective 6: Administrative duties are performed
Measures of success: Delivery of acceptable grant reports

Deliverable 6: Semi-annual and final grant reports to DES
Task 26: Submit electronic semi-annual reports documenting all work performed on the project at the end of each June and December of the project period. The semi-annual reports will include a Pollutants Controlled Report when structural BMPs have been implemented during the reporting period.
Task 27: Submit a comprehensive final report in both electronic and hard-copy to DES on or before the project completion date. The final report shall include load reduction estimates, photo-documentation of installed system components, and comply with the DES and EPA requirements found in the final report guidance document on the DES Watershed Assistance Section webpage.

Additional Requirements of the Agreement

Quality Assurance
All project activities which are to be guided by a Quality Assurance document such as a Quality Assurance Project Plan (QAPP) or Site Specific Project Plan (SSPP) must **not** begin prior to DES/EPA approval of that QA document. In the event that sampling, modeling, or other such activities precede QA document approval, the data will not be considered valid, and the grantee will forfeit the ability to receive payment for those activities.

Outreach Materials
All materials produced for public distribution shall be reviewed and approved by DES prior to distribution and shall include the DES logo and the following citation: "Funding for this project was provided in part by a Watershed Assistance Grant from the NH Department of Environmental Services with Clean Water Act Section 319 funds from the U.S. Environmental Protection Agency".

Grantee Initials _____
Date _____

Exhibit B
Contract Price and Method of Payment

All services shall be performed to the satisfaction of DES before payment is made. All payments shall be made upon receipt and approval of stated outputs and upon receipt of an associated invoice. Documentation of match costs (including the value of volunteer labor) shall be provided with each payment request. The final invoice shall include total match cost documentation of at least $10,005. Payment shall be made in accordance with the following schedule based upon completion of specific tasks described in Exhibit A:

Upon completion and DES approval of Tasks 1 and 2	$125
Upon completion and DES approval of Task 3	$125
Upon completion and DES approval of Task 4	$100
Upon completion and DES approval of Task 5	$200
Upon completion and DES approval of Task 6	$200
Upon completion and DES approval of Task 7	$1,100
Upon completion and DES approval of Task 8	$100
Upon completion and DES approval of Task 9	$100
Upon completion and DES approval of Task 10	$100
Upon completion and DES approval of Task 11	$300
Upon completion and DES approval of Task 12	$300
Upon completion and DES approval of Task 13	$400
Upon completion and DES approval of Task 14	$300
Upon completion and DES approval of Task 15	$100
Upon completion and DES approval of Task 16	$100
Upon completion and DES approval of Task 17	$300
Upon completion and DES approval of Task 18	$300
Upon completion and DES approval of Task 19 (a)	$2,000
Upon completion and DES approval of Task 19 (b)	$2,200
Upon completion and DES approval of Task 19 (c)	$1,400
Upon completion and DES approval of Task 20 (a)	$800
Upon completion and DES approval of Task 20 (b)	$800
Upon completion and DES approval of Task 20 (c)	$600
Upon completion and DES approval of Task 21	$300
Upon completion and DES approval of Task 22	$400
Upon completion and DES approval of Task 23	$550
Upon completion and DES approval of Task 24	$250
Upon completion and DES approval of Task 25	$250
Upon completion and DES approval of Task 26	$500
Upon completion and DES approval of Task 27	$700
Total	**$15,000**

Funding is provided through a Watershed Assistance Grant from the NH Department of Environmental Services with Clean Water Act Section 319 funds from the U.S. Environmental Protection Agency.

Grantee Initials _____
Date _____

Appendix B. Potential SOAK Program Funding Sources for the Great Bay Stewards

Historically, the Great Bay Stewards have primarily relied on membership dues, private donations and proceeds from special events to fund board-supported programs. More recently, the board has applied for small grants to initiate programs, such as SOAK Great Bay, that have a broad appeal to audiences a cross the watershed.

At the same time, the Stewards are facing an aging membership base, increased competition to raise funds, greater demands on our board members and volunteers, and pressure to keep up with technology to engage younger audiences. To reverse these trends, the organization for the first time has hired professional staff, i.e. Executive Director, Administrative Assistant, and Bookkeeper. As a result, the operating budget has been increased to cover these additional costs.

Given these evolving challenges, the Stewards are in the process of developing a new strategic plan for the organization. To be completed by September 2016, the anticipated outcome is to determine program and funding priorities for the next five years.

Important elements of the strategic plan will include an emphasis on marketing and organizational development in order to build a stronger financial base and increase capacity. Additionally, it is likely that a key strategy will be to form local partnerships with the private sector to engage them in helping to protect the estuary and hopefully increase financial support for critical programs.

There are four types of funding opportunities that will allow the Stewards to increase financial support for SOAK Great Bay. In each case, these are previously untapped funding sources and the funds generated are not included under the general operating budget. Typically, this type of support is known as Special Projects Funds.

1 – Grants

NH Charitable Fund: The largest private foundation in New Hampshire is the NH Charitable Fund, representing a collection of 1,700 funds created by individuals, families and businesses. While the foundation awards more than $30 million in grants (and scholarships) every year, a majority of these are restricted or donor advised funds and not open to everyone. A direct connection to the donor(s) is the best way to access these funds. The Stewards have received several donations in the past from donor advised funds in support of the boardwalk project (2015). The most accessible type of award is a Community Grant. All types of environmental projects qualify and the Stewards have previously received grants under this program. There is a $5,000 limit and you can only apply for one per year.

Other NH foundations: While there are a fair number of other foundations in New Hampshire, most are limited by focus area and/or region of the state. Those that have funded the Stewards in the past include the Fuller Foundation and New England Grassroots Environment Fund, who recently funded an outreach campaign related to SOAK.

Other NH Sources: Of particular interest to the Stewards is the Wildlife Heritage Foundation of New Hampshire, which only funds projects related to the NH Fish and Game Department (managing partner of GBNERR) and has funded several projects at GBNERR. Local garden clubs are also a source for smaller grants. These clubs are an excellent source for recruiting volunteers as well as providing financial support.

Non-NH Foundations: Larger foundations exist outside New Hampshire especially in the Boston area that fund environmental projects. While these funders are capable of giving larger grants, the Stewards are limited in their capacity to accept large grants due to staff limitations. These awards also are highly competitive and tend to go to larger organizations such as The Nature Conservancy and Conservation Law Foundation.

2 - Private/Public Partnerships

Cultivating local public/private partnerships is a strategy that involves working with local businesses that are either in the environmental field or their activities involve dependence on the estuary. There are numerous aspects of SOAK that make it the ideal program to partner with local businesses. The goal is to develop long-term relationships with the businesses in an effort to secure annual donations to support programs of interest to both parties. This can be a great public relations tool for a local business and offers opportunities for their employees to be involved with the organization.

GBNERR has been successful in the past creating these kinds of partnerships. For example, Timberland has provided employee crews for clean-ups at the Great Bay Discovery Center and in exchange, they have used the Reserve's facilities at no cost for staff retreats.

The Stewards likewise could be successful in working with a diverse cross-section of local businesses – everyone from Lonza and Sea3 to Maritime Construction and Appledore Engineering. In addition to access to Reserve facilities, the Stewards could offer kayak and hiking trips to employees. There are also opportunities to engage in research efforts that benefit both parties.

3 – Annual Fund-Raisers

Annual fund-raisers are another potential source of funding, especially if the event is directly linked to the project. For example, Fuller Gardens in North Hampton holds an annual plant sale. It is one of their larger fund-raising events and related directly to their mission.

The Stewards have the capability of holding a spring plant sale or similar type of event such a garden tour of local properties. Instead of a focus on formal gardens, the focus could be on best landscaping practices. This would tie in directly with the purpose of SOAK.

4 – Private donors

Cultivating private donors to support programs can be an effective way to secure dedicated funds. Many donors prefer giving to a specific program rather than the general operating budget as they feel their money has more of an impact.

An effective strategy is to line up foundation support with a private donor. Foundations encourage private dollars as match and donors like the idea of their money being used to secure foundation support.

The NH Charitable Fund in partnership with GBNERR and several local organizations has organized a Great Bay 2020 plan. The concept is to target larger private donors and match them up with specific programs. SOAK has a broad appeal that could be attractive to a large donor.

Appendix C. Existing Local Soak Up the Rain Programs in New Hampshire

Around the state, local SOAK NH programs are working in various ways to raise awareness about the effects of stormwater runoff on their local water bodies. Managed by community leaders and working in partnership with the NHDES SOAK NH team, these local programs use creative and targeted approaches to reach into their community.

- Soak Up the Rain Silver Lake received 319 Grant funds to do outreach and install BMPs with a goal to protect the clean water status Silver Lake in Nelson and Harrisville. The SOAK NH team joined the SOAK Silver Lake team on multiple days to find good candidate site. Although they were armed with potential installation sites generated from a boat survey, few turned out to be practical. Most of the issues seen from the water were from wave action or ice damage rather than from stormwater runoff. To date they have installed a set of infiltration steps at a private residence and have completed a rain garden rehab and shoreline restoration project at the Stoney Beach town boat launch area.
- Soak Up the Rain Brentwood, managed by the Brentwood Conservation Commission, is focusing on outreach and spreading the word at this point in the program. The NHDES created SOAK Brentwood flyers for distribution.
- Soak Up the Rain Hampton installed two new rain gardens on two private residences in 2015. Through a grant process SOAK Hampton created, and in partnership with the NHDES, it paid for the rain gardens through fundraising and cost-sharing with the property owners. To raise grant funds, SOAK Hampton, made up primarily of Hampton Conservation Commission members, bought rain barrels, had them creatively painted by eight-grade artists at Hampton Academy, then auctioned them off. The proceeds went into a grant fund. Property owners in Hampton applied for the grant money agreeing to pay 25% of the cost, with a maximum out-of-pocket cost of $50. Other conditions applied as well, such as agreeing to maintain the garden and recruiting several volunteers to help with the labor.

Appendix D. Other Soak Up the Rain Related Partners and Project Examples

US Environmental Protection Agency – The USEPA Soak Up the Rain Program provides information on how and why to soak up the rain; links to state programs; instructional materials; downloadable, promotional materials, and more.

New Hampshire Lakes Association (NHLA) –The NHLA has the wide-reaching goal of protecting NH lakes and their associated watersheds through robust education, advocacy, outreach, and events programs. Soak Up the Rain NH partners with them through similar work, reciprocal links to each other's websites, and a shared vision of protecting water quality in New Hampshire.

Cheshire County Conservation District (CCCD) - The conservation district is fully vested in the preservation and enhancement of agriculture and its place and role within the community at large. The CCCD works to reduce run-off by creating rain gardens and installing buffers.

Newfound Lake Region Association (NLRA) – NLRA hosts *Water Watchdogs* program to take action to preserve what people love about their land and water around Newfound Lake. This program uses a youth conservation corps to assess properties and install stormwater management practices. They provide SOAK NH and other resources to show residents how to protect water quality on their own land, with their own hands.

Lake Winnipesaukee Association (LWA) – LWA is dedicated to protecting the Big Lake's water quality and natural resources through monitoring, education, stewardship, and science guided approaches for lake management.

Green Mountain Conservation Group (GMCG)–The Green Mountain Conservation Group is dedicated to protecting natural resources in the Ossipee Watershed. In 2014, SOAK NH partnered with The Green Mountain Conservation Group to build stormwater practices at Camp Robin Hood in Freedom on Lake Ossipee. Severe erosion was creating ditches and gullies as stormwater worked its way downhill and around lodge buildings delivering sand and sediment to the lake. SOAK NH provided technical assistance, led the construction of the practices, and provided materials and maintenance. A set of water bars and a set of infiltration steps were constructed by the enthusiastic and hard-working campers.

Belknap County Conservation District (BCCD) – BCCD is a grassroots agency acting as a source of conservation information on land, water, and related natural resource issues for residents of Belknap County. In addition to promoting SOAK NH to their partners and residents, SOAK NH provided a presentation, Q and A session, and site assessments at several properties of concern.

Acton Wakefield Watersheds Alliance (AWWA)– AWWA employs a Youth Conservation Corps (YCC) to install residential BMPs to protect and restore water quality in the lakes, ponds, rivers and streams of Wakefield, NH and Acton, ME. AWWA provided valuable advice and training to NHDES SOAK NH program staff to help start and sustain SOAK NH.

Massabesic Audubon Center, Auburn– In 2014 SOAK NH constructed a rain garden at the Massabesic Audubon Center. A gutter and downspout system was installed to direct the roof drainage into the rain garden. This demonstration stormwater practice reaches a wide and varied audience as visitors of all ages visit and explore the Center.

Camp Morgan Lodge, Millen Pond, Washington– In 2014 SOAK NH partnered with Camp Morgan Lodge staff to construct a rain garden at the Camp Morgan Lodge, which is utilized as a community center. SOAK NH conducted a presentation for Millen Pond residents on the program to explain the Local Soak Up the Rain Program model and to introduce the types of stormwater practices advocated. Everyone then constructed a rain garden to capture the building's roof runoff. They were joined by young summer campers whose interest and hard work made the day memorable.

Appendix E. Outreach Efforts and Results Table

Date	Type of Event	Specific Event/Audience	Number of Attendees	SOAK Great Bay Results	
				Assessments	Installations
2014 - 2015	Great Bay Stewards Personal Contacts	Watershed residents	Not applicable	4	1 (Rain Garden but was not a SOAKGB project)
6/3/14	Presentation to organization	UNH Volunteer Marine Docents	50	1	1 (Rain Garden)
6/11/14	Presentation to organization	Coastal Research Volunteers	6	1	0
6/28/14	Great Bay Stewards Public Event	SOAK Kick-off Event	12	1	0
7/13/14	Presentation to organization	Seacoast Water Garden Club	10	0	0
June-Sept 2014	Display Board for 4 afternoons	Greenland Farmers Market	Unknown	3	0
9/1/14	Community Event Organized by Homeowner	Rain Garden Party	15	2	2 (Rain Garden & Dry Well)
11/14/14	Presentation to organization	UNH Natural Resource Stewards Presentation	26	1	0
1/21/15	Targeted Neighborhood Letter	Berry Brook letter Mailed: 250 letters	Not Applicable	3	1 (Rain Barrels, counted as ½ BMP)
3/18/15	Presentation at Great Bay Stewards Public Event	Fuller Garden	15	0	0
3/21/15	Presentation	Rolling Green Nursery Workshop	10	1	0
4/11/15	UNH/NHDES Public Event	Town of Newington "Spring for the Bay"	50	0	0
4/14/15	Presentation to Watershed Association	Lamprey Wild and Scenic	8	0	0
5/17/15	Presentation to Neighborhood	Karen Green – Winding Brook Stratham	7	1	0
5/20/15	Presentation to coastal watershed municipal contacts and municipal consultants	Southeast Watershed Alliance	50	1	0

Date	Type of Event	Specific Event/Audience	Number of Attendees	SOAK Great Bay Results	
				Assessments	Installations
7/25/15	Community Event	Berry Brook Rain Barrel Social	26	3	1 (Rain barrels, counted as ½ BMP)
2015	NHDES Soak Up the Rain events and presentation	Various	unknown	3	0
5/20/15 6/2/15	Presentation and Contact with Town Officials	Seacoast Stormwater Coalition mtg. presentation and follow-up mtg. with Durham	25	2	1 (Rain Garden)
2015 – various times	Contact with Town Officials	Mtg. with Greenland Town Administrator	unknown	1	1 (Buffer Planting)
8/13/15 8/25/15 9/26/15	Contact with Town Officials	Mtg. with Newmarket Conservation Commission and Town Planner	unknown	2	0
8/18/15	Contact with Town Officials and site walk	Mtg and Site Walk With Exeter Natural Resource Planner	unknown	0 (two neighborhoods identified for targeted outreach)	0
9/16/15	Presentation to Watershed Organization	Bellamy River Association	10	0	0
1/14/16	Neighborhood Presentation	Newmarket, Piscassic River Village	7	1	1 (Rain Garden)
5/21/16	Neighborhood Presentation	West Side Drive Meet-Up	unknown	2	2 (Rain Garden & Infiltration Trench)
7/16/16	Neighborhood Presentation at Rain Garden install site	Neighborhood Gathering in partnership with Lamprey River Advisory Committee	Unknown	2	0

Appendix F. Pre-Screening Tool

Pre-Screening Tool

INSTRUCTIONS: Pre-screening a property is the first step to determine if a Soak Up the Rain project on the site would benefit water quality. Discuss these questions with the property owner before visiting a property. Complete the checklist in Part A. below for each property. If one or more boxes are checked, move on to Part B. and consider completing a full Field Screening of the property. If none of the boxes are checked, it may indicate that the property is already soaking up the rain and may not be a high priority site.

Address: _____

Date: _____ **Owner Name (if known):** _____

BACKGROUND: When impervious surfaces (roofs, driveways, and other hard surfaces) cover the land, rain isn't able to soak into the ground and creates stormwater runoff. Stormwater runoff can cause local flooding and overwhelm small streams. As runoff travels over the land surface, it picks up pollutants and may dislodge (or erode) sand and sediment. Sand, sediment, and other pollutants can be carried by the stormwater into nearby streams, lakes, other waterbodies, or stormwater collection systems and pollute the water. If properties have active erosion or have stormwater that runs directly into a nearby waterbody or a stormwater collection system, it could be a good candidate for a Soak Up the Rain project. High priority sites should be those with the most potential to improve water quality.

Part A. Check all statements that apply to the property.

- ❒ **There is active erosion on the property delivering materials to a waterbody or collection system**
  How to tell: Ask the property owner; look for bare soil or ditching (rills or gullies) along stormwater pathways; look for sand/sediment deposits in the waterbody or along the stormwater pathways.
- ❒ **Stormwater from the property runs directly into a nearby waterbody.**
  How to tell: Ask the property owner; look for signs such as grass lying flat or debris pushed aside along stormwater pathways; look for debris/sediment in the water delivered there by stormwater runoff; look for erosion along the banks of the waterbody; observe stormwater flow during a rain storm.
- ❒ **Stormwater from the property runs into a stormwater collection system.**
  How to tell: Ask the property owner; look for a stormwater collection system, e.g., storm drain, catch basin, pipe, or drainage swale; look for gutter downspouts or other signs that stormwater is directed to the road.

Part B. Check all statements that apply to the property owner. If all boxes are checked, consider completing a full Field Screening on the property:

- ❒ The property owner has reviewed and discussed the **Project Host Guidelines** (http://soaknh.org/resources-2/property-owner-guidelines-agreements-templates/).
- ❒ **Maintenance:** If a SOAK project is installed, the Property owner will be asked to sign an agreement to maintain the practice so that it will continue to function properly. Maintenance recommendations and instructions will be provided to the property owner.
- ❒ **Cost Sharing:** Depending on how the Local Group structures its program, the property owner may be asked to share in the cost of materials or labor for the project.
- ❒ **Other:** If the Partner Group determines that there are other important project host responsibilities, the topics should be noted and discussed.

Appendix G. Project Checklist and Installation Day Reminders

Project Checklist & Installation Day Reminders

Project Name: Installation Date:

Project Planning Checklist				
Task	**Lead Time Needed**	**Date due**	**Responsible Party**	**Notes**
Perform perc/infiltration test (if needed)	Prior to project planning			
Have host sign "Maintenance Agreement"	Before proceeding			
Collect / submit soil for soil test (if needed)	4 – 6 weeks			
Recruit volunteers / work crew	4 weeks			
Complete "Planning & Design" Packet	2 - 3 weeks			
Calculate drainage area				
Create Final Plan				
Create Planting Plan (if needed)				
Calculate project cost (if needed)				
Confirm and review plan with host	2 – 3 weeks			
Create plan for excavated materials	2 – 3 weeks			
Order/purchase bulk materials	1 – 2 weeks			
Order/purchase plants				
Order/purchase other materials: - -				
Confirm volunteers / work crew	1 - 2 weeks			
Plan for providing food/ beverages	1 week			
Mark project boundaries	Before calling Dig Safe			
Call Dig Safe	At least 72 business hours			

Project Planning Checklist (continued)				
Task	**Lead Time Needed**	**Date due**	**Responsible Party**	**Notes**
Other:				
Other:				
Other:				
Other:				

Installation Day Reminders		
Task	**Responsible Party**	**Note**
Bring/order food/beverages		
Bring tarps and tools		
Bring host gifts		
Review the plan with work crew		
Assign tasks (if applicable)		
Remind everyone to work safely		
Verify that all materials are on hand		
Stop before each step to explain		
Other:		
Other:		
Other:		
Other:		

Appendix H. Site Screening Field Sheet

Soak up the Rain
NEW HAMPSHIRE

Site Screening Field Sheet

Use this field sheet to determine if a property has potential for a Soak up the Rain project. See the SOAK Field Sheet Instructions to complete each section.

Homeowner _____ Date _____

Address _____

Watershed / Nearest Receiving Water _____ Impairment(s) _____

PART A. PROPERTY OWNER INTEREST

Seek an alternate property if all boxes are not checked.

- ❑ The homeowner is interested in installing a stormwater practice on their property.
- ❑ The homeowner is willing to take responsibility for maintaining the stormwater practice.

For demonstration projects only:

- ❑ The potential stormwater practice location is highly visible in the community.
- ❑ If highly visible, the homeowner willing to display a "Soak Up the Rain" placard.

PART B. PROPERTY SCREENING

Fill in the chart on the following pages to identify issues and opportunities.

General Observations/Notes:

Soak up the rain NH

Stormwater Source Circle all that apply	Description of Source/ Problem Check ALL that apply		Suggested Stormwater Practice (optional) Check any that may work
Roof 1 Location (front, back, left, right):	❑ Gutter / ❑ No gutter ❑ Downspout / ❑ No downspout ❑ Buried downspout daylights to: ❑ Roof valley discharges to:	❑ Runs off property via: piped system / directly / stream / ditch / other ❑ Stays on property ❑ Description of problem, if any:	❑ Dripline Infiltration Trench ❑ Rain Barrel ❑ Dry Well ❑ Rain Garden ❑ Other:
Roof 2 Location (front, back, left, right):	❑ Gutter / ❑ No gutter ❑ Downspout / ❑ No downspout ❑ Buried downspout daylights to: ❑ Roof valley discharges to:	❑ Runs off property via: piped system / directly / stream / ditch / other ❑ Stays on property ❑ Description of problem, if any:	❑ Dripline Infiltration Trench ❑ Rain Barrel ❑ Dry Well ❑ Rain Garden ❑ Other:
Roof 3 Location (front, back, left, right):	❑ Gutter / ❑ No gutter ❑ Downspout / ❑ No downspout ❑ Buried downspout daylights to: ❑ Roof valley discharges to:	❑ Runs off property via: piped system / directly / stream / ditch / other ❑ Stays on property ❑ Description of problem, if any:	❑ Dripline Infiltration Trench ❑ Rain Barrel ❑ Dry Well ❑ Rain Garden ❑ Other:
Roof 4 Location (front, back, left, right):	❑ Gutter / ❑ No gutter ❑ Downspout / ❑ No downspout ❑ Buried downspout daylights to: ❑ Roof valley discharges to:	❑ Runs off property via: piped system / directly / stream / ditch / other ❑ Stays on property ❑ Description of problem, if any:	❑ Dripline Infiltration Trench ❑ Rain Barrel ❑ Dry Well ❑ Rain Garden ❑ Other:
Driveway	❑ Material: paved(asphalt) / dirt / gravel / grass / other: ❑ Condition: excellent / good / fair / poor	❑ Runs off property via: piped system / directly / stream / ditch / other ❑ Stays on property ❑ Description of problem, if any:	❑ Rain Garden ❑ Infiltration Trench ❑ Swale ❑ Permeable Pavers ❑ Water Bar ❑ Other:

Soak up the rain NH

Stormwater Source Circle all that apply	Description of Source/ Problem Check ALL that apply		Suggested Stormwater Practice (optional) Check any that may work
Walkway / Path	❑ Material: paved(asphalt) / dirt / gravel / grass / other: ❑ Condition: excellent / good / fair / poor	❑ Runs off property via: piped system / directly / stream / ditch / other ❑ Stays on property ❑ Description of problem, if any:	❑ Rain Garden ❑ Infiltration Trench ❑ Swale ❑ Permeable Pavers ❑ Water Bar ❑ Other:
Yard / Lawn Area 1 Location (front, back, left, right):	❑ Fertilized ❑ Pet waste present ❑ Manicured ❑ Natural ❑ Condition (erosion, bare spots, etc.) excellent / good / fair/ poor	❑ Runs off property via: piped system / directly / stream / ditch / other ❑ Stays on property ❑ Description of problem, if any:	❑ Dripline Infiltration Trench ❑ Rain Barrel ❑ Dry Well ❑ Rain Garden ❑ Other:
Yard / Lawn Area 2 Location (front, back, left, right):	❑ Fertilized ❑ Pet waste present ❑ Manicured ❑ Natural ❑ Condition (erosion, bare spots, etc.) excellent / good / fair/ poor	❑ Runs off property via: piped system / directly / stream / ditch / other ❑ Stays on property ❑ Description of problem, if any:	❑ Dripline Infiltration Trench ❑ Rain Barrel ❑ Dry Well ❑ Rain Garden ❑ Other:
Other:	Description:	❑ Runs off property via: piped system / directly / stream / ditch / other ❑ Stays on property ❑ Description of problem, if any:	

PART C. PROPERTY SKETCH

Include lot boundaries, impervious surfaces (roofs, driveways, paths, etc.), lawns and landscaped areas, woods/other undisturbed areas, arrows showing the path of stormwater, stormwater problems and potential locations of stormwater practices.

Soak up the rain NH

PART D. SCORING THE POTENTIAL (For Local SOAK groups to rank multiple properties)

CATEGORY	POINTS Circle the one that best describes the site
SEVERITY OF PROBLEM	
Serious: Large and obvious issues on property. For example, gully or rill formation; highly fertilized lawns; local flooding; multiple issues; direct sediment delivery or algae bloom; obvious water quality impairments.	3
Moderate: Some potential or known issues. For example, some gully and rill formation; fertilized lawn; areas of sheet or small rill erosion.	2
Slight: Small areas of potential issues. For example, one easily corrected stormwater issue; most stormwater currently stays on property.	1
AREA	
Large: Much of the property contributes to the issue. For example, runoff goes directly to catch basin or waterbody; multiple areas causing problems.	3
Medium: Some of the property contribute to the issue. For example, driveway directly connected to catch basin; yard area connected to waterbody.	2
Small: Most of stormwater stays on property. For example, only one portion of roof causes a problem.	1
OPPORTUNITY	
Great: Excellent potential to keep stormwater on property; excellent potential to address a substantial issue or problem; excellent potential as a demo site, if desired.	3
Medium: Good potential in the categories above.	2
Low: Little to no potential in the categories above.	1
CONNECTION BETWEEN RUNOFF AND WATERBODY	
Direct: Most/all runoff directly connected; piped system directly outlets to waterbody; property directly abuts and drains to waterbody.	3
Somewhat Direct: Some runoff directly connected; narrow or partial buffer between property and waterbody or piped system.	2
Indirect: Most/all runoff passes through significant buffer	1
SOAK project potential score (add points together)	

HIGH	MEDIUM	LOW
10 - 12 points	7 - 9 points	4 - 6 points

Other Considerations:

Cost to Fix	Technical Level to Install
High: Greater than $2,500 Medium: $500 - $2,500 Low: Less than $500	High: Site requires engineered design Medium: Technical person should visit site & make recommendations Low: Property owner can accomplish with reference material

Appendix I. Press & Promotions

List of Items in Appendix I.

Berry Brook Letter

Westside Drive Meet-up Flyer

Rolston Park Flyer

Greenland Grapevine article

June 2016 Press Release

Great Bay Matters advertisement

Rain Barrel Social

Great Bay Stewards
89 Depot Rd
Greenland, NH 03840
Phone: (603) 778-0015
Fax: (603) 778-7398

GREAT BAY STEWARDS

Email:
info@greatbaystewards.org
Website:
www.greatbaystewards.org

Supporting education, research & conservation on Great Bay

To Neighbors of Berry Brook:

Have you noticed the work being done to restore Berry Brook to a healthier state? Part of the brook that was routed underground has been uncovered and treatment practices to reduce water pollution entering the Brook have been installed. There are signs that fish and aquatic insects are coming back to the brook. You can be part of the process of improvement too!

The Great Bay Stewards is one of the local groups supporting the restoration of Berry Brook. To help the brook recover from water pollution, the Stewards are looking for volunteer homeowners or small businesses in neighborhoods near the brook to join us in an exciting effort called Soak Up the Rain New Hampshire (SOAK NH). While adding a special garden or other landscape feature to your yard, you can reduce pollution going to the brook.

Studies show that fish and other aquatic life struggle to survive in polluted Berry Brook. Much of this pollution comes from dirty water running off nearby parking lots, driveways and buildings. The on-going restoration effort is making a difference. Water quality is improving and rainwater runoff reaches the stream more slowly, reducing pollution and flash floods.

Although the water in the brook is cleaner, more work needs to be done. Through SOAK NH – a voluntary program managed by the state of New Hampshire with the goal of protecting and restoring clean water in the state's water bodies from the negative impacts of stormwater pollution – the Stewards are offering assistance to help you install a simple treatment practice on your property such as a rain garden, dry well, or infiltration trench. See the attached flyer to learn more.

Where is Berry Brook?

Berry Brook starts at Central Avenue across from the Hannaford entrance and runs downhill between Horne and Maple streets, under Sixth Street and eventually into the Cocheco River. The brook runs for about a mile and is no wider than four feet in most places. You don't have to be on the brook to participate in this project – just in the neighborhood.

If you are interested and would like to talk about possibilities and what we can do for your backyard please contact: Laura Byergo, SOAK-Great Bay, Project Manager, (603) 501-0720

For more information on the Berry Brook and its Restoration Plan visit:
http://www.unh.edu/unhsc/berrybrook

Project Partners and Funding

This project was made possible by the City of Dover with assistance from the University of New Hampshire Stormwater Center (UNHSC) and the Cocheco River Watershed Coalition (CRWC). Funding for this project was provided in part by a Watershed Assistance Grant from the NH Department of Environmental Services with Clean Water Act Section 319 funds from the U.S. Environmental Protection Agency. Additional funding sources were the City of Dover, NH DES Aquatic Resource Mitigation Fund, Royal Bank of Canada, and Great Bay Stewards.

Soak Up the Rain Great Bay is hosting a meet-up on protecting and restoring clean water in Exeter.

Come learn about rain barrels, rain gardens, and FREE GIVEAWAYS!

Address label here

Soak Up the Rain Great Bay is a program of the Great Bay Stewards and the NH Department of Environmental Services with assistance in Exeter from the Town of Exeter.

The Great Bay Stewards is a New Hampshire non-profit whose mission is to protect and preserve the vitality of the Great Bay estuarine ecosystem through education, land protection, research, and outreach.

RAIN GARDEN GIVEAWAY!

at the Westside Drive Meet-up

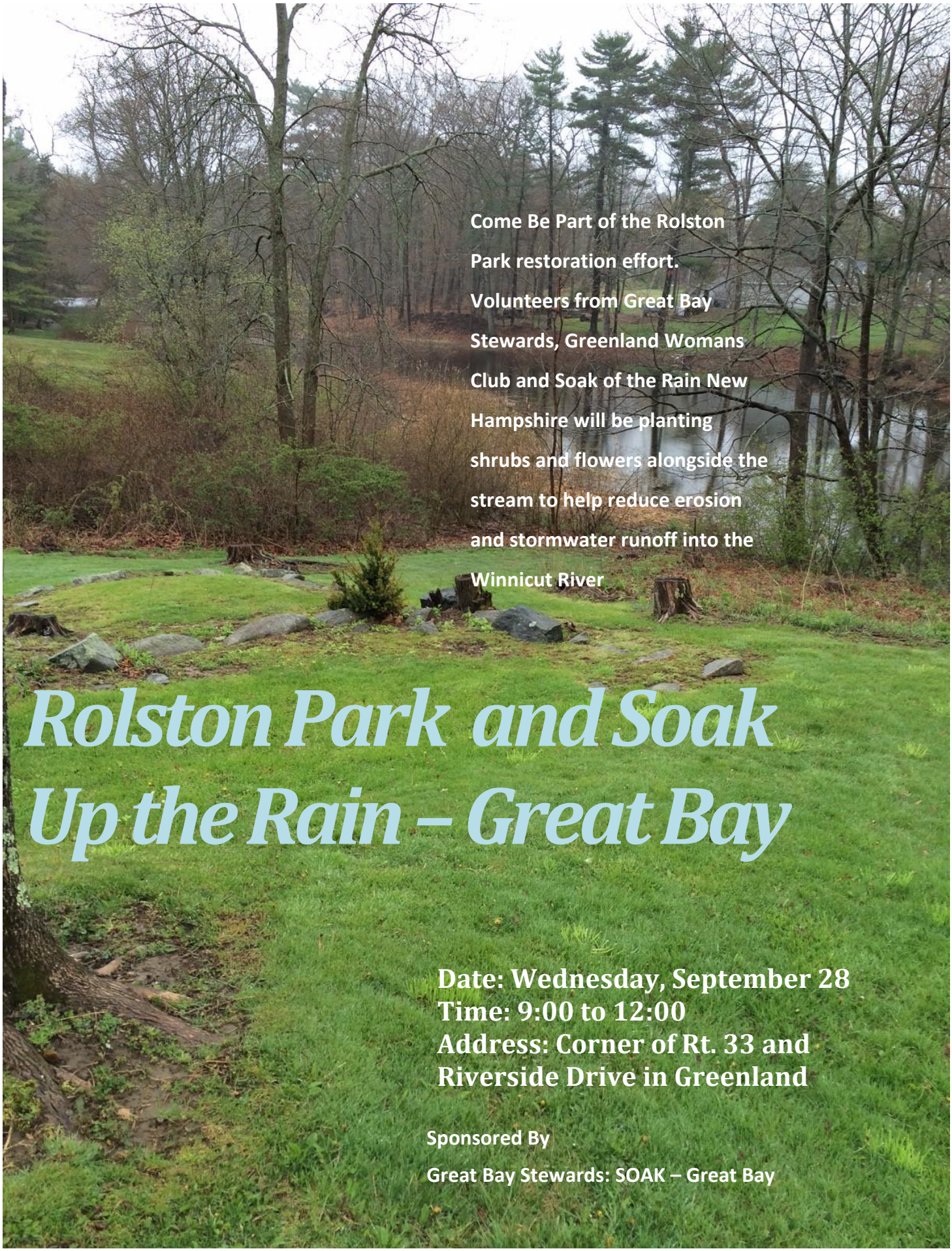
When: Saturday, May 21, 2016, 10:30 a.m.-12:30 p.m.

Where: Corner of Westside Drive and Blanche Lane

What: Join your neighbors & Soak Up the Rain Great Bay for a Westside Drive Meet-up:

Rain date May 28th – same time and place

- ✓ **Free** Activities and Seeds Sticks for the Kids
- ✓ **Free** rain barrel raffle – drawing at 12:30 p.m.
- ✓ See if you qualify for a **Free** Rain Garden & a **free** tote bag!
- ✓ Learn how rain from your roof affects Little River and Great Bay



Come Be Part of the Rolston Park restoration effort. Volunteers from Great Bay Stewards, Greenland Womans Club and Soak of the Rain New Hampshire will be planting shrubs and flowers alongside the stream to help reduce erosion and stormwater runoff into the Winnicut River

Rolston Park and Soak Up the Rain – Great Bay

Date: Wednesday, September 28
Time: 9:00 to 12:00
Address: Corner of Rt. 33 and Riverside Drive in Greenland

Sponsored By

Great Bay Stewards: SOAK – Great Bay

Rain Gardens Work in Greenland

Rain gardens work. Greenland neighbors worked with Great Bay Stewards and staff from the Department of Environmental Services to build and plant the pictured rain garden for their neighbor in late-July. The new garden will capture rain water running off of the roads and driveways uphill of the property and hold it until it soaks into the ground. This garden was inundated with a 1.7 inch storm a day after it was planted. For a few days the group worried that maybe they had built a pond instead of a rain garden, but after a bit, the garden finally stared draining. That much water had to find its way into the ground and it took a bit of time. Now, several rain storms later, the plants are thriving and the garden is doing its job.

The group that built the rain garden is working to reduce pollutants going into Great Bay one yard at a time. That may sound ridiculous and impossible, "reduce pollution one yard at a time?" But it isn't really. The project is focused on showing, in a practical way, how changing the way we garden can help the environment. The hope is that people will like these new methods and adopt them for their own gardens.

One of the easiest ways to help the environment is to reduce our use of fertilizers, and chemicals. That helps everybody and it can even lead to easier gardening. Margaret Hagen at UNH Cooperative Extension has lots of good tips for gardening green: http://extension.unh.edu/Education-Center/Grow-it-Green-Margaret-Hagen.

Another way, is to look at how rain water falls on our property. Is it running off our roofs and driveways into a drain in the street? Where does that drain go? Most likely, in Greenland, it drains to the nearest water body carrying with it little bits off our roof tiles, drops of oil from our cars, fertilizer and loose soil from our yards, and even nitrogen that falls with the rain. The nitrogen is a problem because it is supposed to go into the ground with the rain where it provides natural fertilizer. But, when it runs off with surface water into our streams and rivers, that nitrogen creates excess nutrients that lead to algae blooms. For many of us, just watching how the rain falls on our property can help us think about how to get that water to go into the ground instead of running off over the surface. Sometimes it is as easy as turning a downspout off the driveway and into a flowerbed or attaching a rain barrel. A bit more ambitious is to plant a rain garden. A rain garden works more efficiently because it combines digging a shallow basin to capture the runoff with the right kinds of plants that will soak up and use the water.

The new rain garden in Greenland is just one of several the Great Bay Stewards have completed in the Great Bay watershed under its Soak Up the Rain – Great Bay project (http://soaknh.org/). The Great Bay Stewards won this "SOAK" grant from the Department of Environmental Services to promote, and build, good stormwater management practices that fit the problems and resources of most homeowners. We are still looking for new sites so if you would like more information or think your yard might be a good candidate for the project contact Laura Byergo at laura.byergo@greatbaystewards.org or call at (301)928-0647.

Submitted to Nancy Bassett for the September 2015 Greenland Grapevine with two photos.

Buy This Photo

Photo 1 of 1 | Zoom Photo +

Great Bay Stewards and the N.H. Department of Environmental Services recently announced a new initiative to reduce stormwater runoff and pollution into the Great Bay estuary.

June 27, 2014 2:00 AM

GREENLAND — The Great Bay Stewards and the N.H. Department of Environmental Services recently announced a new initiative to reduce stormwater runoff and pollution into the Great Bay estuary.With the official launch date set for Saturday, Soak Up the Rain Great Bay works with interested homeowners and small businesses in the Great Bay watershed.

Runoff from private homes is a large source of nitrogen pollution to the estuary and the Soak Up the Rain Great Bay program can help to reduce it. The Stewards will reach out to private landowners and small businesses in the 1,023 square-mile Great Bay watershed, which includes 42 New Hampshire communities.

According to Peter Wellenberger, executive director of the Great Bay Stewards, the goal of Soak Up the Rain Great Bay is to decrease the amount of stormwater that is polluting Great Bay and harming the ecosystem. To learn more about the program, homeowners are encouraged to attend the kick-off event at the Great Bay Discover Center in Greenland on Saturday, from 10 a.m. to noon. The program will include information on everything to rain garden friendly plants to recommendations on good housekeeping practices, such as testing soils to know much lawn fertilizer to use. The program will conclude with a visit to recently installed rain garden.

Soak up the Rain
GREAT BAY

www.soaknh.org

Your Land. Your Water. Your Solution.

Join the Great Bay Stewards in soaking up the rain to protect the streams, ponds, and estuaries in our communities. Build a rain barrel, plant a rain garden, and discover other ways to soak up rain water and reduce pollution from our properties at www.soaknh.org.

Please join us for the:

BERRY BROOK RAIN BARREL EVENT

- Free rain barrel lottery at 11:30
- Installing barrels, why and how
- Rain barrels available for sale – half price
- Free lemonade and snacks

DATE: Thursday, July 25

11:00AM – 2:00PM

124 GROVE ST. DOVER

Please join us for the:

BERRY BROOK RAIN BARREL EVENT

- Free rain barrel lottery at 11:30
- Installing barrels, why and how
- Rain barrels available for sale – half price
- Free lemonade and snacks

DATE: Thursday, July 25

11:00AM – 2:00PM

124 GROVE ST. DOVER

Please join us for the:

BERRY BROOK RAIN BARREL EVENT

- Free rain barrel lottery at 11:30
- Installing barrels, why and how
- Rain barrels available for sale – half price
- Free lemonade and snacks

DATE: Thursday, July 25

11:00AM – 2:00PM

124 GROVE ST. DOVER

Please join us for the:

BERRY BROOK RAIN BARREL EVENT

- Free rain barrel lottery at 11:30
- Installing barrels, why and how
- Rain barrels available for sale – half price
- Free lemonade and snacks

DATE: Thursday, July 25

11:00AM – 2:00PM

124 GROVE ST. DOVER

The Great Bay Stewards
Great Bay Discovery Center
89 Depot Road, Greenland, NH 03840
603-778-0015, ex. 350

Soak up the Rain
GREAT BAY

SOAK – Great Bay, a project of the Great Bay Stewards and the NH Department of Environmental Services, is hosting a rain barrel event to promote good stormwater management.

Questions: contact Laura Byergo (603) 501-0720
laura.byergo@greatbaystewards.org
More information about SOAK-NH program from NHDES: **http://soaknh.org/**

The Great Bay Stewards
Great Bay Discovery Center
89 Depot Road, Greenland, NH 03840
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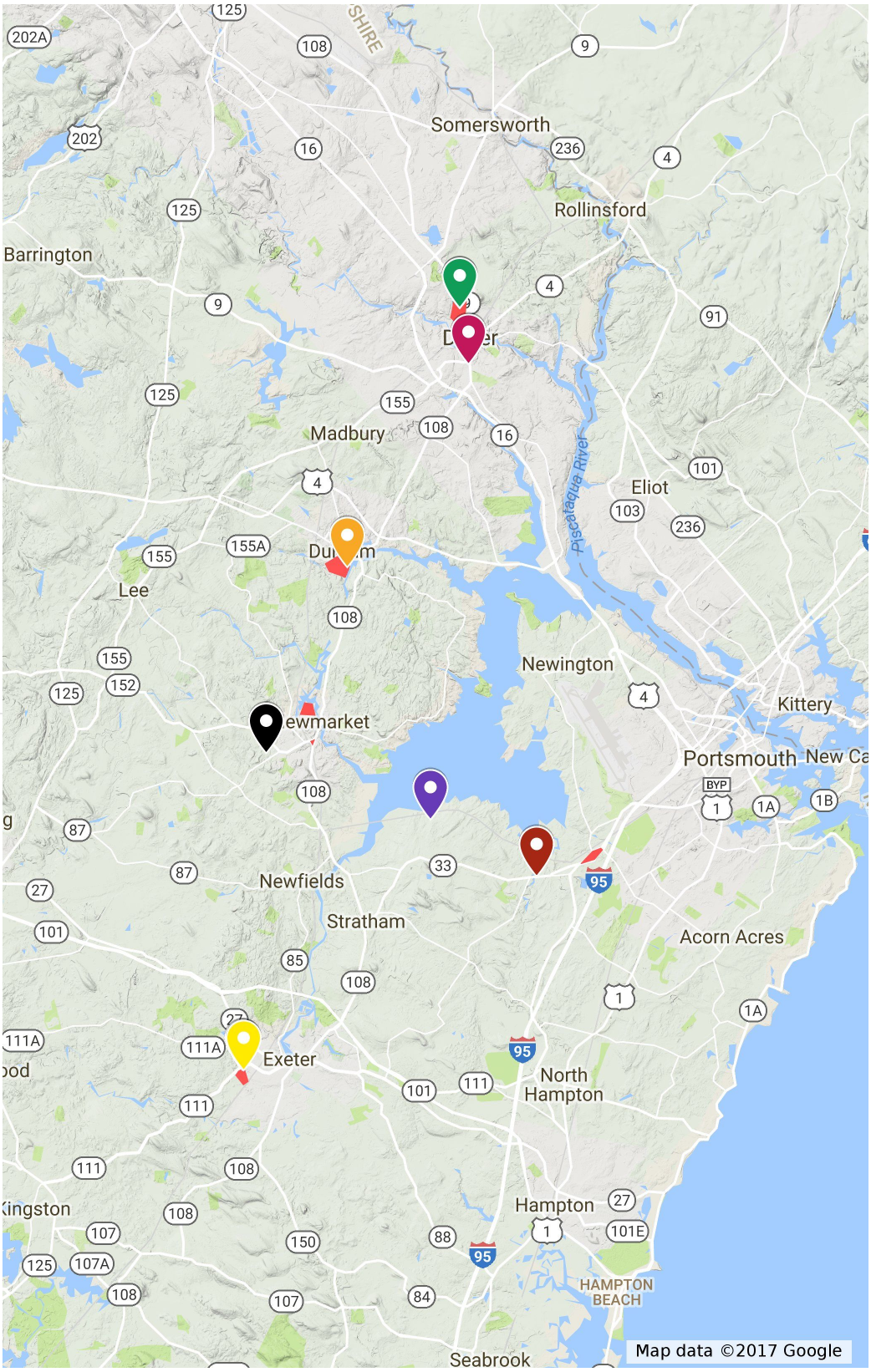
laura.byergo@greatbaystewards.org
More information about SOAK-NH program from NHDES: **http://soaknh.org/**

Appendix J. Hot Spot Map

SOAK - Great Bay Stormwater Hot Spot Neighborhoods and Installations

SOAK-Great Bay

- Dover Neighborhood
- Durham Neighborhood
- Exeter Neighborhood
- Greenland Neighborhood
- Newmarket Neighborhood 1
- Newmarket Neighborhood 2
- Arcieri Rain Garden
- Arico Rain Garden
- Lourenco Infiltration Trench
- Proctor/Metzler Rain Barrels
- Rain Barrel Social
- Rolston Pk Vegetated Buffer
- Taft Dry Well & Rain Garden
- Sietz Rain Garden
- Woodman Rain Garden



Appendix K. Outreach Event Examples

Newmarket Community Event

Laura Byergo, SOAK Great Bay Project Manager teaches neighbors about rain gardens at the Newmarket community event.

After a rain garden at the Arcieris' home on Briallia Circle in Newmarket was installed, the homeowners partnered with the Lamprey River Advisory Committee to host a lively neighborhood get-together where friends and neighbors gathered to hear from Soak Up the Rain Great Bay Project Manager, Laura Byergo, about the rain garden and other types of Do-It-Yourself stormwater practices and to have a chance to win a rain barrel donated by the Newmarket Conservation Commission. This event drew interest from neighbors and other visitors. In addition, the Arcieris were interviewed by NH Public Television, which aired a segment about rain gardens in Spring 2017 in a program called Water Works (www.nhptv/water). For the full story of this rain garden installation, visit "SOAK Stories" on the SOAK Project Tab at www.soaknh.org.

Exeter Community Event

Laura Byergo, SOAK Great Bay Project Manager (center) and Kristen Murphy, Exeter Natural Resources Planner (far left), engage with visitors at the Westside Drive Meet Up in Exeter.

SOAK Great Bay held the "Westside Drive Meet-Up" on Westside Drive in Exeter in spring of 2016 to generate interest in the program. This neighborhood was identified by the town's Natural Resource Planner Kristen Murphy as having potential stormwater issues. The meet-up featured a chance to have a rain garden install completely free of charge, a rain barrel raffle, activities, giveaways , and lots of information about stormwater runoff. The wide roads and numerous roofs shed runoff directly into catch basins leading to Little River and eventually Great Bay. The event was well attended and two installations resulted in the neighborhood: the free rain garden and an infiltration trench.

Appendix L. Outreach Materials


up the Rain
NEW HAMPSHIRE
Become a
clean water partner
help protect our lakes,
vers, and bays from
tormwater runoff and
ollution.
Environmental
Services
Do you know your Watershed Address?
Soak up the Rain for Clean Water
Soak Up the Rain
How to Soak Up the Rain

YOUR LAND, YOUR WATER, YOUR SOLUTION

Soak up the Rain

GREAT BAY

WHY IS STORMWATER AN ISSUE?

- Flooding
- Erosion Contributes Excess Sediment to Your Rivers and Lakes
- Surface Run-off Contributes Excess Nutrients and Pollutants to Neighboring Waters (fertilizer, road salt, pet waste, trash)
- Can Overwhelm Joint Stormwater and Sewage Drainage Systems
- Drought – Saving Water

Stormwater and Your Home: Where Does It Come From?

- Lack of Infiltration – Impervious or compacted surfaces
  - Roofs
  - Driveways and Walkways
  - Decks and Patios
  - Other Hard Surfaces

A Rain Garden at Work

A Dry Well Solution

The Problem

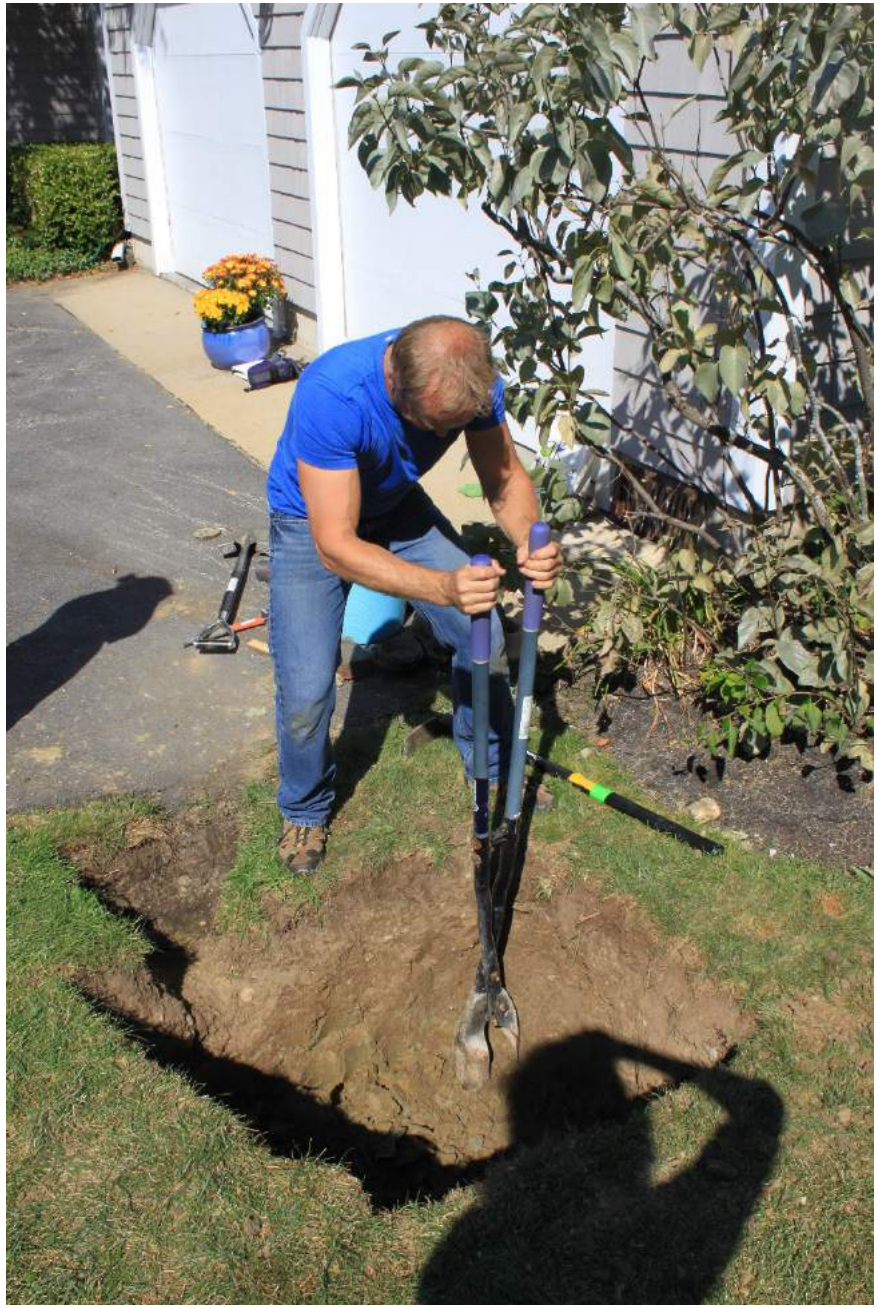
Digging a Perk Test

Getting Started

Removing Sod

Laying out measurements

Building a Dry Well 1



Dry Well Measuring and Filling

The Finished Product

A Rain Garden Solution

- Manage stormwater runoff
- Reduce or prevent erosion
- Reduce or prevent pollution
- Help return water to the soil and the atmosphere
- Native plants work well, easy maintenance
- Beautiful, great for the birds and the bees


Soak up the Rain
Rain Garden

Laying Out the Installation Site

Measuring and Making a Bowl

The all important outfalls!!!

Thanks to the Volunteers

Tarps make clean up easy

Tagging plants – naming them for the homeowner

Appendix M. Process Evaluations

Soak up the Rain Great Bay Participant Follow-up Evaluation

Thank you for participating in the Soak Up the Rain Great Bay (SOAK-Great Bay) program. We would like your feedback on how this program worked for you. The program had three goals:

- Increase public awareness of rainwater runoff and our connection with pollution affecting Great Bay.
- Provide information about rainwater runoff practices that work and can be installed by homeowners.
- Work with homeowners to install rainwater runoff practices, like rain gardens and dry wells, to contribute to the reduction of runoff going into Great Bay and its tributaries.

The information you provide in this questionnaire will be tallied so we can identify potential changes to improve the SOAK Great Bay program and for recommendations to other local Soak Up the Rain programs. We want to know what worked to help meet our and your goals, what didn't and why. We will not share your name with anyone and we really appreciate very honest answers. If you prefer to answer the questions on the phone and/or discuss the program further, contact Laura Byergo at: (603) 501-0720 lgbyer@yahoo.com or Barbara McMillan at: (603) 271-7889 barbra.mcmillan@des.nh.gov. Please RETURN THIS EVALUATION BY FRIDAY, FEBRUARY 12, 2016 to the above e-mail addresses. If you prefer to mail the evaluation, please mail it to Great Bay Stewards, Attn: SOAK Program, 89 Depot Rd. Greenland, NH 03840. Thank You!

Questions 1 and 2 are general questions about the SOAK-Great Bay Program.

1. How did you learn about the SOAK program? newspaper

2. What made you decide to get involved in the program?
   I had an area near the bay that I thought could be fixed up with a garden

Questions 3 to 7 relate to your property assessment (looking at how the water flows in your yard).

3. What were your goals of having your property assessed? Just to see if the garden was do-able

4. Was the assessment of your property useful (meeting your goals or learning something new)? Circle one and explain.

   Very useful Somewhat useful **Not very useful** Not at all useful

   Explain: we decided not to pursue the garden so there wasn't information I needed to know about my yard that I did not already know.

5. What would you recommend to do differently to make the property assessment more useful?

   Nothing comes to mind

6. Were recommendations made during the assessment? Yes **No**

7. Did you implement any of the recommendations? Yes No

   - If yes, what did you do?

- If no, do you plan to implement one or more in the future? Yes Maybe No

  If yes or maybe, what do you plan to implement?

  If no or maybe, why? (too difficult, too expensive, not enough benefit, etc.)

Questions 8 to 11 relate to a rainwater runoff practice that SOAK-Great Bay installed on your property. Go to question 12 if this does not apply to you.

8. Was enough information provided to you before the installation? Yes No

9. How would you rank the overall installation experience? Circle one.

   Excellent Good Satisfactory Unsatisfactory

   Explain:

10. How would you rank the appearance of your installation? Circle one.

    Excellent Good Satisfactory Unsatisfactory

    Explain:

11. How well is your installation working? (Is it meeting goal for which it was installed, such as infiltrating or slowing down the runoff, helping with erosion, etc.) Circle one.

    Excellent Good Satisfactory Unsatisfactory

    Explain:

Questions 12 to 14 are general questions about the SOAK-Great Bay Program.

12. How satisfied are you with follow-up communication and/or maintenance since your installation?

    Very Satisfied Somewhat Satisfied Not Satisfied

    Explain:

13. Do you have any suggestions about how we could improve this program?

14. What do you think would encourage your neighbors or others to participate in a program of this sort? If they had high school students who could help with one for a school science project. Pictures of gardens in the newspaper and local magazines and stories of individuals who did it.

Your Name and Address: We will only use this information to match your answers with how you participated in the SOAK Great Bay program.

Name: [redacted]

[redacted]

[redacted]

Thank you for your input! Please send to: lgbyer@yahoo.com and/or Barbara McMillan barbara.mcmillan@des.nh.gov

Soak up the Rain Great Bay Participant Follow-up Evaluation

Thank you for participating in the Soak Up the Rain Great Bay (SOAK-Great Bay) program. We would like your feedback on how this program worked for you. The program had three goals:

- Increase public awareness of rainwater runoff and our connection with pollution affecting Great Bay.
- Provide information about rainwater runoff practices that work and can be installed by homeowners.
- Work with homeowners to install rainwater runoff practices, like rain gardens and dry wells, to contribute to the reduction of runoff going into Great Bay and its tributaries.

The information you provide in this questionnaire will be tallied so we can identify potential changes to improve the SOAK Great Bay program and for recommendations to other local Soak Up the Rain programs. We want to know what worked to help meet our and your goals, what didn't and why. We will not share your name with anyone and we really appreciate very honest answers. If you prefer to answer the questions on the phone and/or discuss the program further, contact Laura Byergo at: (603) 501-0720 lgbyer@yahoo.com or Barbara McMillan at: (603) 271-7889 barbra.mcmillan@des.nh.gov. Please RETURN THIS EVALUATION BY FRIDAY, FEBRUARY 12, 2016 to the above e-mail addresses. If you prefer to mail the evaluation, please mail it to Great Bay Stewards, Attn: SOAK Program, 89 Depot Rd. Greenland, NH 03840. Thank You!

Questions 1 and 2 are general questions about the SOAK-Great Bay Program.

15. How did you learn about the SOAK program?
    Not sure I remember. I think I heard something on the radio.
16. What made you decide to get involved in the program? We recently bought a waterfront property and wanted to limit runoff from the lawn into the Bellamy River

Questions 3 to 7 relate to your property assessment (looking at how the water flows in your yard).

17. What were your goals of having your property assessed?
    To come up with a planting plan for a slope that went down to the river

18. Was the assessment of your property useful (meeting your goals or learning something new)? Circle one and explain.

    Very useful Somewhat useful Not very useful Not at all useful

    Explain: It was good to have the discussion but as our property was not chosen we didn't get a plan.

19. What would you recommend to do differently to make the property assessment more useful?

20. Were recommendations made during the assessment? Yes No

21. Did you implement any of the recommendations? Yes No

    - If yes, what did you do? Soil tests before any fertilization and use of slow release fertilizer.
    - If no, do you plan to implement one or more in the future? Yes Maybe No

If yes or maybe, what do you plan to implement?

If no or maybe, why? (too difficult, too expensive, not enough benefit, etc.)

Questions 8 to 11 relate to a rainwater runoff practice that SOAK-Great Bay installed on your property. Go to question 12 if this does not apply to you.

22. Was enough information provided to you before the installation? Yes No

23. How would you rank the overall installation experience? Circle one.

    Excellent Good Satisfactory Unsatisfactory

    Explain:

24. How would you rank the appearance of your installation? Circle one.

    Excellent Good Satisfactory Unsatisfactory

    Explain:

25. How well is your installation working? (Is it meeting goal for which it was installed, such as infiltrating or slowing down the runoff, helping with erosion, etc.) Circle one.

    Excellent Good Satisfactory Unsatisfactory

    Explain:

Questions 12 to 14 are general questions about the SOAK-Great Bay Program.

26. How satisfied are you with follow-up communication and/or maintenance since your installation?

    Very Satisfied Somewhat Satisfied Not Satisfied

    Explain: There were some missed communications and for quite a while we didn't know if we had been chosen or not for a demonstration project. We were not chosen. They felt with wetlands issues it was too big a project for a demonstration.

27. Do you have any suggestions about how we could improve this program?

28. What do you think would encourage your neighbors or others to participate in a program of this sort?
    I am a member of the Lower Bellamy River Collaborative. We have monthly meetings to discuss issues related to living on the river. SOAK speakers have presented to us and I hope it continues.

Your Name and Address: We will only use this information to match your answers with how you participated in the SOAK Great Bay program.

Name: [redacted]

[redacted]

[redacted]

Thank you for your input! Please send to: lgbyer@yahoo.com and/or Barbara McMillan barbara.mcmillan@des.nh.gov

Follow – Up Evaluation

Dear

Thank you for participating in the SOAK-Great Bay program. We would like your feedback on how this project worked for you. The project had three goals: increase public awareness of rainwater runoff and the connection with pollution affecting Great Bay, provide information about runoff control practices that work and that can be installed by homeowners fairly easily, and install demonstration practices, like rain gardens, with homeowners to actually contribute to the reduction of runoff going into the Bay and its tributaries.

We would like to know if you learned any useful information about the connection between rainwater runoff and non-point source pollution affecting Great Bay. Did you change any of your rainwater management practices because of this program? What can we do to improve this program? Please answer the questions below and then e-mail your response to Laura Byergo at lgbyer@yahoo.com; and Barbara McMillan at Barbara.McMillan@des.nh.gov.

1. Your name: ___[redacted]

2. How did you learn about the SOAK program?

_____internet_____

3. What made you decide to contact the program to get involved?

_____interested in potential for rain garden on my property_

4. Did you request an assessment on your property? YES

_____

5. Did you learn anything useful from the assessment?

_____YES_____

6. Did you learn more about rainwater runoff and its contribution to pollution in the Great Bay?

_____YES_____

7. Did you change any of your rainwater management practices or other gardening practices because of your involvement with this program?

_____No yet but am making plans to do so__

8. Was a new rain water management practice installed on your property with this program? If yes, is it working effectively?

Was not installed

_____

9. Do you have any suggestions about how we could improve this program?

_____

10. What do you think would encourage your neighbors to participate in a program of this sort?
YES

_____

Thanks again for participating in the SOAK program and for giving us your feedback. If you have any other feedback, ideas, or suggestions please send them along as well.

Sincerely, Laura Byergo, SOAK-Great Bay, Project Manager,Tel: (603) 501-0720

----- Forwarded Message -----
From: [redacted]
To: Laura Byergo <lgbyer@yahoo.com>
Sent: Wednesday, February 10, 2016 1:12 PM
Subject: Re: Please Fill Out the SOAK Program Evaluation

Hi, Laura, I did not fill out the questionaire but want to respond anyway. The meeting with you was helpful and I initiated it as I had concerns with my daughters new property and potential runoff problems.
Since that meeting they did remove all the big trees in front of the house and gradually working with me on plantings. It is slow and they are new to the theme.
I think Troy in interested but they are pretty overwhelmed with life at this point. They have a 16 month old and now expecting another baby in the summer.
There have been no major issues with the property but know that runoff with implementation of a rain garden could help as there is a deep ravine in back of the property which is part of the Lamprey watershed.
Thank you again for our meeting. At this point I have dropped the ball on any further action as it really is out of my hands and not actually my property.
Thank you for your work.
[redacted]

On Wed, Feb 10, 2016 at 12:29 PM, Laura Byergo <lgbyer@yahoo.com> wrote:

Hello [redacted]

We are 3/4 of the way through this SOAK grant. Going into the final year we are looking for your feedback now so we can work to improve the program before it's over.

I have attached a short evaluation form below, please take a minute and fill it out. We would like to know from you if the program was helpful to you or not and if there is other feedback you would like to give us.

You participated in the program by requesting a SOAK assessment of your property. In your case we provided advice and information but did not install a stormwater best management solution. Usually that happens when the issue you are facing on your property is not one we can fix with SOAK resources. However, maybe we were able to give you some information that was helpful, or maybe you still have questions you would like us to answer.

We will be using this last year to complete our remaining installations, help those who are interested in the program, and continue spreading the word about why managing stormwater runoff helps Great Bay. Your feedback will help us improve the program and make the most out of this last year.

So please take a minute and give us your feedback. Please either e-mail or snail mail your response to the addresses provided by February, 15 2016.

Thank You!

Sincerely,
Laura Byergo, SOAK-Great Bay, Project Manager, (603) 501-0720

Soak up the Rain Great Bay Participant Follow-up Evaluation

Thank you for participating in the Soak Up the Rain Great Bay (SOAK-Great Bay) program. We would like your feedback on how this program worked for you. The program had three goals:

- Increase public awareness of rainwater runoff and our connection with pollution affecting Great Bay.
- Provide information about rainwater runoff practices that work and can be installed by homeowners.
- Work with homeowners to install rainwater runoff practices, like rain gardens and dry wells, to contribute to the reduction of runoff going into Great Bay and its tributaries.

The information you provide in this questionnaire will be tallied so we can identify potential changes to improve the SOAK Great Bay program and for recommendations to other local Soak Up the Rain programs. We want to know what worked to help meet our and your goals, what didn't and why. We will not share your name with anyone and we really appreciate very honest answers. If you prefer to answer the questions on the phone and/or discuss the program further, contact Laura Byergo at: (603) 501-0720 lgbyer@yahoo.com or Barbara McMillan at: (603) 271-7889 barbra.mcmillan@des.nh.gov. Please RETURN THIS EVALUATION BY FRIDAY, FEBRUARY 12, 2016 to the above e-mail addresses. If you prefer to mail the evaluation, please mail it to Great Bay Stewards, Attn: SOAK Program, 89 Depot Rd. Greenland, NH 03840. Thank You!

Questions 1 and 2 are general questions about the SOAK-Great Bay Program.

29. How did you learn about the SOAK program? Laura spoke at a UNH Marine Docent meeting

30. What made you decide to get involved in the program? Interest in Rain Gardens

Questions 3 to 7 relate to your property assessment (looking at how the water flows in your yard).

31. What were your goals of having your property assessed? To solve a wet basement problem and create a learning lab for museum visitors.

32. Was the assessment of your property useful (meeting your goals or learning something new)? Circle one and explain.

    Very useful Somewhat useful Not very useful Not at all useful

    Explain:

33. What would you recommend to do differently to make the property assessment more useful? I think it went well. No changes suggested

34. Were recommendations made during the assessment? Yes We discussed rain garden install

35. Did you implement any of the recommendations? Yes No

    - If yes, what did you do?

- If no, do you plan to implement one or more in the future? Yes Maybe No

  If yes or maybe, what do you plan to implement?

  If no or maybe, why? (too difficult, too expensive, not enough benefit, etc.)

Questions 8 to 11 relate to a rainwater runoff practice that SOAK-Great Bay installed on your property. Go to question 12 if this does not apply to you.

36. Was enough information provided to you before the installation? Yes No

37. How would you rank the overall installation experience? Circle one.

    Excellent Good Satisfactory Unsatisfactory

    Explain:

38. How would you rank the appearance of your installation? Circle one.

    Excellent Good Satisfactory Unsatisfactory

    Explain:

39. How well is your installation working? (Is it meeting goal for which it was installed, such as infiltrating or slowing down the runoff, helping with erosion, etc.) Circle one.

    Excellent Good Satisfactory Unsatisfactory

    Explain:

Questions 12 to 14 are general questions about the SOAK-Great Bay Program.

40. How satisfied are you with follow-up communication and/or maintenance since your installation?

    Very Satisfied Somewhat Satisfied Not Satisfied

    Explain:

41. Do you have any suggestions about how we could improve this program? I am very pleased with the program

42. What do you think would encourage your neighbors or others to participate in a program of this sort? yes

Your Name and Address: We will only use this information to match your answers with how you participated in the SOAK Great Bay program.

Name: [redacted]

[redacted]

[redacted]

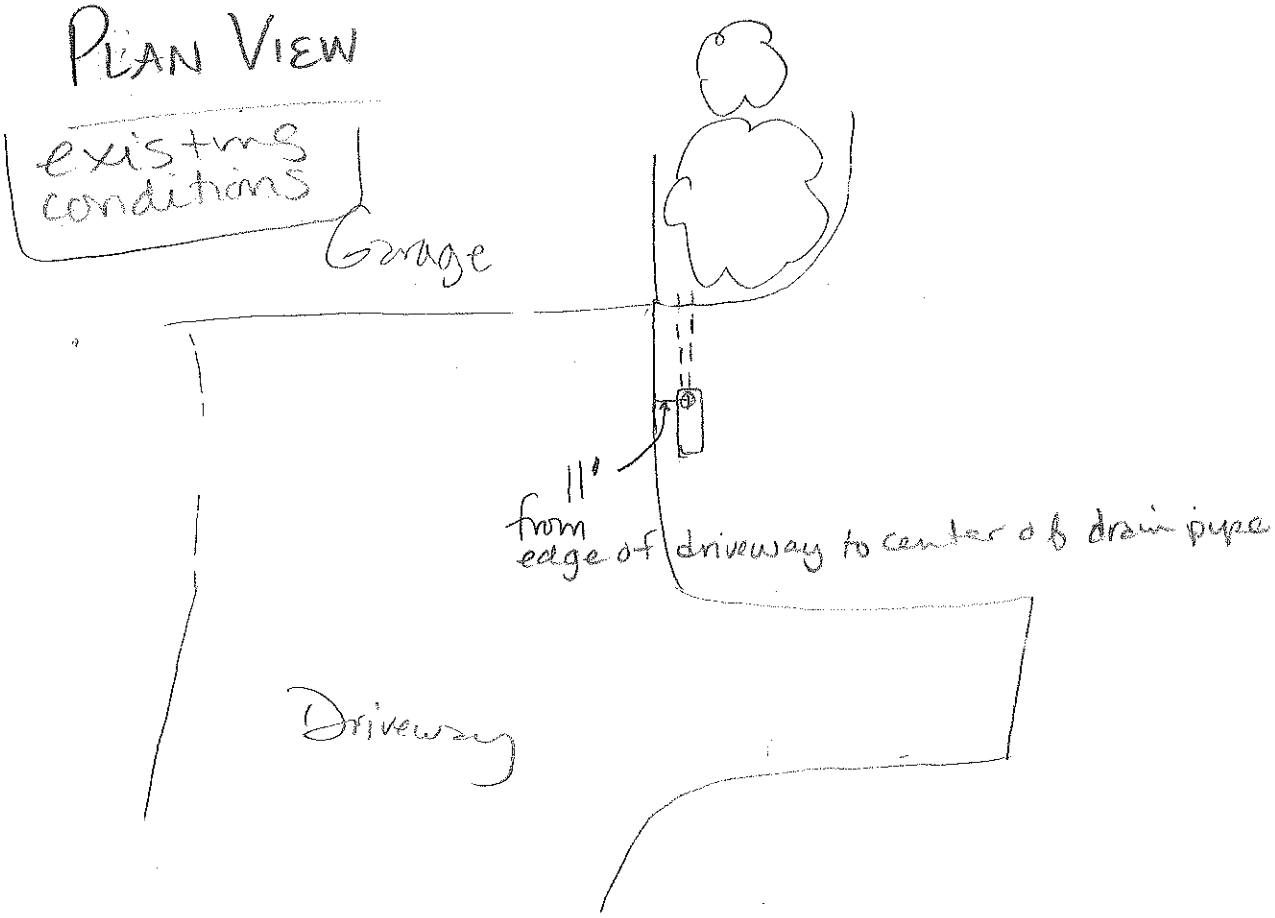
Thank you for your input! Please send to: lgbyer@yahoo.com and/or Barbara McMillan barbara.mcmillan@des.nh.gov

Appendix N. Best Management Practice Design Examples

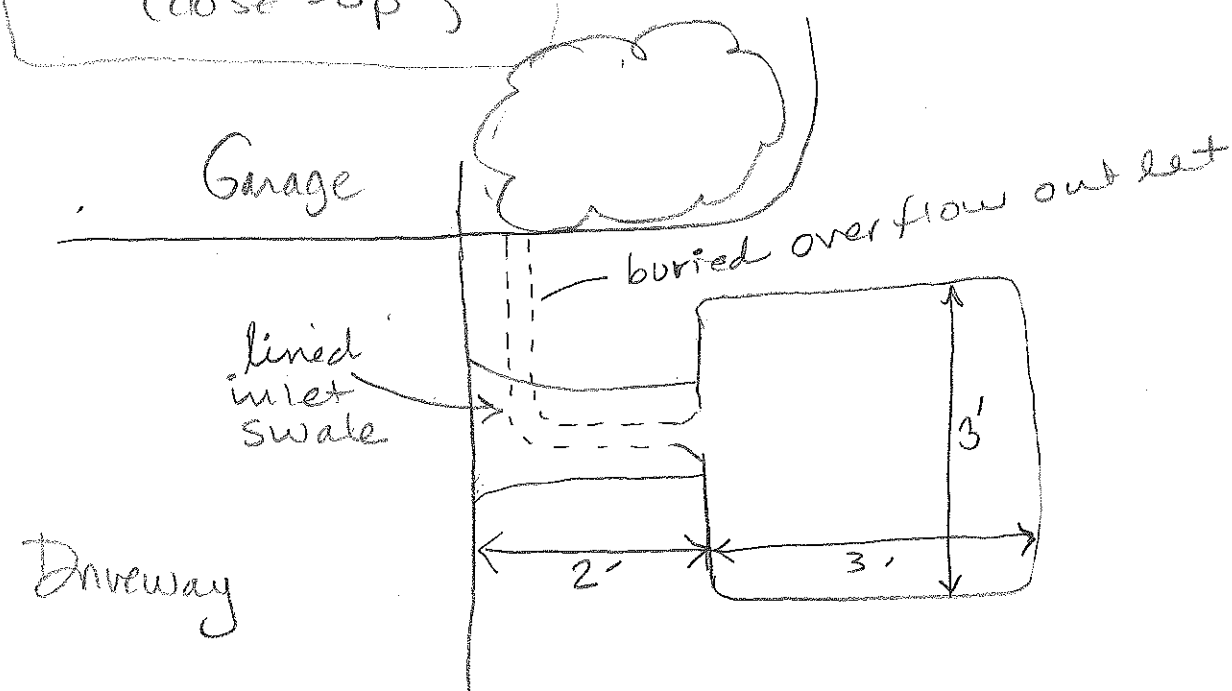
Taft - Dry Well

Plan View

existing conditions



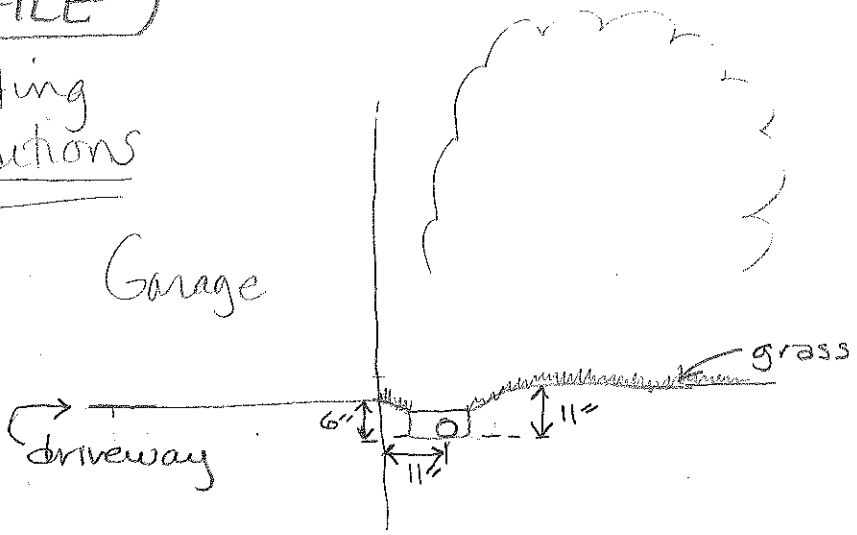
proposed condition (close-up)



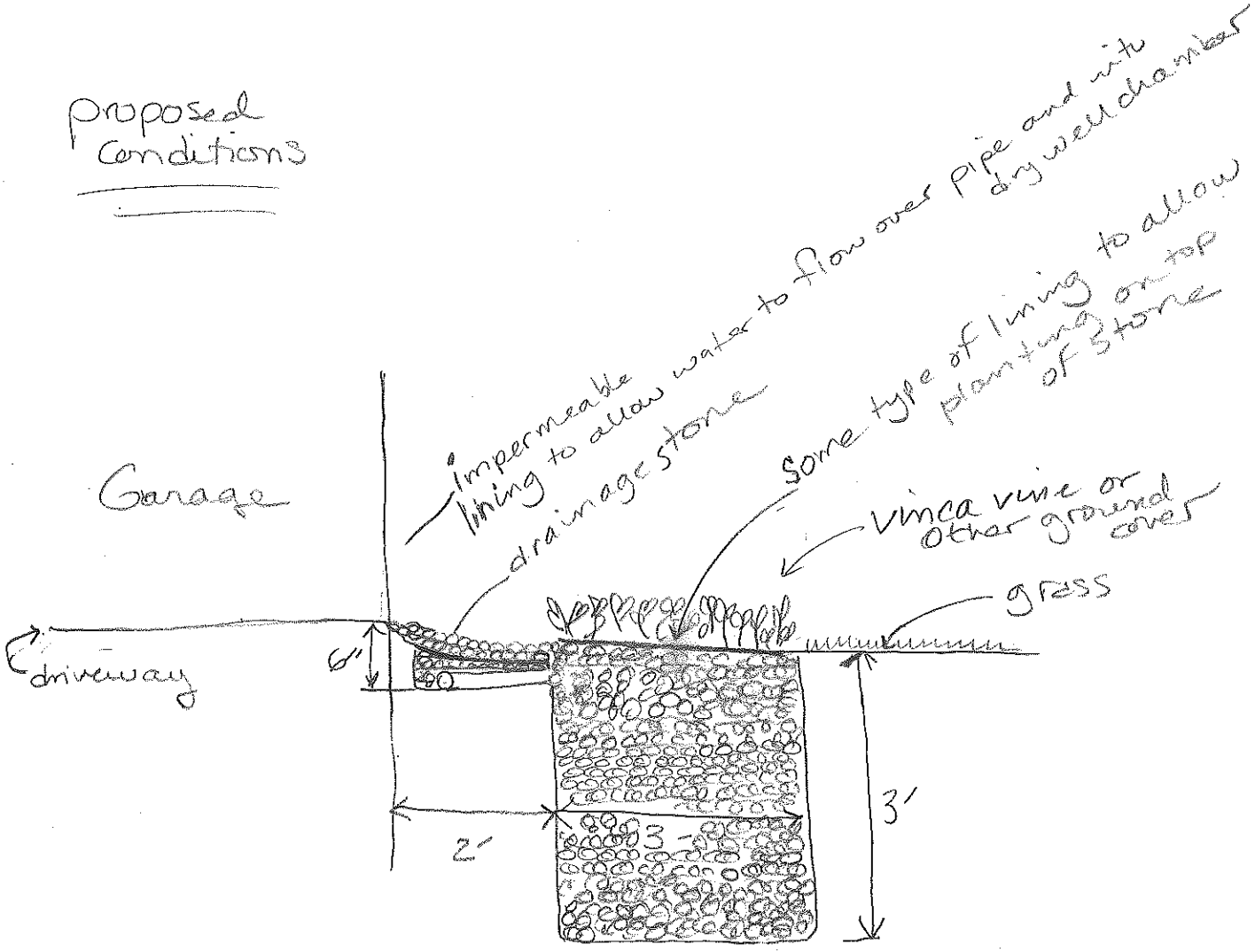
Taft dry well

PROFILE

existing conditions



proposed conditions



Taft Dry Well Design Notes

- Dry well will be 3' by 3' by '. It will be located 2' from driveway. Exact location can be dictated by homeowner.
- Line dry well with geo-textile fabric
- Line top of dry well to allow planting of ground cover – still exploring if this is feasible. See notes in red below.
    - In some cases, dry wells (AKA soakaway pits) are buried. Typically buried pits receive clean water directly from rooftops.
    - I found a set of directions from the Philadelphia Water Dept that says you can cover the top with non-woven geotextile fabric and plant on top of it
- We can angle the bottom of the dry well away from the driveway, if desired.
- Inlet swale
    - Build inlet swale from driveway to dry well
    - Line bottom of inlet swale with impermeable material to allow water to flow toward dry well
    - Install screen or some device to prevent debris from driveway from clogging swale
    - Bottom of swale will be above outlet structure
- Overflow outlet:
    - Attach elbow and extension to existing outlet pipe
    - Attach flared end piece to dry well end of outlet pipe to allow overflow entry
    - Pipe will be located under inlet swale
- Fill in existing structure with drainage rock surrounding outlet pipe

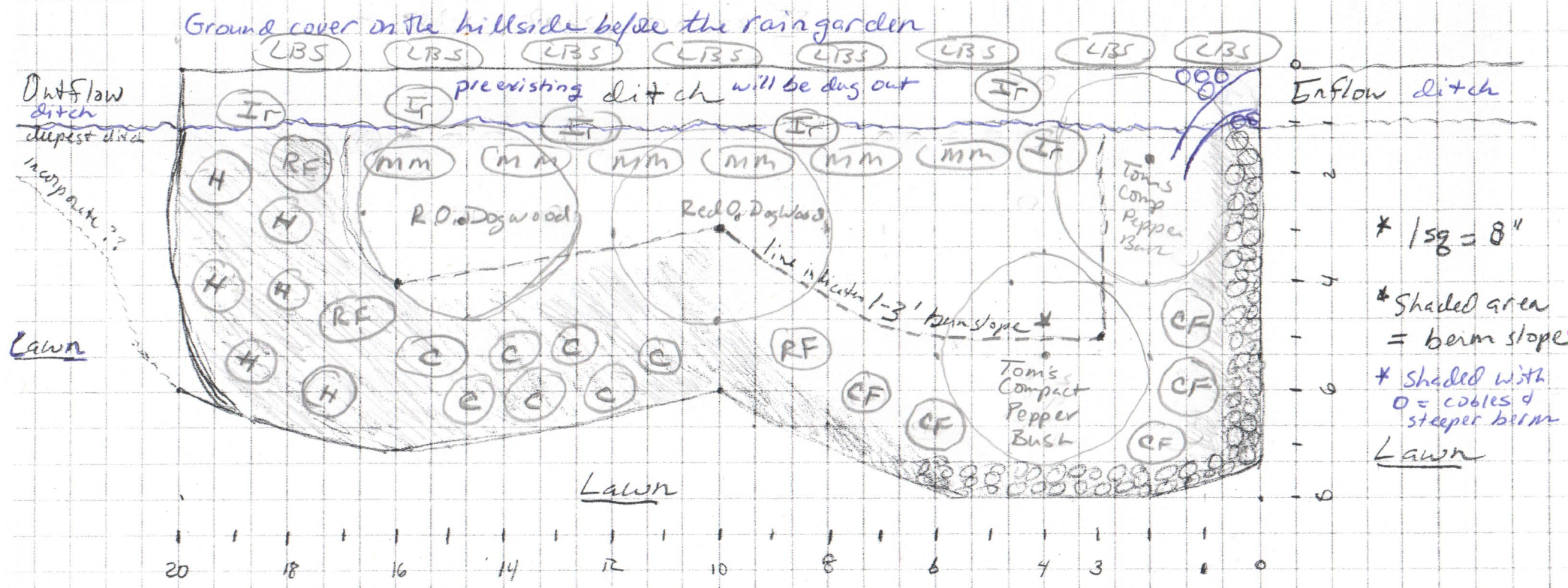
Materials needed

- ¾" drainage stone: 1 cubic yard (to fill in dry well) plus one or two bags (to construct swale and fill in existing structure
- Non-woven geotextile fabric to line dry well
- Drainage pipe: Elbow piece, flared piece, extension
- Vinca vine or other ground cover
- Impermeable lining for swale
- Some type of lining for top of swale
- Small amount of loam for planting ground cover

Taft Rain Garden, Greenland ,
June 25, 2015

Planting Design — Plant List pg 2

Hillside = berm



PLANT LIST

Wet

(2) Tom's Compact Pepper Bush
(7) (Ir) Iris Siberica
(6) (MM) Marsh Marigold
(2) Red Osier Dogwood
(5) (CF) Cardinal Flower

Drier – Dry

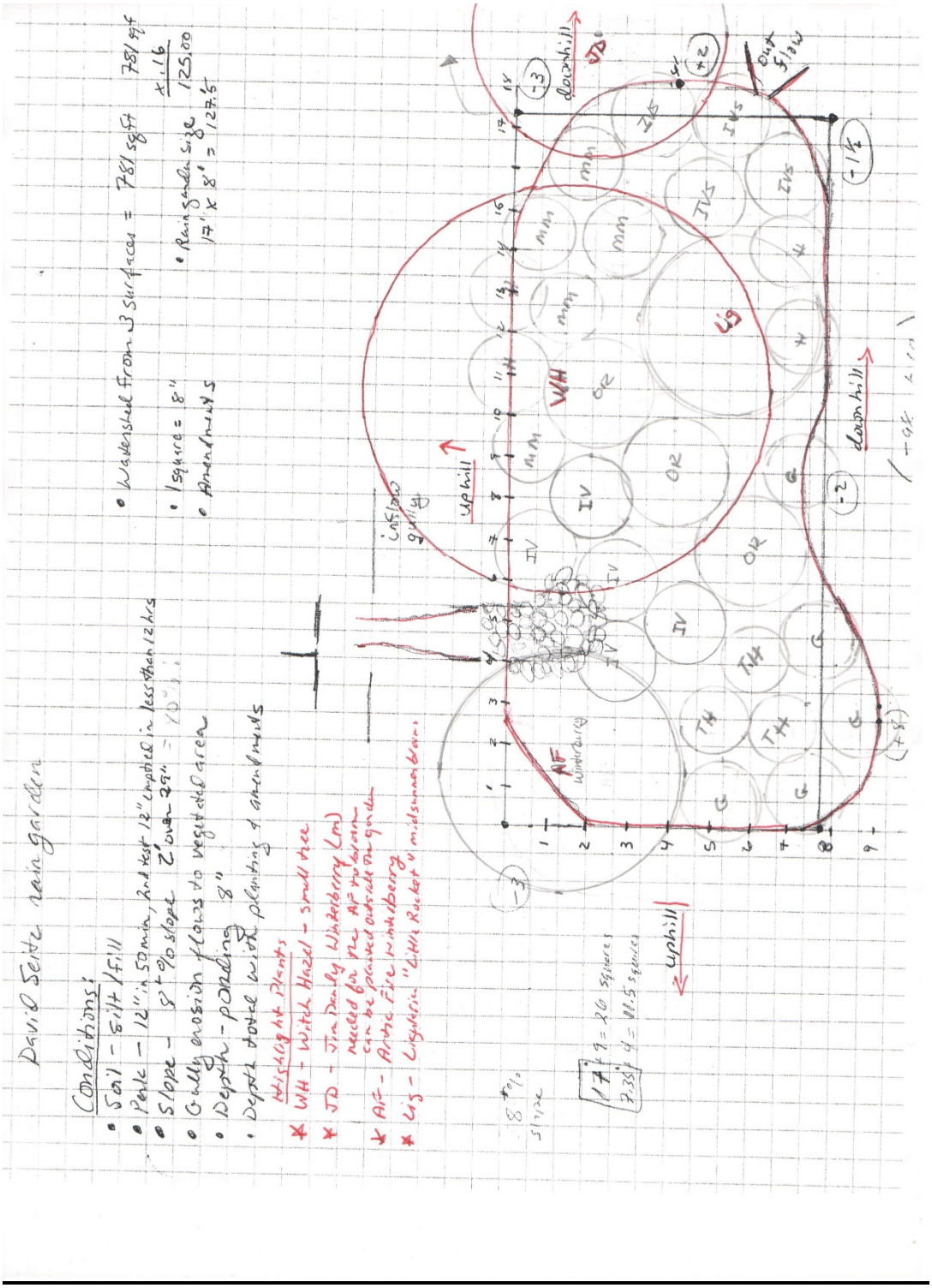
(7) C – Columbine
(6) H – Heuchera
(3) RF – Royal Fern or Sensitive Fern
(8) LBS – Little Blue Stem

Questions

1) Maybe the Outflow side of the rain garden should be softly extended to include the deepest or old part of the ditch? shown as a dashed line

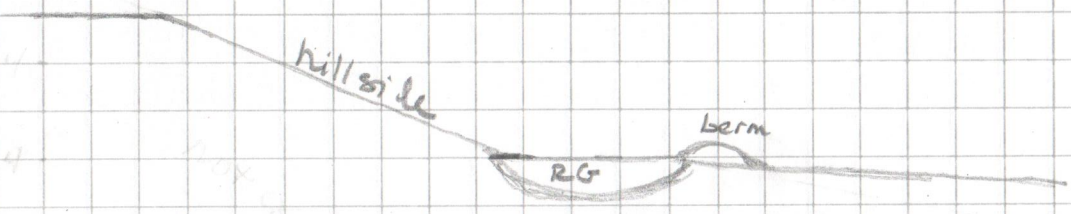
2) Bermslope on outflow 3' slope for 1' depth
pg 47 of NHHO's Guide says on a flat surface a berm is not needed. The slope is so gentle here that I have added a berm only on the outflow side & part of the lawn side.
On the inflow side I have just shaded an area for cobbles. (Slope = < 3% across length of lawn)

Seitz, Rain Garden, Durham,September 21, 2015



David Seitz - rain garden Profile 1 sq = 6"

- soil - silt
- perk - 12" in 50 minutes, 2nd test 12" emptied in less than 12hrs
- slope > 8%

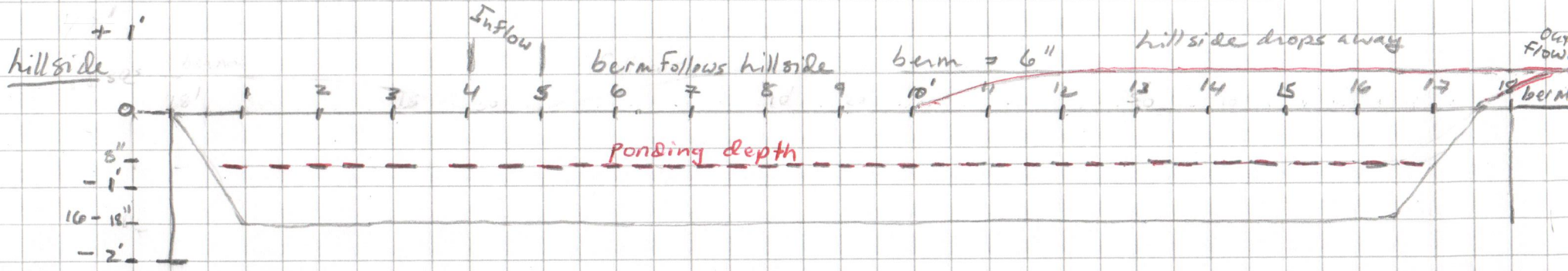


Ground slopes to the rain garden and away from the rain garden

8" inch ponding depth
2" amendments
+ 6" disturbed bottom for plating
16" dig minimum

Berm

On hillside top of the garden follows grade.
On the down side berm up to 6" above grade protects the rain garden - mulch.



David Seitz Rain Garden Design (FOR SHADY)				Size: Watershed 781sq ft x .16 (slope and silt) = 125sq ft			
Key	Number	Scientific name	Common Name	Source	Price	Purchase Size	Total Price
NS	1	Ilex verticillata	Winterberry, Afterglow needs a Jim Dandy	RG	$32.99	3 gal	26.39
	1	Ilex verticillata	Winterberry, Jim Dandy	RG	$24.99	3 gal	$15.00
WH	2	Hamamelis	Witch Hazel	RG	$56.99	3 gal	$45.59
MM	5	Caltha palustris	Marsh Marigold	VB	$5.15	2qt	$25.75
IV	5	Iris versicolor	Blue Flag	VB	$5.15	2qt	$25.75
IVS	4	Iris siberica	Siberian Iris - Ruffled velvet	VB	$5.35	1 gal	$21.40
CF	3	Chelone Glabra	Turtlehead	VB	$6.70	2qt	$20.10
H	5	Heuchera	Autumn Bride	VB	$5.15	2qt	$25.75
RF	3	Osmunda regalis	Royal fern	VB	$5.15	2qt	$15.45
Gm	5	Geranium maculatum	wild geranium	VB	$5.15	2qt	$25.75
		Ligularia	LittleRocket	VB	$8.65	1 gal	$8.65
	1 cu yrd	mulch		RG	$45.00	1	$45.00
	1ft deep x 11ft long	stone	4" round river stone			1/4 yard	
	1 cu yrd	loam and compost mixed (80% and 20%)		RG	$50.00	1	$38.00
	2	bags	small stones	Lowes	$8.00		$20.00
	2		slate pavers	Stratham Stone	4 to 10		$13.00
	delivery fee $30	delivery fee and mixing fee		RG			$32.00
	Soil Test			UNH			$17.00
TOTAL							$420.58
TOTAL to Homeowner							$210.29

Donation from the Seitz's $50

Seitz paid $199.10 because the soil test did not come in until too late to charge them.