

The Best Urban BMP in the Bay Award contest (BUBBA) recognizes the best urban BMPs that have been installed in the Chesapeake Bay watershed.

The goal of the BUBBAs is to:

- 1 Recognize innovators in the field who are using new and creative techniques to treat runoff and protect streams;
- 2 Share these innovative techniques with other communities who could benefit from the lessons learned; and
- 3 Inspire interaction among our 11,000+ member network of stormwater professionals throughout the Bay watershed and beyond.

Narrative

Applicants are required to submit a brief narrative (2 pages, 1,300 words **maximum**).

Your narrative should address:

1. Why the project is being submitted for a specific award category
2. How their project meets one or more of the category design criteria
3. Category specific information requested in Section 6 of the BUBBAs description document.

In addition, contestants will be asked to respond to the following in their narrative:

- Intent of the project and key objectives accomplished
- Major site, design, or construction challenges you had to overcome or why the project is unique
- Any education & outreach or community involvement that occurred as part of the project

Please complete your narrative on the follow pages, limiting it to 1,300 words. You will be able to submit photos via the online form, so please refrain from including photos in your narrative.

Once finished, save this file as a **.doc** or **.docx** with the following file name:
project-narrative.docx

Submit your project at

<http://chesapeakestormwater.net/the-bubbas/2019-bubbas/>

Contest ends April 5, 2019.

Best Residential BMP

Introduction:

The RiverSmart Homes (RSH) program installed a series of best management practices (BMPs) on the Mr. Sean Mitchell's residential property to help him solve the flooding issues he once had in his home. This series of BMP's included the extension of a downspout uphill from the home, a 132 gallon rain barrel which overflow to a 65 square foot rain garden, and a 120 square foot BayScaping installed downhill from the rain garden. Additionally, an oak tree was planted at the lowest point of the BayScaping to provide additional slope stabilization and infiltration.

Project Intent and Key Objectives:

Mr. Mitchell requested a RSH audit in 2016 in an effort to better manage stormwater runoff on his property at 806 Crittenden Street NE, Washington DC. Mr. Mitchell was extremely concerned after he had experienced flooding in his basement on multiple occasions. He even shared a video of the water flowing toward his foundation like a stream.

During the assessment of the property, the RSH auditor immediately noticed severe stormwater issues as the entire backyard was sloped toward the basement foundation. The site had a single downspout draining the entire roof (approximately 512 square feet). All of the surface water from the property and runoff from the roof was flowing towards the foundation of the row home. Additionally, we noticed there was no barrier between his property and an alley, further increasing the volume of water flowing towards his foundation especially during large storms.

Considering the space constraints of the site and that the entire yard sloped towards the house with only a 100 square foot concrete patio nearby the downspout pipe, installing any type of green infrastructure (GI) seemed impossible. Nonetheless, Mr. Mitchell was eager to do whatever it would take to reduce the flow of stormwater toward his home. RSH determined that the best way to manage the site's stormwater was by anchoring the downspout to the wooden fence and extending it at a slight down grade all the way to the top of the backyard. This approach allowed for the installation of a series of staggered BMPs to manage stormwater runoff before it could drain to this basement.

Mr. Mitchell eagerly approved the recommendation of the auditor and worked with the RSH contractors to have his BMPs installed. Bona Terra took the lead on the design and installation of the BMPs. Mr. Mitchell's downspout was safely extended 50 feet along his wooden fence all the way to the highest elevation at the back of his property using the appropriate hardware to reinforce it along the fence line. Once the pipe was in place, the contractors installed the 132 gallon rain barrel, which overflowed to the 65 square rain garden. Bona Terra designed the rain garden slightly larger so it could also treat the stormwater runoff coming from the parking pad and alley uphill. To this end, they installed the rain garden at the very top of the preexisting lawn and place the rain garden's inlet ten inches uphill of the rain barrel. Bona Terra carefully

designed and installed the rain garden's overflow so that the stormwater from the alley and the downspout would exit the garden into the BayScaping (onto deep-tilled native garden beds filled with shrubs, an oak tree planted by Casey Trees, and water loving, native perennials).

It has been 18 months since Mr. Mitchell has installed these series of BMPs in his home and he couldn't be happier with his installation and the program. While RSH does not set out to resolve all customers' flooding issues, Mr. Mitchell has reported that the installations have resolved 100 percent of his flooding issues. On 2019 he sent us an email communicating the following: *"The RiverSmart project has really improved the quality of water filtration in my backyard. Before the installation of the rain barrel and gardens, rain water would collect and flood the basement. Last year the District of Columbia endured the rainiest season on record. Fortunately, I was unaffected by the abundance of rain because of the RiverSmart project"*.

He is very pleased with his experience and recently inquired about the RSH permeable surface program as he'd like to install permeable pavers on his patio and/or parking pad. Mr. Mitchell is a RSH steward who has shared the positive experience he had with the program with his friends and coworkers, who have also signed up for the program.

The total cost of stormwater management design and installation for the series of BMPs was \$4,687.00. However, Mr. Mitchell only paid \$275 as the RSH program covered 94 percent of the project costs through the incentives it provides for the installation of green infrastructure on residential properties.

Project Challenges:

There were a couple of challenges that presented themselves during and after the installation of the project. Both were successfully addressed and are described below:

- a) The main challenge Bona Terra encountered was that the water pressure coming off the rain barrel's overflow was very low; thus, water was not reaching the rain garden's inlet. The issue was resolved by re-installing the rain barrel and moving it slightly uphill. However, this wasn't an easy fix as the downspout extension along the fence didn't leave us with enough clearance to install the 51 inch tall rain barrel. We only had about 54 inches from the ground level to the top of the downspout to place the rain barrel, subsequently; we also had to extend the rain barrel's overflow pipe along the fence at an angle so it'd connect to the rain garden's inlet.
- b) The second challenge came some months after the installation was completed, as Sean noticed that the downspout connection wasn't holding on very well. To address that, he had the aluminum pipe replaced with a PVC pipe, which is much lighter and has been performing well ever since. These lessons learned will serve the RSH program, and customers, well going forward.