

Some BMPs and How They Work

Catasauqua Borough MS4 Public Education Series

What are BMPs?

BMP stands for Best Management Practice and is the all encompassing term Engineers use to describe various methods meant to manage, control, and treat stormwater runoff on active construction sites, land development projects, utility yards, and even a residential property. There are many types, but basins and rain gardens are common surface level practices. Basins and Rain Gardens can be present on private and public property, and all of them require maintenance to ensure they continue to function properly and help to manage and treat stormwater while protecting local waterways. Some BMPs can often look very similar to the untrained eye but it is important to know which kind of BMP you may be responsible for maintaining so that you can be aware of the signs that something is wrong and enlist the help of an Engineer to help you determine an appropriate Operations and Maintenance (O&M) Plan.

This article will discuss how to distinguish between a rain garden (Bioretention Facility), a water quality basin (Wet Retention Ponds), and a flood control basin (Dry Detention Basin).

What is a Rain Garden?

Rain Gardens can vary in size depending on their application, but can sometimes be nothing more than a small depression that is planted with native shrubs, perennials, and flowers in a specific order meant to create ample storage for runoff and to treat it in the process. Rain Gardens can be a cost effective measure with minimal maintenance to handle residential runoff from gutters and downspouts as well as larger sites. The key to a successful Rain Garden is the initial planting and ensuring that native plants to your local area have been chosen so that they will thrive. Most landscape nurseries can provide this information as well as the appropriate planting time frames for successful growth.

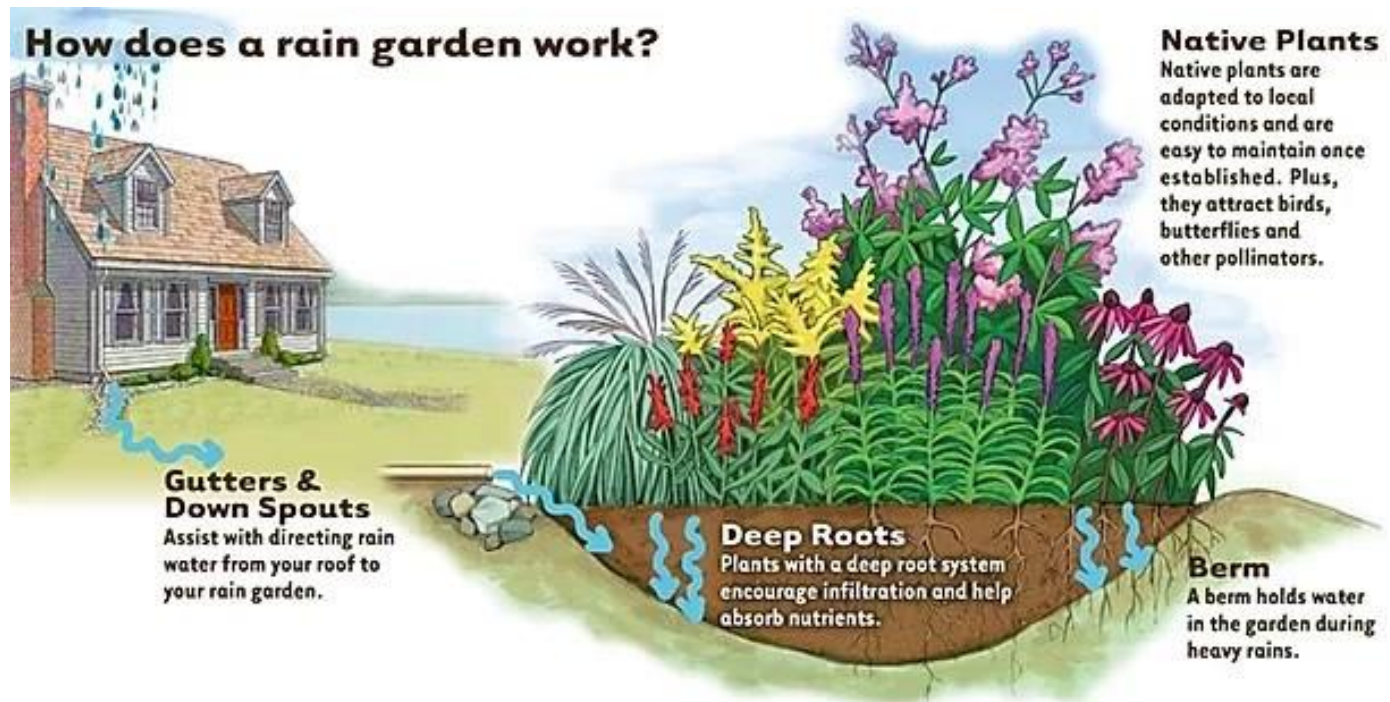


Image Credit: <https://www.mywatersheds.org/rain-garden-101>

What is a Water Quality Basin?

Water quality basins are Wet Retention Ponds, sometimes just called a wet pond, a wet detention basin (which is misleading) or a stormwater management pond. The key component to these types of basins is that it is an artificial pond that is meant to have a permanent pool of water and there is typically vegetation around the perimeter. All basins have a component called an “orifice” which is indeed an opening, that controls the rate at which water can flow out of the basin. For Wet Retention Ponds, the orifice is attached to a riser that is some predetermined height above the bottom of the basin to maintain a desired water level. These types of structures are known as water quality basins because through retaining water, and a higher orifice, sediment is allowed to settle along the bottom of the basin, and other pollutants such as oils and surfactants can float to the top. This results in cleaner water discharging from the pond and being allowed to enter into the local hydrology system and often directly into a local waterway.

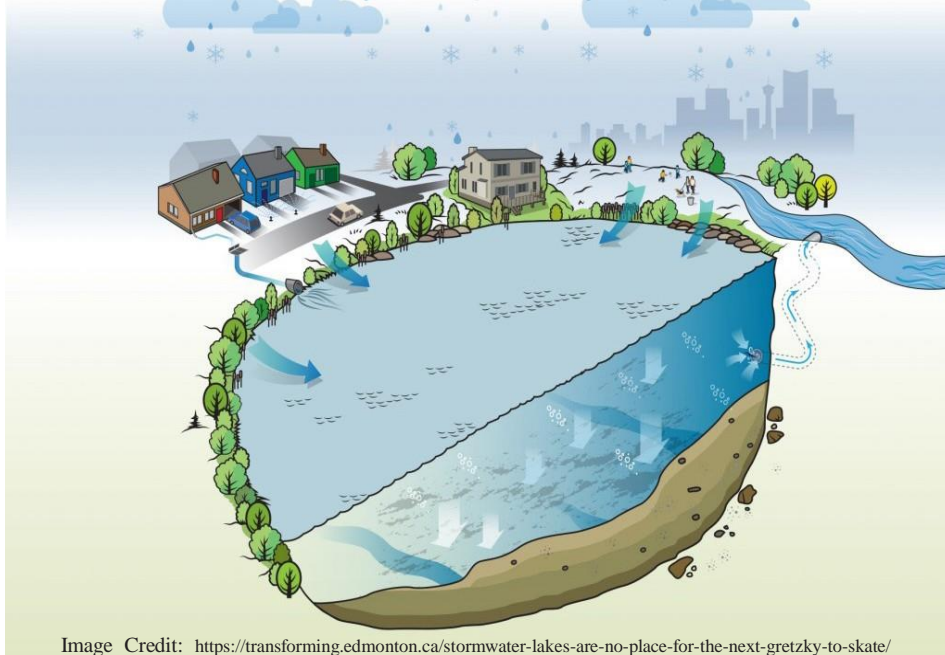


Image Credit: <https://transforming.edmonton.ca/stormwater-lakes-are-no-place-for-the-next-gretzky-to-skate/>

What is a Flood Control Basin?

Flood Control Basins are Dry Detention Basins, also known as retarding basins, holding ponds, or dry ponds. They are often installed along or adjacent to tributaries of rivers, streams, lakes or bays to protect against flooding by allowing temporary storage of water during storm events. This type of basin is predominantly meant to deal with excess volumes of stormwater and unless they have a permanent pool feature, they do not typically provide much for water quality. Similar to Wet Retention Ponds, Dry Detention Basins have an orifice, but it is located at the bottom of the basin so that it can eventually drain out completely. Dry Detention Basins should be completely drained with 72 hours otherwise, standing water without proper perimeter control is a drowning hazard and can lead to mosquito infestation. As with all stormwater features, any water that does not naturally infiltrate through the ground will make its way to local waterway.

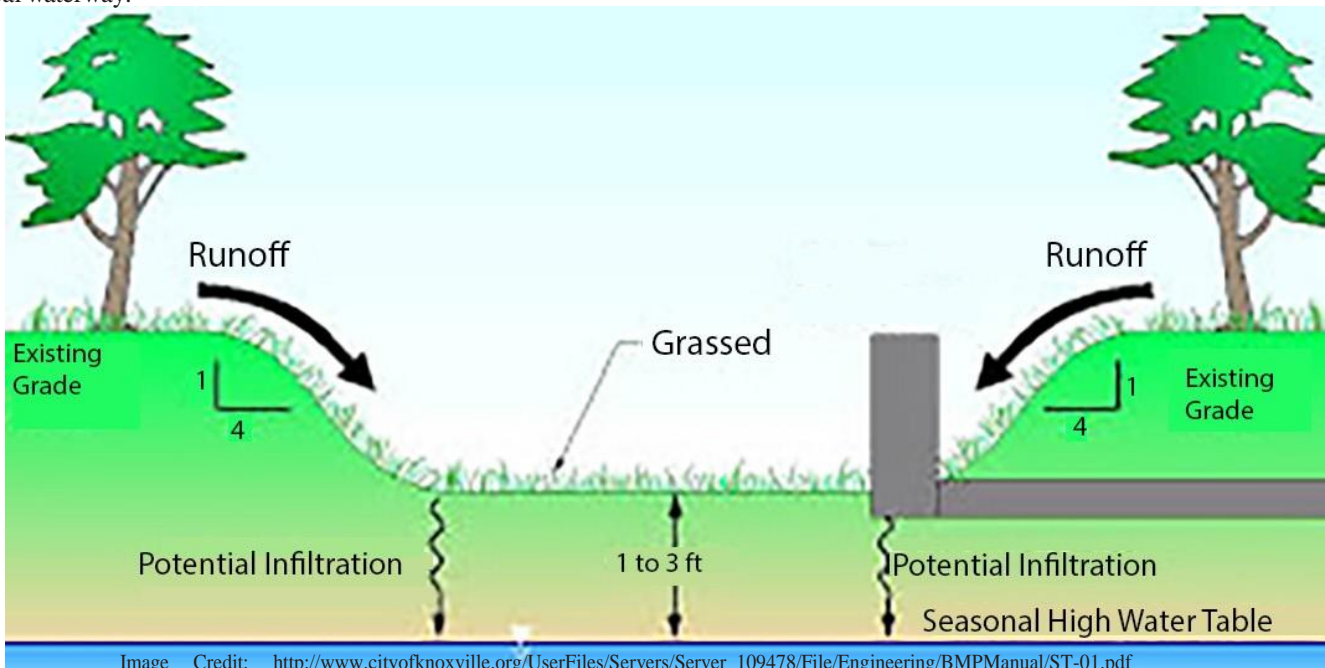


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