

From: [Cena Marino](#)
To: [Planning Clerk](#)
Cc: [Cena Marino](#)
Subject: Holgersen subdivision
Date: Thursday, May 12, 2022 1:31:45 PM

Caution: This email was sent from an EXTERNAL source. Please take care when clicking links or opening attachments.

Application#15039

Attention John Ford, et al <https://stocktonstormwater.weebly.com/retention--detention-basins.html>

From Cena Marino
Sent from my iPhone

Retention and Detention Basins

Page by Vincent Morano

Retention Basin

Detention Basin



POWERED BY

≡ STORMWATER



[Home](#)

[Stormwater at Stockton](#)

[Authors/Contact](#)

[Resources](#)

Stormwater basins are large depressions that are meant to collect water. These basins are often built to control stormwater runoff and prevent it from overwhelming the sewer system. By having the water pool in a basin we can prevent flooding and erosion because the water will enter the ground at a steady rate.

There are two types of stormwater basin. These are retention and detention basins.

Retention basins are low lying areas that are designed to hold a permanent level of water that varies according to the amount of precipitation and runoff it receives. You could think of a retention basin as a man-made pond.

Detention basins are low lying areas that are designed to temporarily hold a set amount of water for a set amount of time. (Saint Charles Missouri, 2020)

While they are broadly similar, the major difference between retention and detention basins is that retention basins are designed to hold water on a permanent basis while detention basins are intended to hold water on a temporary basis. (Burton, 2020) A detention basins is built with an inlet and an outlet for water, while a retention basin only has an inlet. This is the primary difference between the two. Put simply, a retention basin is more like a pond and a detention basin is more like a large ditch. Regardless, both types of stormwater basin allow for intelligent and natural stormwater management and natural water quality filtering.

POWERED BY

≡ STORMWATER

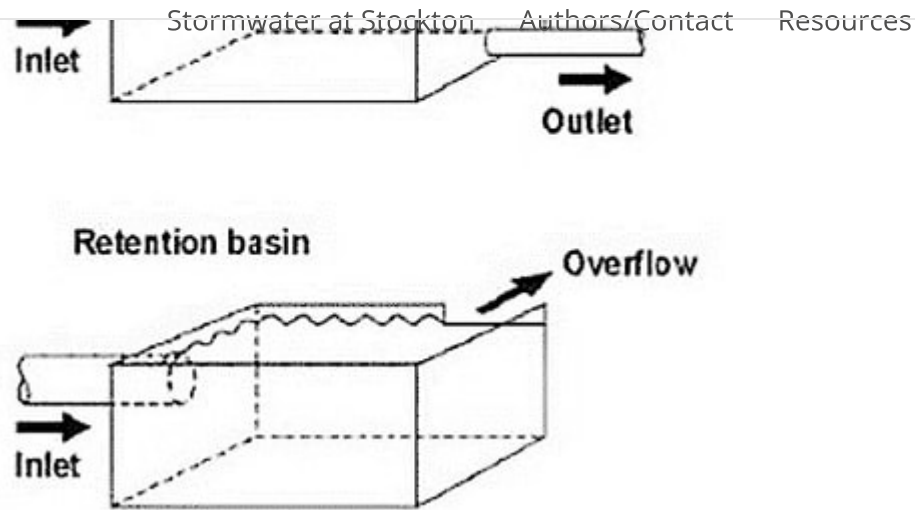


Figure 3: A simple diagram showing how detention and retention basins work. (SSWM, 2020)

How they work

Stormwater basins are able to control flooding by providing a place for water to runoff to and pool. Rather than flow down sidewalks and flood lawns and buildings, the water is directed to a depressional area that can help contain much of the rainfall. These are vital for preventing flooding and controlling stormwater. They are similar to swales and bioswales, but on a much larger scale. They can also be planted with vegetation to help improve water filtering, reduce runoff, and provide an attractive setting. A combination of stormwater basins and stormwater swales can provide a natural, attractive, and effective way to reduce and control flooding from stormwater.

Implementation

Retention basins need to be put in an area with wide open space due to their size and ability to store varying amounts of water. While relatively simple to create, a large

e moved and pipes connecting storm drains to the

POWERED BY

≡ STORMWATER



Stormwater at Stockton Authors/Contact Resources

Because they alternate between wet and dry conditions, any plants in or around the basin should be able to adapt to these changing conditions. Detention basins are typically more shallow than retention basins, meaning that they only need a small slope to divert water and require less effort to build.

While not specifically required by law, retention and detention basins are generally added to large residential or commercial projects so that they come into compliance with existing stormwater management legislation. (NJ DEP, 2019) Developers add them to their projects so that they can comply with federal and state regulations pertaining to stormwater pollution and management. The Environmental Protection Agency's SWPPP requirements and the state of New Jersey's stormwater management rules (N.J. A.C. 7:8) are examples of this. To learn more about the rules that New Jersey has in place, you can go to https://www.nj.gov/dep/stormwater/sw_rule_faqs.htm

Example

Stockton actually has a fantastic example of a detention basin on campus! It can be found in front of the Arts and Science Center, on the side of the parking lot. It's dry the vast majority of the time, but it helps the campus handle large rain events and avoid flooding. A number of trees were also planted inside of it to help reduce erosion and suck up stormwater.

POWERED BY

≡ STORMWATER



Stormwater at Stockton Authors/Contact Resources



Figure 4: Stockton University's detention basin, located by the Arts and Science Building. Helps to prevent flooding from Lake Fred and runoff water from nearby parking lots. (Vincent Morano, 2020)

References

Leber, B. (2015) Stormwater Basins: How Detention and Retention Ponds Work. Wessler Engineering.

Retrieved from <https://info.wesslerengineering.com/blog/stormwater-basins-detention-retention-ponds>

Burton, E. Understanding Stormwater Ponds: Wet Ponds, Dry Ponds and Stormwater Pond Retrofits. fairfaxcounty.gov

Retrieved from <https://www.fairfaxcounty.gov/soil-water->

POWERED BY

[ng-stormwater-ponds](#)

≡ STORMWATER



Stormwater at Stockton Authors/Contact Resources

from <https://www.stcharlescitemo.gov/DocumentCenter/View/3143/Detention-and-Retention-Basins-PDF>

NJ DEP. (2019) Stormwater Basins.

Retrieved from <https://www.nj.gov/dep/landuse/activity/basin.html>

NJ DEP. (2018) Stormwater Management Rule.

Retrieved from https://www.nj.gov/dep/stormwater/sw_rule_faqs.htm

Image Sources

Fairfaxcounty. (2020) Tree Planting and Detention Ponds.

Retrieved from <https://www.fairfaxcounty.gov/publicworks/stormwater/tree-planting-and-detention-ponds>

SSWM. (2020) Retention vs. Detention Basins.

Retrieved from <https://sswm.info/water-nutrient-cycle/wastewater-treatment/hardwares/semi-centralised-wastewater-treatments/retention-basin>

Vincent Morano. (2020)