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# INSTALLATION OF RAIN GARDENS IN THE ALGER HEIGHTS COMMUNITY

WESLEY DYKSTRA, DENA DE KRYGER, MIKE RYSKAMP & DR. DAVE WARNERS | PLASTER CREEK STEWARDS, CALVIN COLLEGE 2015

## Water Can Be Too Much of a Good Thing!

Plaster Creek runs from Caledonia to the Grand River in a watershed covering nearly 58 square miles of farmland, suburban, and urban landscapes. One of the biggest challenges that we face in Plaster Creek is excess rainwater during storms. The rainwater from roads can be polluted chemically and thermally, and carry suspended solids and trash into the creek. In attempt to decrease the amount of rainwater that reaches the creek via unnatural infrastructure, we have installed rain gardens to catch the water closer to where it falls and retain it in the gardens. This also decreases the stress on the stream during rain events. We have chosen to install these gardens in the Alger Heights neighborhood of Grand Rapids, Michigan, because of the absorptive loamy sand, proximity to Plaster Creek, and resident awareness of Plaster Creek restoration efforts.

## Curb Cut Rain Gardens

In urban settings, impervious surfaces such as streets, parking lots, and buildings dominate the landscape. The ground here absorbs less water; instead, the infrastructure diverts rainwater to the street, through a network of pipes, and directly into the stream. Rain gardens utilize rainwater and provide a much needed barrier for the creek by collecting pollutants, suspended solids, trash, and excess water. In addition, rain gardens recharge the water table, increase transpiration ability of native plants, and provide a habitat for local wildlife. Our rain gardens are also quite aesthetically pleasing! Each rain garden is planted with native plants grown in the Plaster Creek Stewards greenhouse and will have a cut in the curb to allow the influx of rainwater from the street. We work with residents who are receptive to our restoration efforts and encourage the rain garden installation process. In a few years time, rain garden flora will be self sustaining just as it would be in the wild!



## The Process



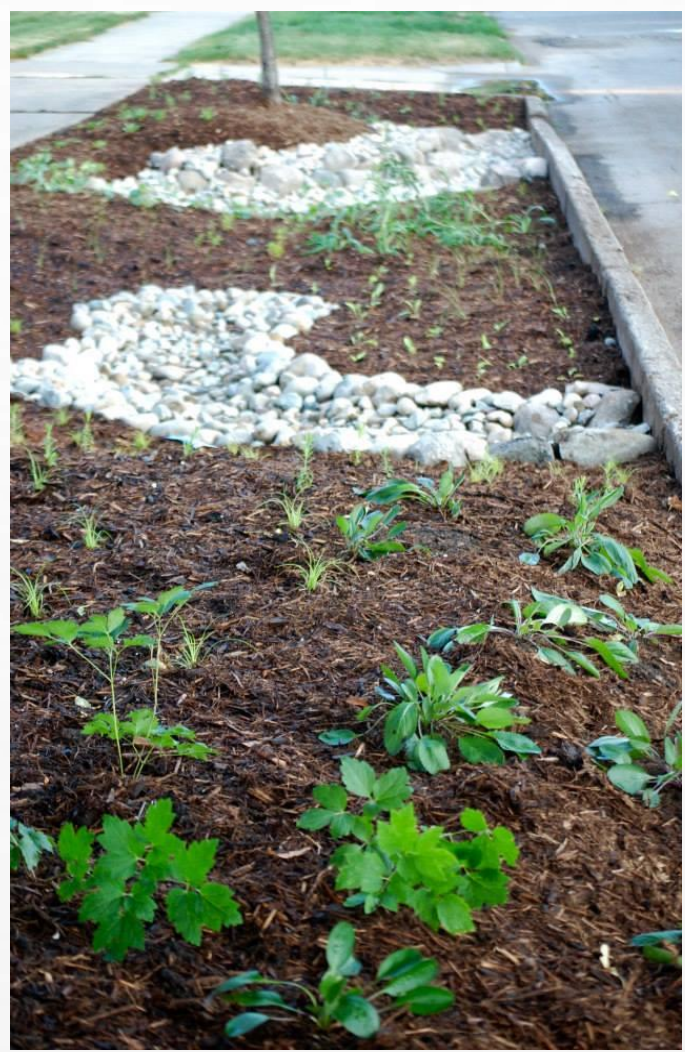
Original grassy parkway.



A community effort to remove sod.



Excavation stage.



Young garden.



Mature garden.

## Objectives

- Better storm water management
- Creation of native habitats for wildlife
- Increased awareness within the Grand Rapids community about restoration efforts in Plaster Creek

## Of Flora and Fauna

The plants used in the rain gardens are all native to the Grand Rapids area and carefully chosen to fit the microhabitats. These specific planting plans ensure optimal survivorship. For example, we commonly use *Iris virginica* in wet areas while we plant *Asclepias tuberosa* drier locations. We collect seeds from throughout the Grand Rapids area and grow the plants in our greenhouse.



Rain gardens attract native wildlife. The plants selected for the rain gardens encourage insect and pollinator population growth. With increased insect populations, native birds have a hot spot in which to feed.



A team of local high school and college students work together to transplant seedlings into plug flats.



## Features of a Rain Garden

4-6 inch rocks form a dry creek and first line of defense: slowing down the water and collecting sediment, seeds, and other debris.



Native plants grown in our greenhouse cover the banks and are bedded with bark mulch.

Banks are graded at no more than 30%.

A cut in the curb diverts storm water from the street into the rain garden.

Large rocks on permeable underlay prevent erosion on the steeper slopes.

## It Takes a Village...

While the health of Plaster Creek has a large impact on its community, the inverse is also true: the community plays a large role in the health of the creek. Neglect and urbanization have caused the high contaminant levels, erosion, and flooding. The rain garden installation process provides many opportunities for interaction with the community. A very rewarding experience arose when we worked along side local high school students who live in the Plaster Creek Watershed. This was an education opportunity for all involved. In addition, Plaster Creek Stewards recently set up a booth at an event in Alger Heights. This outreach effort garnered a lot of positive attention from residents; many expressed their support by signing up for a rain garden or volunteering. During the preparation and installation processes, we connected with neighbors and passersby. Many residents had insightful questions, thanked us for our work, or asked to put their names on the list for the next round of installation. This was quite encouraging as it takes the efforts of many to make a positive impact of Plaster Creek.

## Acknowledgements

Plaster Creek Watershed Management Plan

Mike Ryskamp- Program Coordinator, Plaster Creek Stewards

Dr. Dave Warners

