



# Beneficial Bioswale

## The Giants Among Us

If you visit the bioswale between June and September you'll notice that one plant here stands taller than all the rest. This giant is the cup plant and it can grow over 8 feet tall! The cup plant's bright yellow blooms, with their pollen, nectar, and seeds, attract all sorts of birds and insects. Take a close look at the stem, where the leaves connect. Notice how they form a funnel shape? The cup plant can collect and hold water here which also attracts important pollinators like bees and butterflies.



The cup plant provides a feast for birds, pollinators, and nectar loving insects.



Cup plants bloom for about 4-6 weeks during the hot summer months.

## Bio-What?

A bioswale removes pollutants from stormwater runoff. Each time it rains, excess rainwater runs across many surfaces as it travels toward a city storm drain. This rainwater can pick up a lot of pollutants, like oil, fertilizer, or pesticides, especially as it travels over rooftops and parking lots. Typically, these pollutants are carried into nearby bodies of water such as streams and rivers; that can be really hard on the wildlife living there. Bioswales can be used to capture and filter stormwater to remove pollutants and recharge the water by allowing percolation through the soil.

## How does it work?

Bioswales use plants, original and engineered soil, and permeable materials like gravel or sand to remove pollutants. As rainwater flows through the bioswale it infiltrates the various layers which trap and remove heavy metals, nitrogen, phosphorus, and other pollutants. The deep and extensive roots of native plants work hard to absorb excess water to minimize runoff. Plant roots and tiny microbes in the soil can also capture and store pollutants through a process called phytoremediation which further reduces the amount of pollutants entering local waterways.

In spring, before all the plants grow tall and hide its inner workings, you can see the bioswale's bowl shape and the slight inward slope of the green space adjacent to the bioswale. These are both crucial aspects of bioswale construction. The inward slope helps direct the stormwater from the building and parking lot while the bowl shape helps contain the stormwater runoff so that the bioswale has time to do its important job.



The slope of the area around the bioswale directs stormwater away from the building and parking lot, through the central green space, and towards the bowl of the bioswale.



Bumble bee on wild bergamot.



Monarch caterpillar on milkweed.



Sweat bee on black-eyed Susan.

## Important Native Plants

Bioswales work best when they are filled with lots of native, moisture-loving plant species. The native plants in Willowwind's bioswale are specially adapted to Iowa's climate and need very little maintenance. These native plants have incredible root systems which allow for increased infiltration of rainwater into the ground. They also provide a wonderful habitat for small animals and insects. In the summer, our bioswale is teeming with a wide variety of happy pollinators like butterflies, bees, dragonflies, and other insects.

## How many of these native plants do you see in the bioswale?



Wild Bergamot



St. John's Wort



Spiderwort



Butterfly Weed



Cup Plant



Common Milkweed



Black-eyed Susan



Common Bur Sedge



Aster