



# Nature-Based Solutions

## Stormwater Treatment System

At the Garden, we use nature to take care of nature. Our award-winning stormwater treatment system mimics how water moved across the landscape before development. As stormwater travels through our system, land-based contaminants are removed through soil filtration, plant absorption, evaporation, and other natural processes. Our stormwater system eventually connects to our natural areas, where countless plant and animal species depend on the clean water to thrive.



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### 2. Rain Garden

Serving as both aesthetic showpiece and natural purification system, plants in the Rain Garden take in additional water and store excess nutrients like phosphorous and nitrogen.



### 1. Bioswales in Parking Lot

Thick with native vegetation, swales catch the water flowing off the parking lot and holds it. Some water will filter into the ground, some will be absorbed by plants, and the rest will drain into the Rain Garden.



### 3. Harvey's Lake

Water that hasn't been absorbed by the bioswales or Rain Garden moves into this lake, which also serves as the Garden's irrigation source. Aerators keep the lake oxygenated to prevent harmful algal blooms.



### 4. Smith River of Grass

If Harvey's Lake reaches a certain depth, excess water drains into the Smith River of Grass, our mini-Everglades, where dense vegetation continues to purify it.



### 5. Lakes

The Smith River of Grass discharges into three sizable lakes surrounded by brackish marsh. By this point, natural processes have removed many of the toxins water may have picked up on land. The lakes then feed our natural areas. Eventually, water moves into the Gulf of Mexico.



# Let Nature take care of Nature!



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The Garden's Stormwater Treatment System uses a series of treatment areas modeled after natural ecosystems. We designed bioswales and a rain garden in the parking lot and planted them with a diverse array of native shrubs, trees and grasses. Water filters into the ground, where soil purifies it, and plant roots absorb it, trapping harmful nitrogen, phosphorus, and other pollutants. Our lakeshores feature similar plant matter, creating a botanical buffer to protect the water from potential pollutants. Likewise, our River of Grass slows the water—the way nature had intended—rather than rush it to the nearest holding pond, untreated.

## Did you know?

- Collier County's existing trees, including those in our protected lands, intercept 63 billion gallons of water each year, avoiding nearly 303 million gallons of runoff. (i-Tree)
- At Freedom Park in Naples, 48 percent of total nitrogen and 80 percent of total phosphorus is removed from stormwater inflow through a manmade wetland that replicates natural processes. (Johnson Engineering)
- Florida's aquifers provide approximately 90 percent of the state's drinking water, some 8 billion gallons of water per day. Rainfall is the primary means of recharging them; by allowing rain to percolate into the ground through mechanisms like bioswales and rain gardens, we can help replenish this critical water supply. (South Florida Water Management District)
- The Big Cypress Watershed receives an average of 55 inches of rain each year. Eventually, much of this stormwater will make its way into the Gulf of Mexico, by flowing over land, moving through underground networks, or draining through manmade canals and other engineered systems. We can naturally reduce land-based contaminants infiltrating the Gulf by installing native plants in bioswales, rain gardens, and along stormwater pond shorelines.

## How you can help:

- Work with your HOA to manage community stormwater ponds in eco-friendly ways. This means reducing reliance on herbicides, ensuring fertilizer-free buffer zones, and planting native vegetation along the shorelines.
- Follow local fertilizer ordinances.
- Remove turf grass when possible and replace with subtropical plants that require less fertilizer and water.
- Encourage elected officials to require bioswales, rain gardens, increased green space, and better stormwater pond management in commercial developments.
- Use porous surfaces like wood, brick, and gravel for decks and walkways so that rain can seep into the ground rather than flow down the drain.
- Don't let runoff from washing your car, rinsing your paint brushes, or disposing other hazardous materials get into the ground. Remember, that water eventually makes its way to the Gulf!