

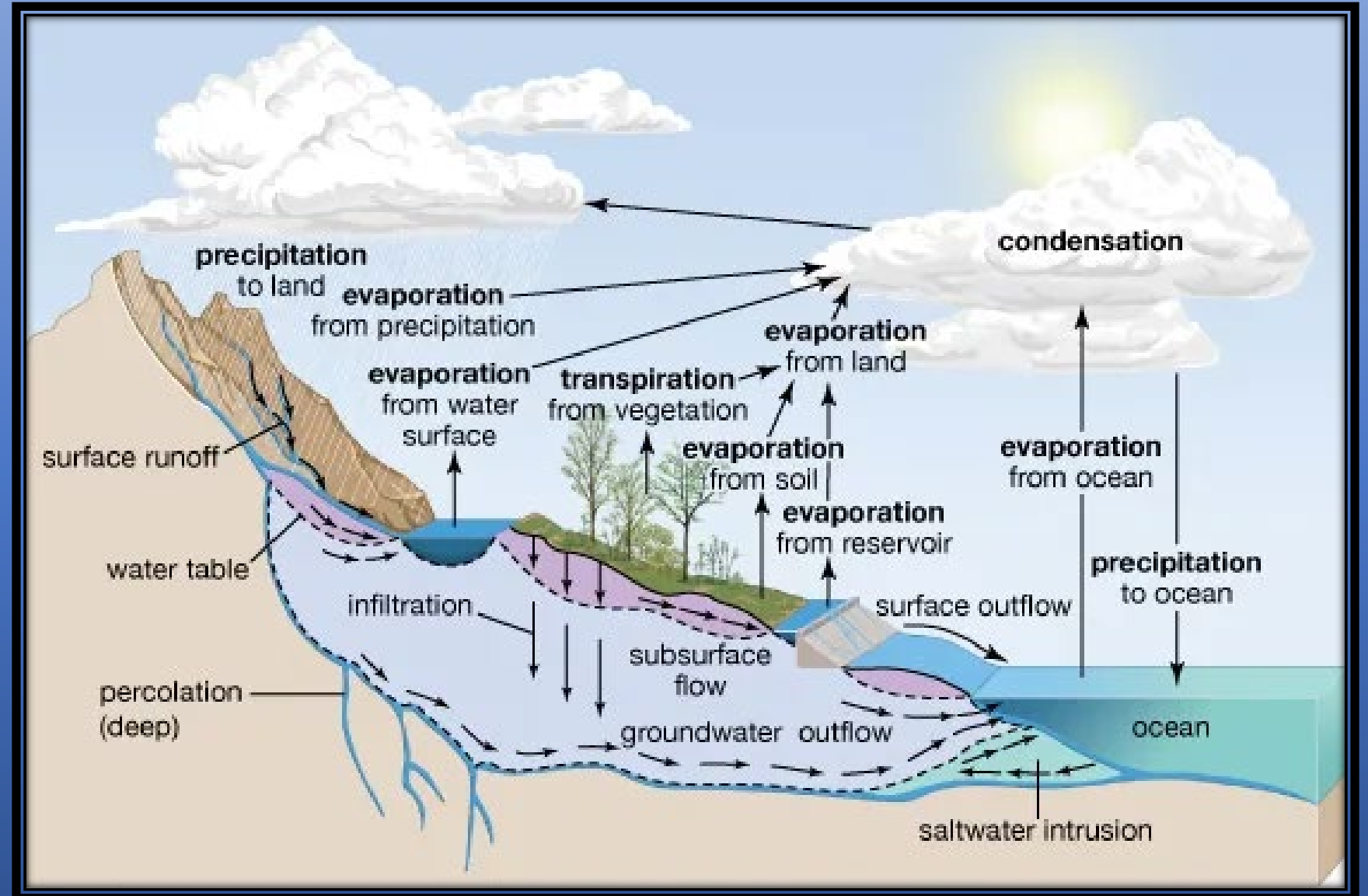


Stormwater and the Environment

Hillsborough County Public Utilities
Sustainable Water Resources

Kings Point, Sun City Center
January 25, 2023

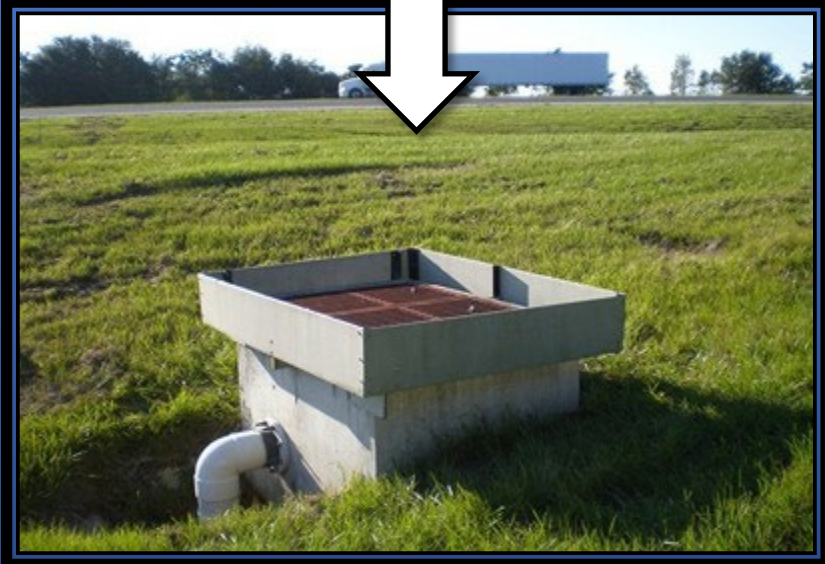
The Hydrologic Cycle



A lush garden scene featuring a wooden deck with two dark brown wooden chairs and a matching table. In the background, a pond is surrounded by various plants, including tall purple flowers and green foliage. The text "Stormwater Management" is overlaid in white on the image.

Stormwater Management

What is stormwater?





Stormwater Systems

A stormwater system is a tool for managing the runoff from rainfall. When rainwater lands on rooftops, parking lots, streets, driveways and other surfaces that water cannot go through, the runoff flows into grates, swales or ditches located around your neighborhood. These systems send the water into your stormwater pond.

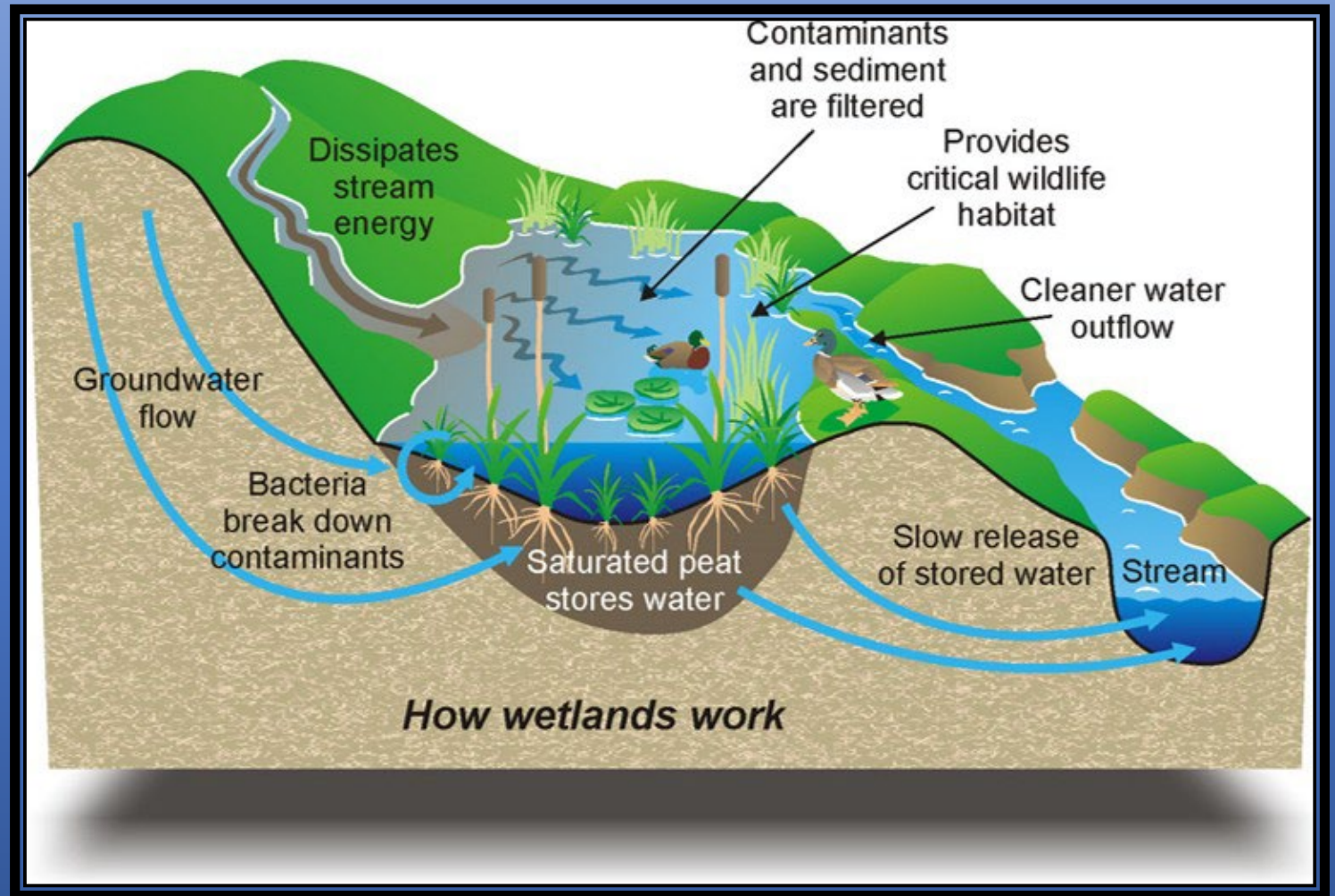
A stormwater pond is specifically designed to help prevent flooding and remove pollutants from the water before it can drain into the ground water – a primary main source of drinking water – or into streams, rivers, lakes, wetlands, estuaries or the gulf. Your stormwater pond might be located in your backyard, down the street or on nearby property.

Benefits of Stormwater Systems

Control Flooding - They do this by soaking up and retaining excess water. They also slow down water flow giving floodwaters more time to recede.

Habitat - Serve as habitat for a variety of plants and animals. Including endangered species which may depend on wetlands for survival.

Mitigate Pollutants - Wetlands slow down the flow of water and absorb pollutants, storing them, breaking them down and in some cases even using them as nutrients.



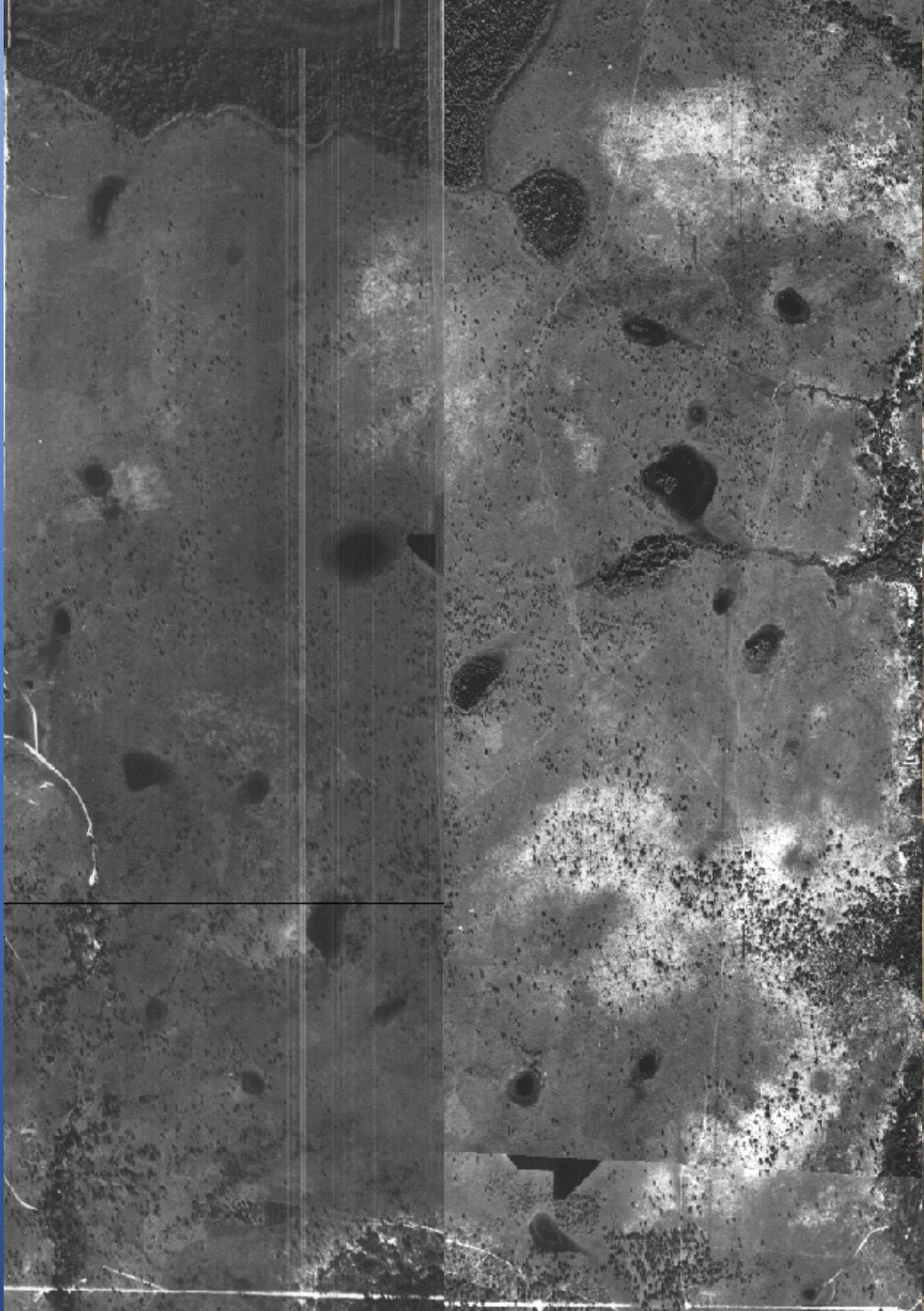
A lush garden scene featuring a small pond with lily pads and various plants, including tall purple flowers and green foliage. In the foreground, two dark brown wooden chairs and a matching table are arranged on a wooden deck. The text "Stormwater Pollutants" is overlaid in white on the pond area.

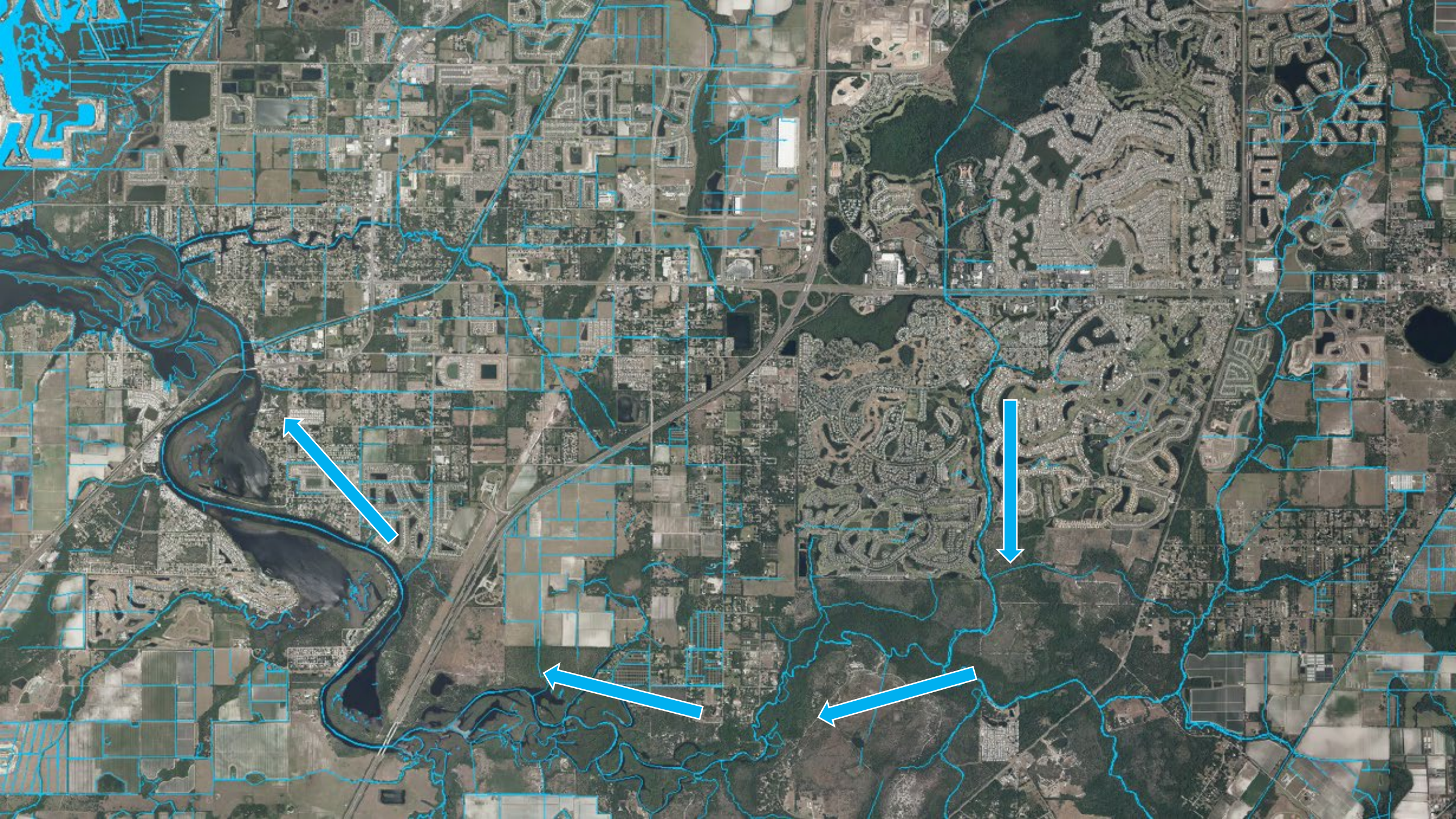
Stormwater Pollutants

13

BQF







Common Pollutants

Fertilizers

Auto fluids

Herbicides

Pesticides

Litter and
debris

Pet waste

Heavy
metals

Sediment

Fertilizer

Rain and lawn watering can wash excess fertilizer into water bodies where excess nutrients cause algal blooms and undesirable weed growth.

Actions

Assess fertilizer use and application rates. Avoid overuse of fertilizers, especially near the water's edge.

Conduct soil tests to help determine what soils need for fertilizer.

Sweep any fertilizer off of driveways, walkways, and streets.

Wait until grass is actively growing to apply fertilizer. Fertilizer applied when grass is not growing wastes your money and time and can contaminate your water.

Plant more Florida-Friendly landscaping that doesn't require fertilization.

Herbicide & Pesticide

Herbicides not labeled for aquatic use may harm fish and other aquatic life, and their application to aquatic sites is prohibited by state and federal law. Pesticides not used appropriately may kill or harm “non-pests.”

Actions

Plant pest and drought resistant flowers and plants.

Minimize use of pesticides and herbicides. Apply per label instructions and follow any local ordinances. Consult a professional.

Hire a professional that follows industry best management practices.

Pet Waste

Pet waste is an environmental pollutant that contains parasites and bacteria like E. coli, salmonella and giardia that are harmful to humans, other pets, wildlife, and aquatic plant life. Nutrients and bacteria from pet wastes can cause algae blooms and excessive growth of aquatic weeds.

Actions

Dispose of pet waste in the trash. Pick up pet waste before a storm or rain event.

Install pet waste stations at parks or other community areas for easy disposal.

Yard Waste

Lawn clippings and other yard waste can increase nutrients and oxygen demand in the water, which can significantly harm fish populations.

Actions

Use lawn clippings for mulch or compost.

Raise community awareness about dumping lawn debris down storm drains.

“Adopt-a-Drain” – Homeowners “adopt” drains near their home to keep them free of debris.

Install storm drain markers as a group and distribute informational door hangers.

Auto Fluids

Leaking fluids like motor oil, debris from tire and brake pad wear, particles from exhaust and other contaminants end up on our roads where they are washed into storm drains that lead directly to our waterways.

Actions

Keep vehicles in good operating condition. Check for drips and repair leaks immediately to keep nuisance oils off pavement.

Recycle used motor oil and other fluids at designated facilities for proper disposal.

Wash your car at a commercial car wash or on a surface that absorbs water, such as grass or gravel. Wash your vehicles, bicycles and home equipment on the lawn, where soapy water can't quickly run toward the nearest storm drain, picking up other pollutants as it goes.

Sediment

Sediment from soil erosion can increase temperature and reduce light available for photosynthesis. Suspended sediments can also clog fish gills. Settles sediment may reduce the capacity of a stormwater pond, which increases the potential for flooding.

Actions

Stabilize the banks of ponds with vegetation. Grass and vegetation help to prevent erosion.

Avoid mowing within 10 feet of the pond. This will create a safe buffer zone that will help minimize erosion and naturally filter stormwater runoff that may contain sediment.

Put compost or weed-free mulch on your garden to help keep soil from washing away.

Sweep sidewalks and driveways instead of hosing them off. Washing these areas results in sediment and other pollutants running off into the stormwater system.

A lush garden scene featuring a pond with lily pads, purple flowers, and wooden furniture. The text "Adopt-A-Pond Program" is overlaid in white. The background is a dense garden with various plants and trees. In the foreground, there are two wooden chairs and a small table on a wooden deck. The pond is filled with lily pads and surrounded by tall grasses and purple flowers. The overall atmosphere is peaceful and inviting.

Adopt-A-Pond Program

Adopt-A-Pond

- Partner with communities
- Goals:
 - Improve appearance
 - Improve environment
 - Improve water quality
- 3-year journey





Native Plants



Storm Drain Marking



Educational Materials



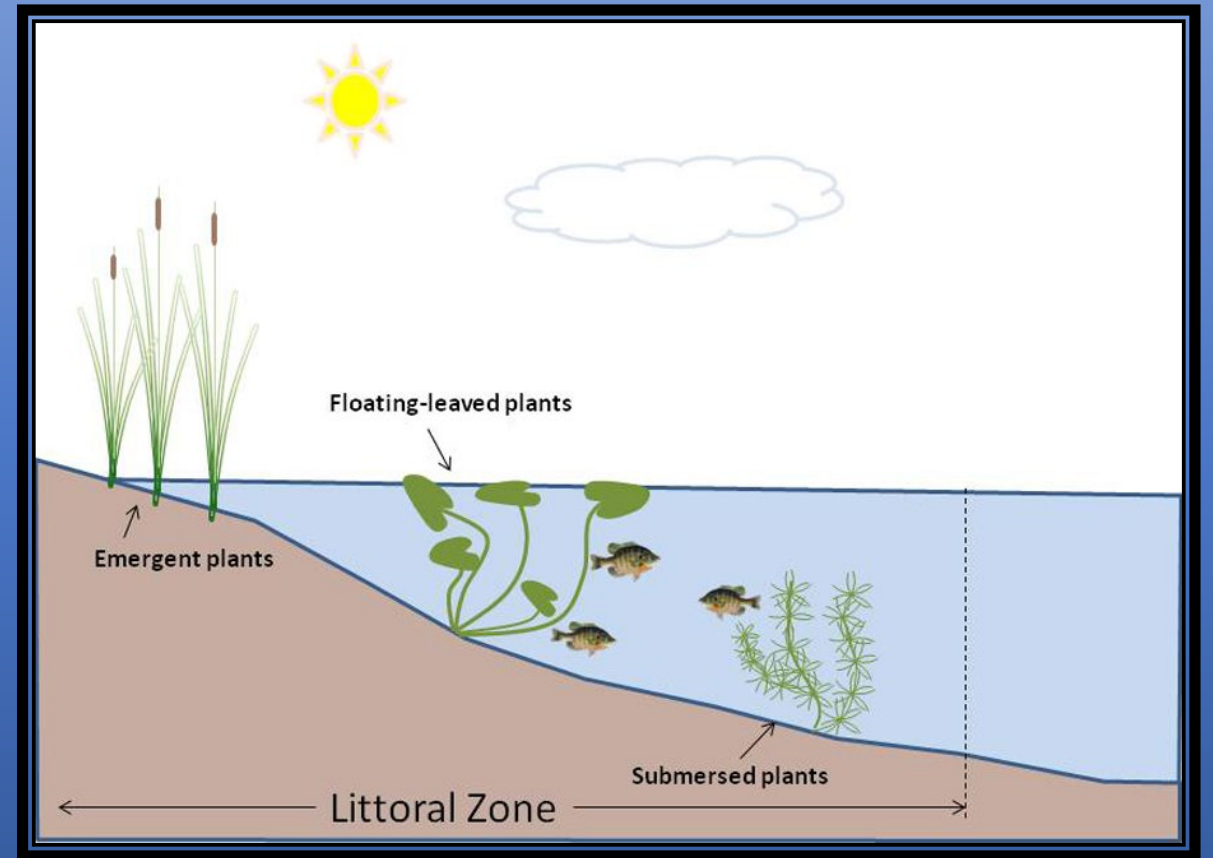
Pond Walks

Benefits of the Program

Littoral Zone

The **littoral zone** of a pond or lake is the shallow, transitional area between **dry land and open water**.

With the low depth of water, as well as plenty of light and nutrients, this zone provides the **ideal conditions for plants and animals to thrive**. As an essential part of the aquatic ecosystem, littoral plants can even provide added benefits to ponds.





Cypress



Florida Elm



Red Maple

Native Trees

Trees in the water at the pond edge can help control erosion by breaking up the wind and wave action that contributes to it. Large trees that do well in wet conditions include red maple, loblolly bay, and bald cypress.



Pickerelweed



Duck Potato



Blue Flag Iris



Sand Cordgrass



Golden Canna



Soft Rush

Native Plants

- Filter nutrients
- Provide wildlife habitat
- Erosion control
- Improve aesthetics
- Increase dissolved oxygen



Pickerelweed

- Grows to 3' tall
- Flowers purple, blue flowers year-round
- Grows best in full sun to partial shade

Benefits

- The submerged portion, as with all aquatic plants, provides a habitat for the micro- and macro invertebrates that ultimately become a food source for fish, amphibians, and ducks.
- Additionally, as aquatic plants die and decompose, bacteria and fungi break down the plant matter; the resulting detritus is food for many aquatic invertebrates.
- On top of that, the flowers are known to attract butterflies and the seeds are a tasty treat for ducks, making this plant a water garden winner.
- The aggressive habit of these plants helps stabilize the banks of natural water bodies and retention ponds.



Duck Potato

- Grows to 3' tall
- Large, white flowers
- Grows best in full sun to partial shade

Benefits

- Duck Potato is a valuable food source for waterfowl
- It typically flowers spring through fall, attracting a variety of pollinators. Its fruits are eaten by birds and other wildlife.



Blue Flag Iris

- Grows to 2' tall
- Flowers lavender to purple flowers in Spring
- Grows best in partial shade

Benefits

- Flowers attract hummingbirds, butterflies, beneficial insects, and native bees.
- Rarely browsed by deer or rabbits, and can serve as a “deer-tolerant” plant species in the landscape.



Sand Cordgrass

- Grows to 4' tall
- Grows best in full sun

Benefits

- Cord Grass is a favorite grass of golf course landscape designers who often use it to define borders and provide transitions between wet and dry areas
- Easy maintenance and a tough, adaptable, drought-tolerant grass
- Provides fine textured foliage that looks good in masses or as a specimen
- It may be used to control erosion and can tolerate flooding



Golden Canna

- Grows to 3' tall
- Large, yellow flowers
- Grows best in full sun to partial shade

Benefits

- Cannas also have potential as phytoremediation agents to remove nitrogen (N) and phosphorus (P) from water.
- The species is sometimes eaten by birds and is a nectar source for the Brazilian skipper, also called the canna or arrowroot butterfly.
- Golden canna is also a host for at least two species of larvae—the larger canna leafroller, which is the larval form of the Brazilian skipper, and the lesser canna leafroller.

A photograph of soft rush plants in a wetland. The plants are tall, thin, and have yellowish-brown seed heads. They are growing in a shallow, reflective pool of water. In the background, there is a dense line of green trees under a clear sky. The image is partially obscured by a blue circular graphic on the right side of the slide.

Soft Rush

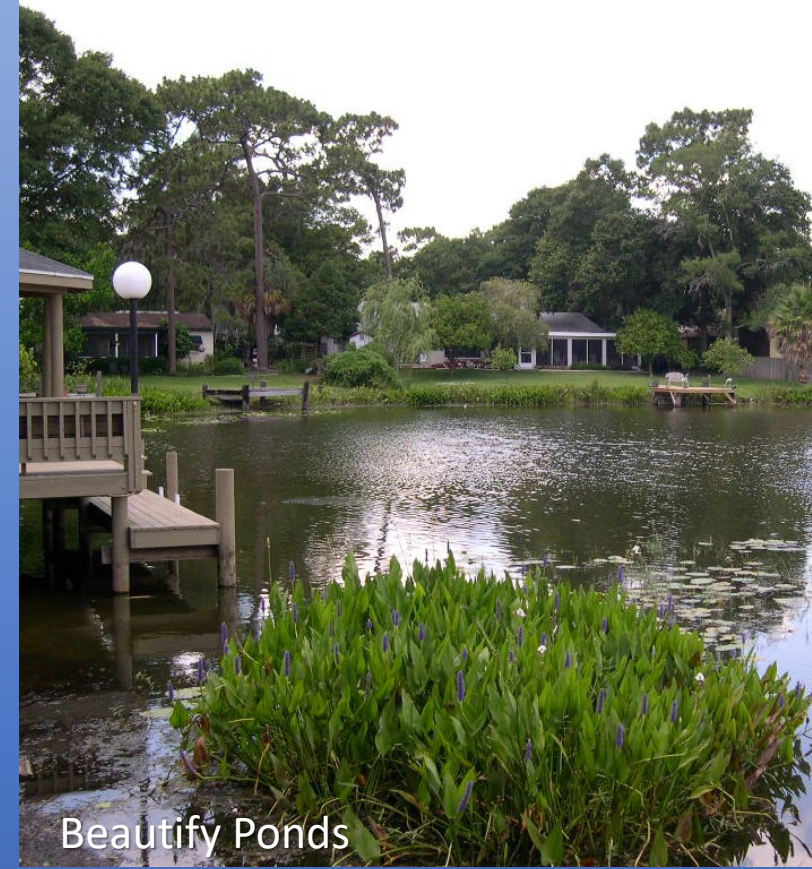
- Grows from 2' to 5' tall
- May be found as a single clump or as a colony of clumps
- Soft rush does not generally grow where water is present year-round, but is often present along the perimeters of ponds, lakes, streams, and canals.

Benefits

- Soft rush provides food (seeds) for wildlife
- Nesting habitat to birds and other wildlife.

Results

- A healthy, functioning pond
- Attract wildlife
- Builds community
- Improve aesthetics





Lower Foothill Pond (10-07) Northdale



Before



After

Eaglebrook Phase II (08-09) Citrus Park



Before



After

Pura Vida (09-04) Riverview



Osprey Place Pond (12-07)



Osprey Place Pond (12-07)

A scenic view of Brookton Pond, a calm body of water reflecting the sky and surrounding greenery. The pond is bordered by lush vegetation, including tall grasses and various shrubs. In the background, a large, modern white building with a prominent balcony and palm trees is visible, set against a clear blue sky. The overall atmosphere is peaceful and well-maintained.

Brookton Pond (12-08)



Brookton Pond (12-08)



Storm Drain Marking

The County provides **colorful markers** to add a pollution prevention message to your **neighborhood storm drains**. Kit includes markers and door hangers to tell people more.

Make sure everyone in your neighborhood knows that storm drains are only for rain — not oil, not grass clippings, not leaves, not fertilizers, not litter, not pet waste.

We're here to help!



Contact Information

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Hillsborough
County Florida