

When it rains, it drains...

A Property Owner's Guide to Stormwater



Stormwater and drainage can be an ongoing challenge for many Apalachicola residents. Whether the condition is due to existing low lying areas with a high water table or has resulted from inadequate stormwater infrastructure, or just too many rain events in an area with a lot of impervious surface.

Apalachicola is surrounded by environmentally-sensitive waters important to seafood harvesting and wildlife. Management of stormwater issues in an environmentally sensitive manner is important.

STORMWATER WHAT IS STORMWATER RUNOFF?

Surfaces such as rooftops, driveways and roads prevent rain water from being absorbed into the ground. The portion of water that is not absorbed into the ground is what is known as stormwater runoff. This water picks up a wide variety of pollutants such as fertilizers, pesticides and oil which can flow into our storm drains, and eventually empty directly into the Apalachicola River and Bay. Unlike household wastewater, stormwater is not treated. That means the everyday pollution that we all contribute to has a direct impact on our local water quality.

HOW DOES STORMWATER BECOME POLLUTED?

As stormwater travels over the land, it picks up all kinds of chemicals and materials that are not naturally found in our waterways. Some of these are toxic – even in small amounts. Others, such as nutrients, are not poisonous but may be produced in such great quantities that cause an imbalance that natural systems simply can't handle. This results in pollution to the river and bay

WHY IS STORMWATER MANAGEMENT IMPORTANT?

Untreated stormwater is a source of pollution to Apalachicola Bay. Oils and petroleum from cars, asphalt from roads, chemicals and grease from restaurants and even household soaps, garden fertilizers and pesticides can all harm aquatic life if washed directly into the bay. Additionally, coastal land clearing and construction activities can degrade water quality if the soil sediment or cleared debris is allowed to wash directly into the water.

Of primary importance is the First Flush, a term that describes the washing action that stormwater has on accumulated pollutants. Runoff from the land surfaces, especially the impervious surfaces like streets and parking areas, are flushed clean by the stormwater. This creates a shock load of pollutants that are flushed into the nearby coastal waters. Studies have determined that the first one inch of runoff generally carries 90% of the pollution from a storm. Treatment of the first flush is the key to proper stormwater management.

WHAT ARE STORMWATER POLLUTANTS?

Stormwater pollution may be divided into three general categories:

- Natural – organic material such as leaves, grass clippings and pet waste
- Chemical – such as detergents, fertilizers, pesticides, oil and greases.
- Litter – Plastic bags, drink containers, wrappers, and cigarette butts.

WHAT IS THE EFFECT OF STORMWATER POLLUTION?

Stormwater pollution can kill plants and animals that live in the water. For example:

- Sediment in the water reduces light penetration and affects photosynthesis, the process that allows plants to use light as their source of energy.
- Organic material (green waste) accumulates and uses up vital oxygen in the water which can kill fish.
- Litter clogs waterways and causes toxicity from the breakdown of material and has an effect on the health of birds, fish and other animals and plants that live in the waterways.
- Motor oil, antifreeze, fertilizers, pesticides, detergents, pet waste, yard debris and litter all have a major impact on the quality of our stormwater that discharges into the Apalachicola River and Bay.
- Pet waste introduces harmful bacteria into stormwater that if not treated gets conveyed to the waterways as contaminants.



WHO OWNS THE DRAINAGE DITCHES IN FRONT OF MY HOUSE?

Depending on the location of your property, the ditch in front of your house that runs parallel with the paved road is either a City of Apalachicola right-of-way or a county right-of-way. If it is a City-owned right of way, the culverts and conveyances are maintained by the City. Over the years, however, many homeowners have taken over the rights-of-way and filled them which has often contributed to neighborhood flooding and drainage issues.

If you own property and need access that is currently blocked by a drainage ditch, you should call City Hall at 850-653-8222 and schedule a site visit with public works to assess and plan for the installation of an appropriately sized culvert to allow access. Do not install culverts on your own.

DITCHES VERSUS CULVERTS?

Developed neighborhoods in the City generally feature either culverts or ditches to help remove flooding rains and runoff. A culvert is a closed conduit used to move water from one area to another. Ditches and culverts help remove rain from streets where ideally, water can drain into the soil where it is filtered. In many instances, culverts are necessary but if landscaping permits, gentle sloping swales or shallow ditches allow rainwater to percolate into the soil and minimize the effects of stormwater pollutants from reaching the bay. A 2019 analysis of some of the City's most vulnerable drainage basins recommends that the City regrade many of the

neighborhood swales in the low lying basins to allow the natural percolation assist in treating both the volume and quality of stormwater runoff. (2019 Basin Analysis, Dewberry Engineers online at Cityofapalachicola.com)

WHAT IS THE CITY DOING?

The City is taking steps to improve drainage and water quality along the City's waterfront by making improvements to the City's stormwater management system. Many of the improvements are structural and will take time and money to accomplish. Some measures involve rules and policies relating to filling.

Visit the City website Cityofapalachicola.com to learn more about applicable ordinances and online resources.

WHAT CAN I DO TO REDUCE THE POTENTIAL FOR FLOODING IN MY AREA?

The main way to reduce flooding is to help maintain our drainage systems. Do not put anything in the ditches or pipes. Keep the ditches clean of leaves, branches or other debris that can wash downstream and block up the system. Pipes that have been put in the ditch by an individual without City or County approval may be too small for the amount of drainage going through it. Modifying or filling in ditches also can create drainage problems. If you live on a corner with access to a stormwater drain, don't rake leaves or put anything into the drain.

SITE SPECIFIC STORMWATER MANAGEMENT SOLUTIONS

Depending on lot size and lot coverage, there are several effective nonstructural and simple structural stormwater best management practices that can be used by property owners. Some of the most popular methods include Guttering water into Rain Barrels, Cisterns or Rain Gardens, using Porous Paving, Vegetated Buffers, Contouring and Terracing in yards.

GUTTERING

One of the easiest methods of managing residential stormwater is through the use of guttering which is directed by down spouts to either your lawn or flower bed rather than to your driveway so that the water can be absorbed into the ground. Another variation on that method is to set up a rain barrel or cistern to capture your roof runoff and use it to irrigate your yard. This method of treatment is best used for small to medium residential lots where space is at a premium.



RAIN BARRELS

Rain barrels are an increasingly popular way to collect rainwater and save it for use in gardens. A hundred years ago many homes in Apalachicola had cisterns in which residents collected rainwater for household use. Rainbarrels are connected to your home's gutter system and catch the rain that falls on your roof, and can be stored for future use.

RAIN GARDENS

A rain garden is a good option for homeowners with a medium to large lot with plenty of open space. You will want to gutter the rain at least 10 feet away from the house as this is a wet-detention form of stormwater management. A rain garden is basically a plant pond - a garden bed that you plant with special deep-rooted species. These plants help the water rapidly seep

into the soil. You direct the rainwater from the downspouts to the garden via a swale (a stone channel) or plastic piping. The garden captures the water and, when properly designed, drains it into the soil within a day. If there's an especially heavy rainfall, excess water may overflow the rain garden and run into the storm sewer system. Even so, the rain garden will have done its job. It will have channeled water away from your foundation and reduced the load on the sewer system. A rain garden also reduces the amount of lawn chemicals and pet wastes that may otherwise run off.

The Apalachicola National Estuarine Research Reserve offers classes periodically on how to build green infrastructure stormwater management solutions. Contact them at 850-670-7708.

BIO-SWALES

At their simplest, bio-swales are strips of vegetation that act as a buffer between a concrete or asphalt surface and natural landscaping. If your yard tends to get lots of runoff from the road, bioswales can capture water and grow gorgeous plants at the same time!



PERMEABLE PAVERS

For patios or walkways, permeable concrete pavers may be a suitable option. The pavers are solid, but if they're spaced correctly, water drains between them. Pavers are placed over a bed of sand or gravel, which filters water before it percolates into the soil. Most permeable pavers blocks are designed to support vehicles but are sufficiently open to allow water to drain through them. The spaces are filled with gravel or sand. Grass or low ground cover can grow in the open spaces.

Note: Pervious paving is considered lot coverage and is subject to the lot coverage restrictions identified in the zoning code district standards.

Why Manage Stormwater?



Stormwater runoff is the leading cause of surface water pollution in the US

Stormwater pollution contributes to water quality degradation to Apalachicola Bay

Where Stormwater Goes

When it rains it drains ...

Impervious surfaces

**Trash
Fertilizers
Paint
Pet Waste
Chemicals
Gas and Oil**

**Tips & Ideas
for reducing
runoff
online at
Cityofapalachicola
.com**



Dos and Don'ts



IN THE GARDEN

Do.

- Clean gutters and sweep driveways regularly and place the sweepings on the garden or a compost bin.
- Rake leaves or lawn clippings and use them as mulch on the garden or place in a compost bin.
- Seed, mulch or replant bare areas.
- Use natural alternatives to pesticides and fertilizers

Please Don't.

- Hose dirt off hard surfaces directly into ditches. Let water be absorbed by grass.
- Rake blow or deposit leaves, grass clippings, or trash into storm drains.
- Pile sand and soil on areas where it can wash into the stormwater system.
- Don't use chemicals (pesticides and herbicides) that could be washed into stormwater drains.
- Use fertilizer.

WITH THE CAR

Do.

- Maintain your car, making sure there are no leaks and properly disposing of fluids.
- Maintain your boat.
- Use the minimum amount of detergent for cleaning outside and wash your car on grass or gravel.

Please Don't.

- Work on your car (including oil changing) in a place where oil and grease may wash into storm drains.
- Wash the car in the street using detergent.

HOME PROJECTS

Do.

- Wash latex only paint brushes and rollers into the sewage system not the storm drain.
- Keep paint, turpentine and solvents clear of gutters or drains.
- Reuse turpentine once the paint has settled and dispose of properly.

Please Don't.

- Wash out cement mixers into storm drains.
- Hose sand, gravel or cement into storm drains.
- Leave piles of sand uncovered where it could wash into storm drains.

IN THE STREET

Do.

- Pick up litter.
- Clean up pet droppings and dispose in the garden, rubbish containers, or in the toilet.

Please Don't.

- Drop cigarette butts on the ground.
- Leave rubbish beside garbage cans that are already full.

GENERAL DOS AND DON'TS

Do.

- Keep stormwater drains, culverts and swales open and clean.
- Consider alternatives to concrete or asphalt-paved surfaces. If you have a choice, consider more porous surfaces such as uncompacted gravel, wood chips or pervious pavers.
- Sod, seed, or mulch exposed soil as soon as possible to prevent soil from entering the stormwater system.
- Talk with your neighbors about drainage in your area.
- Try to minimize impervious area on your property (sidewalks, patio, pavers, roof etc)
- Keep fences out of drainage easements and stormwater facilities.
- Use low areas to create "rain gardens," which are landscaped areas planted with wildflowers and other native vegetation that soaks up rainwater.
- Use natural vegetation in your landscaping that has a deeper root system than turfgrass that allows for more water infiltration.
- Consider planting trees in your yard. They absorb lots of water.

Please Don't.

- Pour contaminants down the storm water drains.
- Put grass clippings, leaves, or other yard waste into stormwater facilities.
- Construct fences perpendicular to the water flow.
- Place dirt, sand, rock, retaining walls, or other construction material in a stormwater facility (grates, pipe and culverts, swale).



You can visit the Cityofapalachicola.com to learn more about resiliency, stormwater and floodplain management planning efforts in the city.

There are several stormwater, fill and floodplain regulations that provide important regulatory guidance for property owners looking to develop in the City. Most notably, the following documents are online:

STORMWATER

- Stormwater Management Site Plan Requirements
- Drainage Basin Analysis

FLOODPLAIN MANAGEMENT

- Floodplain Management Regulations (Ordinance 2013-02)
- Floodplain Management Brochure
- FEMA Flood Map Zones
- Interactive GIS Map
- Apalachicola Drainage Basin Analysis - 2019

RESILIENCY

- Vulnerability Analysis