



DUPAGE COUNTY

STORMWATER MANAGEMENT



Stormwater Basin Maintenance

*HOA and Property Owner Guide to
Stormwater Basin Maintenance*

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DuPage County Stormwater Management

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(630) 407-6673
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www.dupagecounty.gov/swm

What is a stormwater basin?

What is a stormwater basin and why do we need them?

Stormwater basins protect homes and businesses from flooding and improve water quality and stream habitats.

Basins come in a variety of types, shapes, and sizes. They can hold a pool of water permanently or dry out within a short time after a rain event. Basins can be planted with mowed turf grass, native vegetation, or a combination of the two.

By detaining the stormwater for a short period of time in the pond, the velocity of the flow is decreased so that it will cause less erosion when it leaves the basin.

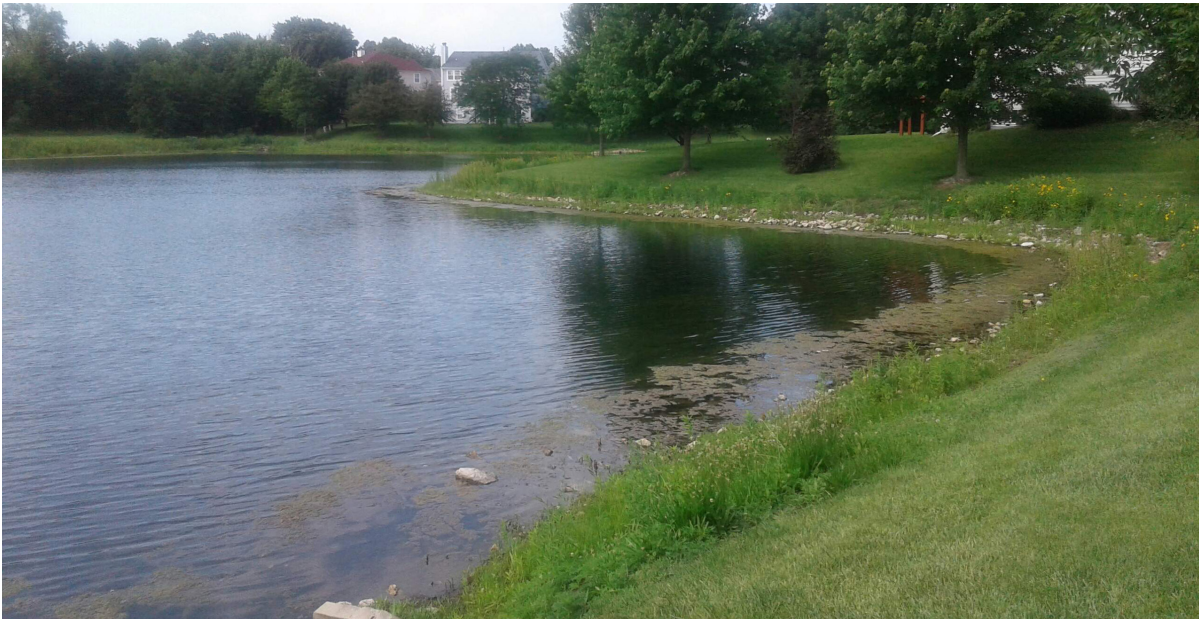
Also, the brief detention time allows the sediment and pollutants picked up by the stormwater runoff to settle out, thus improving the quality of the water leaving the pond.



Types of Basins

1 Wet Basin/Retention Pond

Wet basins hold a permanent pool of water.



2 Dry Detention Basin

Dry basins are designed to dry out between rain events. They can be planted with turf grass, native vegetation, or a combination of the two. Without maintenance, they can also be overgrown with weeds.



Who is responsible for your basin?



Like most structures, a stormwater basin may not function properly, or it may fail prematurely if not properly maintained.

Stormwater basins, whether they are located on a commercial or residential lot, are the responsibility of the property owner. Pond ownership and maintenance responsibility is typically outlined in a plat of subdivision or an easement.

A stormwater basin can be the responsibility of a:



Business



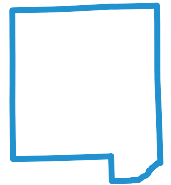
Individual Homeowner



Homeowners Association (HOA)



Developer



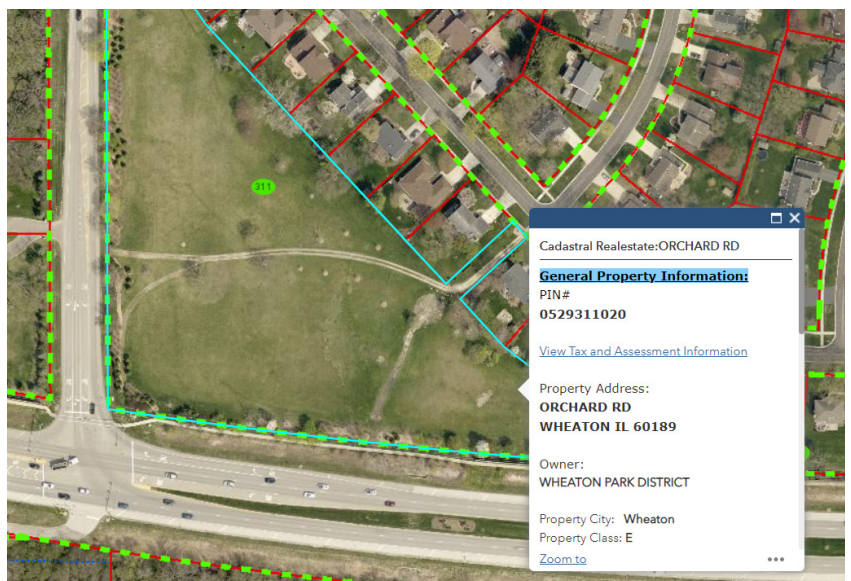
County or Municipality

If you are unsure of ownership, property owner information can be found on the DuPage County Parcel Viewer:

<https://gis.dupageco.org/parcelviewer>

The DuPage County Recorder's Office can be a helpful resource to search for documents.

Local governments do not have the authority to maintain privately owned detention basins. Rather, these basins are the responsibility of HOA or the lot owner.



Why some basins fail...

Poor basin maintenance is the leading cause of basin failure. When a stormwater basin is not properly maintained, it can create unpleasant odors, mosquitoes, algae blooms, or become overgrown with weeds. A stormwater basin malfunction could potentially cause severe flooding and costly damage.

Stormwater basins may fail due to:

1. Poor vegetation maintenance, such as failure to keep up with routine mowing or weed control.
2. Clogged inlets or outlets that were full of trash, debris, or sediment accumulation.
3. Eroded side slopes which can cause structural or pipe damage.
4. Inadequate basin access for routine maintenance activities.



Inspections and Maintenance

Stormwater basins require regular inspection and maintenance to ensure that they are functioning properly to protect property, improve water quality, and to avert potential problems. If located within a subdivision, schedule a meeting with your Homeowners Association to discuss the legal and financial responsibilities, the importance of upkeep, and assign maintenance responsibilities. **Please remember that basin inspections and maintenance are the responsibility of the property owner.**

Routine maintenance will:

1. Prolong the life of your detention basin
2. Improve its appearance
3. Prevent flooding and property damage
4. Enhance local streams and lakes



Regular inspections should be conducted by a designated person, owner, or operator and clear records should be kept.

Periodic inspections with a specified checklist should be done after major rainfall events to check for obstructions/damage and to remove debris/trash. **Sample Inspection Checklists can be found on pages 14 and 15.**

PLEASE NOTE: When conducting pond maintenance, there are some activities that should not be done without obtaining permission from your municipality or DuPage County Stormwater Management. For example, the location, shape, and depth of the pond is specified within the approved plans and cannot be altered without obtaining written approval. Removal or planting of vegetation in a basin may also require permission. *Please check with your local municipality or DuPage County Stormwater Management before proceeding.*

Inlets and Outlets

Inlet pipes direct storm water from buildings, yards, driveways, parking lots, and roads into stormwater basins. There may be one or more inlet pipes in a stormwater basin.

Check the following:

STRUCTURAL INTEGRITY

Inspect pipes to make sure they are not crumbling, broken, or displaced.

Note: If any inlet or outlet pipes appear to be broken, exposed or in a state of disrepair, a professional engineer should be contacted to review the structural integrity and to discuss maintenance options.



RIP RAP

Rip rap (pieces of stone) is often placed around the pipe where it enters or exits the basin to prevent erosion. Check for erosion around the pipe or missing rip rap. *Permits may be required for rip rap installation.*



OBSTRUCTIONS

Inspect the pipe ends to determine if sediment, dirt, or debris is obstructing the flow of water from the pipe into the basin. Remove any debris or sediment that is obstructing the flow of water. If not removed, it could reduce the efficiency of the system.

Note: If there is any standing water or evidence of extended ponding not intended in the design or function of the system, this could indicate an obstruction.

Over time sediment may naturally accumulate within the stormwater basin due to decomposing plant material and other natural processes. Though removal may not be needed immediately, eventually it may become necessary for the basin to properly function. *Consult DuPage County Stormwater Management or your local municipality for guidance if sediment accumulation in your basin occurs. Permits may be required for sediment removal.*



Erosion

It is critical to keep effective ground cover on all vegetated areas in order to see the benefits of proper infiltration of runoff, and effective filtering of pollutants. All areas not vegetated should be re-vegetated and stabilized immediately.

Check the following:

BARE AREAS, SLOUGHING, OR GULLIES

Check banks and bottom twice each year (spring & fall) and after major storm events. Effective groundcovers must be kept healthy to prevent erosion.



STABLE



SLIGHT
EROSION



MODERATE
EROSION



SEVERE
EROSION

Vegetation

The vegetation in a detention basin improves water quality by filtering pollutants such as sediment, pesticides, and fertilizers. Inspect vegetation on the banks and in the basin in the spring and fall. Maintenance activities vary based on the type of basin.

Check the following:

DEAD OR DECOMPOSING VEGETATION

If you have a wet pond, any dead or decomposing vegetation should be removed if it is clogging the pipe openings.

VEGETATION MANAGEMENT

Reseed any bare areas. Consult the basin design plans to ensure the appropriate mix is planted. If the basin is planted with native vegetation, it should be regularly maintained by a qualified professional, or it can quickly be overcome with weeds. Overgrown vegetation, such as phragmites and cattails, can clog up stormwater basins and impair function. *Check with DuPage County Stormwater Management or your local municipality before removing or planting vegetation.*

Trees

Although trees may be planted around a basin, basins overgrown with trees are not effective for storm water quality and flood control.

As the trees grow, they reduce the capacity of the basin to store water and the tree roots can damage the banks and piping. Trees can also block the inlet and outlet pipes creating poor storm water flows and potential erosion.

Check the following:

OVERGROWN TREES

Trees that have overtaken basins should be removed and the basin reseeded. Overgrown weedy trees can clog stormwater basins and impair function.

PIPE BLOCKAGES

Any tree that is blocking a pipe should also be removed. *Check with DuPage County Stormwater Management or your local municipality before clearing vegetation in and around basins.*

Litter and Debris

Check the following:

LITTER AND DEBRIS

Remove and properly dispose of debris and litter near the inlets and within the basin.

DO NOT place any type of yard waste in detention ponds, storm drains, or drainage ways. Inlet and outlet pipes can become blocked with grass clippings and leaves. This natural material also releases excess nutrients as it decomposes, which can cause an overgrowth of algae. This is why nutrients, mainly nitrogen and phosphorus, are among the most significant pollutants of concern in ponds and streams.

DO NOT dump any materials such as motor oil, pesticides, herbicides, or fertilizers into detention ponds, storm drains, or drainage ways. These chemicals will wash into local streams and rivers and can be detrimental to wildlife, such as bees, frogs, toads, fish, and dragonflies.

Mowing

Consider the following:

REDUCE MOWING FREQUENCY

Reduce the mowing frequency of turf grass basins. This allows deeper roots to establish, increasing infiltration. Basins planted with native grasses and wildflowers should only be mowed once a year in the late fall or early spring at the direction of qualified natural areas management professionals.

MULCH OR REMOVE CLIPPINGS

Make sure grass clipping and other waste does not accumulate and clog the pipes after mowing. Mulch clippings or remove from the area around the basin.

LIMIT FERTILIZERS AND PESTICIDES

Limit use of fertilizers and pesticides in and around the ponds to minimize entry into pond and subsequent downstream waters. This will also help reduce algae growth.


Algae

Check the following:

EXCESSIVE ALGAE GROWTH

Over time, wet ponds can become stagnant and accumulate algae. Algae grows well in high nutrient environments. Planting native vegetation, limiting fertilizer use in areas that drain to the pond, and installing an aerator may help reduce chronic algae issues.



 **WARNING:** If you think you may have a harmful algal bloom (HAB) that resembles green paint, please call DuPage County Stormwater Water Quality staff: (630) 407-6673.

Benefits of Native Landscaping

Well-maintained traditional stormwater basins can still struggle with algae, erosion, weeds, and other problems. While many of these issues can be time-intensive and environmentally harmful to solve, installing native plants can be a solution while also providing a host of additional benefits.

Native landscaping benefits include:

1. Improved water quality
2. Better stormwater infiltration
3. Reduced maintenance costs: no need for frequent mowing or fertilizer
4. Increased biodiversity and habitat for plants and animals
5. Increased aesthetic value: who doesn't love looking at flowers blooming?
6. Geese avoid them, which reduces poop pollution
7. Fix or prevent shoreline erosion



Before and after photos of the Park Basin Retrofit Project in the Village of Carol Stream.



Native plants can turn an eyesore into a functional and beautiful part of your property or community. However, native plant communities are not maintenance free. Professional landscapers trained to work with native plants are the most qualified to handle this work. Permits are also often required to move forward with a detention basin retrofit.

The DuPage County Stormwater Management Department can advise on the permitting process, retrofit requirements, as well as provide plant recommendations and a list of qualified landscaping companies.



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MONTHLY INSPECTION CHECKLIST



Basin ID: _____ Inspector: _____ Date: _____

Inspection Items:	Checked?	Maintenance Needed?	Comments
	Y/N/NA	Y/N	
Inlet/Outlet Pipes			
Overgrown or dead vegetation debris			
Sediment accumulation over or inside pipes			
Accumulation of leaves or grass clippings			
Litter blockage			
Trash			
Pick up trash in and around basin (Consider installing trash cans/signage)			
Vegetation			
Mow turf grass areas. Remove or mulch clippings.			
Check for invasive species. Consult with professional for removal.			
Check for bare areas. Reseed with appropriate vegetation.			
Check for improper mowing. mowing into native plant areas, and mowing encroachment from neighboring properties			
Weedy tree growth			
Excessive amount of algae (>20% surface area coverage)			

Stormwater Basin Maintenance

ANNUAL INSPECTION CHECKLIST



Basin ID: _____ Inspector: _____ Date: _____

Inspection Items:	Checked?	Maintenance Needed?	Comments
	Y/N/NA	Y/N	
Structures*			
Pipe separation			
Disconnected or missing grates			
Aeration system is functioning properly (if applicable)			
Erosion*			
Side slopes. Determine if rip rap or armoring is needed			
Shoreline			
Around inlet and outlet structures for erosion/missing rip rap			

**Consult with your local municipality on repair options. Engineering assistance may be required.*