DETENTION BASIN MAINTENANCE

Storm water detention basins are a best management practice designed to reduce the impacts of pollution and the increase of storm water runoff caused by developments. They are an essential part of the City of Rockford’s effort to improve the quality of our streams, rivers and ponds. Once a detention basin fails, it will no longer perform its intended function and is often very expensive to replace.

Types of Detention Basins

There are two types of detention basins:

- Detention Basin (Dry Ponds)
- Retention Basin (Wet Ponds)

Detention basins detain water and are designed to be dry between rain events. During a storm they fill with storm water. These basins slow the rate at which storm water from new developments enters the streams and rivers and thus helps prevent flooding and in some instances, help reduce contaminates. Side slopes and bottoms of these basins are generally vegetated with turf grass or native plants.

Retention basins also help control flooding and are more effective at removing pollutants from storm water. Wet detention basins typically have a permanent pool of water and more wetland plant life. The permanent pool of water allows pollutants such as sediments to settle to the bottom of the basin. In addition, wetland vegetation helps to filter out pollutants and utilizes others, such as fertilizers, as storm water passes through the basin.

For Assistance:

- City of Rockford
  Public Works, Engineering Division
  (779) 348-7175

- Licensed Professional Engineer
## Detention Basin Maintenance Tasks and Schedule

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Components</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>Inspect for sediment accumulation</td>
<td>● ● ● ● ● ●</td>
<td>Annually</td>
</tr>
<tr>
<td>remove Sediment accumulation</td>
<td>● ● ● ● ● ●</td>
<td>As needed</td>
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<tr>
<td>Inspect for debris (dead vegetation &amp; trash)</td>
<td>● ● ● ● ● ●</td>
<td>Early Spring, fall &amp; after major storms</td>
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<tr>
<td>Clean debris</td>
<td>● ● ● ● ● ●</td>
<td>As needed</td>
</tr>
<tr>
<td>Inspect for erosion on banks and bottom</td>
<td>● ● ● ● ● ●</td>
<td>Early Spring, fall &amp; after major storms</td>
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<tr>
<td>Reestablish permanent vegetation on eroded areas</td>
<td>● ● ● ● ● ●</td>
<td>As needed</td>
</tr>
<tr>
<td>Rake out dead vegetation</td>
<td>● ● ● ● ● ●</td>
<td>Annually - early spring</td>
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<tr>
<td>Replace stone rip rap</td>
<td>● ● ● ● ● ●</td>
<td>Every 3-5 years as needed</td>
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<tr>
<td>Mowing</td>
<td>● ● ● ● ● ●</td>
<td>As needed to keep heights below 10 “</td>
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<tr>
<td>Inspect structural elements during wet weather and compare to as-built plans (by a professional engineer)</td>
<td>● ● ● ● ● ●</td>
<td>Annually</td>
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<tr>
<td>Make adjustments or replacements as determined by annual wet weather inspection</td>
<td>● ● ● ● ● ●</td>
<td>As needed</td>
</tr>
<tr>
<td>Keep records of all inspections, maintenance and repairs</td>
<td>● ● ● ● ● ●</td>
<td>Annually</td>
</tr>
<tr>
<td>Keep records of all costs for inspections, maintenance and repairs</td>
<td>● ● ● ● ● ●</td>
<td>Annually</td>
</tr>
<tr>
<td>If needed, have a professional engineer carry out inspections upon identification of severe problems</td>
<td>● ● ● ● ● ●</td>
<td>As needed</td>
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</table>
What Type of Maintenance Is Required?

Detention basins require regular inspection and maintenance to ensure that they are functioning properly to protect private property and improve water quality. At a minimum, responsible parties should conduct an annual inspection and an inspection after major storms.

Inspect Inlet and Outlet Pipes

**Inlet Pipes** direct storm water from developments into detention basins, including storm water from residential yards, driveways and roads. Typically, there are two to three inlet pipes in a detention basin. Check the following:

- **Structural integrity** - Inspect the pipe to make sure it isn’t crumbling or broken or displaced.

- **Blown out pipe**

- **Rip rap** - (typically pieces of stone) is placed around the pipe where it enters the basin to prevent erosion. Check for erosion around the pipe or missing rip rap.

- **Undercutting Inlet Pipe**

- **Obstructions** - Inspect the pipe end to determine if sediment, dirt, trees or debris (leaves, grass clippings, trash) is obstructing the flow of water into the pipe and preventing water from leaving the basin. Stone around the outlet pipe may need to be replaced if it becomes clogged with sediment.

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.

Inspect for Litter and Debris

Generally, inspections should be done at least twice per year (spring & fall) and after major storms, check for debris near the inlets and within the basin. Remove and properly dispose of debris or litter.

Structures

Placing structures in basins such as playground equipment sheds and fencing is discouraged as they will reduce the capacity of the basin.

Outlet Pipes** direct storm water from a detention basin to nearby creeks, streams or storm sewer system. Typically, there is only one outlet associated with a basin. The outlet may consist of a single pipe, a riser pipe, or it may be connected to a pump station. Check the following:

- **Structural integrity** - Check the pipe to ensure that it isn’t crumbling or broken.

- **Failed outlet structure**

- **Obstructions** - Inspect the pipe end to determine if sediment, dirt, trees or debris (leaves, grass clippings, trash) is obstructing the flow of water into the pipe and preventing water from leaving the basin. Stone around the outlet pipe may need to be replaced if it becomes clogged with sediment.

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.
Examine the Side Slopes and Bottom for Erosion

Check for sloughing or gullies on banks and bottom twice each year (spring & fall) and after major storm events. In addition, check for disturbances from vehicles or animals. Any damage observed should be repaired immediately by filling any eroded areas with topsoil and approved seeding. Mulch or straw should also be placed over seeded areas to prevent additional erosion.

Note: Areas where it appears the bank or piping is in danger of failing must be repaired immediately.

Mowing

The amount of mowing required depends on the type of detention basin and the desired appearance. Typically, basins with turf grass only need to be mowed two or three times a year. Basins with native grasses and wildflower plantings should be mowed only once a year in the late fall or early spring. More frequent mowing will prevent the wildflowers from blooming and producing seed. Pathways through wildflower plantings can be mowed more frequently.

Make sure grass clipping and other waste does not clog the pipes after mowing.

Note: The City of Rockford’s weed control ordinance states: all premises and exterior property shall be maintained free from weeds or plant growth in excess of 8 inches.

Inspect Vegetation

In the spring and fall inspect the vegetation on the banks and in the basin. Maintenance activities vary based on the type of basin. If you have a retention basin (wet pond) any dead or decomposing vegetation should be removed if they are clogging the pipe openings. Living vegetation greatly improves the water quality by filtering pollutants such as fertilizers, pesticides, oils and grease from the storm water.

Late fall is a good time to cut down and remove cattails. This will minimize clogging in the spring by dead vegetation.

Repair bare spots along banks and in the bottom. Most basins are a turf grass mix however some basins are planted to native mixes. To assure the appropriate mix is planted the engineering plans may need to be consulted.

Mulch or straw should also be placed over seeded areas to prevent additional erosion.

Trees

Basins overgrown with trees are not effective for storm water quality and flood control. As the trees get larger they reduce the capacity of the basin to store water plus tree roots can damage the banks and piping. In addition, the canopy from trees causes poor vegetation and filtering of pollutants. Trees can also block the inlet and outlet pipes creating poor storm water flows and potential erosion.

Trees that have overtaken basins should be removed and the basin reseeded. Any tree that is blocking the pipes should also be removed.