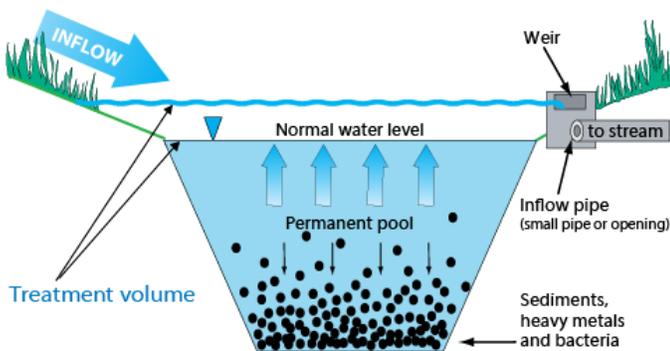


How Stormwater Ponds Work

Stormwater ponds are designed to remove pollution and prevent downstream flooding. Storm sewers carry polluted runoff to ponds from hard surfaces including streets, parking lots, driveways and roofs. It is there that the water calms and pollution particles settle to the bottom. The ponds temporarily hold the stormwater, metering it out over time, or allowing it to percolate into the ground.

Two Types of Ponds

Most stormwater ponds in Worthington have a permanent pool to treat incoming water. Big particles settle quickly to the bottom of the pond. Small particles, like clay, may stay suspended in the water longer - sometimes for weeks or months. Dissolved nutrients do not settle out, but over time may be used by the pond's aquatic plants. The longer the water sits in the pool, the greater the pond's pollution removal potential.



In wet ponds, new stormwater entering the pool displaces the cleaner water pushing it through the outlet. The new water is then treated. Unfortunately, during large runoff events, the volume of incoming water may overwhelm the pond's capacity to remove sediment and nutrients.

Dry stormwater ponds do not have permanent pools. Incoming water soaks into the ground over time leaving pollution on the bottom. Some dry ponds have tile beneath them to drain away the filtered water. Others recharge the groundwater.

Dry ponds do a better job of removing small particles and nutrients. Unfortunately, tight clay soils, and the

area's high water table, makes building dry ponds difficult in Worthington.



Maintenance Required

Stormwater ponds collect and concentrate soil, nutrients, bacteria, heavy metals organic chemicals and other hazardous materials in their bottom sediment. This sediment must be removed periodically to maintain the basin's pollution treatment and floodwater storage capacity.

The sediment must be tested for toxic materials before a pond cleanout begins. Disposal of heavily polluted sediment may cost up to three times more than less polluted sediment.

Avoid Coal Tar Based Asphalt Sealers

Minnesota recently banned the sale of coal tar based asphalt sealants because they contain polycyclic aromatic hydrocarbons (PAHs). PAHs are human carcinogens that may also harm wildlife.

Runoff from parking lots sealed with coal tar based products pollutes stormwater ponds, lakes and streams. PAHs polluted ponds are many times more expensive to maintain because the sediment must be placed in specially lined disposal facilities.

Minnesota retailers no longer sell coal tar based asphalt sealers, but it is still legal to sell and buy them in Iowa and South Dakota.

Please do not use these products.

The Phosphorus Problem

Stormwater contains phosphorus that causes algae blooms in lakes and rivers. Phosphorus can pass through ponds when it is dissolved, or is chemically tied to clay particles that remain suspended in the water for a long time. Reducing the amount of the nutrients delivered to the pond reduces the pollution passing through it.

It is very expensive to build and maintain phosphorus removal filters in stormwater ponds. Partners in Worthington are experimenting with a less expensive alternative. Vegetation covered floating islands were installed in the Olson Regional Stormwater Pond on the Minnesota West Community and Technical College campus in 2013. It is our hope that the island plants will use and store phosphorus. If successful, more islands may be installed around town.

Recreation Not Recommended

Stormwater ponds can be attractive and tempting to use for recreation. Some are surrounded by landscaping, mowed grass and beautiful native vegetation. Birds, insects, mammals, frogs and other aquatic life may call the pond home. Some ponds are even stocked with gamefish.

Since stormwater ponds capture and concentrate pollution, contact with the water is not recommended. People should also avoid eating fish caught there.



Things You Can Do

Stormwater ponds work best when the amount of water and pollution flowing into them is reduced. Please remember that most water and pollution entering a pond comes from streets drained by storm sewers.

Here are some things you can do.

- Do not over apply lawn fertilizers, herbicides or pesticides. Sweep up dry products accidentally spilled on hard surfaces.
- Keep yard waste and litter off streets and hard surfaces draining to them.
- Manage your landscaping project or construction site to keep soil away from streets.
- Pick up pet wastes and throw them in the trash.
- Do not wash cars on driveways or streets.
- Do not spill automotive fluids on streets or driveways. Fix leaks as soon as possible.
- Do not use a hose or power washer to clean up driveways draining to streets.
- Install rain barrels to capture and recycle roof water.
- Install rain gardens to reduce yard runoff.