ENVIRONMENT, HEALTH & SAFETY
UNIVERSITY OF MICHIGAN

What You Can Do to Keep Our Michigan Waters Blue

Date: 06/23/17
Revision #: 02



Table of Contents

Storm Water Drainage and Sanitary Sewer Discharges

The City of Ann Arbor and the University of Michigan (U-M) use a separated sewer system that includes piping to handle sanitary sewage, and separately, storm water runoff. Aside from storm water that infiltrates into permeable landscapes or through constructed infiltration systems, most water from both of these systems eventually makes its way to surface waters of the State.

- Sanitary systems transport wastewater from homes, offices, restaurants, schools, and industry to the Ann Arbor wastewater treatment plant (WWTP), where it is treated and disinfected prior to discharge to surface water bodies.
- Storm water drainage systems transport surface runoff from rainstorms and snowmelt to surface waters such as lakes, rivers, streams, and ponds. Water that enters the storm water drainage system receives little to no treatment prior to discharge into these surface waters.

The overland flow path that the storm water runoff takes prior to entering the storm water drainage system has an impact on the quality of the receiving body of water. As a community, we can help mitigate impacts to receiving waters. Some factors that can impact the quality of surface waters include:

- Debris and trash
- Soil erosion and sedimentation
- Chemicals such as pesticides and fertilizers
- Oils, fuels, and coolants from automobiles
- Organic matter such as pet waste and grass clippings
- Salt from de-icing activities

Sediment and Debris

Sediment and debris can settle to the bottom of surface waters and destroy animal and plant habitats. In addition, floating debris and highly turbid water can prevent light from passing through the surface water, impacting both plants and animals.

Soil Erosion and Storm Water Runoff

To prevent soil erosion and reduce storm water runoff:

- Maintain permeable surfaces for the water to infiltrate, reducing the amount of storm water runoff
- Maintain designated paths for storm water runoff to help reduce soil erosion
- Use plants and vegetation to hold soil in place, thus out of surface waters

Chemicals and Organic Matter

Chemicals such as pesticides, fuel, and coolants that are carried to surface waters by storm water runoff can be toxic to the environment.

When excess chemicals are discharged to the sanitary system, there is the potential to:

1. Create unsafe conditions within the sewer system and at the treatment plant that could cause harm to municipal staff
2. Cause harm to the microbes used to treat the sanitary wastewater, which could result in ineffective treatment prior to discharge
3. Improperly treated wastewater can lead to the release of harmful toxins, bacteria, or excess nutrients to the receiving water body

Organic matter often contains nutrients such as phosphorus and nitrogen. When excessive amounts of nutrients enter the surface waters the following chain reaction occurs:

1. Increase in algae and weed growth
2. Increase in the amount of decomposing algae
3. Increase in microbe population
4. Depleted oxygen supply in surface water
5. Harm to native aquatic species

Chemicals and organic matter sent to landfills also increase the potential to pollute ground water and surface waters. All waste products should be properly managed to help prevent pollution and protect the environment.

Yard Maintenance

Landscaping

- Preserve plants and trees
- Use stones, wood decks, patios, or interlocking stones instead of pavement
- Install gravel trenches along driveway or patios (1 foot deep by 3 foot wide)
- Use native plants and perennials
- Use turf grass
- Expand flowerbeds
- Cluster plants with similar moisture requirements
- Keep grass long
- Use compost and mulch
- Divert storm water onto grass

Pesticides, Herbicides, and Fertilizers

- Test soil to determine what nutrients need to be added before applying fertilizers
- Avoid chemical fertilizers, and if used, follow the directions given
- Sweep granular fertilizer off pavement into the grass

- Do not spray fertilizers, pesticides or herbicides onto impervious surfaces such as concrete or bare soil
- Apply the amount pesticide specified and only to the plants and areas stated in the instructions
- Use pesticides with half-lives shorter than 21 days
- Choose a “pest-specific” pesticide and herbicide
- Store pesticides and herbicides indoors and away from drains

Maintenance

- Do not overwater
- Compost yard waste
- Clear away fallen trees and debris from natural waterways and storm water drains
- Sweep sediment and leaves away from storm drain openings, curbs, and paved areas
- Remove grass thatch that is ½ inch thick or more
- Aerate lawn
- Avoid sprinkler overspray onto impermeable surfaces
- Maintain sprinklers
- Do not operate sprinkler systems when there has been adequate rainfall
- Use compost and mulch
- Pick up pet waste and dispose of it in the garbage or pet waste composter
- Drain swimming pools onto lawn

Storm Water Drains

- Know the relationship between the nearest storm drains and your living and working areas.
- When possible, perform work away from storm drains or divert water away from drains to a vegetated area.
- When working near storm drains or where runoff could enter storm drains, take precautions to avoid potential impacts to receiving waters:
    - Block storm drains to prevent contaminated liquids from entering the storm water drainage system.
    - Cover storm drains to prevent any loose material from getting into the storm water drainage system.
    - Sweep and pick up debris instead of washing it down the drain.
    - Use inlet filter bags on storm drains in areas with earth disturbances such as construction sites.

Home Maintenance

- Recycle
- Place all solid food in the trash
- Dispose non-hazardous liquids in sanitary drains
- Maintain septic tank and field, where applicable
- Use non-hazardous cleaning products
- To reduce waste and disposal, purchase only the amount of chemical products needed to complete the job

- Properly dispose of hazardous household waste
- Dispose of waste water from cleaning ventilation hoods and trash cans in sanitary drains
- Shovel or sweep any spills into a container and dispose properly
- Dry out latex paint prior to disposing of in the trash

Car and Equipment Maintenance

Washing Car and Equipment

- Wash cars at drive-through or do it yourself car washes
- Wash cars and equipment on grass
- Mechanically remove AND COLLECT sediment before washing
- Wash cars and equipment with only water or water with a mild detergent

Maintenance

- Stay with cars and equipment when pumping fuel
- Label containers with their contents
- Use funnels when pouring liquids
- Place trays under open containers and spouts of liquid storage containers
- Periodically check for fluid leaks and when found, repair immediately
- Use an approved absorbent material to clean up spills from leaks
- Complete maintenance work in a designate area away from storm drains and where spills can be contained
- Recycle fluids, batteries, tires, and used motor oil and filters
- Properly dispose of waste materials

Winter Maintenance

Salt and sand have traditionally been perceived as the cheapest and most effective materials for de-icing surfaces such as highways, walkways, and parking lots. However, many people do not realize that they have hidden impacts that can detract from their overall effectiveness. Even when applied in relatively small quantities:

SALT CAN…	SAND CAN…
• Deplete the oxygen supply needed by aquatic animals and plants • Leach into the ground and change the soil composition, making it hard for plants to survive • Leach into the groundwater, which sometimes flows to surface water; both are sources of drinking water • Deteriorate paved surfaces, buildings, infrastructures, and the environment	• Bury the aquatic floor life, fill in habitats, and cloud the water • Cause premature deterioration of floor surfaces as it is tracked into buildings • Lose its effectiveness after becoming embedded in snow and ice • Enter catch basins, storm drains, and surface waters • Contribute to plugged storm drains, which can cause flooding

Recommendations:

- Use salt and sand only when necessary
- A mixture of salt and sand together can be more effective

NOTE: The city of Ann Arbor provides residents with up to 5 gallons of a sand/salt mixture, per visit to 721 N.Main St. or one of five park locations: Allmendinger, Buhr, Burns, Leslie, and . Visit the City of Ann Arbor Winter Street & Sidewalk Maintenance Web page for more information.

Household Hazardous Materials Storage

Store materials and products indoors and away from drains when practicable. Keep products in their original containers or a clearly label new container. Be sure the containers are:

- In good condition
- Compatible with the material
- Sealed

If the material **must** be stored outside, make sure the storage container is:

- Under cover
- Away from all drains
- Water-tight
- Rodent-proof
- Protected from tampering
- Properly labeled

NOTE: When possible, place each primary container within a larger, leak-proof, secondary container.

Household Hazardous Waste Disposal Sites

For more information about household hazardous waste disposal on U-M campus and host city, contact:

CITY	CONTACT NUMBER	COUNTY	CONTACT NUMBER
Ann Arbor	(734) 971-7400	Washtenaw	734-222-6865
Dearborn	(313) 943-2085	Wayne	(313 -224-3620
Flint	(810) 767-9696	Genesse	(810) 767-9696

For more information about household hazardous waste disposal for surrounding communities, contact the local municipality.

Acknowledgements

We would like to acknowledge the following documents as sources of information for this article:

- Community Partners for Clean Streams, written by The Washtenaw County Office of the Drain Commissioner
- Controlling Nonpoint Source Pollution in the Huron River Watershed, written by The Washtenaw County Office of the Drain Commissioner
- Soil Erosion & Sedimentation Control Training Program, presented by Claude A. Schmitt, Land and Water Management Division, Michigan Department of Environmental Quality
- The Storm water Management Program for the University of Michigan, Ann Arbor Campus, written by Terry Alexander, Occupational Safety & Environmental Health, University of Michigan
- Water Resources - an Essay on Managing Water in Public Works, written by The American Public Works Association
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