

# Appendix 1



## Public Education and Outreach

**CITY OF GLENDALE, WI  
MUNICIPAL OPERATIONS  
WPDES Permit #WI-S061565-04**



**MS4 STANDARD OPERATING PROCEDURE (SOP) FOR:**

**PUBLIC EDUCATION AND OUTREACH**

**SOP Number: MS4-SOP-1**

**Created June 2021**

## BACKGROUND

The City of Glendale, along with the Villages of River Hills, Bayside, Brown Deer, Fox Point, Whitefish Bay and Shorewood, referred to as the North Shore Group, own and operate municipal separate storm sewer systems (MS4) that discharge to waters of the state. The North Shore Group has been issued a permit to discharge under the Wisconsin Pollutant Discharge Elimination Systems (WPDES Permit #WI-S061565-04) in accordance with s. 283.33, Wis. Stats., and subch. I. of NR 216, Wis. Adm. Code. State and Federal regulations require that MS4 operators shall develop and implement a program to ensure that municipal operations are performed in ways that will reduce contamination of stormwater discharges.

Per the State and Federal regulations, the program **must include** written documentation of maintenance activities, maintenance schedules, and long term inspection procedures for Best Management practices (BMPs) to reduce floatables and other pollutants discharged from the separate storm sewers. Specifically, the City of Glendale, as part of the North Shore Group, WPDES permit requires the following for the Public Education and Outreach portion of the permit:

**II.A Group Public Education And Outreach Conditions**

The North Shore Group Permittees shall implement a written public education and outreach program to increase the awareness of how the combined actions of human behavior influence storm water pollution and its effects on the environment. The public education and outreach program may incorporate cooperative efforts with other entities not regulated by this permit provided a mechanism is developed and implemented to track the results of these cooperative efforts and reported annually.

The North Shore Group intends to collaborate and satisfy these conditions collectively. This does not prohibit the North Shore Group Permittees from continuing to develop and implement unique programs within their respective jurisdictional municipal boundaries.

The program shall:

1. For each topic in Table 1, identify targeted pollutants of concern, the targeted audience, delivery mechanism and the entity responsible for implementation.
2. Address all topics at least once during the permit term with a minimum of 3 topics being addressed, either collectively or individually, each year. Topics may be repeated as necessary.
3. Address the topics in Table 1 below:

#	Topic Area	Description
1	Illicit Discharge Detection and Elimination	Promote detection and elimination of illicit discharges and water quality impacts associated with such discharges from municipal separate storm sewer systems.
2	Household Hazardous Waste Disposal / Pet Waste Management / Vehicle Washing	Inform and educate the public about the proper management of materials that may cause storm water pollution from sources including automobiles, pet waste, household hazardous waste and household practices.
3	Yard Waste Management / Pesticide and Fertilizer Application	Promote beneficial onsite reuse of leaves and grass clippings and proper use of lawn and garden fertilizers and pesticides.
4	Stream and Shoreline Management	Promote the management of streambanks and shorelines by riparian landowners to minimize erosion and restore and enhance the ecological value of waterways.
5	Residential Infiltration	Promote infiltration of residential storm water runoff from rooftop downspouts, driveways and sidewalks through implementation of green infrastructure best management practices (BMPs) such as rain barrels, rain gardens and permeable pavements.
6	Construction Sites and Post-Construction Storm Water Management	Inform and educate those responsible for the design, installation, and maintenance of construction site erosion control practices and storm water management facilities on how to design, install and maintain the practices.

7	Pollution Prevention	Storm water runoff from commercial properties and, where appropriate, educate specific businesses such as lawn care companies, golf courses, carwashes, and restaurants on storm water pollution prevention planning to reduce pollutant sources.
8	Green Infrastructure / Low Impact Development	Promote environmentally sensitive land development designs by developers and designers, including green infrastructure and low impact development.
9	Snow and Ice Control	Promote BMPs for snow and ice removal and inform specific audiences such as snow removal/deicing companies, private residences, industrial and commercial facilities, and residents about resources that provide further information on methods of reducing application of chemical deicers while maintaining public safety.

**II.B Individual Education and Outreach Conditions**

Each MS4, must implement an education and outreach program designed to achieve measurable goals based upon target audiences, specific storm water quality issues in the community, or identified pollutants of concern. The permittee must:

1. Evaluate the Storm Water Education Needs of their individual community by October 31, 2022. The permittee shall:
  - a. Conduct a survey or use other appropriate methods to identify their education needs.
  - b. Submit a list of prioritized storm water education needs for their community including the methods and rationale used for prioritization.
2. Complete Targeted Education. The permittee shall:
  - a. By October 31, 2024, provide education and outreach within the MS4 boundary for at least one prioritized education topic identified in Section II.B.1.
  - b. Develop metrics that will be used for measuring progress after the education event has been held.
  - c. Submit as part of the permit application (due October 31, 2025), a summary of the results of the education efforts and planned targeted education for the next permit term.

Failure to implement the state regulations cited above in Part II.A and II.B will result in the City of Glendale being found in non-compliance with the North Shore Group’s WPDES storm water permit. An accepted practice for establishing written documentation of maintenance activities is through the use of SOPs. This SOP has been prepared and issued for Public Education and Outreach and has been named City of Glendale SOP No. MS4-SOP-1.

## INTRODUCTION

**Objectives:** This SOP prescribes the procedures to be used when performing Public Education and Outreach activities in the City of Glendale MS4 area as follows:

- Provide background to the City staff regarding permit requirements for Public Education and Outreach.
- Provide procedures to the City staff for implementing and maintaining a Public Education and Outreach Program.
- Provide tools for tracking and documenting efforts towards achieving the goals for Public Education and Outreach.
- Create general acceptance of Stormwater Regulations throughout the City.

**Applicable/Responsible Personnel:** All City staff performing and managing activities related to Public Education and Outreach in the City of Glendale. See the Contact Information on page three (3) of this document for specific City personnel responsible for the Public Education and Outreach program.

**Previous Policy and Procedures Canceled/Superseded:** MS4 program procedures governing Public Education and Outreach that were in use at the time of the effective date of this SOP.

## POLICY

The City of Glendale will maintain a Public Education and Outreach Program for the purpose of reducing floatables and other pollutants from the City's separate storm sewers and conveyance system. This SOP will identify the components of the program that address the WPDES permit requirements. Each component will address procedures and record keeping and reporting methods and requirements. Each section requires identification of a person(s) responsible for overseeing the program and ensuring that all permit requirements are being met and are able to provide the necessary documentation to the WDNR as requested, or on the MS4 annual report. The program components will be assessed annually to determine if any modifications need to be made in order to improve efficiencies and/or to meet all permit requirements.

## PROCEDURES

### 1. North Shore Group Annual Meeting

The City will attend and participate in the annual meeting conducted by the North Shore Group. This schedule is set by the North Shore Group and meets at least once per year to discuss current issues regarding stormwater runoff throughout the North Shore Group MS4s. The North Shore Group have indicated that they plan to meet quarterly to exchange information and set group priorities. While attendance is not mandatory at the quarterly meetings, the City will attempt to attend all meetings, while ensuring a City representative will attend at minimum one meeting per year.

### 2. Participation in SWWT Water's Respect Our Waters (ROW) Educational Campaign

The City will work directly with ROW on specific and direct topics, focusing on one target audience for a specific duration of time. This allows the City to measure and report on the results from that time period.

**3. Evaluate Storm Water Education Needs**

The City will conduct a survey to identify education needs within the community. This survey will be used to prioritize storm water education needs for the community to meet the Individual permit requirements. Once the survey is completed by October 31, 2022, this information will be used to develop metrics for measuring progress towards public education and outreach. The initial measurable goal will be identifying target audience through the survey results.

**4. Identification of Topics**

Public Education and Outreach materials that are distributed will focus on ways to protect and improve water quality in the City’s MS4 area. The schedule below outlines the topics that the City will focus on each year. The letter next to the topic refers to the requirement within the WPDES Permit. For more detailed information about each topic, please see Part II.A.1 of the permit that is found on page ii of this SOP. Additionally, the schedule references the Appendix in which each year’s educational materials can be found. It is the responsibility of the Director of Public Works to ensure that at the beginning of the calendar year, the materials are the most current version and are distributed to City Hall.

YEAR	TOPIC	MATERIAL	TARGET AUDIENCE(S)	APPENDIX
1	Illicit Discharge Detection and Elimination (1); Pollution Prevention (7)	“1_SW_Basics.pdf”; “1_Watershed”; “1_Urban.pdf”; “1_MMSD_HHW.pdf”	Entire Community - Residential & Commercial	A
2	Household Hazardous Waste Disposal/Pet Waste Management/Vehicle Washing (2); Snow and Ice Removal (9)	“2_AfterTheStorm.pdf”; “2_CarMaint.pdf”; “2_IceAndSnow.pdf”; “2_MMSD_HHW.pdf”; “2_PetWaste.pdf”; “2_SaltWise.pdf”	Residential, Pet Owners, Commercial	B
3	Pollution Prevention (7); Construction Sites and Post-Construction Storm Water Management (6)	“3_AfterTheStorm.pdf”; “3_Construction.pdf”; “3_ConstructionPermit.pdf”	Commercial; Properties with LTMA	C
4	Yard Waste Management/Pesticide and Fertilizer Application (3); Residential Infiltration (5); Green Infrastructure/Low Impact Development (8)	“4_BenefitsofTrees.pdf”; “4_RainBarrels.pdf”; “4_RainBarrels_MMSD.pdf”; “4_RainGardens.pdf”; “4_RainGardens_MMSD.pdf”; “4_YardMaintenance.pdf”	Residential, Commercial	D
5	Stream and Shoreline Management (4); Construction Sites and Post-Construction Storm Water Management(6)	“5_ShorelandZoning.pdf”; “5_Erosion.pdf”; “5_Ponds.pdf”	Shoreline Properties; Contractors	E

Table 1. Public Education and Outreach Material Schedule

**5. Identification of Target Audiences**

The City has identified target audiences according to the schedule in Table 1.

**6. Distribution of Educational Materials**

The City has identified various opportunities to distribute educational material to residents and businesses to continue to educate the public on stormwater issues and how they may work toward improving the water quality in their watershed.

- At the beginning of each calendar year, the Director of Public Works, or their designee, will ensure that the educational brochures are updated and displayed in a designated area at City Hall. The materials will follow the schedule outlined in Table 1.
- The City will maintain updated and relevant educational information, as well as relevant links to supporting websites, on the City website to help assist residents, businesses, contractors, and developers to make informed choices about residential and business practices affecting stormwater quantity and quality.

**PLAN IMPLEMENTATION**

The City has a Public Education and Outreach plan implementation method in place, consisting of:

- a. Completion and utilization of community survey that identifies topics, delivery method of information and target audience
- b. Designation of the person(s) responsible for the plan implementation

**REPORTING & RECORD KEEPING**

The City has a procedure to document the Public Education and Outreach plan. The program documentation consists of the following:

- a. Track public education and outreach activities for annual reporting to the WDNR. Tracking includes, but is not limited to, amount of materials distributed, target audience, how the materials were distributed, topics covered. The current tracking forms can be found in Appendix F of this SOP.
- b. Identification and description of any specific stormwater related issues identified by the City throughout the calendar year. If specific issues arise throughout the year, the City will incorporate those known issues into Public Education events or presentations.
- c. Tracking documents will be kept in the MS4 Binder located in the office of the Director of Public Works and provided to the WDNR at the time of the annual report, or as requested.

**CONTACT INFORMATION**

The City of Glendale has identified the person(s) responsible for overseeing the Public Education and Outreach Program as outline in this SOP. The City Staff identified below is responsible for ensuring that all permit requirements are being met and necessary documentation is being maintained to conduct a program evaluation and to complete the MS4 Annual Report.

NAME	TITLE	PHONE	EMAIL
Charlie Imig	Director of Public Works	(414) 228-1746	c.imig@glendalewi.gov

**MODIFICATIONS**

Any changes to this SOP shall be documented in the table below. If a change to the document occurs, the updated SOP shall be submitted to the WDNR with the MS4 Annual Report.

DATE	DESCRIPTION	NAME

**SOP APPROVAL/ADOPTION**

This SOP has been approved and adopted by the following individuals and is effective immediately:

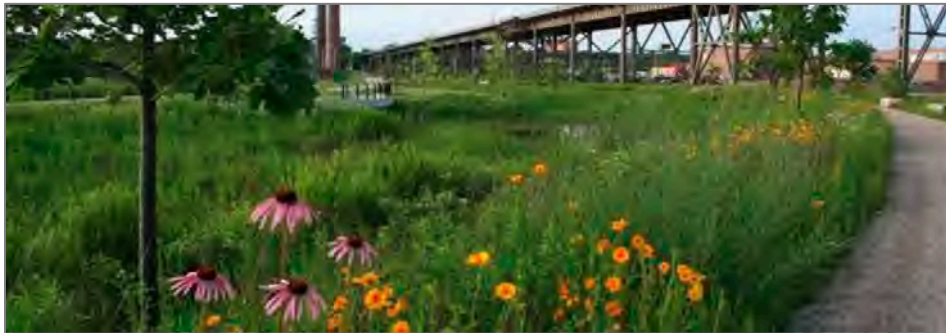
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Charlie Imig  
Director of Public Works  
City of Glendale

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Date

**APPENDIX A            YEAR 1 PUBLIC EDUCATION & OUTREACH  
LITERATURE**



RESPECT OUR WATERS

## What is stormwater pollution?

Rain is great for our lawns and gardens but the extra water that isn't absorbed by the ground can cause problems for Lake Michigan, our rivers and small inland lakes.

Many people don't realize that rain water that runs off of driveways and parking lots and flows down streets and into storm sewers becomes contaminated. It picks up litter, yard waste, lawn and auto chemicals and other debris. That flow of polluted water travels through underground pipes that lead directly to our rivers, streams and Lake Michigan. Unlike sewage, this water isn't normally treated.

The polluted mix dumps into our waterways with the dog poop, lawn fertilizer, car oil, cigarette butts, plastic water bottles and anything else the water picked up along the way.

This mixture of rain water and pollution is call stormwater runoff. If you visit Lake Michigan or a river after it's rained, you can see stormwater spreading out into the surrounding clean water. It's noticeable because it's a muddy color and often carries litter with it.

Contaminated stormwater can lead to beach closings, fish die offs and detrimental ecological changes. The most effective way to reduce stormwater pollution is to stop it from entering the system in the first place.

Everyone can make a difference just by picking up after their dogs, keeping leaves and other yard waste out of the street, using less lawn fertilizer and chemicals, attending to car leaks and throwing away litter. Those simple actions can have an enormous cumulative impact on our waterways. In reality, every little bit helps.

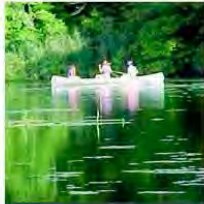
## Quick tip!

Looking for a easy way to make a change? Try diverting your drain spouts into your yard instead of into your driveway or sidewalk. This allows the water to filter through the soil before it enters groundwater and reduces the amount of runoff from your home!

This information was brought to you by Southeastern Wisconsin Watersheds Trust, Inc. in accordance with WDNR NR.216

Get more information online at [RespectOurWaters.org](http://RespectOurWaters.org)



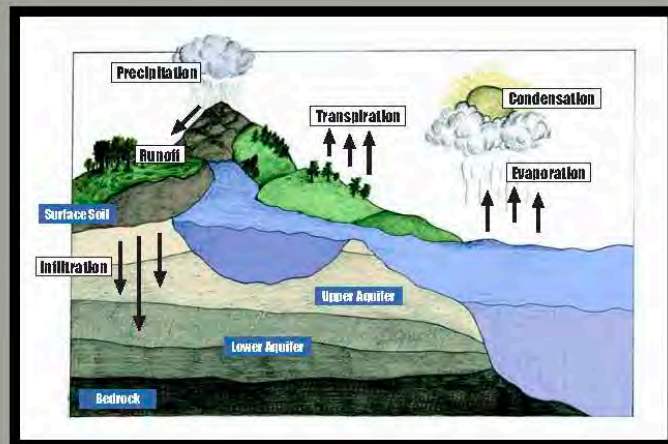


## what's a watershed?

A watershed is the area of land that drains into a body of water such as a river, lake, stream or bay. It is separated from other watersheds by high points in the area such as hills or slopes. It includes not only the waterway itself but also the entire land area that drains to it. For example, the watershed of a lake would include not only the streams entering that lake but also the land area that drains into those streams and eventually the lake. Drainage basins generally refer to large watersheds that encompass the watersheds of many smaller rivers and streams.

## what's the water cycle?

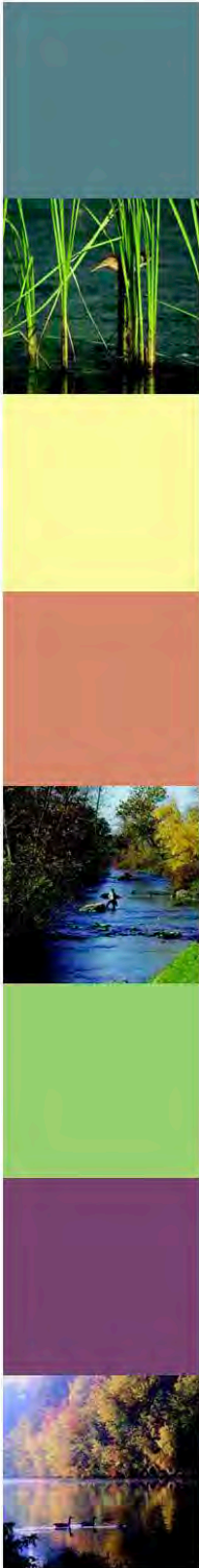
For millions of years, water has been constantly recycled and reused. When it rains, the rainwater flows over land into waterways or is absorbed by the ground or plants. Water evaporates from land and water bodies becoming water vapor in the atmosphere. Water is also released from trees and other plants through "transpiration." The water vapor from evaporation and transpiration forms clouds in the atmosphere which in turn provide precipitation (rain, hail, snow, sleet) to start the cycle over again. This process of water recycling, known as the water cycle, repeats itself continuously.



## what's ground water?

A sizable amount of rainwater runoff seeps into the ground to become ground water. Ground water moves into water-filled layers of porous geological formations called aquifers. If the aquifer is close to the surface, its ground water can flow into nearby waterways or wetlands, providing a base flow. Depending on your location, aquifers containing ground water can range from a few feet below the surface to several hundred feet underground. Contrary to popular belief, aquifers are not flowing underground streams or lakes.

Ground water is the primary drinking water source for half of the state's population. Most of this water is obtained from individual domestic wells or public water supplies which tap into aquifers. The other sources of drinking water are surface water reservoirs and rivers.



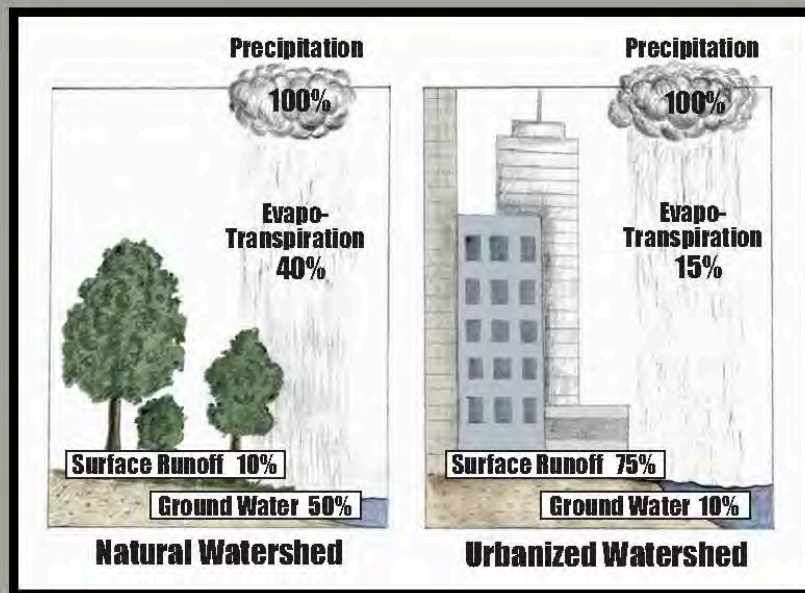
## how does urbanization change a watershed?

Urbanization (or development) has a great effect on local water resources. It changes how water flows in the watershed and what flows in the water. Both surface and ground water flow are changed.

As a watershed becomes developed, trees, shrubs and other plants are replaced with impervious surfaces (roads, rooftops, parking lots and other hard surfaces that do not allow stormwater to soak into the ground). Without the plants to store and slow the flow of stormwater, the rate of stormwater runoff is increased. Less stormwater soaks into the ground because the sidewalks, roads, parking lots and rooftops block this infiltration. This means a greater volume of water reaches the waterway faster and less water infiltrates to ground water. This in turn leads to more flooding after storms and reduced flow in streams and rivers during dry periods. The reduced amount of infiltrating water can lower ground water levels, which in turn can stress local waterways that depend on steadier flows of water.

In the stream, more erosion of stream banks and scouring of channels will occur due to volume increase. This in turn degrades habitat for plant and animal life that depend on clean water. Sediment from eroded stream banks clogs the gills of fish and blocks light needed for plants. The sediment settles to fill in stream channels, lakes and reservoirs. This also increases flooding and the need for dredging to clear streams or lakes for boating.

In addition to the high flows caused by urbanization, the increased runoff also contains increased contaminants. These include litter, cigarette butts and other debris from sidewalks and streets, motor oil poured into storm sewers, heavy metals from brake linings, settled air pollutants from car exhaust and pesticides and fertilizers from lawn care. These contaminants reach local waterways quickly after a storm.



# Polluted Urban Runoff:



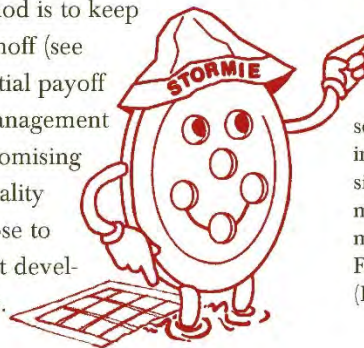
## A Source of Concern

What we do on our land is reflected in our water

**D**uring the last twenty years, urban areas have invested billions of dollars in new wastewater treatment facilities to control water pollution. Despite this effort, many of our local lakes and streams are still plagued with pollution and cannot be used for fishing and swimming. Why? The answer lies in the ways we use our land and in the aftermath of a storm.

When rain falls or snow melts, the runoff washes pollutants off our streets, parking lots, construction sites, industrial storage yards, and lawns. Urban runoff carries a mixture of pollutants from our cars and trucks, outdoor storage piles, muddy construction sites and pesticide spills. Efficient systems of ditches, gutters and storm sewers carry the polluted runoff to nearby lakes and streams, bypassing wastewater treatment systems.

One way of cleaning up polluted urban runoff is to install stormwater treatment facilities. Another less expensive method is to keep pollutants out of runoff (see sidebar). The potential payoff from better land management practices is high, promising healthier waters, quality water recreation close to home and riverfront development possibilities.



### From Streets to Streams

Urban runoff is a relatively recent concern, but it is not an insignificant issue. Although we have less urban area than rural area in Wisconsin, urban areas have more impervious surfaces. That means more water runs off instead of soaking in, and more enters lakes and streams unfiltered by soil or vegetation.

Some of the pollutants found in urban runoff are similar to pollutants found in rural runoff. These are the “conventional” pollutants – sediment, nutrients, oxygen-demanding materials, and bacteria. Urban areas on a per-acre basis deliver as much or more of these conventional pollutants as rural areas.

### Sediment

Like rural runoff, urban runoff is loaded with sediment. Cities may have less soil erosion than rural areas, but urban areas produce their own distinctive mix of sediment – flakes of metal from rusting vehicles, particles from vehicle exhaust, bits of tires and brake linings, chunks of pavement, and soot from residential chimneys as well as industrial smokestacks.

As Figure 1 on the following page shows, the leading

**Although we have less urban area than rural area in Wisconsin, urban areas have more impervious surfaces. That means more water runs off instead of soaking in ...**

sources of sediment in existing urban areas are industrial sites, commercial development and freeways. But by far the highest loads of sediment come from areas under construction (not shown in Figure 1). The Wisconsin Department of Natural Resources (DNR) estimates that an average acre under construction

### Keeping It Clean

Keeping pollutants out of stormwater runoff is less expensive than installing stormwater treatment facilities. Here are some ways that you can help prevent stormwater pollution:

#### Individuals

- Recycle oil
- Direct downspouts to lawns
- Sweep paved areas to keep waste out of stormsewers
- Keep your car tuned, repair leaks
- Limit fertilizer and pesticide use, leave grass clippings on lawn
- Clean up pet waste
- Dispose of toxic wastes properly
- Wash your car on your lawn or at a car wash

#### Municipalities

- Enforce construction site erosion control laws
- Enact laws requiring stormwater management in new development
- Develop and implement a comprehensive stormwater management plan
- Sponsor household hazardous waste collections

delivers 60,000 pounds (30 tons) of sediment per year to downstream waterways, which is much more than any other land use.

Two factors account for the large amount of sediment coming from construction sites – high erosion rates and high delivery rates. Construction sites have high *erosion*

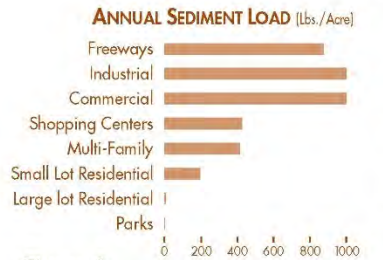
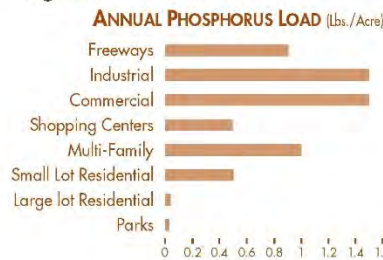


Figure 1



*rates* because they are usually stripped of vegetation and topsoil for a year or more. Typical erosion rates for construction sites are 35 tons to 45 tons per acre per year as compared to 1 to 10 tons per acre per year for cropland.

Even more importantly, construction sites have very high *delivery rates* compared to cropland. During the first phase of construction, the land is graded and ditches or storm sewers are installed to provide good drainage. This also provides an efficient delivery system for pollutants. Typically, 50% to 100% of the soil eroded from

a construction site is delivered to a lake or stream, compared to only 3% to 10% of the soil from cropland delivered to lakes or streams.

**Nutrients**

Runoff from both urban and rural areas is loaded with nutrients such as phosphorus and nitrogen. **Phosphorus** is the nutrient of greatest concern because it promotes weed and algae growth in lakes and streams. Like sediment, phosphorus *concentrations* are lower in urban runoff than in rural runoff, but annual phosphorus *loads* per acre are at least comparable to rural areas.

Because phosphorus compounds attach to soil particles, areas with high sediment loads also produce high phosphorus loads (see Figure 1). This means that construction sites are significant sources of phosphorus as well as sediment. Other sources of phosphorus include fertilizer spills, leaves and grass left on paved areas, and orthophosphate in vehicle exhaust.

**Oxygen Demanding Material**

Urban runoff carries organic material such as pet waste, leaves, grass clippings and litter. As these materials decay, they use up oxygen needed by fish and other aquatic life.

Shallow, slow-moving waterways are especially vulnerable to fish kills caused by oxygen demand from the organic materials in urban runoff. Indeed, the surge of oxygen demand after a storm dumps organic waste into an urban waterway can totally deplete its oxygen supply. Runoff from older residential areas (with more pavement, more pets, and combined storm and sanitary sewers) carries the highest load of oxygen demanding materials.

**Bacteria**

The levels of bacteria found in urban runoff almost always exceed public health standards for recreational swimming and wading. Generally, fecal coliform bacteria counts for urban runoff are 20 to 40 times higher than the health standard for swimming. Research shows these high levels of bacteria are typical of runoff from small as well as large cities in Wisconsin.

Sources of bacteria in urban runoff include sanitary sewer overflows, pets, and populations of urban wildlife such as pigeons, geese and deer.

**The DNR estimates that an average acre under construction delivers 60,000 pounds (30 tons) of sediment per year to downstream waterways, which is much more than any other land use.**

**Toxic Pollutants**

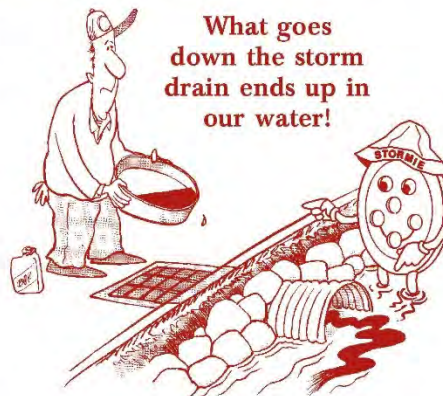
One of the special challenges of urban watersheds is toxic pollution. Toxic pollutants are substances that may cause death, disease or birth defects or that may interfere with reproduction, child development or disease resistance. According to DNR studies, the toxic pollutants of most concern in urban runoff are metals, pesticides, polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs).

**Metals**

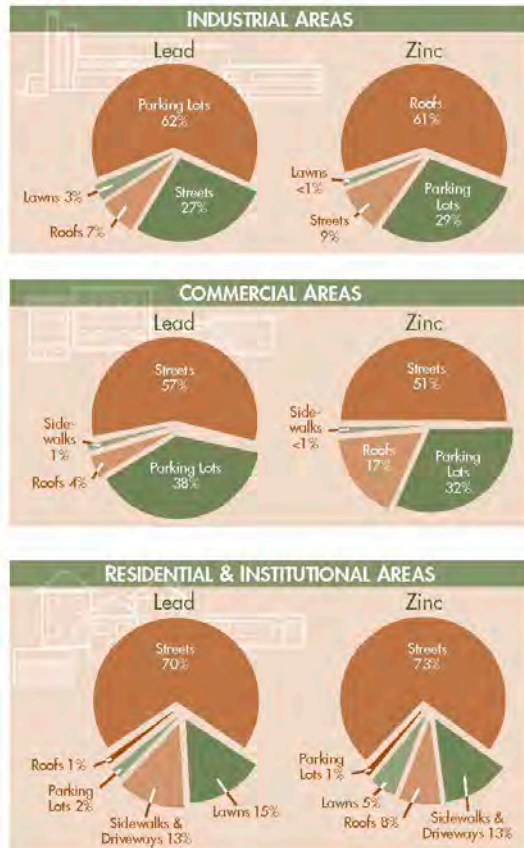
Metals are the best understood toxic pollutants in urban runoff. They were extensively monitored as part of the National Urban Runoff Program during the early 1980s. Recent data from Wisconsin cities confirms that runoff from small as well as large cities is contaminated with metals such as lead and zinc.

**Lead** has historically been used as an “indicator” for other toxic pollutants in urban stormwater because it is relatively easy to monitor and its dangers are well documented. Lead is a problem for both humans and aquatic life. Its human health effects include damage to the nervous system and kidneys, high blood pressure and digestive disorders.

Lead can also be toxic to aquatic life. Wisconsin monitoring shows that about 40% of the samples from



**Figure 2**  
**Sources of Total Lead and Zinc**  
**in Urban Runoff**



storm sewer discharges in a primarily residential area and 70% of the samples from a commercial area had lead levels high enough to kill aquatic life. Although lead levels still exceed water quality standards, they are much lower today than they were before the shift to unleaded gasoline.

**Zinc** is another metal in urban runoff which commonly violates water quality standards. While zinc does not create human health problems, it can be toxic to aquatic life. In fact, zinc is even more likely than lead to exceed levels that kill aquatic life.

The primary source of many metals in urban runoff is vehicle traffic. Concentrations of zinc, cadmium, chromium and lead appear to be directly correlated with the volume of traffic on streets that drain into a storm sewer system. As Figure 2 shows, streets and parking lots are the primary sources of lead in urban areas.

Roofs can also be a significant source of metals. Galvanized metal rooftops, gutters and downspouts are

the primary source of zinc (61%) in industrial areas where downspouts discharge onto pavement or directly into storm sewers. Roofs are a less significant source of zinc (8%) in residential areas where downspouts discharge onto lawns. On some roofs, copper flashing contaminates runoff with copper and lead.

In some cities, a significant source of metals is outdoor storage of scrap metal, coal, and salt. According to U.S. Geological Survey monitoring, scrap metal piles are the primary source of mercury in the area surrounding the Milwaukee harbor. Other metals found in runoff from outdoor storage include chromium and lead from road salt piles and arsenic from scrap metal and coal piles.

The list of other sources of metals is long, ranging from combustion to deteriorating metal and paint. Airborne emissions from burning coal, oil or municipal waste may carry cadmium, copper, lead or mercury. In fact, this is the primary source of mercury for many Wisconsin lakes. Other sources of metals include paints and plated metals which commonly contain cadmium or chromium. Bullets, fishing weights, and paint sold before 1977 may contain lead. Wood used in outdoor construction may contain arsenic, chromium, copper or zinc to prevent rotting.

**Pesticides**

Wisconsin stormwater monitoring documents the presence of many pesticides in urban runoff. However, how they got there is currently the subject of some debate. Tests indicate that most

properly applied pesticides are bound up in plants and soil; therefore, little runs off. Nevertheless, the pesticides listed above are frequently found in urban runoff at levels that violate surface and/or ground water quality standards.

**Regulated insecticides** may no longer be widely used, but they are persistent chemicals which do not degrade rapidly in the environment. Except for lindane, these insecticides are banned in Wisconsin. Lindane is still sold at garden centers for home use in controlling woody plant pests. It is also available for some commercial uses including treatment of seeds, Christmas trees, and farm animals.

Common **lawn and garden insecticides** such as diazinon and malathion may not be persistent in the environment, but they are toxic to bees, fish, aquatic insects, and other wildlife. Diazinon is especially toxic to birds. It has been banned from golf courses because there are documented cases of waterfowl dying while feeding on areas treated with diazinon.

Finding **agricultural herbicides** like alachlor, atrazine and cyanazine in urban stormwater may seem surprising

**PESTICIDES IN STORMWATER**

**Regulated Insecticides:**  
Aldrin, Chlordane, DDT, Endrin, Heptachlor, Lindane, Toxaphene.

**Lawn & Garden Insecticides:**  
Diazinon, Malathion

**Agricultural Herbicides:**  
Alachlor, Atrazine, Cyanazine.

**The primary source of many metals in urban runoff is vehicle traffic. Concentrations of zinc, cadmium, chromium and lead appear to be directly correlated with the volume of traffic in streets ...**

since these herbicides are not used in lawn and garden compounds. However, Midwest studies suggest that concentrations of atrazine in urban stormwater are consistent with concentrations found in rainfall. Both atrazine and alachlor easily evaporate from treated farm fields and later end up in rainfall or snow. Atrazine contamination of rainfall is more widespread than alachlor contamination because atrazine is more widely used and more persistent in the environment.

Some regulations now apply to the use of alachlor, atrazine and cyanazine. Only certified applicators may apply these chemicals. Furthermore, atrazine use is restricted in many Wisconsin counties due to groundwater contamination.

**Other Chemicals**

Other potentially toxic chemicals found in urban runoff have such long names that we commonly refer to them by their initials. Some of these chemicals are hazardous even in very small doses and require water quality standards set to parts per *billion*. Because sampling for these chemicals can be difficult and costly, information on them is very limited. Monitoring of urban runoff in Wisconsin suggests that two groups of chemicals are present in large enough concentrations to be of concern – PAHs and PCBs.

**Polycyclic aromatic hydrocarbons** (also called polynuclear aromatic hydrocarbons) are a large group of about 10,000 compounds. They are common by-products of incomplete combustion from vehicles, wood and oil burning furnaces, and incinerators. Some PAHs are used as ingredients in gasoline, asphalt and wood preservatives. According to monitoring data of storm sewer discharges in Wisconsin cities, the PAHs that most frequently exceed surface or ground water standards include:

- Benzo-a-pyrene
- Benzo-ghi-perylene
- Chrysene
- Fluoranthene
- Phenanthrene
- Pyrene

PAHs affect human health in a variety of ways but they are of particular concern because several of these compounds are among the most potent carcinogens. Laboratory tests on animals indicate that benzo-a-pyrene causes cancer and reproductive and fetal development problems. Other tests indicate that some PAHs damage the lungs, liver, skin and kidneys. Some studies also suggest that PAHs are responsible for tumors and lesions in fish, especially those that feed on river bottoms.

**PAHs affect human health in a variety of ways, but they are of particular concern because several of these compounds are among the most potent carcinogens.**

According to Wisconsin monitoring, more than 95% of the samples from storm sewer discharges violate human cancer criteria for benzo-a-pyrene and benzo-ghi-perylene. (Human cancer criteria are set at levels to keep the incremental risk of cancer below 1 in 100,000 for people who eat fish from lakes and streams in Wisconsin.) More than 60% of the samples violate human cancer criteria for chrysene, phenanthrene and pyrene. PAHs accumulate in bottom sediments in urban streams and are taken up by aquatic organisms such as crayfish. Unlike PCBs, they do not accumulate in living tissue or build up in the food chain.

**Polychlorinated biphenyls (PCBs)** are a group of over 200 compounds. They are very stable compounds which do not easily degrade, burn, dissolve in water, or conduct electricity. Therefore, PCBs have been used for many purposes including insulation in transformers and in electrical capacitors for old fluorescent light fixtures and appliances. They have also been used as coolants or lubricants.

PCBs are of special concern because they remain in the environment for a long time, build up in the food chain, accumulate in human fatty tissue, and may eventually cause health problems. Short term effects of PCB exposure include skin sores and liver problems. Longer term effects may include cancer as well as problems with reproduction, fetal development, immunity to disease, and liver functions.

PCB production stopped in 1977, but virtually all of the storm sewer discharge samples from Madison and Milwaukee still violate the human cancer criteria for PCBs. Sources of PCBs include sediment contaminated by past industrial waste discharges, landfill leachate, spills, and waste incineration.

**Steps for Clean Water**

Knowing what’s in urban runoff is the first step in developing an effective stormwater strategy. Many communities in Wisconsin are already working on cleaning up urban runoff. Cities are sweeping streets more frequently and industries are covering outdoor storage piles. Youth groups are stenciling *Dump No Waste* beside storm drains. And many new developments have stormwater ponds or infiltration basins designed to filter pollutants from stormwater. What is your community doing?

A publication of the University of Wisconsin Extension, in cooperation with the Wisconsin Department of Natural Resources under funding from the Wisconsin Nonpoint Source Water Pollution Abatement Program, Carolyn D. Johnson, UWEX Southeast Area Urban Water Quality Educator and Dotty Juengst, UWEX Northeast Urban Water Quality Educator. University of Wisconsin-Extension is an EEO/Affirmative Action employer and provides equal opportunities in employment and programming, including Title IX requirements. **GWQ020 Polluted Urban Runoff – A Source of Concern I-02-97-5M-20-S DNR: WT-483-97**

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Editing and design by the Environmental Resources Center, University of Wisconsin-Extension.





Does this bring joy?

### HOME HAZMAT COLLECTION

THINGS TO BRING & THINGS TO NOT AT OUR MOBILE & YEAR-ROUND DROP-OFFS

#### Garage & Workshop

- Acetone
- Artist's paints and media
- Antifreeze
- Auto body repair products
- Automobile oil
- Ballasts
- Battery acid
- Brake fluid
- Car wax, solvent-based
- Contact cement
- Deck strippers
- (wood bleach, sealers and preservatives)
- Driveway sealer
- Fuel additives
- Fiberglass epoxy
- Fluorescent light bulbs
- Gasoline/oil mixtures
- Gasoline and other fuels
- Glue, solvent-based
- Glue, water-based
- Joint compound
- Kerosene
- Latex paint

- Lighter fluid
- Non-automotive oils
- Oil filters
- Oil-based paint
- Paint thinner
- Paint stripper
- Parts cleaner
- Pepper spray
- Photographic chemicals
- Road flares
- Roofing tar
- Rust remover
- Sealers (wood & concrete)
- Shellac
- Stain
- Transmission fluid
- Turpentine
- Varnish
- Wood filler
- Wood preservative

#### Kitchen & Bathroom

- Cleaners, solvent-based
- Disinfectants
- Floor care products
- Hair remover

- Nail polish
- Nail polish remover
- Oven cleaner
- Thermometers

#### Home & Garden

- Aerosol cans, full
- Batteries, button
- Batteries, rechargeable
- Dry cleaning solvent
- Fertilizer (with pesticides)
- Fungicide
- Furniture polish
- Metal polish, solvent-based
- Insect spray
- Lamp Oil
- Light ballasts
- Mothballs
- Pesticides
- Pool chemicals
- Rat poison
- Shoe polish
- Spot remover
- Stump remover
- Thermostats
- Weed killer

#### Do Not Bring

- Ammunition
- Compressed gas cylinders
- Car batteries
- Clothes dryers
- Computers
- Containers larger than 15 gallons
- Explosives
- Fire extinguishers
- Fireworks
- Marine flares
- Medical waste
- Microwaves
- Prescription drugs
- Propane cylinders
- Radioactive wastes
- Refrigerators
- Sharps/ Needles
- Smoke detectors
- Stereos
- Televisions
- Tires of any type
- Washing machines



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 See Other Side ➡

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Look! Comprehensive List of Items You Can Bring

**APPENDIX B      YEAR 2 PUBLIC EDUCATION & OUTREACH  
LITERATURE**

*After the Storm*

*A Citizen's Guide to Understanding Stormwater*

EPA 833-B-09-002  
January 2009

For more information contact:  
www.epa.gov/epa/forms/er  
or visit  
www.epa.gov/epa/forms

WHAT IT RAINS

### What is stormwater runoff?

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

### Why is stormwater runoff a problem?

Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

### The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- ◆ Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- ◆ Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- ◆ Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- ◆ Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- ◆ Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- ◆ Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

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# Stormwater Pollution Solutions

## Residential



*Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them into the ground or into storm drains.*

### Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- ◆ Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- ◆ Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- ◆ Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- ◆ Cover piles of dirt or mulch being used in landscaping projects.

### Auto care

Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- ◆ Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- ◆ Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

### Septic systems

Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- ◆ Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- ◆ Don't dispose of household hazardous waste in sinks or toilets.

### Pet waste

Pet waste can be a major source of bacteria and excess nutrients in local waters.

- ◆ When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

### Education

*Education is essential to changing people's behavior. Signs and workers' vests storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.*

### Residential landscaping

**Permeable Pavement**—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

**Rain Barrels**—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

**Rain Gardens and Grassy Swales**—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.

**Vegetated Filter Strips**—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

## Commercial



Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- ◆ Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- ◆ Cover grease storage and dumpsters and keep them clean to avoid leaks.
- ◆ Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

### Erosion controls

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- ◆ Divert stormwater away from disturbed or exposed areas of the construction site.
- ◆ Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- ◆ Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.

## Agriculture



Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.

- ◆ Keep livestock away from streambanks and provide them a water source away from waterbodies.
- ◆ Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- ◆ Vegetate riparian areas along waterways.
- ◆ Rotate animal grazing to prevent soil erosion in fields.
- ◆ Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.

## Automotive Facilities



Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- ◆ Clean up spills immediately and properly dispose of cleanup materials.
- ◆ Provide cover over fueling stations and design or retrofit facilities for spill containment.
- ◆ Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- ◆ Install and maintain oil/water separators.

## Forestry



Improperly managed logging operations can result in erosion and sedimentation.

- ◆ Conduct preharvest planning to prevent erosion and lower costs.
- ◆ Use logging methods and equipment that minimize soil disturbance.
- ◆ Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- ◆ Construct stream crossings so that they minimize erosion and physical changes to streams.
- ◆ Expedite revegetation of cleared areas.

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RESPECT OUR WATERS

## Car Maintenance

Some of the harshest household chemicals are those used to maintain automobiles. The easiest way to reduce the impact of your automobile on the health of our waterways is to check your car , boat, motorcycle, and other machinery regularly for leaks and spills from oils, antifreeze, and other hazardous fluids. If your car leaks onto a surface such as a road, parking lot, or driveway, the chemicals are carried directly into our rivers and lakes. These chemicals can harm ecological habitats and kill aquatic life. They can also harm humans and other land animals by polluting drinking water and recreational areas.

If you notice a leak, clean up spilled fluids with an absorbent material like cat litter or sand, and don't rinse spills into a nearby storm drain. Remember to properly dispose of the absorbent material and the fluids.

Maintaining a car at home creates more runoff than maintenance at a commercial facility such as an automotive repair shop or a car wash. These professional have treatment systems that remove harmful chemicals before they leave the property. This spares our local rivers and lakes from the brake fluid, oil and automotive fluids. Many carwashes also recycle their wastewater, and use less than half the amount of water a home carwash does.

If you prefer to maintain your car at home, keep these tips in mind:

- Never pour waste oil or cleaning products onto the ground, the driveway, or the gutter. A single quart of motor oil that seeps into groundwater can pollute 250,000 gallons of drinking water.
- Make sure to recycle any leftover oil or chemicals that you have instead of dumping them in the sewer. Find resources for recycling options on your municipality's website.
- Do your best to reduce the amount of water you use when maintaining your vehicle. The less water that we use, the less runoff ends up in our rivers and streams!

## Quick tip!

Looking for a easy way to lower the impact your car has on the environment? Take a few minutes each week to check over your vehicle and ensure that it is not leaking any fluids or oils onto your driveway and into lakes and rivers!

This information was brought to you by Southeastern Wisconsin Watersheds Trust, Inc. in accordance with WDNR NR.216

Get more information online at [RespectOurWaters.org](http://RespectOurWaters.org)



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RESPECT OUR WATERS

## Ice and Snow Control

Winter time is an important time for the health of our rivers and lakes. With the amount of snow and ice on the roads, salt and sand are added in liberal quantities to provide some safety for drivers, bikers, pedestrians. Unfortunately, the salt and other chemicals can cause major problems when melting ice and snow carries them into our storm drains and directly out into the watershed. Road salt is also corrosive and can damage vehicles and infrastructure.

Here are some winter tips that make a difference for water quality:

- Don't overuse salt and other deicing chemicals! These may seem harmless, but when they dissolve, they flow into storm drains that lead directly to our rivers and lake.
- Once salt enters a body of water, it is extremely difficult to remove and high salinity is toxic to aquatic life, birds, and other organisms. A good guide to follow is to use a coffee mug full of salt for every 10 sidewalk squares or 20 feet of driveway.
- Take preventative measures to reduce salt usage. If possible, shovel necessary areas throughout snowfall. This will reduce the amount of salt needed and make it more effective. If the ice is thicker than ½", salting won't be helpful - use a heavy ice chopper instead.
- If the temperature dips below 15 degrees Fahrenheit, road salt won't work. Use sand for traction or an alternative ice melt product that is effective at colder temps.
- Take your car to the shop to ensure that it is running smoothly and not leaking chemicals that could end up in our waterways. It is easy to miss small leakages in the winter so take a minute to inspect your vehicle regularly.
- Sweep up excess salt or sand after every storm. Not only will you keep it out of the storm sewers, you'll be able to use it again and save money in the process!
- If you hire help for snow removal, please ask your contractor to use salt sparingly, use sand or another alternative, or perform more manual labor to reduce ice formation.

## Quick tip!

Looking for an easy way to reduce your impact?

Check out alternatives to traditional road salt! There are many alternative options that have a lower impact on water quality available including sand, vinegar solutions, and other de-icing products available.

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 Stump remover  
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 Car batteries  
 Clothes dryers  
 Computers  
 Containers larger than 15 gallons  
 Explosives  
 Fire extinguishers  
 Fireworks  
 Marine flares  
 Medical waste  
 Microwaves  
 Prescription drugs  
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 Stereos  
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 Tires of any type  
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Oct. 9 11am - 2pm  
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Look! Comprehensive List of  
Items You Can Bring ➡



## Dog Poop

### Always pick up your pet's waste!

Did you know that dog poop is toxic for the health of waterways? Pet waste contains nutrients that encourage weed and algae growth. Overly fertile water becomes cloudy and green making it unattractive for swimming, boating and fishing.

Additionally, pet waste can contain fecal coliform bacteria which directly harms aquatic life and human health. Dog poop often contains antibiotics. When dog poop isn't picked up, whether in your yard or in a public area, these bacteria and medications are carried off by rain and sent directly through the stormwater system into our rivers and lakes without any treatment or filtration.

*The EPA estimates that two or three days' worth of droppings from 100 dogs in a watershed can contribute enough bacteria to impact the surrounding 20 miles and make them unsafe for fishing and swimming.*

There is no perfect solution for pet waste disposal but here are some of the smartest options:

- Put it in a bag and throw it in the trash. This is not the ideal solution because it can create problems at landfills or incinerators but is still better than leaving it in your yard.
- Flush it down the toilet where it will be treated before being released.
- Dig a hole or trench that is about 5 inches deep and away from vegetable gardens and any lake, stream, ditch or well. Microorganisms in the top layer of the soil will break down the waste and release nutrients to fertilize nearby plants.
- Use an underground pet waste digester. The digester works like a small septic tank by using environment-friendly enzymes and bacteria to turn dog waste into a liquid that's absorbed by the ground.
- If you are away from home, look for a pet waste station where you can often find baggies and a disposal bin.

## Quick tip!

Flushing pet waste is a great option for disposal of waste from many different pets, including cats, dogs, and other small mammals. If you choose to flush, take care to remove all litter, bedding, and other debris which can clog pipes and damage plumbing.

This information was brought to you by Southeastern Wisconsin Watersheds Trust, Inc. in accordance with WDNR NR.216

Get more information online at [RespectOurWaters.org](http://RespectOurWaters.org)



# Be Salt **W**ise!



## Safe winter driving is as easy as 1-2-3:



**1. Wait**  
Wait to allow time for plowing and deicers.



**2. Know**  
Know the current road conditions before you hit the road.



**3. Slow**  
Travel slowly, and use caution and reason.

WI Salt Wise Partnership

Follow WI Salt Wise on:



[www.wisaltwise.com](http://www.wisaltwise.com)

Reduce your winter salt use to help protect our lakes, streams and drinking water.

# Once you put salt down, it doesn't go away

Salt alters the composition of soil, slows plant growth and weakens the concrete, brick and stone that make up our homes, garages, bridges, and roads.

It travels into our lakes, rivers, streams and wetlands, putting our aquatic life at risk and endangering our freshwater resources.

It only takes **1 teaspoon of salt**

to **permanently pollute** 5 gallons of water



Every year, we use about...



... of salt on our roads, sidewalks, driveways, and parking lots.

This doesn't include what we use on sidewalks, driveways, and parking lots.

# Reduce your salt use to help protect our lakes, streams, and drinking water.

## 1. Shovel



Clear walkways and other areas before the snow turns to ice. The more snow you remove manually, the less salt you will have to use and the more effective it will be.

## 2. Scatter



If you use salt, scatter it so that there is space between the grains. Believe it or not, a coffee mug of salt is enough to treat an entire 20-foot driveway or 10 sidewalk squares.

## 3. Switch



When pavement temperatures drop below 15 degrees, salt won't work. Switch to sand for traction or a different ice melter that works at lower temperatures.

## 4. Select a Certified Applicator



Encourage your maintenance professional to get certified through the City of Madison's Winter Salt Certification Program and ask businesses in your community to do the same.

## 5. Love the Lines



Stripes on roads before a storm are anti-icing. They show that your professional maintenance crew is concerned about safety and is saving money, time and protecting our environment!

## 6. Be Salt Wise All Year



Water softener salt ends up in local freshwater bodies. If your household softener uses more than 1 bag of salt per month, have a professional tune it up or replace it with a high-efficiency model.

**APPENDIX C            YEAR 3 PUBLIC EDUCATION & OUTREACH  
LITERATURE**

**A Citizen's Guide to Understanding Stormwater**

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Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

**The effects of pollution**

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- ◆ Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- ◆ Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- ◆ Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- ◆ Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- ◆ Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- ◆ Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

For more information contact: [www.epa.gov/stormwater](http://www.epa.gov/stormwater) or visit [www.epa.gov/stormwater](http://www.epa.gov/stormwater)

EPA 833-B-03-002  
January 2003

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City of Glendale, Wisconsin

# Stormwater Pollution Solutions

## Residential



*Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them into the ground or into storm drains.*

### Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- ◆ Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- ◆ Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- ◆ Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- ◆ Cover piles of dirt or mulch being used in landscaping projects.

### Auto care

Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- ◆ Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- ◆ Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

### Septic systems

Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- ◆ Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- ◆ Don't dispose of household hazardous waste in sinks or toilets.

### Pet waste

Pet waste can be a major source of bacteria and excess nutrients in local waters.

- ◆ When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

### Residential landscaping

**Permeable Pavement**—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

**Rain Barrels**—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

**Rain Gardens and Grassy Swales**—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.

**Vegetated Filter Strips**—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

## Commercial



Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- ◆ Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- ◆ Cover grease storage and dumpsters and keep them clean to avoid leaks.
- ◆ Report any chemical spill to the local hazardous waste clean up team. They'll know the best way to keep spills from harming the environment.

## Construction



Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- ◆ Divert stormwater away from disturbed or exposed areas of the construction site.
- ◆ Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- ◆ Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.

## Agriculture



Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.

- ◆ Keep livestock away from streambanks and provide them a water source away from waterbodies.
- ◆ Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- ◆ Vegetate riparian areas along waterways.
- ◆ Rotate animal grazing to prevent soil erosion in fields.
- ◆ Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.

## Automotive Facilities



Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- ◆ Clean up spills immediately and properly dispose of cleanup materials.
- ◆ Provide cover over fueling stations and design or retrofit facilities for spill containment.
- ◆ Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- ◆ Install and maintain oil/water separators.

## Forestry



Improperly managed logging operations can result in erosion and sedimentation.

- ◆ Conduct preharvest planning to prevent erosion and lower costs.
- ◆ Use logging methods and equipment that minimize soil disturbance.
- ◆ Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- ◆ Construct stream crossings so that they minimize erosion and physical changes to streams.
- ◆ Expedite revegetation of cleared areas.

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# Stormwater and the Construction Industry

## Protect Natural Features



- Minimize clearing.
- Minimize the amount of exposed soil.
- Identify and protect areas where existing vegetation, such as trees, will not be disturbed by construction activity.
- Protect streams, stream buffers, wild woodlands, wetlands, or other sensitive areas from any disturbance or construction activity by fencing or otherwise clearly marking these areas.

## Silt Fencing



- Inspect and maintain silt fences after each rainstorm.
- Make sure the bottom of the silt fence is buried in the ground.
- Securely attach the material to the stakes.
- Don't place silt fences in the middle of a waterway or use them as a check dam.
- Make sure stormwater is not flowing around the silt fence.

## Construction Phasing



- Sequence construction activities so that the soil is not exposed for long periods of time.
- Schedule or limit grading to small areas.
- Install key sediment control practices before site grading begins.
- Schedule site stabilization activities, such as landscaping, to be completed immediately after the land has been graded to its final contour.

## Vegetative Buffers



- Protect and install vegetative buffers along waterbodies to slow and filter stormwater runoff.
- Maintain buffers by mowing or replanting periodically to ensure their effectiveness.

## Site Stabilization



- Vegetate, mulch, or otherwise stabilize all exposed areas as soon as land alterations have been completed.

# Maintain your BMPs!

[www.epa.gov/npdes/menuofbmps](http://www.epa.gov/npdes/menuofbmps)

## Construction Entrances



- Remove mud and dirt from the tires of construction vehicles before they enter a paved roadway.
- Properly size entrance BMPs for all anticipated vehicles.
- Make sure that the construction entrance does not become buried in soil.

## Slopes



- Rough grade or terrace slopes.
- Break up long slopes with sediment barriers, or under drains, or divert stormwater away from slopes.

## Dirt Stockpiles



- Cover or seed all dirt stockpiles.

## Storm Drain Inlet Protection



- Use rock or other appropriate material to cover the storm drain inlet to filter out trash and debris.
- Make sure the rock size is appropriate (usually 1 to 2 inches in diameter).
- If you use inlet filters, maintain them regularly.

# Stormwater and the Constraining Industry Planning and Implementing Erosion and Sediment Control Practices

The construction industry is a critical participant in the nation's efforts to protect streams, rivers, lakes, wetlands, and oceans. Through the use of best management practices (BMPs), construction site operators can help reduce erosion, sedimentation, and water pollution.

**Best Management Practices (BMP)**  
An operator is someone who has control over and the ability to modify construction plans and specifications (e.g., stormwater operator).

**So what's being done about polluted runoff?**  
The Clean Water Act includes the National Pollutant Discharge Elimination System (NPDES) permit program. Under this NPDES program, construction activities that discharge stormwater into navigable waters are required to obtain a permit.

- Develop and implement a stormwater pollution prevention plan
- Obtain a permit application or notice of intent (NOI)
- Comply with the permit, including maintaining BMPs and keeping the site

**I think I need a permit... Where do I start?**  
All land-disturbing activities, including clearing, grading, and excavation, that disturb 1 or more acres are required to obtain a permit. Before you start, you should check with your local authority to determine if you need a permit.

**Construction sites that disturb 1 or more acres of land are required to obtain a permit under the Clean Water Act. The permit fee is \$27,000 a day per violation.**

**Read and understand your stormwater permit requirements**  
Your permit will outline the specific requirements for your site. It will also include information on how to apply for a permit.

**Develop a plan**  
Once you have your permit, you need to develop a plan for your site. This plan should include information on how to implement the permit requirements.

**Apply for permit coverage**  
Once you have your plan, you need to apply for permit coverage. This process involves submitting your plan to the local authority.

## Developing and Implementing a Plan

- Advance planning and training to ensure proper implementation of the BMP.
- Review and address permit conditions, to ensure that the permit is fully understood.
- Prepare the permit application, including the stormwater pollution prevention plan (SWPPP).

### 1. Site Evaluation and Design Development

- Develop pollution prevention site map
- Determine the drainage areas
- Calculate the runoff coefficient
- Review the permit conditions, to ensure that the permit is fully understood.

### 3. Control Selection and Plan Design

- Review and incorporate state or local requirements
- Select erosion and sediment controls
- Select stormwater management controls
- Indicate the location of controls on the site map

### 2. Assessment

- Measure the site area
- Determine the drainage areas
- Calculate the runoff coefficient
- Review the permit conditions, to ensure that the permit is fully understood.

### 4. Certification and Notification

- Submit permit application or notice of intent
- Obtain permit coverage
- Prepare the permit application, including the stormwater pollution prevention plan (SWPPP).

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### Erosion and sedimentation control practices are only as good as their installation and maintenance.

- Implement controls
- Inspect and maintain controls
- Update/change the Plan
- Report releases of hazardous materials

### 5. Implementing and Maintaining a Plan

- Implement controls
- Inspect and maintain controls
- Update/change the Plan
- Report releases of hazardous materials

### 6. Completing the Project: Final Stabilization and Termination of the Permit

- Final stabilization
- Record retention
- Notice of Termination

### Final Stabilization and Termination of the Permit

- Final stabilization
- Record retention
- Notice of Termination

## Preconstruction Checklist

- A copy of the permit, including all conditions and special provisions
- A copy of the site plan, including all erosion and sedimentation control practices
- A copy of the stormwater pollution prevention plan (SWPPP)

## Implementation Checklist

- Final stabilization
- Record retention
- Notice of Termination

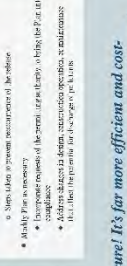
## Other BMPs and Activities to Control Polluted Runoff

- Final stabilization
- Record retention
- Notice of Termination

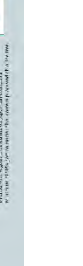
## Additional Resources


- Visit [www.epa.gov/mpdes/stormwater](http://www.epa.gov/mpdes/stormwater) for more information.
- Contact your local authority for more information.

## Visit [www.epa.gov/mpdes/stormwater](http://www.epa.gov/mpdes/stormwater) for more information.




An ounce of prevention is worth a pound of cure! It's far more efficient and cost-effective to prevent pollution than it is to try to correct problems later. Installing and maintaining simple BMPs and pollution prevention techniques on site can greatly reduce the potential for stormwater pollution and can also save you money!





# Does Your Construction Site Need a Stormwater Permit?

A Construction Site Operator's Guide to EPA's  
Stormwater Permit Program



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**Why do I have to get permit coverage?**

EPA's National Pollutant Discharge Elimination System (NPDES) program regulates stormwater runoff from construction sites. On July 1, 2003, EPA reissued the Construction General Permit (CGP) to extend coverage to construction sites that disturb 1 or more acres, including smaller sites that are part of a larger plan of development. For example, if you are building a house on a half-acre lot in a 10-acre development, you need permit coverage. Construction site operators need to submit an application called a Notice of Intent (NOI) to be covered under EPA's CGP.



This brochure describes how to meet the requirements of EPA's permit which applies to construction sites in several states and territories (see list below). Most states, however, are authorized to implement the NPDES stormwater program. Authorized states have similar requirements for construction sites. If your construction project is not in one of the areas listed below, you will need to obtain permit coverage from the appropriate state authority. A list of state permitting authorities can be found at [www.epa.gov/npdes/stormwater](http://www.epa.gov/npdes/stormwater).

**EPA's Construction General Permit applies to the following areas:**

- Alaska
- District of Columbia
- Idaho
- Massachusetts
- New Hampshire
- New Mexico
- Puerto Rico
- Most Indian Country lands
- Federal facilities in Vermont, Colorado, Delaware, and Washington
- Oil and gas operations and other activities in Texas and Oklahoma
- U.S. Territories (e.g., Guam, American Samoa), except the Virgin Islands

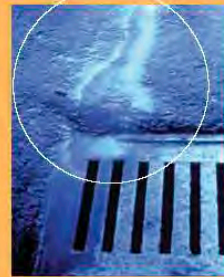


Photo by Tim McColey, 1992

Visit [www.epa.gov/npdes/pubs/cgp\\_appendixb.pdf](http://www.epa.gov/npdes/pubs/cgp_appendixb.pdf) for a detailed list of the areas under EPA's jurisdiction.

**Why is stormwater runoff so bad?**

Runoff from rainstorms and snowmelt picks up pollutants like sediment, oil and grease, nitrogen and phosphorus, and other chemicals and carries them into storm drains or directly into waterbodies. Because most storm drain systems do not provide any treatment to the water they collect, preventing contamination of stormwater is critically important or polluted runoff will be discharged untreated into the waterbodies we use for swimming, fishing, and drinking water.



**Why is sediment harmful to a waterbody?**

Too much sediment in a waterbody can cloud the water and make it difficult or impossible for aquatic plants to receive the sunlight they need to grow. Excess sediment also smothers aquatic habitat, clogs fish gills, and impedes navigation in our waterways, which can lead to expensive dredging.

**I need permit coverage. Where do I start?**

**1. Read EPA's Construction General Permit (CGP)**

You can download a copy of EPA's permit at [www.epa.gov/npdes/stormwater/cgp](http://www.epa.gov/npdes/stormwater/cgp). Read EPA's permit carefully, and remember that operators are legally responsible for complying with all its provisions.

**Who submits an NOI?**

The "operator" submits a Notice of Intent (NOI) form. The operator is the entity (generally company, corporation, etc.) that has operational control over the construction plans or day-to-day activities that are necessary to implement the Stormwater Pollution Prevention Plan (SWPPP) (see below). On some sites, several entities may meet the definition of operator and all must file NOIs. Operators may include owners, general contractors, and subcontractors.

It is the responsibility of the operator(s) to develop and implement a SWPPP and maintain all best management practices (BMPs) during each stage of the project. Best management practices are the techniques (buffers, silt fences, detention ponds, swales, etc.), schedules of activities, prohibitions of practices, and maintenance procedures to prevent or reduce the discharge of pollutants.

**2. Develop a stormwater pollution prevention plan (SWPPP)**

The SWPPP is a plan for how you will control stormwater runoff from your construction site. It is broader and more complicated than a typical erosion and sediment control plan, so operators might want to enlist the assistance of a professional to save time. The SWPPP must be completed before you file an NOI to apply for coverage under EPA's permit. You don't have to submit the SWPPP with your NOI to obtain permit coverage, but the plan must be available on-site for review during inspection.

Because every site is unique, every SWPPP is unique. The SWPPP needs to be updated as your work progresses. Please visit [www.epa.gov/npdes/stormwater/cgp](http://www.epa.gov/npdes/stormwater/cgp) for more information on how to develop your SWPPP.

**Basic SWPPP Principles**

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install BMPs to control erosion and sediment and manage stormwater.
- Inspect the site regularly and properly maintain BMPs, especially after rainstorms.
- Revise the SWPPP as site conditions change during construction and improve the SWPPP if BMPs are not effectively controlling erosion and sediment.
- Minimize exposure of bare soils to precipitation to the extent practicable.
- Keep the construction site clean by putting trash in trash cans, keeping storage bins covered, and sweeping up excess sediment on roads and other impervious surfaces.

**3. Complete an endangered species determination for the project site**

The operator must assess the potential effects of stormwater runoff on federally listed endangered and threatened species and any designated critical habitat on or near the site. In making this determination, the operator needs to consider areas beyond the immediate footprint of the construction activity and beyond the property line—areas that could be affected directly or indirectly by stormwater discharges.

The local offices of U.S. Fish and Wildlife Service, National Marine Fisheries Service, and State or Tribal Heritage Centers often maintain lists of federally listed endangered or threatened species on their Web sites. Visit [www.epa.gov/npdes/stormwater/esa](http://www.epa.gov/npdes/stormwater/esa) for more information.

**How to get a stormwater permit**

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#### 4. File a Notice of Intent (NOI)

The Notice of Intent (NOI) form lets EPA know that you are filing for permit coverage. It is also your certification that you have read, understood, and implemented the requirements of EPA's permit. The fastest and easiest way to obtain permit coverage is through EPA's new online permit application system ([www.epa.gov/npdes/enoi](http://www.epa.gov/npdes/enoi)). EPA's permit requires a 7-day waiting period after an NOI is filed and posted on EPA's Web site ([www.epa.gov/npdes/noisearch](http://www.epa.gov/npdes/noisearch)). Using EPA's eNOI system is the fastest way to begin this process. Mailing a paper NOI to EPA can add 2 or more weeks to your processing time. During the waiting period, NOIs are reviewed for endangered species impacts and other concerns. Permit coverage begins at the conclusion of the 7-day period unless you are notified otherwise. Your completed NOI should be posted at the construction site in a place accessible to the public.



Using EPA's new eNOI system ([www.epa.gov/npdes/enoi](http://www.epa.gov/npdes/enoi)) can save you 2 weeks or more.

#### 5. Implement all BMPs outlined in your SWPPP

Remember to follow your SWPPP. All BMPs must be inspected and maintained regularly. Inspections are required either (1) at least once every 7 days or (2) at least once every 14 days and within 24 hours of the end of a rain event of 1/2-inch or more. The plan must also be updated as site conditions and BMPs change. Remember to keep records of your maintenance activities and any SWPPP modifications for review during inspection.

#### 6. File an electronic Notice of Termination

You should terminate permit coverage when your project is completed (generally, when 70% of the density of the original vegetation is reestablished on unpaved areas), when the property has been stabilized and ownership has been transferred to the homeowner (residential projects only), or when another operator has assumed control over the site (new operators will need to file an NOI and meet the requirements of EPA's permit). The electronic Notice of Termination form informs EPA that your construction project is complete and ends your responsibilities under the permit. The form can be completed and filed using the eNOI system at [www.epa.gov/npdes/enoi](http://www.epa.gov/npdes/enoi).



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EPA 833-F-04-002 February 2004

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# All construction sites disturbing 1 or more acres (with few exceptions) need stormwater permit coverage!

- Does your construction project disturb 1 or more acres of land through clearing, grading, excavating, or stockpiling of fill material? Remember to count the acreage of the entire project, even if you are responsible for only a small portion.
- Is there any possibility that stormwater could run off of your site? (In almost every case, the answer to this question is yes. However, if the topography of your site is such that there is no possibility that rainfall or snow melt could leave the site or enter a waterway under any condition, you would not need permit coverage.)



**If you answered “yes” to both of these questions, YOU NEED PERMIT COVERAGE! If you don’t have permit coverage, you could be fined up to \$32,500 per day!**

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**APPENDIX D            YEAR 4 PUBLIC EDUCATION & OUTREACH  
LITERATURE**



RESPECT OUR WATERS

## Benefits of Trees

Planting a tree is a great way to keep our waterways clean, healthy and beautiful. They're a natural barrier that helps reduce stormwater runoff into our streams, rivers and lakes. Trees can hold rainwater on their leaves, needles, and branches and capture water by absorbing it through root systems.

Here are just a few benefits that come from having trees on your property:

- When it rains, trees hold the water in their leaves and branches.
- They direct water into the soil and filter it with their roots.
- Their roots hold soil in place to prevent erosion.
- They capture polluted stormwater runoff from sidewalks, driveways and parking lots so it doesn't flow into our area waterways.
- A single mature tree with a 30-foot crown can intercept more than 700 gallons of rain each year.

Planting a tree can be intimidating, but armed with the right tools and information, it can be a very simple process. Before you plant a tree, check the designated spot carefully. Avoid planting a tree in close proximity to underground utilities, power lines, or buildings. Trees need space to grow and thrive in order to remain healthy. Call Diggers Hotline (1-800-242-8511) before you start planting to avoid hitting buried utilities.

Once you have located the perfect spot, talk to your local nursery to find the tree that's right for your location and soil type. There are many trees that are native to Wisconsin that are naturally suited for retaining water and surviving the winter. Keep in mind that during the first year after it is planted, your new tree will most likely need extra care. It should be staked loosely, watered during the summer and protected from the wind. Some trees may require more maintenance than others, so talk to your nursery about best practices to keep your tree healthy in the long term.

## Quick tip!

Tired of spending hours raking the leaves from trees in your yard? Try mulching them and leaving them in the yard instead! This will cut down on your work and the leaves will compost during the winter to provide a layer of nutrients for your grass.

This information was brought to you by Southeastern Wisconsin Watersheds Trust, Inc. in accordance with WDNR NR.216

Get more information online at [RespectOurWaters.org](http://RespectOurWaters.org)





RESPECT OUR WATERS

## Rain Barrels

### Use a rain barrel to collect rain water where it falls!

One of the best ways to reduce pollution in our rivers and lakes is to reduce the amount of water that runs off your property into sewers and out into the watershed. Rain barrels are an efficient way to keep the rain that falls on your home from running directly into lakes and rivers and carrying pollutants with it.

Here are just a few benefits of adding a rain barrel to your property:

- Rain barrels collect water where it falls and reduce the amount of runoff from your property.
- Rain water collected in rain barrels is an excellent source of water for yard maintenance during dry spells and can help you reduce your overall water consumption and utility fees.
- Rain barrels can also reduce the risk of basement flooding by directing rain water away from a home's foundation.
- For every inch of rain that falls on 1,000 square feet of a roof, about 600 gallons of water can be collected.

Rain barrels are connected to the bottom of downspouts to collect rain as it runs off a roof. They should be installed only on level surfaces and elevated using concrete or cinder blocks or a sturdy wooden stand. Elevating a rain barrel increases pressure, so, when you're ready to use it, the water flows more quickly.

Most rain barrels have a lid or mesh screen on top to prevent leaves and insects from getting into the barrel; spigots for easy drainage; valves that can be used to connect multiple barrels together with hoses; and overflow valves to direct excess water away from sensitive areas – like a house foundation.

If you are interested in installing a rain barrel on your property, you can find more information and resources on the Respect Our Waters website or through your municipality.

## Quick tip!

Looking for a easy way to make a change?  
Try diverting your drain spouts into your yard instead of into your driveway or sidewalk.  
This allows the water to filter through the soil before it enters groundwater and reduces the amount of runoff from your home!

This information was brought to you by Southeastern Wisconsin Watersheds Trust, Inc. in accordance with WDNR NR.216

Get more information online at [RespectOurWaters.org](http://RespectOurWaters.org)



Visit our website for how-to videos on rain barrel installation and other ways you can help protect Lake Michigan and other local waterways.  
[www.freshcoastguardians.com](http://www.freshcoastguardians.com)

**ADDITIONAL TIPS**

- Elevate barrel on cinder blocks for increased pressure
- WATER NOT FOR POTABLE USE**

Plastic not recycled paper.

**CONTACT US**

WEB [www.freshcoastguardians.com/about-us/contact](http://www.freshcoastguardians.com/about-us/contact)  
 PHONE (414) 225-2222

**MMSD**  
 WATERS FOR A CLEANER ENVIRONMENT

**FRESH COAST GUARDIANS**  
 RESOURCE CENTER

**FRESH COAST GUARDIANS**  
 RESOURCE CENTER

**DIVERTER RAIN BARREL CARE**  
 Manage Water Where it Falls

13-0562

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**TOOLS NEEDED**

- Safety Glasses
- Safety Gloves
- Measuring Tape
- Level
- Pencil
- Scissors
- Phillips Screwdriver
- Drill

 Diverter Kit & Instructions

**INSTALLATION** See instructions inside the barrel.



**MAINTENANCE**

SPRING	SUMMER	FALL	WINTER
<ul style="list-style-type: none"> <li>• Hook your rain barrel back up (directions in diverter kit)                             <ul style="list-style-type: none"> <li>* <i>Make sure rain barrel is level and that the diverter piece is below the top of the rain barrel</i></li> </ul> </li> <li>• Check the seals around the spigot and drain/hose attachment                             <ul style="list-style-type: none"> <li>* <i>Additional pieces can be ordered online at <a href="http://www.rainbarrelparts.com">www.rainbarrelparts.com</a></i></li> </ul> </li> <li>• Make sure your downspout is directed away from your house (minimum of 4', preferred 10')</li> <li>• Check your gutters for debris</li> <li>• Use the water in the rain barrel within 3 days, if possible</li> </ul>	<ul style="list-style-type: none"> <li>• Use the water in the rain barrel within 3 days, if possible</li> <li>• Regularly check &amp; remove debris from your gutters and FlexiFit™ Diverter</li> </ul>	<ul style="list-style-type: none"> <li>• Check your gutters for debris</li> </ul> <p><b>AT SEASON'S END</b> (When temperature falls below 40°F):</p> <ul style="list-style-type: none"> <li>• Remove leaves and empty the water out of the rain barrel                             <ul style="list-style-type: none"> <li>- Remove leaves from the rain barrel by removing the lid</li> <li>- Spray the inside of the barrel with water and shake leaves out</li> </ul> </li> <li>• Remove the diverter piece from the downspout</li> <li>• Secure winter cap over the hole in the downspout and screw into place</li> <li>• Turn the rain barrel upside down and store in your garage or basement</li> </ul>	<ul style="list-style-type: none"> <li>• Let your rain barrel hibernate</li> </ul>

Rain barrels capture rainwater from your roof to use later when it's dry outside to give thirsty gardens, flowers and trees a drink. Rain barrels help keep excess water out of the sewer system when it rains. They also help prevent rain from becoming polluted stormwater runoff—the biggest remaining threat to clean rivers and lakes in the United States.



**PAINTING TIPS / HOW-TO**

- Wipe down the barrel with a one-to-one mixture of vinegar and water
- Rough the surface of the barrel with a piece of fine-grit sandpaper
- Apply a coat of latex bonding primer
- Paint your design with "exterior latex" paint



RESPECT OUR WATERS

## Rain Gardens

### Filter rain water before it leaves your property!

A rain garden is a great way to beautify your home and absorb stormwater. In a rain garden, rain water filters down through the soil before it becomes groundwater. If no rain garden is present, stormwater tends to end up in the street where it picks up garbage and pollutants and dumps them into our streams, rivers and lakes.

Here are a few strategies for building a successful rain garden:

- To make the most efficient rain garden, aim to make your garden about 1/3 of the size of your roof, locating it 10 feet or more away from your home and foundation.
- Position the garden in a natural low point where it can receive water from your sump pump or downspout. Call the Diggers Hotline (1-800-242-8511) to check for buried utilities before you dig.
- Dig the garden 4 to 6 inches deep. Ensure that the deepest part of the garden is in the center. Depending on your soil type, it can be helpful to dig a test hole and fill it with water to ensure that your garden will drain properly.
- Build a a raised or terraced portion of the rain garden, often called a berm. A berm is necessary to keep water in the garden so it can soak into the ground. The berm can be built with many different materials, including the dirt removed from the rest of the garden.
- Pick out native plants that are drought tolerant. With the plants in their containers, set them one foot apart to ensure they fit before planting them in the soil. Spread three inches of mulch throughout the garden and on the berm to keep in moisture and prevent weeds.
- Water immediately after planting and continue to water twice a week until the plants appear established or until a good rain. During the first year, water if there is an official drought. Do not water after the first year.

Find more resources on the Respect Our Waters website.

## Quick tip!

Do you have a smaller yard that won't fit the rain garden you want? Try adding a rain barrel to your yard instead! Rain barrels collect rain water from your roof to reduce stormwater runoff and can be used to water your yard and garden during dry spells.

This information was brought to you by Southeastern Wisconsin Watersheds Trust, Inc. in accordance with WDNR NR.216

Get more information online at [RespectOurWaters.org](http://RespectOurWaters.org)



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**FRESH COAST**  
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**RAIN GARDEN CARE**  
Manage Water Where it Falls

**MORE DETAILS & REFERENCE MATERIALS**

- Rain Gardens: A Household Way to Improve Water Quality in Your Community**  
<http://clean-water.wisconsin.gov/pubs/pdf/gardens.pdf>
- Rain Gardens: A How-To Manual for Homeowners**  
<http://dnr.wisconsin.gov/topic/Stormwater/documents/RGManual.pdf>
- Home and Garden: Reduce Runoff with a Rain Garden**  
[www.lakesuperiorstreams.org/citizen/wet\\_garden.html](http://www.lakesuperiorstreams.org/citizen/wet_garden.html)

**CONTACT US**

**WEB** [www.freshcoastguardians.com/about-us/contact](http://www.freshcoastguardians.com/about-us/contact)

**PHONE** (414) 225-2222

13-053a

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City of Glendale, Wisconsin



## DESIGN & INSTALLATION

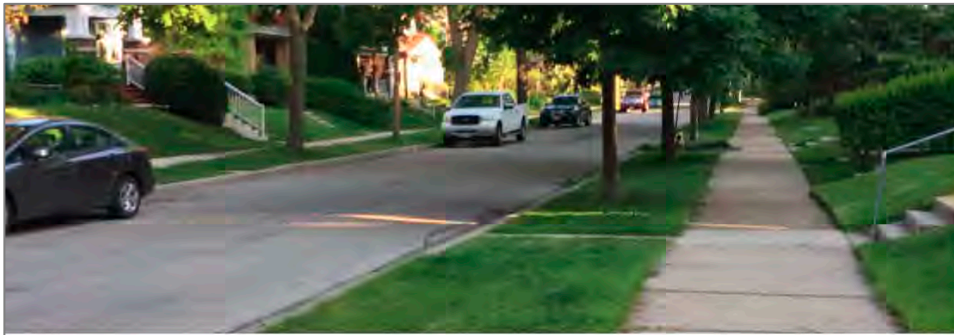
- **CALL DIGGERS HOTLINE** (1-800-242-8511) at least three business days before you plan to dig.
- If you have the room, make your garden about 1/3 of the size of your roof, locating it 10 feet or more away from your home and foundation.
- Position the garden where it can receive water from your sump pump, downspout, and/or a natural low point in your yard.
- **DO NOT PLANT** your rain garden above the sanitary sewer lateral, the pipe that transports water used inside your home out to the city sewer in the street.
- Use string or spray paint to mark the area and shape of your rain garden before digging.
- Dig the garden 4 to 6 inches deep.
- Plant one plant per square foot of the garden.
- Consider plant color, height and bloom season to get the most beauty and wildlife habitat.
- Place your downspout and/or sump pump discharge into the garden. To prevent erosion, install a small area of rocks at the end of the downspout or discharge pipe.
- You can decide to trim the plants in the spring or fall; just make sure not to pull plants' roots out.
- If sized correctly, stormwater should soak into the ground within 4 to 6 hours.
- Provide water during dry periods for the first two years until the rain garden is established.

## MAINTENANCE

<b>SPRING</b>	Thin crowded vegetation Add Milorganite® fertilizer and compost (early spring)
<b>SUMMER</b>	Watch your rain garden grow Add Milorganite® after blooming
<b>FALL</b>	Trim vegetation back
<b>ANYTIME</b>	Watch for and remove weeds before they bloom and go to seed

Rain gardens help reduce water pollution by collecting rain or melting snow from roofs, driveways, and yards, absorbing water into the ground naturally. Some people use only native plants in their rain gardens. Some homeowners use a combination of native and ornamental plants. It's up to you.

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RESPECT OUR WATERS

## Yard Care

### Use fertilizers and other chemicals with care!

There are many ways to care for your yard and garden without harming our freshwater resources. Changing the methods and the products you use are great ways to reduce the amount of stormwater pollution that runs off from your property.

Here are a few tips:

- If you typically apply fertilizer to your lawn, get a soil test first to determine what nutrients it really needs. This will save you money and will keep unused nutrients from flowing into the watershed where they can create algae blooms, lowered oxygen levels, and ammonia which is toxic to fish.
- If you apply fertilizer to your yard, keep in mind that fertilizer is most effective when used in the late spring (May-June) or mid-fall. Fertilizing too often or applying too early can result in the grass being unable to absorb the fertilizer.
- If you're looking for an alternative to the traditional fertilizers and pesticides, there are two common programs that are recommended – organic or reduced-risk. Find more information on these options on the Respect Our Waters website.
- Mulch leaves into your yard instead of raking them. Not only does this save time and energy, but it provides a layer of protection for your yard through the winter and provides nutrients in the spring.
- Use shredded yard waste such as grass clippings or leaves as a mulch cover for your garden beds to protect them during the winter and also start your gardening year off right with extra nutrients. Take care to always chop leaves before using them as mulch so that water can still reach the soil in the winter.
- If you are going to rake, be sure to bag up your leaves. Raking them into the street or the gutter will cause blockages in storm sewers and drains. Most municipalities have information on bagging and pickup schedules on their websites.

## Quick tip!

If you apply pesticides, always read the instructions on the product. This will help you determine how much is recommended to use and whether the product should be diluted before use.

This information was brought to you by Southeastern Wisconsin Watersheds Trust, Inc. in accordance with WDNR NR.216

Get more information online at [RespectOurWaters.org](http://RespectOurWaters.org)



**APPENDIX E                      YEAR 5 PUBLIC EDUCATION & OUTREACH  
LITERATURE**



## Coastal Permitting Factsheet

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES

DATE CREATED: JUNE 2016

### Factsheet for Landowners: Great Lakes Permitting for Placing Permanent Erosion Control Structures

The Great Lakes coast is a very dynamic environment. Water levels on Lake Michigan have been below average since the late 1990's. The recent increase in water levels raises the potential for shoreline erosion and bluff failure.

The Department understands landowner and municipality concerns about structures that may be at risk from bluff erosion on the Great Lakes and recognizes the large investments residents have in their homes. Shore protection projects are a significant investment and have the potential to impact neighboring properties. Landowners should be aware of considerations to invest wisely and protect the Great Lakes environment.

State law requires any material that is placed in the Great Lakes be authorized by the Department. Furthermore, additional State permits may also be needed to:

- Authorize earth-moving (grading) activities on the shoreline needed to stabilize the slope of a bank.
- Authorize removal of material below the Ordinary High Water Mark\* (dredging), in order to properly install material to stabilize the base of the slope.

The Great Lakes near shore environment plays an important role for fish and wildlife habitat. The wave energy, longshore currents, and sediment dynamics combine to support beaches and to create unique environmental conditions characteristic of few freshwater ecosystems.

Erosion control must be done in a way to minimize the amount of lakebed fill and minimize impacts to near shore areas and adjacent shoreline properties. The Department reviews project proposals to balance the right of a property owner to protect their shoreline while ensuring that the cumulative impacts of filling lakebed are minimized.

Designing shore protection in the Great Lakes can be complex. Considerations include engineering analysis of water level changes, wave heights, and storm surges. In addition, geotechnical analysis of the lake bed contours, sediments, and potential impacts to neighboring properties should be considered.

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\*"Ordinary high water mark" or "OHWM" means the point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation or other easily recognized characteristic.

The *type* of material used can impact longevity of a shore protection structure. Material should be large enough to be stable and should not crack and fragment. Demolition debris like cinder blocks, concrete rubble and dirt are not acceptable since they can break apart easily. Multi-faceted boulders with round surfaces can work well. Flat surfaces do not work well because they can bounce waves and undercut the bluff.

Proper installation is key. Dumping demolition debris from the top onto the bluff face may further destabilize the bluff. A safer way to place material near the bottom of the bluff is to keep weight away from the top edge by either creating an access road, using a crane, or a barge.

The Department encourages landowners to seek experienced coastal engineering professionals to assist with your project. Coastal engineering professionals have the expertise necessary to influence the success of a shoreline project, including:

- assessing the impacts of the planned project on adjacent properties,
- minimizing construction and maintenance costs,
- managing the performance and longevity of the project, and
- preparing state and federal permit applications.

An investment in the services of experienced professionals is the best way to ensure the long-term success of a shore protection project and minimize costs during ownership.

The Department has a permit application checklist for Great Lakes shoreline projects to assist you and the professional you choose in planning and designing your project so that your project can be reviewed efficiently through the permitting process.

#### ADDITIONAL RESOURCES

LIVING ON THE COAST <http://aqua.wisc.edu/publications/ProductDetails.aspx?productID=439>

WORKING WITH CONTRACTORS <http://aqua.wisc.edu/publications/ProductDetails.aspx?ProductID=478>

STABILIZING COASTAL SLOPES <http://aqua.wisc.edu/publications/ProductDetails.aspx?ProductID=479>

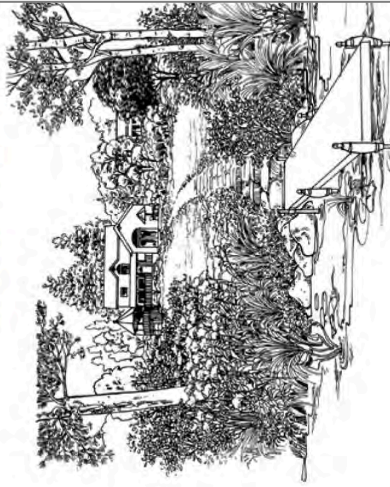
TYPES OF SHORE STRUCTURES <http://coastal.ohiodnr.gov/shorestructures>

COASTAL DESIGN MANUAL <http://coastal.ohiodnr.gov/design>

Department of Natural Resources  
Watershed Management, WT/3  
101 South Webster Street  
Box 7921  
Madison, WI 53707-7921

Visit the Wisconsin DNR  
on the Web at <http://www.dnr.wi.gov>  
Information about applying for permits:  
<http://dnr.wi.gov/topic/waterways>

# What the LANDOWNER Needs to Know



### CAN I REMODEL OR ADD TO MY EXISTING COTTAGE?

County permits are required for any work above ordinary maintenance such as painting. To find out if your project needs a permit or meets the standards, contact the county zoning office.

### HOW DO I OBTAIN APPROVALS FOR MY PROJECT?

Before planning the project know and understand your county's shoreland zoning rules. Contact the local zoning office.

### WHAT IF I SEE A PROJECT THAT MAY BE AFFECTING THE LAKE OR STREAM?

Promptly get the information to your local zoning administrator or DNR office so that the situation can be resolved before the project goes too far and damages property or the waterbody. When you call you will need to provide:

- An address, fire number, map or directions
- Description of the activity
- Name of the property owner

The zoning administrator can tell you if a violation has occurred and if so, what steps will be taken. Correcting a violation can be a lengthy process, especially if the landowner is unwilling to correct the problem voluntarily.

For more information find your local contact at: <http://dnr.wi.gov/org/water/wm/dsfm/shore/county.htm>



There are many advantages to maintaining a natural shoreline. Trees and shrubs provide wildlife habitat, shade for fish and privacy for the landowner. They create a natural buffer that helps protect the water body from erosion and sedimentation when it rains. Manicured lawns, on the other hand, seldom provide this protection. If they are fertilized, heavy rains carry nutrients directly into the lake. The cumulative effect of many lawns along a lake shore will adversely affect water quality, fish, wildlife and esthetics.

### CAN I FILL IN A LOW, SWAMPY AREA ON MY SHORELAND PROPERTY?

Wetlands merit special protection under shoreland zoning. They provide wildlife habitat, fish spawning grounds, and serve as a filter to prevent water pollution and help control flooding problems. Wetlands are seldom suitable as building sites because they flood frequently and can't adequately support roads or building foundations. A permit is needed to fill any area that is a wetland. If there is a practicable alternative to filling the wetland, the permit can almost never be granted.

### CAN I PROTECT MY SHORELINE FROM EROSION?

Yes, there are many options for reasonable shoreline protection. Since this usually involves placing materials on the bed of a waterway, a permit from the DNR is necessary. Check with both your zoning administrator and the DNR for recommendations and permits.

Wisconsin's lakes, streams and rivers are one of our state's greatest natural assets. As a waterfront property owner, a fisherman, a state park visitor, or even a walker along one of our renowned riverwalks, the impacts of development along these waterways can be seen. Wisconsin citizens value our clean water, our canoeable streams, and the natural scenic beauty of our wooded shoreline habitats. Every county in this state has a shoreland zoning ordinance that helps protect these valuable shoreland resources through a system of regulations that require permits for activities near the lakes and rivers. Shoreland zoning regulations promote wise use of lands surrounding our lakes and streams. Protecting and enhancing our waters is so essential to our economy and way of life that Wisconsin was one of the first states to require shoreland zoning.

**WHAT AREAS DOES THIS SHORELAND ZONING REGULATION APPLY?**

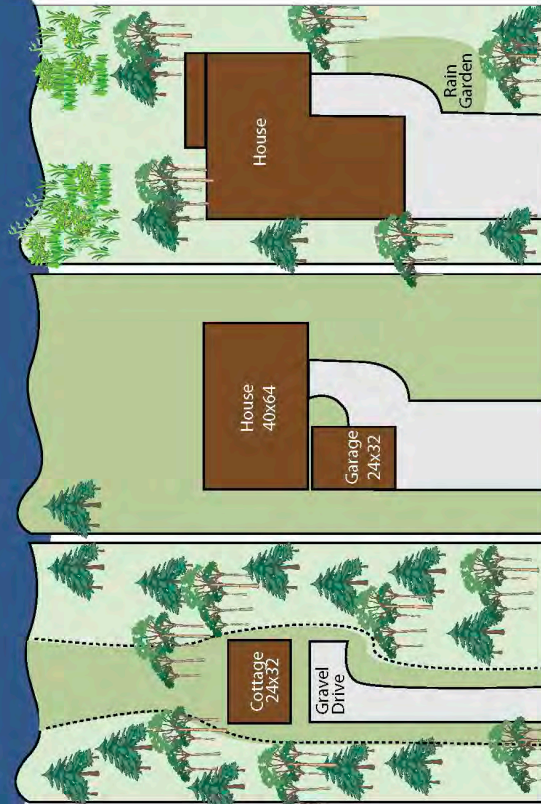
- All land within 1000' of lakes, ponds, or flowages
- All lands within 300' of river or streams or the extent of the floodplain, whichever is greater
- All shoreland areas in unincorporated areas
- Only shoreland wetlands in cities or villages

**SHORELAND ZONING REGULATES LAND USE AND CONSTRUCTION**

Each county has adopted regulations that meet or exceed minimum state standards to protect water quality, natural scenic beauty, recreation, navigation, and fish and wildlife. These regulations include:

- Setbacks for structures from property lines and waterways.
- Minimum lot sizes and land division review.
- Restrictions on cutting of shoreline vegetation.
- Standards for earth moving activities.
- Protection for shoreland-wetlands.
- Regulation of septic system and wells.
- Restrictions on improvements to older structures or uses that don't meet the shoreland standards.

Although many waterfront properties haven't changed ownership over time, the development on those family-owned parcels has changed. In the past, the small cottages seemed to blend right into the surrounding landscape. Today's families are spending more time at the lake, have more outdoor gear and have changed that surrounding landscape. For the future, waterfront property owners are learning that the benefits of natural vegetation include more and better wildlife viewing, better fishing, and better water quality in that lake or river.



**CAN I INSTALL A WALKWAY OR STAIRS TO ACCESS THE WATER?**

Yes, most counties have some type of permitting system to allow reasonable access to the water. The permit process helps assure that projects are designed to reduce erosion during and after excavation. Generally, you'll be required to:

- Avoid sensitive areas like wetlands and steep slopes.
- Replant quickly.
- Keep runoff away from exposed areas.
- Provide a stable slope.
- Implement any erosion control measures specifically prescribed for your site.

**CAN I BUILD A BOATHOUSE NEAR THE SHORELINE?**

Each county has some regulation concerning boathouses that may limit where they can be placed or how large they can be. Talk to your local county zoning administrator to find out what specific regulations are in place in your county.

**DO I NEED A PERMIT TO CUT VEGETATION ALONG THE SHORELINE?**

Each county regulates vegetation removal. Some counties will require permits for clearing trees and brush and some will require a vegetation management plan to exceed certain limits.



# Erosion Control for Home Builders

**By controlling erosion, home builders help keep our lakes and streams clean.**

**E**roding construction sites are a leading cause of water quality problems in Wisconsin. For every acre under construction, about a dump truck and a half of soil washes into a nearby lake or stream unless the builder uses erosion controls. Problems caused by this sediment include:



**Taxes**

Cleaning up sediment in streets, sewers and ditches adds extra costs to local government budgets.

**Lower property values**

Neighboring property values are damaged when a lake or stream fills with sediment. Shallow areas encourage weed growth and create boating hazards.

**Poor fishing**

Muddy water drives away fish like northern pike that rely on sight to feed. As it settles, sediment smothers gravel beds where fish like smallmouth bass find food and lay their eggs. Soil particles in suspension can act like a sand blaster during a storm and damage fish gills.

**Nuisance growth of weeds and algae**

Sediment carries fertilizers that fuel algae and weed growth.

**Dredging**

The expense of dredging sediment from lakes, harbors and navigation channels is paid for by taxpayers.

This fact sheet includes the diagrams and step-by-step instructions needed by builders on most home sites. Additional controls may be needed for sites that have steep slopes, are adjacent to lakes and streams, receive a lot of runoff from adjacent land, or are larger than an acre.

If you need help developing an erosion control plan or training your staff, contact your local building inspection, zoning or erosion control office.

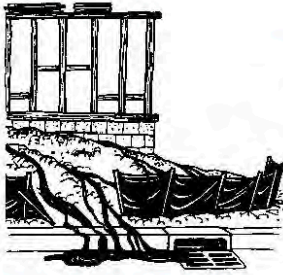
## Controlling Erosion is Easy

Erosion control is important even for home sites of an acre or less. The materials needed are easy to find and relatively inexpensive – straw bales or silt fence, stakes, gravel, plastic tubes, and grass seed. Putting these materials to use is a straightforward process. Only a few controls are needed on most sites:

- Preserving existing trees and grass where possible to prevent erosion;
- Revegetating the site as soon as possible;
- Silt fence or straw bales to trap sediment on the downslope sides of the lot;
- Placing soil piles away from any roads or waterways;
- Diversions on upslope side and around stockpiles;
- Stone/rock access drive used by all vehicles to limit tracking of mud onto streets;
- Cleanup of sediment carried off-site by vehicles or storms; and
- Downspout extenders to prevent erosion from roof runoff.

**GW0001 Erosion Control for Home Builders.** Additional copies are available from Cooperative Extension Publications, 45 N. Charter St., Madison, WI 53715, 608/262-3346 (toll-free 877-947-7827) or Dept. of Commerce, P.O. Box 2509, Madison, WI 53701-2509, 608/267-4405.

## EROSION CONTROL PRACTICES FOR HOME SITES



**A poorly installed silt fence will not prevent soil erosion. Fabric must be buried in a trench and sections must overlap (see diagram on back of this fact sheet).**

### **WARNING! Extra measures may be needed if your site:**

- is within 300 feet of a stream or wetland;
- is within 1000 feet of a lake;
- is steep (slopes of 12% or more);
- receives runoff from 10,000 sq. ft. or more of adjacent land;
- has more than an acre of disturbed ground.

For information on appropriate measures for these sites, contact your local building inspection, zoning or erosion control office.

### **Straw Bale or Silt Fence**

- Install within 24 hours of land disturbance.
- Install on downslope sides of site parallel to contour of the land.
- Extended ends upslope enough to allow water to pond behind fence.
- Bury eight inches of fabric in trench (see back page).
- Stake (two stakes per bale).
- Leave no gaps. Stuff straw between bales, overlap sections of silt fence, or twist ends of silt fence together.
- Inspect and repair once a week and after every ½-inch rain. Remove sediment if deposits reach half the fence height. Replace bales after three months.
- Maintain until a lawn is established.

### **Soil Piles**

- Cover with plastic and locate away from any downslope street, driveway, stream, lake, wetland, ditch or drainageway.
- Temporary seed such as annual rye or winter wheat is recommended for topsoil piles.

### **Access Drive**

- Install an access drive using two-to-three-inch aggregate prior to placing the first floor decking on foundation.
- Lay stone six inches deep and at least seven feet wide from the foundation to the street (or 50 feet if less).
- Use to prevent tracking mud onto the road by all vehicles.
- Maintain throughout construction.
- In clay soils, use of geotextile under the stone is recommended.

### **Sediment Cleanup**

- By the end of each work day, sweep or scrape up soil tracked onto the road.
- By the end of the next work day after a storm, clean up soil washed off-site.

### **Sewer Inlet Protection**

- Protect on-site storm sewer inlets with straw bales, silt fences or equivalent measures.
- Inspect, repair and remove sediment deposits after every storm.

### **Downspout Extenders**

- Not required, but highly recommended.
- Install as soon as gutters and downspouts are completed to prevent erosion from roof runoff.
- Use plastic drainage pipe to route water to a grassed or paved area. Once a lawn is established, direct runoff to the lawn or other pervious areas.
- Maintain until a lawn is established.

### **Preserving Existing Vegetation**

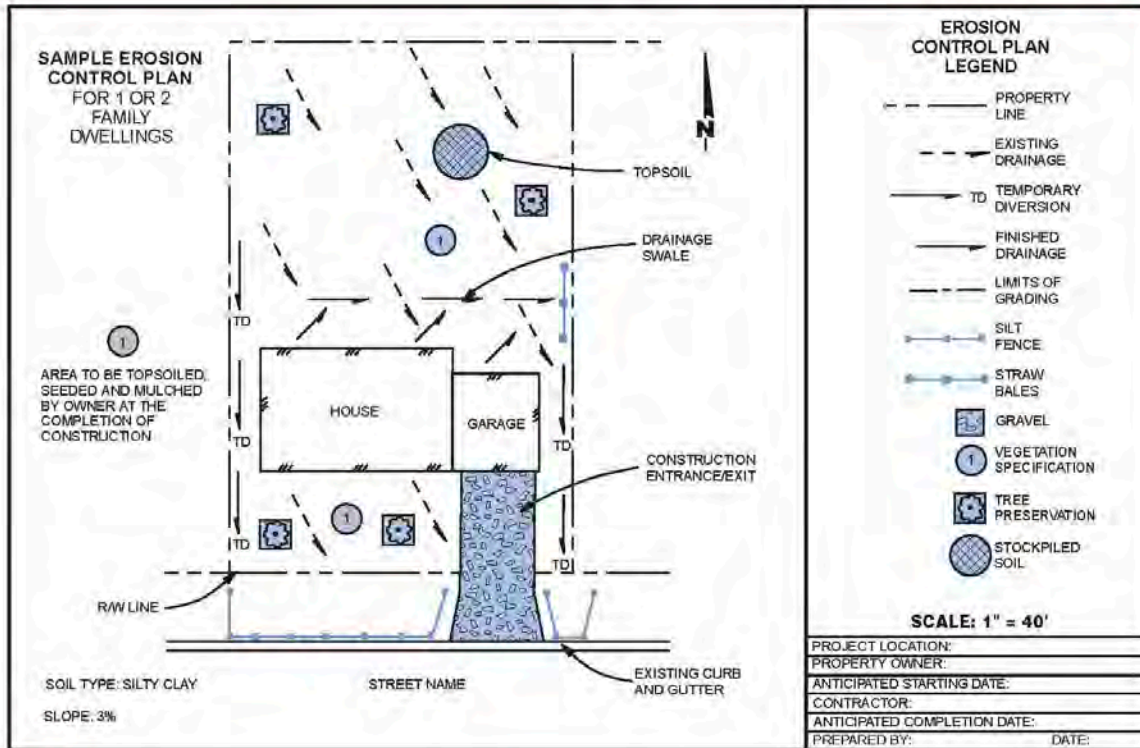
- Wherever possible, preserve existing trees, shrubs, and other vegetation.
- To prevent root damage, do not grade, place soil piles, or park vehicles near trees marked for preservation.
- Place plastic mesh or snow fence barriers around trees to protect the root area below their branches.

### **Revegetation**

- Seed, sod or mulch bare soil as soon as possible. Vegetation is the most effective way to control erosion.

### **Seeding and Mulching**

- Spread four to six inches of topsoil.
- Fertilize and lime if needed according to soil test (or apply 10 lb./1000 sq. ft. of 10-10-10 fertilizer).
- Seed with an appropriate mix for the site (see table).
- Rake lightly to cover seed with ¼" of soil. Roll lightly.
- Mulch with straw (70-90 lb. or one bale per 1000 sq. ft.).
- Anchor mulch by punching into the soil, watering, or by using netting or other measures on steep slopes.
- Water gently every day or two to keep soil moist. Less watering is needed once grass is two inches tall.



**Sodding**

- Spread four to six inches of topsoil.
- Fertilize and lime if needed according to soil test (or apply 10 lb./1000 sq. ft. of 10-10-10 fertilizer).
- Lightly water the soil.
- Lay sod. Tamp or roll lightly.
- On slopes, lay sod starting at the bottom and work toward the top. Laying in a brickwork pattern. Peg each piece down in several places.
- Initial watering should wet soil six inches deep (or until water stands one inch deep in a straight-sided container). Then water lightly every day or two to keep soil moist but not saturated for two weeks.
- Generally, the best times to sod and seed are early fall (Aug. 15-Sept. 15) or spring (May). If construction is completed after September 15, final seeding should be delayed. Sod may be laid until November 1. Temporary seed (such as rye or winter wheat) may be planted until October 15.

Mulch or matting may be applied after October 15, if weather permits. Straw bale or silt fences must be maintained until final seeding or sodding is completed in spring (by June 1).

**Concrete Wash Water**

- Dispose of concrete wash water in an area of soil away from surface waters where soil can act as a filter or evaporate the water. Dispose of remaining cement. Be aware that this water can kill vegetation.

**De-Watering**

- Dispose of de-watering water in a pervious area. Prevent the discharge of sediment from de-watering operations into storm sewers and surface waters.

**Material Storage**

- Manage chemicals, materials and other compounds to avoid contamination of runoff.

**Typical Lawn Seed Mixtures**

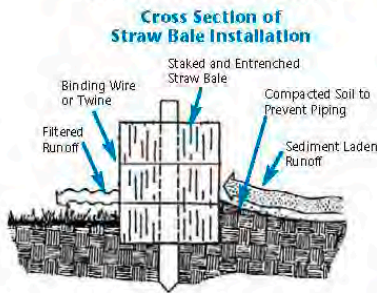
Grass	Percent by Weight	
	Sunny Site	Shady Site
Kentucky bluegrass	65%	15%
Fine fescue	20%	70%
Perennial ryegrass	15%	15%

Seeding rate 3-4 4-5 (lb./1000 sq. ft.)

Source: R.C. Newman, Lawn Establishment, UW Extension, 1988.

**COMMONLY USED EROSION CONTROLS**

**Straw Bale Fences**



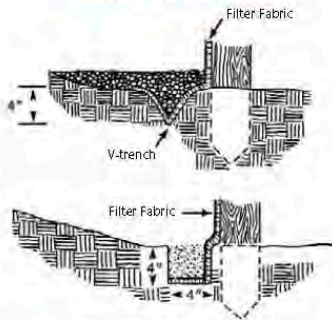
Source: Michigan Soil Erosion and Sedimentation Control Guidebook, 1975.

**How to Install a Straw Bale Fence**



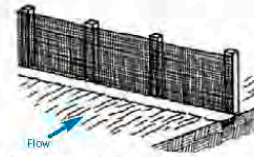
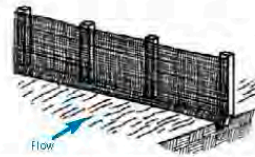
**Silt Fences**

**Cross Sections of Trenches for Silt Fences**



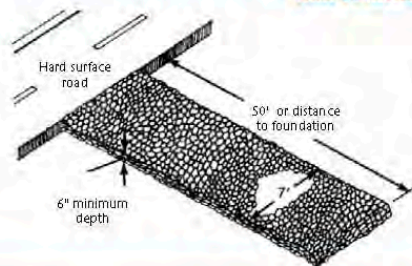
Sources: North Carolina Erosion and Sediment Control Planning and Design Manual, 1988.

**How to Install a Silt Fence**



**Access Drive**

**How to Install an Access Drive**



1. Install as soon as possible after start of grading.
2. Use two-to-three-inch aggregate stone.
3. Drive must be at least seven feet wide and 50 feet long or the distance to the foundation, whichever is less.
4. Replace as needed to maintain six-inch depth.



**GWQ001 Erosion Control for Home Builders**  
 DNR WT-457-96  
 R-1-00-10M-25-S

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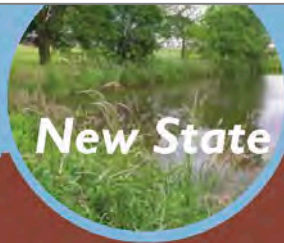
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Author: Carolyn Johnson, UW-Extension.

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# New State Storm Water Rules: WHAT MUNICIPALITIES NEED TO KNOW

## Storm Water Detention Ponds Site Safety & Design

Storm water detention ponds are widely used and are among the most effective storm water treatment practices. They remove pollutants by slowing the flow of rushing storm water and holding it long enough to allow sediment, nutrients and other pollutants to settle out. They can also help communities meet the “control measures” required by new federal and state regulations.

In addition to removing pollutants, many ponds are designed to create an aesthetic site amenity, wildlife habitat and/or a development focal point or recreational area. Inviting as they may look, However, storm water ponds can also pose hazards including strong currents during storm events, steep side slopes and drop-offs, unsafe winter ice and contaminated water and sediment. This fact sheet discusses the potential safety hazards that can be associated with detention ponds, and techniques to reduce the risk of such hazards.



**Many communities with storm sewer systems are now required to obtain state permits before discharging storm water to streams and lakes. These permits are required by federal and state laws, and are administered by the Wisconsin Department of Natural Resources. The permit program has been phased in over time. Phase I mainly affected large communities such as Milwaukee and Madison. Phase II is now affecting many more communities.**

Federal rules that require storm water permits are referred to as Phase I or Phase II rules. The state rule is found in Chapter NR 216 of the WI Administrative Code. This fact sheet refers specifically to Wisconsin’s NR 216 rule, but be aware that the “Phase II” term is often used to refer to required permit programs.

Communities must meet the requirements of six “minimum control measures.” These are:

- Post-construction runoff control
- Pollution prevention/Good housekeeping
- Public education and outreach
- Public participation and involvement
- Illicit discharge detection and elimination
- Construction site runoff control

# Storm Water Detention Ponds Site Safety & Design

## Typical Safety Concerns

### Steep embankments

Steep embankments can make it difficult to climb out if someone is wading in the pond. Steep embankments can also be hazardous to maintenance staff, such as those operating lawnmowers, pruning or cleaning out inlet/outlet structures.

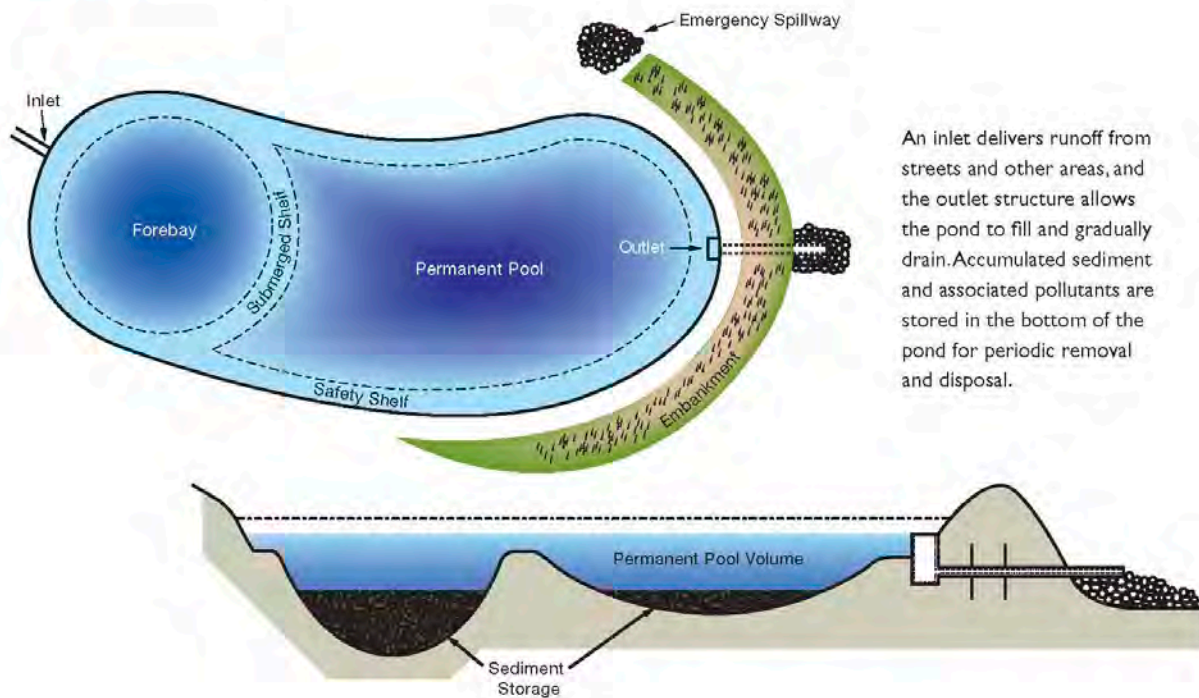
### Inlet/Outlet structures

During large rainfall events, strong currents moving through inlet and outlet drains can be hazardous. Outlets that are open and unprotected by trash/safety racks pose a danger. Racks that are too close to the outlet do not sufficiently slow water velocity and could trap a person against them. Storm water ponds are also a collection point for debris of all types.

### Unsafe sediment

A properly designed storm water pond protects our lakes and streams by holding runoff contaminants such as sediment and phosphorous. Storm water ponds located in commercial-industrial areas, or near transportation corridors, also concentrate heavy metals like chromium or lead and organic chemicals such as polyaromatic hydrocarbons (PAHs). These ponds can also accumulate enough phosphorus to support toxic algae blooms that can be life-threatening to pets and people.

**FIGURE 1** General schematic of a detention pond.



An inlet delivers runoff from streets and other areas, and the outlet structure allows the pond to fill and gradually drain. Accumulated sediment and associated pollutants are stored in the bottom of the pond for periodic removal and disposal.



## Reducing Risks through Good Design

Reducing risks starts before preliminary designs are drawn up. Members of the design team must view public safety as an essential design objective. Design staff should review preliminary designs with the facility owner, municipality, state staff and parties responsible for long-term operation and maintenance, and modify as needed. Landscape architects can recommend ways to enhance appearance and improve safety.



### Public education

Education of community members, maintenance staff and public officials is critical in reducing safety risks. Designers can fail to anticipate the amount of public use that will occur; especially when the pond is located near a park, playground or bike trail, and fail to provide adequate information and education. A complicating factor is that children and teens may be drawn to detention ponds.

“No Swimming” signs can warn of rapidly rising storm water runoff. Other signs can explain the purpose of the ponds and include a telephone number to call if citizens observe damage, outlet clogging or other problems. Education about possible hazards should include school children and teachers as well as property owner associations.

### Pond access

Ponds are often located near parks, trails and other recreational settings, which can encourage the public to view the pond as an amenity, rather than a device treating polluted water. Discouraging people and pets from entering storm water ponds should be a primary design consideration.



### Safety shelf

A safety shelf around the perimeter of the detention pond reduces the risk of someone falling into the permanent pool. Wetland plants on the safety shelf combined with shrubs and tall grasses on the slopes and an unmowed buffer around the pond will discourage wading and swimming. This approach can also create wildlife habitat and an attractive natural shoreline.

### Outlets

Outlets pose particular risks and merit special attention. When feasible, place the outlet away from areas of heavy public use such as playgrounds, parks, and schools. Screen the outlet so that the public will not be drawn to it. Thick shrubs, grading techniques, and aesthetic fencing or railing can be used. Embankment side slopes and the rack itself should be sloped enough to allow a person to crawl away from the structure when the pond waters rise.

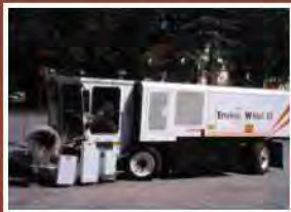


### Fencing

Fencing is sometimes considered an additional safeguard at some sites. However, it can hamper mowing, collect debris and detract from the area’s open space. Fencing might discourage toddlers and other people from accessing ponds, but can be viewed as a worthy and exciting challenge to some children and older youth. If an accident does occur, the fence may hamper rescue efforts. Generally, fencing should not be necessary if other appropriate design practices are used.



Sweeping parking lots and streets can be part of a larger effort to keep pollutants out of streams and lakes.



## Pollution Prevention: *Look at the Big Picture*

An effective storm water pollution prevention plan begins where debris and pollutants are washed into storm drains. Reducing pollutants before they enter the storm water system improves pond performance and lowers maintenance costs. An effective, storm water pollution prevention plan involves community members and governmental officials. Street sweeping, leaf collection, fertilizer and pesticide application restrictions, and commercial and industrial pollution prevention all serve to minimize health related hazards, and extend the service life of storm water detention ponds.

For more information on storm water pollution prevention, see the Wisconsin Department of Natural Resources runoff management website:

[www.dnr.wi.gov/runoff/stormwater](http://www.dnr.wi.gov/runoff/stormwater)  
or [runoffinfo.uwex.edu](http://runoffinfo.uwex.edu)

This publication is available from county UW-Extension offices, Cooperative Extension Publications 1-877-947-7827, and from DNR Service Centers.

### **Storm Water Detention Ponds Site Safety & Design**

Written by David S. Liebl, Solid and Hazardous Waste Education Center (SHWEC), University of Wisconsin-Extension

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DNR PUB WT-849 2006



UWEX PUB GWQ 047  
1-08-06-3M-25

**APPENDIX F                      PUBLIC EDUCATION & OUTREACH  
TRACKING FORM**



# Appendix 2

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## Public Involvement and Participation

**CITY OF GLENDALE, WI  
MUNICIPAL OPERATIONS  
WPDES Permit #WI-S061565-04**



**MS4 STANDARD OPERATING PROCEDURE (SOP) FOR:**

**PUBLIC INVOLVEMENT AND PARTICIPATION**

**SOP Number: MS4-SOP-2**

**Created June 2021**

## BACKGROUND

The City of Glendale, along with the Villages of River Hills, Bayside, Brown Deer, Fox Point, Whitefish Bay and Shorewood, referred to as the North Shore Group, own and operate municipal separate storm sewer systems (MS4) that discharge to waters of the state. The North Shore Group has been issued a permit to discharge under the Wisconsin Pollutant Discharge Elimination Systems (WPDES Permit #WI-S061565-04) in accordance with s. 283.33, Wis. Stats., and subch. I. of NR 216, Wis. Adm. Code. State and Federal regulations require that MS4 operators shall develop and implement a program to ensure that municipal operations are performed in ways that will reduce contamination of stormwater discharges.

Per the State and Federal regulations, the program **must include** written documentation of maintenance activities, maintenance schedules, and long term inspection procedures for Best Management practices (BMPs) to reduce floatables and other pollutants discharged from the separate storm sewers. Specifically, the City of Glendale, as part of the North Shore Group, WPDES permit requires the following for the Public Involvement and Participation portion of the permit:

### **II.C Public Involvement and Participation**

The permittee shall implement a public involvement and participation program that provides opportunities for the public to effectively participate in the development, implementation, and modification of the permittee's storm water management program. The approach must include provisions for receiving and considering public comments on the following permit activities: annual reports, SWMP revisions, adoption of storm water related ordinances, and TMDL pollutant load reduction benchmark development. The permittee shall also identify delivery mechanism and target participants associated with each permit activity. Delivery mechanisms may include public workshop, presentation of storm water information, government event (public hearing, council meeting, etc.) citizen committee meeting, or website.

Failure to implement the state regulations cited above in Part II.C will result in the City of Glendale being found in non-compliance with the North Shore Group's WPDES stormwater permit. An accepted practice for establishing written documentation of maintenance activities is through the use of Standard Operating Procedures, or SOPs. This SOP has been prepared and issued for Public Involvement and Participation and has been named City of Glendale SOP No. MS4-SOP-2.

## INTRODUCTION

**Objective:** This Standard Operating Procedure (SOP) prescribes the procedures to be used when performing Public Involvement and Participation activities in the City of Glendale MS4 area as follows:

- Provide background to the City staff regarding permit requirements for Public Involvement and Participation.
- Provide procedures to the City staff for implementing and maintaining a Public Involvement and Participation Program.
- Provide tools for tracking and documenting efforts towards achieving the goals for Public Involvement and Participation.
- Create general acceptance of Stormwater Regulations throughout the City.

**Applicable/Responsible Personnel:** All City staff performing and managing activities related to Public Involvement and Participation in the City of Glendale. See the Contact Information on page three (3) of this document for specific City personnel responsible for the Public Involvement and Participation program.

**Previous Policy and Procedures Canceled/Superseded:** MS4 program procedures governing Public Involvement and Participation that were in use at the time of the effective date of this SOP.

## POLICY

The City of Glendale will maintain a Public Involvement and Participation Program for the purpose of reducing floatables and other pollutants from the City's separate storm sewers and conveyance systems. This SOP will identify the components of the program that address the WPDES permit requirements. Each component will address procedures and record keeping and reporting methods and requirements. Each section requires identification of a person(s) responsible for overseeing the program and ensuring that all permit requirements are being met and are able to provide the necessary documentation to the WDNR as requested, or on the MS4 annual report. The program components will be assessed annually to determine if any modifications need to be made in order to improve efficiencies and/or to meet all permit requirements.

## PROCEDURES

### 1. Public Notices

The City will continue to provide public notices for all public meetings through the City website, newsletter, and other media.

### 2. City Website

The City will continue to post information on their website relating to the stormwater program. This will include, but is not limited to, the Stormwater Management Plan and the MS4 Annual Report. Additionally, all ordinances will continue to be available on the City website.

### 3. Public Meetings

The City will continue to provide an opportunity for public comments and questions relating to the City's stormwater program during regularly scheduled council meetings. This will include, but is not limited to, any stormwater ordinance updates, updates to the Stormwater Management Plan, and the MS4 Annual Report. The City will continue to hold an annual meeting to approve the MS4 annual report and to update City officials, residents, regulatory agencies, local contractors, and interested stakeholders on progress of the City's stormwater program.

## PLAN IMPLEMENTATION

The City has a Public Involvement and Participation plan implementation method in place, consisting of:

- a. Designation of the person(s) responsible for the plan implementation
- b. An annual evaluation of events supporting public involvement and participation.

## REPORTING & RECORD KEEPING

The City has a procedure to document the Public Involvement and Participation plan. The City evaluates and assesses the effectiveness of the program annually, during the permit term. The program documentation consists of the following:

- a. Maintain record of public notices for all public meetings held relating to stormwater issues.
- b. Identification and description of any specific stormwater related issues identified by the City throughout the calendar year. If specific issues arise throughout the year, the City will incorporate those known issues into Public Involvement events.
- c. Tracking documents will be kept at the Department of Public Works and provided to the WDNR at the time of the MS4 Annual Report, or as requested.

**CONTACT INFORMATION**

The City of Glendale has identified the person(s) responsible for overseeing the Public Involvement and Participation Program as outline in this SOP. The City Staff identified below is responsible for ensuring that all permit requirements are being met and necessary documentation is being maintained to conduct a program evaluation and to complete the MS4 Annual Report.

NAME	TITLE	PHONE	EMAIL
Charlie Imig	Director of Public Works	(414) 228-1746	c.imig@glendalewi.gov

**MODIFICATIONS**

Any changes to this SOP shall be documented in the table below. If a change to the SOP occurs, the updated SOP shall be submitted to the WDNR with the MS4 Annual Report.

DATE	DESCRIPTION	NAME

**SOP APPROVAL/ADOPTION**

This SOP has been approved and adopted by the following individuals and is effective immediately:

---

Charlie Imig  
Director of Public Works  
City of Glendale

---

Date



# Appendix 3

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## Illicit Discharge, Detection, and Elimination

# Standard Operating Procedures for Illicit Discharge Detection and Elimination (IDDE)

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City of Glendale, WI  
5909 N Milwaukee River Parkway  
Glendale, WI 53209

**Adopted \_\_\_\_\_ 2021**

Prepared by:



Clark Dietz, Inc.  
759 N. Milwaukee Street  
Suite 624  
Milwaukee, WI 53202

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# Section 1: Overview

## 1.1 Introduction

The City of Glendale, WI is one of several communities in Milwaukee County that own and operate municipal separate storm sewer systems that discharge to waters of the state of Wisconsin. The other communities include: The Villages of Bayside, Brown Deer, Fox Point, River Hills, Whitefish Bay, and Shorewood. These seven communities, referred to as the North Shore Group, have joined together to ensure their part in restoring and maintaining the integrity of Wisconsin waters through pollution prevention and stormwater management.

The State of Wisconsin Department of Natural Resources (WDNR) has issued the North Shore Group a permit to discharge stormwater from all portions of the Municipal Separate Storm Sewer Systems (MS4) under the Wisconsin Pollutant Discharge Elimination Systems (WPDES Permit No. WI-S061565-03). This WPDES permit regulates discharges from the North Shore Group's MS4 in accordance with s. 283.33, Wis. Stats., and subch. I. of NR 216, Wis. Adm. Code.

The North Shore Group Permit requires that each community address each of the following:

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination (IDDE)
4. Construction Site Pollutant Control
5. Post-Construction Stormwater Management
6. Pollution Prevention
7. Stormwater Quality Management
8. Storm Sewer Systems Map

The Standard Operating Procedures (SOP) for Illicit Discharge Detection and Elimination (IDDE) has been developed by the City of Glendale to address the requirements of the North Shore Group WPDES Permit. See Appendix C for Part III.A of the WPDES permit that addresses requirements for the City's Illicit Discharge Detection and Elimination program.

## 1.2 Background and Definitions

The City of Glendale storm drainage system discharges to the Milwaukee River, Lincoln Creek, Brown Deer Creek and to neighboring communities. In addition to stormwater runoff, the storm drainage system connected to each of these outfalls has the potential to carry other discharges introduced to the stormwater drainage system such as sanitary sewage, waste oil, industrial waste, and other substances that may harm downstream water quality. The term "illicit discharge" is generally used to refer to any discharge to a storm drainage system that is not composed entirely of stormwater, except those discharges allowed by an ordinance or permit.

The Center for Watershed Protection (CWP) has published a manual titled *Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments* (October 2004).

This document, referred to as the “CWP Guide”, uses a four-part definition for illicit discharges, including the following:

1. Illicit discharges have a measurable flow during dry weather containing pollutants and/or pathogens. Storm drains having measurable flow but no pollutants are simply considered a discharge.
2. Illicit discharges have a unique frequency, composition, and mode of entry in the storm drainage system.
3. Illicit discharges may be caused when the sewage disposal system interacts with the storm drainage system through illegal cross connections or other sources.
4. Illicit discharges may be produced from specific source areas and operations known as “generating sites.” An understanding of the interaction between these potential generating sites and the storm drainage system can be helpful in locating and preventing illicit discharges.

The North Shore Group WPDES Permit and the City of Glendale Title 6 Public Works Ordinance, Sec. 6.5.13 Illicit Discharges and Unauthorized Connections, prohibit any person from discharging, spilling or dumping “substances or materials which are not entirely composed of stormwater into receiving bodies of water, storm sewers or drainage facilities, or onto driveways, sidewalks, parking lots or other ways that discharge into the drainage system.”

Several exceptions are in place, so long as they do not adversely impact the stormwater:

1. Discharges authorized by a permit issued by the Wisconsin Department of Natural Resources;
2. Discharges resulting from firefighting activities;
3. Discharges in compliance with construction site erosion controls or stormwater management regulations applicable to already developed or currently vacant property;
4. Discharges from uncontaminated groundwater, potable water source, roof drains, foundation drain and sump pump, air-conditioning condensation, springs, lawn watering or irrigation, individual residential car washing, watermain and hydrant flushing, and swimming pools if the water has been dechlorinated.

### *Modes of Entry*

The CWP Guide describes potential direct and indirect modes of entry for illicit discharges to the storm drainage system. Direct entry means the discharge is directly connected to the storm drain through a sewage pipe, shop drain, or other kinds of pipe. Indirect entry means that flow generated outside the storm drainage system enter through storm drain inlets or by infiltrating through the joints of the pipe.

Primary sources of direct entry include the following:

1. Sewage cross connections.
2. Straight pipe connections – straight pipe connections refer to small diameter (typically) pipes that intentionally bypass the sanitary connection or septic drain fields, producing direct discharge to open channels, streams, lakes, or other water resources.
3. Industrial and commercial cross connections – These occur when industrial or commercial wash water, process water, or other illicit flows enter the storm drainage system, typically through floor drains connected to systems improperly connected to the storm drainage system. These are most prevalent in older industrial areas.

Primary sources of indirect entry to the storm drainage system include the following:

1. Groundwater seepage – Groundwater seepage usually consists of relatively clean water but can mask other illicit discharges. For example, groundwater seepage may include diluted sewage if the storm and sanitary sewer systems are close together.
2. Spills – These may occur when a spill travels across an impervious surface and enters a storm drain inlet.
3. Dumping liquid into a storm drain inlet – This occurs when liquid wastes such as oil, grease, paint, solvents, and various automotive fluids are dumped into the storm drain. One example of an intermittent discharge of this type is cleaning deep fryers in the parking lot of fast food operations.
4. Outdoor washing activities – This may or may not produce illicit discharges, depending on the nature of the activity. Routine washing of fueling or outdoor storage areas, power washing of parking lots, and cleaning construction equipment outdoors are examples of activities that may produce illicit discharges.

### *Land Use and Generating Sites*

Experience in other communities indicates that land use can be a good predictor of the likelihood of illicit discharges. For example, residential areas may be sources of indirect discharges from activities such as waste oil dumping, or car washing. Commercial areas are the most prominent sources of discharges from outdoor washing, disposal of food wastes, car fueling, repair, washing, and other activities. Figure 1, an excerpt from the CWP Guide, provides an overview of common discharges from various land use types. It should be noted that WDNR regulations exempt some of the activities listed in this table, such as individual residential car washing.

<b>Land Use</b>	<b>Generating Site</b>	<b>Activity that Produces Discharge</b>
Residential	<ul style="list-style-type: none"> <li>• Apartments</li> <li>• Multi-family</li> <li>• Single Family Detached</li> </ul>	<ul style="list-style-type: none"> <li>• Car Washing</li> <li>• Driveway Cleaning</li> <li>• Dumping/Spills (e.g., leaf litter and RV/boat holding tank effluent)</li> <li>• Equipment Washdowns</li> <li>• Lawn/Landscape Watering</li> <li>• Septic System Maintenance</li> <li>• Swimming Pool Discharges</li> </ul>
Commercial	<ul style="list-style-type: none"> <li>• Campgrounds/RV parks</li> <li>• Car Dealers/Rental Car Companies</li> <li>• Car Washes</li> <li>• Commercial Laundry/Dry Cleaning</li> <li>• Gas Stations/Auto Repair Shops</li> <li>• Marinas</li> <li>• Nurseries and Garden Centers</li> <li>• Oil Change Shops</li> <li>• Restaurants</li> <li>• Swimming Pools</li> </ul>	<ul style="list-style-type: none"> <li>• Building Maintenance (power washing)</li> <li>• Dumping/Spills</li> <li>• Landscaping/Grounds Care (irrigation)</li> <li>• Outdoor Fluid Storage</li> <li>• Parking Lot Maintenance (power washing)</li> <li>• Vehicle Fueling</li> <li>• Vehicle Maintenance/Repair</li> <li>• Vehicle Washing</li> <li>• Washdown of greasy equipment and grease traps</li> </ul>
Industrial	<ul style="list-style-type: none"> <li>• Auto recyclers</li> <li>• Beverages and brewing</li> <li>• Construction vehicle washouts</li> <li>• Distribution centers</li> <li>• Food processing</li> <li>• Garbage truck washouts</li> <li>• Marinas, boat building and repair</li> <li>• Metal plating operations</li> <li>• Paper and wood products</li> <li>• Petroleum storage and refining</li> <li>• Printing</li> </ul>	<ul style="list-style-type: none"> <li>• All commercial activities</li> <li>• Industrial process water or rinse water</li> <li>• Loading and un-loading area washdowns</li> <li>• Outdoor material storage (fluids)</li> </ul>
Institutional	<ul style="list-style-type: none"> <li>• Cemeteries</li> <li>• Churches</li> <li>• Corporate Campuses</li> <li>• Hospitals</li> <li>• Schools and Universities</li> </ul>	<ul style="list-style-type: none"> <li>• Building Maintenance (e.g., power washing)</li> <li>• Dumping/Spills</li> <li>• Landscaping/Grounds Care (irrigation)</li> <li>• Parking Lot Maintenance (power washing)</li> <li>• Vehicle Washing</li> </ul>
Municipal	<ul style="list-style-type: none"> <li>• Airports</li> <li>• Landfills</li> <li>• Maintenance Depots</li> <li>• Municipal Fleet Storage Areas</li> <li>• Ports</li> <li>• Public Works Yards</li> <li>• Streets and Highways</li> </ul>	<ul style="list-style-type: none"> <li>• Building Maintenance (power washing)</li> <li>• Dumping/Spills</li> <li>• Landscaping/Grounds Care (irrigation)</li> <li>• Outdoor Fluid Storage</li> <li>• Parking Lot Maintenance (power washing)</li> <li>• Road Maintenance</li> <li>• Spill Prevention/Response</li> <li>• Vehicle Fueling</li> <li>• Vehicle Maintenance/Repair</li> <li>• Vehicle Washing</li> </ul>

**Figure 1. Land Uses, Generating Sites and Activities that Produce Indirect Discharges**

## Regulatory Requirements

In recognition of the potentially harmful impacts of illicit discharges, WNDR has identified development of an Illicit Discharge Detection and Elimination (IDDE) program as a condition of the City's Stormwater Discharge Permit. Specific program requirements are included in Part II, Section D of the WPDES Municipal Separate Storm Sewer System Permit No. WI-S061565-04 (included in Appendix C). The WPDES permit requires the following for the Illicit Discharge Detection and Elimination portion of the permit:

### **II.D Illicit Discharge Detection and Elimination**

Each municipality shall continue to implement a program to detect, remove, and eliminate illicit connections and discharges to the municipal separate storm sewer system. The program must include:

1. **Ordinance:** An ordinance or other regulatory mechanism, at a minimum, to:
  - a. Prohibit illicit discharge, spilling or dumping of non-storm water substances or material into the permittee's MS4 or waters of the state.
  - b. Identify non-storm water discharges or flows that are not considered illicit discharges. Non-storm water discharges that are not considered illicit discharges including water line flushing, landscape irrigation, diverted stream flows, uncontaminated groundwater infiltration, uncontaminated pumped groundwater, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, firefighting, and discharges authorized under a WPDES permit unless identified by the permittee as significant source of pollutants to waters of the state.
  - c. Establish inspection and enforcement authority.
  - d. The ordinance shall be updated no later than November 30, 2021. If after November 30, 2021, the permittee becomes aware the ordinance is out of date, the permittee shall update the ordinance within 3 months.
2. **Dry Weather Outfall Screening:** A written IDDE field screening procedure. At a minimum, the procedure must include:
  - a. The name, title, and phone number of the individual(s) responsible for field screening activities.
  - b. Field screening during dry weather periods (72 hours after measurable rainfall) at the MS4 outfalls.
    - i. Location. Screening locations shall be selected by the following criteria:
      1. All major outfalls which showed no indication of illicit discharges during the previous permit term. Annually, at least 20 percent of such major outfalls shall be screened, on a rolling basis, such that at the end of the permit term all major outfalls which showed no indication of illicit discharges during the previous permit term have been screened.
      2. All major outfalls which showed evidence of illicit discharges or exceeded a parameter action level during the last two

samplings under the preceding permit term shall be evaluated at a minimum one time per year.

3. All other outfalls regardless of size, which have been identified as a priority screening location. Each permittee shall develop a prioritization structure begin inspecting priority outfalls by May 1, 2022. At least 20 percent of such priority outfalls shall be screened annually.
    - ii. Visual Observation. A narrative description of visual observations including color, odor, turbidity, oil sheen or surface scum, trash, flow rate, condition of conveyance system or outfall, and any other relevant observations regarding the potential presence of non-storm water discharges or illicit dumping shall be completed for each outfall visited.
    - iii. Field Analysis. If flow is observed, a field analysis must be conducted to determine the cause of the dry weather flow. The field analysis shall include sampling for pH, total chlorine, total copper, total phenol, and detergents unless the permittee elects to use alternative indicator parameters such as ammonia, potassium, and fluoride. Other alternative indicator parameters may be authorized by the Department in writing. Where appropriate, pollutant parameter action levels identified by the permittee must be considered. Field analysis procedures shall describe when other investigation methods such as dye testing or televising will be used.
    - iv. Pollutant parameter action levels that will be used as part of the field screening and analysis under Section II. D. 2. b) (3). The action levels will identify concentrations for identified pollutants that, if exceeded, will require further investigation, which may include laboratory analysis, to identify the source the illicit discharge.
    - v. Laboratory Analysis. If general observations and field screening indicate the presence of a suspected illicit discharge and the source or cause of the illicit discharge cannot be determined through other investigatory methods, the permittee shall collect a water quality sample for laboratory analysis for ongoing discharges. The water quality sample must be analyzed for pollutant parameters or identifiers which will aid in the determination of the sources of the illicit discharge.
  - c. Documentation. Visual observation and field screening results shall be recorded for each outfall and kept for 5 years. A summary of results shall be included with the annual report.
3. **Investigation and Elimination Procedures.** The permittee shall have written procedures for investigating and responding to known or suspected illicit discharges. Procedures must be developed for all of the following:
- a. The name, title and phone number of the individual(s) responsible for responding to reports of illicit discharges and spills.
  - b. Immediately investigating portions of the municipal separate storm sewer system that, based on the results of visual observation, field screening,

- laboratory analysis, or other relevant information, such as a complaint or referral, indicates a reasonable potential for containing illicit discharges.
- c. Responding to spills that discharge into and/or from the MS4 including tracking the source of the spill if unknown.
  - d. Preventing and containing spills that may discharge into or are already within the MS4.
  - e. Immediately notifying the Department in accordance with ch. NR 706, Wis. Adm. Code, if the permittee identifies a spill or release of a hazardous substance, which results in the discharge of pollutants into waters of the state. The Department shall be notified via the 24-hour toll free spill hotline at 1-800-943-0003. The permittee shall cooperate with Department in efforts to investigate and prevent such discharges from polluting waters of the state.
  - f. Elimination of the illicit discharge as soon as practicable.
    - i. Once the source of an illicit discharge is determined, the permittee must take appropriate action to seek to eliminate the illicit discharges within 30 days. This includes an initial evaluation of the feasibility to eliminate the discharge within 30 days. The permittee shall contact the Department if the illicit discharge cannot be eliminated in the 30-day time period.
    - ii. If the permittee determines the elimination of the illicit discharge will take more than 30 days due to technical, logistical or other reasonable issues, the permittee must develop and implement an illicit discharge elimination plan to remove the illicit discharge in an expeditious manner. The elimination plan must be submitted to the Department within 45 days of determining the source of an illicit discharge. In lieu of developing and implementing an individual elimination plan for common types of illicit discharges, the permittee may document and implement response procedures, a response plan, or similar document. The action plan, response procedures, response plan or similar document must include a timeframe for elimination of the illicit discharge as soon as practicable.
  - g. Elimination of any leakage or discharge from sanitary conveyance systems into the MS4 as required in s. NR 216.07 (3) (h), Wis. Adm. Code.
  - h. Providing the Department with advance notice of the time and location of dye testing within a MS4.
  - i. Notification of adjacent municipality. In the case of an illicit discharge that originates from the municipality's permitted area and discharges directly to a storm sewer system or property under the jurisdiction the adjacent municipality, the first municipality shall notify the affected municipality within one working day.
  - j. Documentation. The permittee shall maintain a system for documenting complaints, referrals, and any actions taken to investigate or eliminate an illicit discharge. A summary of illicit discharge activities for each year shall be included in the annual report.

4. **Enforcement Response.** Include documentation in an enforcement response plan or similar document, by April 30, 2023, a description of the enforcement response procedures the permittee implements when an illicit discharge investigation identifies a responsible party.
5. **Training:** All staff responsible for implementation of the IDDE program shall receive training at least once per permit term. This includes office staff, field staff, and emergency response staff.

#### III.A.4 FECAL COLIFORM REDUCTION EFFORTS:

- a) Each permittee shall develop an action benchmark for bacteria for their Illicit Discharge Screening program as described in Section II. D. 2. b) 4 by May 1, 2022.
- b) Fecal Coliform Inventory: By April 30, 2024, the permittee shall develop and submit to the Department an inventory of fecal coliform sources and a map indicating the locations of the potential sources of fecal coliform entering the MS4. The inventory shall be in tabular format and include a label code, location, description, and ownership of the source. The map shall identify the location of the sources by label code. The inventory shall consider flow variation in its identification of sources. The inventory and map shall include the following sources:
  - (1) Known or suspected leaking or failing septic systems
  - (2) Sanitary sewer overflow locations
  - (3) Livestock and domesticated animals housed or raised within the MS4 permitted area and discharging into the MS4, but not including household pets
  - (4) Zoos, kennels, animal breeders, pet stores, and dog training facilities
  - (5) Waste hauling, storage, and transfer facilities
  - (6) Areas that attract congregations of nuisance urban birds and wildlife
  - (7) Known or suspected properties with inadequate food or organic waste handling or storage
  - (8) Composting sites or facilities
  - (9) Known or suspected areas with improper human sanitation use
  - (10) Any other source that the permittee identifies as discharging to the MS4
- c) By October 31, 2025, the permittee shall develop and submit to the Department a fecal coliform source elimination plan. The plan shall include:
  - (1) Prioritization of source removal with and explanation of the prioritization criteria. Prioritization criteria shall include, at a minimum, fecal coliform source, exposure risk, ease of removal, and cost.
  - (2) A description of the type and extent BMPs to be employed to address each source.
  - (3) A cost estimate of BMP implementation, operation, and maintenance.
  - (4) A schedule for implementation of the bacteria elimination plan that reflects expeditious reduction with specific actions or benchmarks identified to be implemented during the next permit term.
  - (5) BMPs identified may be structural, non-structural, targeted outreach, new or revised ordinances, new design criteria, or new plan review considerations, but the plan shall include rationale for using each BMP, the reasons selection of each BMP, and the expected result of BMP implementation.

## 1.3 Receiving Waters and Impairments

Section 303(d) of the Clean Water Act requires each state to assess and publish a list of impaired waters every two years. The information from Table 1 is derived from the 2020 Wisconsin DNR Impaired Waters List. Impaired waters do not meet water quality standards and may not support recreation or public health and welfare.

Waterbody Name	Pollutant	Probable Source Contributing to Pollutant
<b>Milwaukee River</b>	E. Coli	Source Unknown
	Metals	Contaminated Sediments, Industrial Point Source Discharge
	Total Phosphorus	Discharges from MS4, Non-Point Source (Urban)
	Polychlorinated Biphenyls (PCBs)	Contaminated Sediments, Industrial Point Source Discharge
<b>Lincoln Creek</b>	Chloride	Road salt
	PAHs	Non-Point Source (Urban)
	Polychlorinated Biphenyls (PCBs)	Contaminated Sediments, Industrial Point Source Discharge
	Metals	Contaminated Sediments, Industrial Point Source Discharge
	Sediment, TSS	Stormwater Runoff
	Total Phosphorus	Discharges from MS4, Non-Point Source (Urban)
<b>Brown Deer Creek</b>	Chloride	Road salt

**Table 1. 2020 Wisconsin DNR Impaired Waters List**

The Milwaukee River, Lincoln Creek and Brown Deer Creek are listed on the 2020 303(d) list of impaired waterbodies. The Milwaukee River is listed for E. coli, metals, phosphorous, and PCBs. Lincoln Creek is listed for chloride, PAHs, PCBs, metals, sediment and phosphorous. And Brown Deer Creek is listed for chlorides. Each of these pollutants are defined below.

### **E. Coli**

E. coli is a bacteria present in the feces of warm-blooded animals. E. coli in surface waters indicates the presence of pathogens that can cause illness in humans.

### **Polychlorinated Biphenyls (PCBs)**

PCBs, which are now banned in the United States, can accumulate in fish tissue from both the water in which fish live and the food they consume if either or both have been contaminated in the past.

### **Metals**

Heavy metals, such as zinc, nickel, copper, and lead when dissolved in surface waters can have harmful effects on aquatic life. When dissolved, metals can interfere with the bodily functions of fish and aquatic insects.

### **Total Phosphorus**

Phosphorus promotes plant growth. Excessive phosphorus can cause an excess of algae blooms which affect the amount of oxygen in the water and decrease light penetration.

### **Chloride**

Chloride in fresh water occurs naturally, however, recent increases in chloride concentrations are attributed to human activities, such as road salt, sewage contaminants, and water softeners.

### **Polycyclic Aromatic Hydrocarbons (PAHs)**

PAHs are a class of chemicals that occur naturally in coal, crude oil, and gasoline.

### **Sediment/Total Suspended Solids**

Sediment is made up of loose particles of sand, silt, and clay. While it is a natural part of rivers and streams, in excess amounts, sediment can cloud the waters and its tributaries, harming wildlife. Sources of sediment include eroding land, streambanks, and shorelines.

## 1.4 Objective

The primary goal of the stormwater permit program is to improve the quality of surface waters by reducing the amount of pollutants potentially contained in the stormwater runoff.

This SOP will:

1. Provide regulatory and technical background regarding illicit discharges;
2. Identify and describe City owned outfall locations;
3. Outline procedures for visual inspections and field screening of outfalls;
4. Outline procedures for responding to known or suspected illicit discharges;

## 1.5 Illicit Discharge Detection and Elimination Team

The Illicit Discharge Detection and Elimination team is responsible for developing, implementing, maintaining, and revising the Guidelines and Standard Operating Procedure. The members of the team are familiar with the management and operations of the City of Glendale's procedures

The member(s) of the team and their responsibilities are as follows:

**Chief:** Charlie Imig **Title:** Director of Public Works

**Phone:** 414-228-1746

**Responsibilities:** Implementing and maintaining program, record keeping, submitting reports, conducting inspections, conducting the annual compliance evaluation, signing and submitting the required certifications, point-of-contact for regulatory officials.

**Leader:** \_\_\_\_\_ **Title:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**Responsibilities:** Implementing and maintaining program, record keeping, conducting inspections, employee training, daily onsite housekeeping.

## 1.6 Standard Operating Procedure for Illicit Discharge Detection and Elimination Certification

Operator: City of Glendale

Operator Address: 5909 N Milwaukee River Parkway  
Glendale, WI 53209

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.

Name: Charlie Imig Title: Director of Public Works

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Section 2: Outfall Screening

### 2.1 Outfall Locations

Based on the WPDES Permit language, an outfall is defined as, “the point at which stormwater is discharged to waters of the state or leaves one municipality and enters another.” The City of Glendale MS4 area discharges into the Milwaukee River, Lincoln Creek, Brown Deer Creek, and storm sewer systems owned by other entities. Table 2 outlines all major and priority outfalls located in Glendale’s MS4 area. See Figure 2 for a map showing all major and priority outfall locations, and Figures 3-19 for photos of some of these outfalls.

#### Outfall Classification

The outfalls throughout the City have been classified as either major or minor, as well as if it is a priority outfall. This determination has been made based on the following criteria:

1. Major Outfall means a municipal separate storm sewer outfall that meets one of the following criteria:
  - a. A single pipe with an inside diameter of 36 inches or more or equivalent conveyance (cross sectional area of 1,018 square inches) which is associated with a drainage area of more than 50 acres.
  - b. A municipal separate storm sewer system that receives storm water runoff from lands zoned for industrial activity that is associated with a drainage area of more than 2 acres or from other lands with 2 or more acres of industrial activity, but not land zoned for industrial activity that does not have any industrial activity present.
2. Priority outfalls can be either major or minor outfalls that have a higher potential for illicit discharges. Contributing drainage area characteristics or land uses that should be considered when selecting priority outfalls include:
  - a. History of known or suspected illicit discharges reported within the last five (5) years.
  - b. Section of storm sewer and/or sanitary sewer infrastructure that have exceeded or are approaching their design/useful life.
  - c. Contributing drainage areas with 80 or more percent impervious.
  - d. Business or industrial parks with frequent changes in property ownership or operations.
  - e. Schools or other institutional facilities.
  - f. Commercial or industrial operations that generate wastewater or wash water including food processing, metal plating or machining shops, auto and scrap recyclers, commercial car washes and chemical manufacturers or users.

ID	SIZE (in)	MAJOR/ MINOR	PRIORITY	DRAINAGE AREA (Ac)	DISCHARGE LOCATION	STORM SHED
<b>BDcr</b>	48"x10"	Major	Yes	93	Brown Deer Creek	BDcr
<b>FP-1</b>	42"	Major	No	61	Fox Point	FP1
<b>LC-2</b>	24"	Minor	Yes	39	Ditch	LC2
<b>LC-3</b>	36"	Major	No	17.1	Milwaukee	LC3
<b>LC-145a</b>	54"	Major	Yes	36	Ditch	LC145
<b>LC-145b</b>	66"	Major	Yes	28	Ditch	LC145
<b>LC-145c</b>	98"x63"	Major	Yes	100	Ditch	LC145
<b>LC-145d</b>	15"x96"	Major	No	105	Milwaukee	LC145
<b>LC-145e</b>	54"	Major	Yes	120.8	Wiscona Stormwater Pond	LC145
<b>MR-3</b>	36"	Major	No	62.9	Milwaukee River	MR3
<b>MR-5</b>	42"	Major	No	48.4	Milwaukee River	MR5
<b>MR-7b</b>	36"	Major	No	96	Milwaukee County	MR7
<b>MR-8</b>	66"	Major	No	147.9	Milwaukee River	MR8
<b>MR-11</b>	36"	Major	Yes	47	Milwaukee River	MR11
<b>MR-13</b>	42"	Major	No	67.1	Milwaukee River	MR13
<b>MR-17</b>	78"	Major	Yes	242	Milwaukee River	MR17
<b>MR-19</b>	42"	Major	Yes	38.8	Milwaukee River	MR19
<b>MR-23</b>	38"x60"	Major	Yes	46.9	Milwaukee River	MR23
<b>MR-25</b>	54"	Major	Yes	65.8	Milwaukee River	MR25
<b>MR-28</b>	72"	Major	No	48.4	Milwaukee River	MR28
<b>MR-28Aa</b>	38"x60"	Major	No	60	Ditch	MR28A
<b>MR-31A</b>	48"	Major	Yes	63.3	WISDOT	MR31A
<b>MR-35</b>	66"	Major	Yes	81.2	Milwaukee River	MR35
<b>MR-37</b>	42"	Major	Yes	55.8	WISDOT	MR37
<b>MR-38</b>	48"	Major	Yes	33	Milwaukee River	MR38
<b>MR-39</b>	36"	Major	No	79.6	Milwaukee River	MR39
<b>MR-39d</b>	68"x43"	Major	No	79.6	WISDOT	MR39
<b>MR-34i</b>	24"	Minor	Yes	7	Milwaukee	MR43
<b>MR-44</b>	36"	Major	Yes	18.4	Milwaukee River	MR44
<b>MR-46</b>	48"	Major	Yes	64.6	Milwaukee River	MR46
<b>MR-47</b>	48"	Major	Yes	28.1	Stormwater Pond	MR47
<b>RH-1</b>	91"x58"	Major	No	61.4	River Hills	RH1

Table 2. City of Glendale Major & Priority Outfall Locations

*IDDE Major & Priority Outfall Inspection Map*

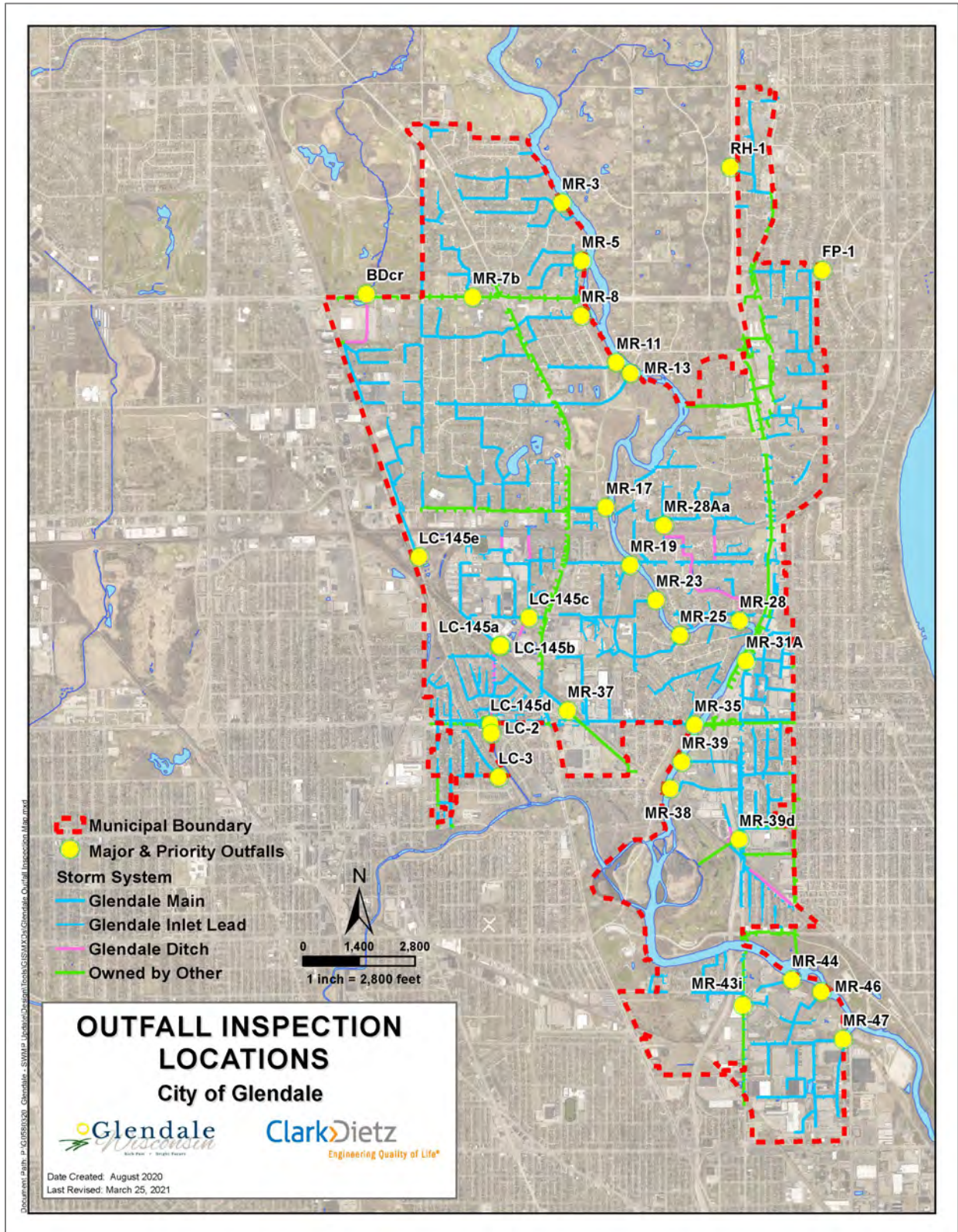


Figure 2. City of Glendale Major & Priority Outfall Locations

Outfall Photos



Figure 4. Outfall FP-1



Figure 5. Outfall LC-2



Figure 3. Outfall LC-3



Figure 6. Outfall LC-145a, b



Figure 9. Outfall MR-3



Figure 8. Outfall MR-5



Figure 7. Outfall MR-8



Figure 11. Outfall MR-11



Figure 10. Outfall MR-13



Figure 17. Outfall MR-23



Figure 16. Outfall MR-25



Figure 15. Outfall MR-35



Figure 14. Outfall MR-46



Figure 13. Outfall MR-47



Figure 12. Outfall RH-1

## 2.2 Outfall Inspections

### Inspection Frequency & Timing

Based on permit requirements, the City must conduct the field screening of each major outfall at least one (1) time during the five (5) year permit term. If an outfall is found to have an illicit discharge, then that outfall must be inspected annually during the remaining permit term, as well as annually during the following permit term. Each year, the City conducts a field screening of at a minimum, 20% of major and priority outfalls.

Scheduling outfall inspections is dependent on weather. Annual Outfall Field Screenings are to take place during the month of August and September. This time of year is more likely to have extended dry periods with little or no precipitation, which is required for inspection activities. The most important timing criteria is the requirement of a preceding dry-weather period. In order to ensure that samples collected are representative of dry-weather flows, **a period of 72 hours of dry weather should occur prior to conducting the outfall inspection.** A period of 72 hours is required to allow local detention facilities to drain and local groundwater flows to recede after precipitation events.

### Field Screening Requirements

Field screening shall be conducted at all major outfalls during dry weather periods. In the event that now or in the future a major outfall is a ditch rather than a pipe, the nearest upstream pipe discharge point should be used as a field screening point. Field screening shall be documented on the form included in Appendix B and will include the following:

- Visual Observation
  - Visual Observation. A narrative description of visual observations including color, odor, turbidity, oil sheen or surface scum, trash, flow rate, condition of conveyance system or outfall, and any other relevant observations regarding the potential presence of non-storm water discharges or illicit dumping shall be completed for each outfall visited.
- Field Analysis
  - If flow is observed, a field analysis shall be conducted to determine the presence of non-stormwater illicit discharges. The field analysis shall include sampling for pH, total chlorine, total copper, total phenols, and detergents or surfactants as illicit discharge indicator parameters. Alternative indicator parameters may be considered including ammonia, potassium, fluoride, E. coli, or bacteriodes based on specific MS4 outfall conditions.
    - Field screening point shall, where possible, be located downstream of any source of suspected illicit activity.
    - Field screening points shall be located where practicable at the farthest manhole or other accessible locations downstream in the system. Safety of personnel and accessibility of the location shall be considered in making this determination.
    - Consideration shall be given to hydrological conditions, total drainage area of the site, population density of the site, traffic density, age of the structures or buildings in the area, history of the area, and land use types.

- If field analysis indicates higher than expected range for pH, total chlorine, total copper, total phenol, and/or detergents, the discharge will need to be tracked upstream and eliminated.
- Documentation
  - The City maintains an MS4 binder located in the Director of Public Works' Office. All outfall inspections and findings will be filed in this binder. Filed screening results will be reported to the WDNR annually in the MS4 Annual Report. Visual observation and field screening results shall be recorded for each outfall and kept for 5 years.

### *Outfall Screening Procedures*

The following outfall screening procedures have been adopted from the "Lake County Illicit Discharge Detection and Elimination (IDDE) Manual", dated November 2006. As the City continues to maintain their IDDE program, these procedures will be assessed and if any changes occur, the Standard Operating Procedures will be updated. As changes occur to this document, it shall be recorded in Section 4, *Modifications* and submitted with the MS4 Annual Report.

The outfall screening component of the IDDE Program is where the presence or absence of a dry-weather flow is determined and data of the characteristics of observed flows are obtained. With this information, sources of illicit discharges can be identified and corrected. Outfall screening consists of the following three major tasks:

1. Daily setup;
2. Outfall Inspection;
3. Daily closeout

### Daily Setup

The outfall screening schedule should be reviewed to determine which outfalls have been screened and which outfalls are scheduled for screening. In this step, an attempt should be made to visualize the outfall locations and anticipate any potential problems that could affect the day's screening activities. Of particular concern in daily setup is whether any safety issues will be associated with the day's screening activities. For example, will traffic need to be controlled or will access to the outfall be difficult. Before leaving on daily outfall inspections, field crews must ensure that all necessary equipment is available and operable. Prior to outfall screenings, the field crew is to obtain a sampling kit from North Shore Water Commission. The address and contact information for North Shore Water Commission can be found in the Emergency Contacts of this SOP. See Figure 20 for a list of field equipment:

<b>Sampling</b>	Extended Sampler
	1-liter Polyethylene Container
	Glass Sample Jar
	Sampling Kit from North Shore Water Commission
<b>Inspections</b>	Blank Outfall Visual Inspection forms or Field Screening Forms
	Clipboard and Pens
	Marker
	IDDE SOP
	Storm Sewer Map
	Flashlight
	Manhole Cover Hook
	Taper Measurer
<b>Safety</b>	Folding Rule
	Traffic Cones / Traffic Control
	Safety Vest
<b>Personal</b>	Safety Glasses
	Rubber Boots
	Disposable Gloves
	Insect Repellant
	ID Badge
	Sunscreen
Work Gloves	

Figure 18. Field Equipment for Visual Inspections and Field Screenings

### ***Outfall Inspection***

Upon arriving at an outfall, the field crew should inspect the outfall by approaching the outfall on foot to a proximity that will allow visual observation to be made. Access to each outfall should be assessed for potential hazards. Examples of hazards are steep slopes, dense brush, excessive heights and deep water. Field crews must decide on a case-by-case basis whether an outfall can be safely accessed for inspection.

Outfalls should be screened to determine which one of the three following conditions applies (Figure 21 provides a flow chart for this process, adapted from the Lake County IDDE Manual):

1. The outfall is dry or damp with no observed flow
  - a. Field crew should photograph the outfall and complete sections 1, 2, 5, 6, 7, and 8 of the *Stormwater Outfall Screening Data Form*, found in Appendix B of this document.
2. Flowing discharges are observed from the outfall
  - a. Field crew should complete all sections of the *Stormwater Outfall Screening Data Form*, found in Appendix B of this document, and obtain a grab sample to conduct the required laboratory analysis. The intent is to gather additional information to determine if an illicit discharge is present. Laboratory results will be used to identify potential sources, and to document the event for future removal and/or enforcement actions.
3. The outfall is partially or completely submerged with no observed flow or is inaccessible
  - a. If standing water is present in an outfall or if it is inaccessible, then Section 1 of the outfall screening data form should be completed, with appropriate comments being written in the "Remarks" section of the data form. Locating an upstream sampling point may be required if any of the following conditions exist at an outfall:
    - i. The outfall discharge is submerged or partially submerged due to backwater conditions
    - ii. Site access and safety considerations prevent sample collection
    - iii. The outfall is from a facility providing water quality treatment (for example, detention basin outlet)

### ***Special Consideration for Inspecting at a Storm Sewer Structure***

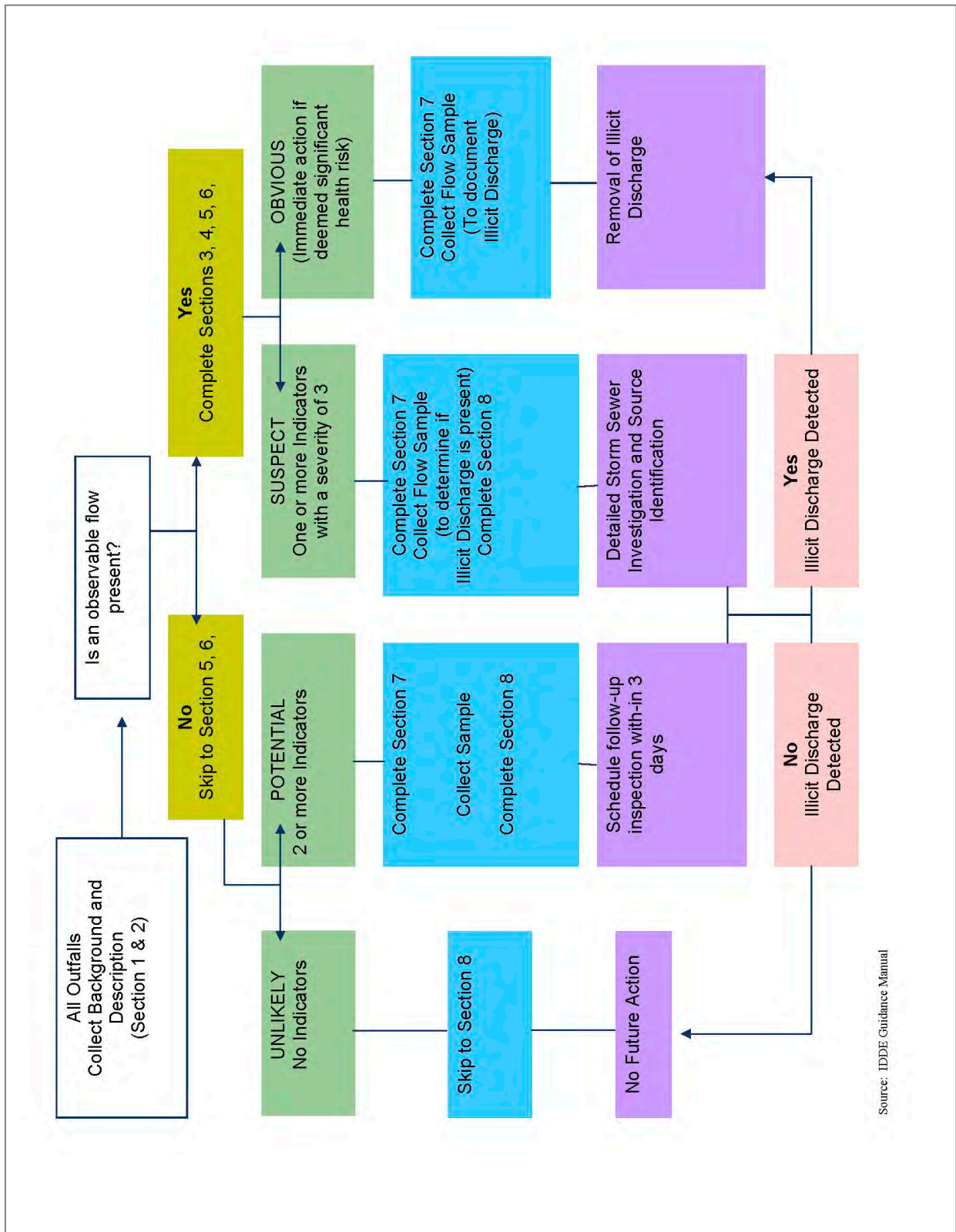
Any outfall that is inaccessible and must be inspected at the nearest upstream storm structure, should be given special consideration in regards to safety and additional inspection equipment.

Manholes, catch basins, or culvert crossings can be used for sampling locations. Collection of a sample may be more difficult for these locations. Safety should be the primary consideration while inspecting and sampling these locations. Safety concerns related to removing manhole lids or catch basin covers include:

1. Traffic Hazards
2. Personal injuries to the back, hands, and fingers
3. Possible hazardous conditions in the structure

If traffic is heavy and removal of a manhole lid would cause traffic obstructions, the manhole should not be selected for sampling. Likewise, if strong gasoline or solvent odors are noticed from a manhole, the manhole should not be selected for sampling.

***In no case should field crew members who are untrained, uncertified, or unequipped for confined space entry attempt to enter confined spaces.*** Confined space entry includes climbing into or inserting a head or a limb into pipes or manholes. A horizontal or vertical plane should be established at the end of an outfall pipe or level with a manhole surface. This plane should not be crossed by field crews. If it is necessary to take a sample at any of these locations, an extended sample collection device should be used in these situations.



Source: IDDE Guidance Manual

Figure 19. Flow Chart of Outfall Screening Process

### **Data Recording**

All outfall inspections and outfall analyses must be documented in the *Stormwater Outfall Screening Data Form* (a blank form is provided in Appendix B). All completed forms must be dated, legible, and should contain accurate documentation of each outfall inspection. A separate form must be completed for each outfall. Once completed, these data forms will become official documents and will be maintained as part of the City's files and submitted with the MS4 Annual Report.

Instructions for completing the outfall screening data form are as follows:

#### **Section 1 – Background Data** (To be completed for every outfall inspection, once the field crew arrives at the outfall)

- Subwatershed: The identified receiving water of the outfall (Lake Michigan or Milwaukee River)
- Outfall ID: The outfall identification number (See the outfall location map in Figure 2)
- Today's Date: Date of the outfall inspection
- Time: Time that the field crew arrived at the outfall
- Investigators: The name(s) of the field sampling crew
- Temperature: A concise description of the weather conditions at the time of screening
- Precipitation: The total amount of precipitation during the 72 hours preceding the inspection. Precipitation totals could be obtained through a weather reporting service or a rain gauge.
- Outfall Location Description: A concise description of the outfall location. The description should be sufficient to relocate outfall for future inspections.
- Camera: Photos should be taken at each outfall inspection. Note here which device was used to take photos of the inspection.
- Photo #s: Photos should be downloaded and organized per each inspection. Note here the name of the file that has been given to the photo(s).
- Land Use: Check all that apply, noting which land use is predominate.
- Notes: A description of the actual sampling location is to be recorded (for example, at the end of the outfall pipe, or manhole location). If the outfall is submerged or is inaccessible for sampling, an upstream sampling location may be required. A description of any upstream sampling location should be recorded here.

#### **Section 2 – Outfall Description**

- Type of Outfall (Closed Pipe or Open Drainage): First check if the outfall inventoried is either from a Closed Pipe or Open Drainage system, or In-Stream (if collecting samples). Then complete table row to describe outfall characteristics. See Figure 22 for typical outfall types found in the field.
- Dry-Weather Flow Observed (Yes/No): A Yes or No should be entered here to indicate the presence or absence of a dry-weather flow. If the outfall is submerged or inaccessible, "See Remarks" should be entered and an explanation should be provided in the "Remarks" section. See Figure 23 for examples of characterizing submersion and flow.

**Note:** *If an upstream sampling location is located, then a new data form should be completed describing the actual location sampled.* If no upstream site is located in the field, an alternative site should be located in the office by reviewing storm sewer and drainage maps.

- Flow Present: If No is entered in the “Flow Present” block, the skip to Section 5. If Yes is entered in the “Flow Present” block, the remainder of the outfall screening data form should be filled out.

 <p>Ductile iron round pipe</p>	 <p>4-6" HDPE; Check if roof leader connection (legal)</p>	 <p>Field connection to inside of culvert; Always mark and record.</p>
 <p>Small diameter (&lt;2") HDPE; Often a sump pump (legal), or may be used to discharge laundry water (illicit).</p>	 <p>Elliptical RCP; Measure both horizontal and vertical diameters.</p>	 <p>Double RCP round pipes; Mark as separate outfalls unless known to connect immediately up-pipe</p>
 <p>Culvert (can see to other side); Don't mark as an outfall</p>	 <p>Open channel "chute" from commercial parking lot; Very unlikely illicit discharge. Mark, but do not return to sample (unless there is an obvious problem).</p>	 <p>Small diameter PVC pipe; Mark, and look up-pipe to find the origin.</p>
 <p>CMP outfall; Crews should also note upstream sewer crossing.</p>	 <p>Box shaped outfall</p>	 <p>CMP round pipe with two weep holes at bridge crossing. (Don't mark weep holes)</p>

Source: *Illicit Discharge Detection and Elimination: A Guidance Manual*

Figure 20. Typical Outfall Types Found in the Field



Source: *Illicit Discharge Detection and Elimination: A Guidance Manual*

Figure 21. Characterizing Submersion and Flow

### **Section 3 – Quantitative Characterization**

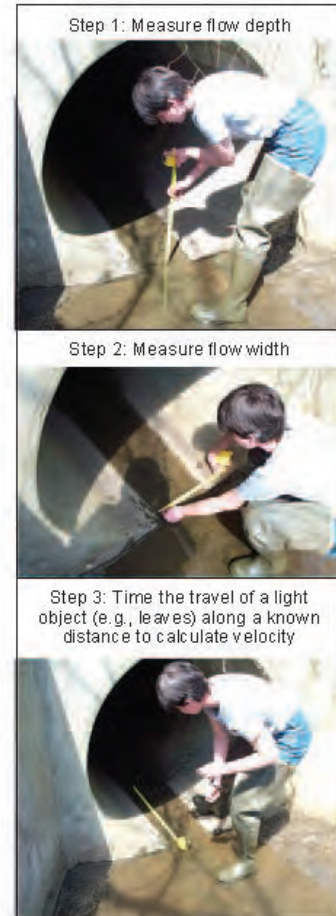
A grab sample should be collected from the middle, both vertically and horizontally, of the dry-weather flow discharge. The grab sample should be collected in a 1-liter polyethylene container. Samples can be collected by manually dipping a sample container into the flow.

Grab samples may also be collected using a bucket and lien or extended sample collection rod by standing on the top of an outfall or manhole. Care should be taken to ensure that a representative sample is obtained from the dry-weather discharge.

- Flow: A description of the dry-weather flow should be provided. See Figure 24 for an example of measuring the flow rate (as velocity times cross-sectional area).

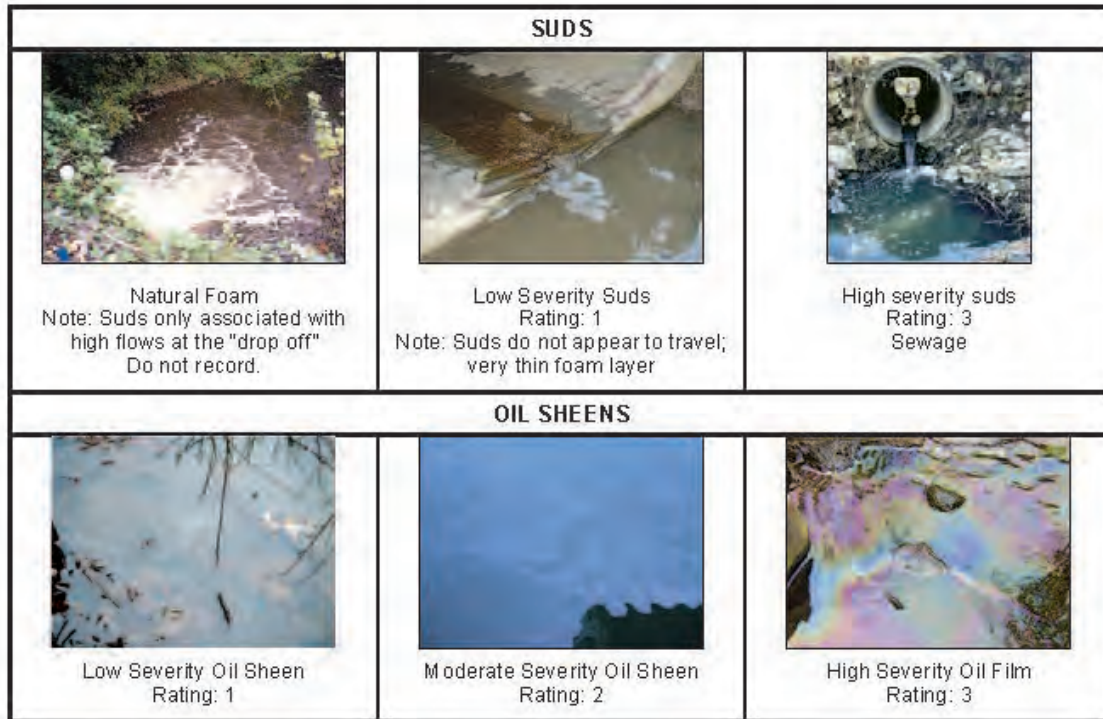
### **Section 4 – Physical Indicators for Flowing Outfalls Only**

- Odor: The presence of an odor is to be assessed by fanning the hand toward the nose over a wide-mouth container of the sample, keeping the sample about 6 to 8 inches from the face. Be careful not to be distracted by odors in the air. If present a description of the odor should be provided.
- Color: The presence of color in the discharge is to be assessed by filling a clean glass sample container with a portion of the grab sample. Color should not be assessed by looking into the discharge.
- Turbidity: Turbidity is the measure of the clarity of water. Turbidity may be caused by many factors, including suspended matter such as clay, silt, or finely divided organic and inorganic matter. Turbidity is a measure of the optical properties that cause light to be scattered and not transmitted through a sample. Turbidity should be described as: Clear, Cloudy or Opaque.
- Floatables: The presence of flowing scum, foam, oil sheen, or other materials on the surface of the discharge are to be noted. A concise description of any floatables present should be provided. Trash originating from areas adjacent to the outfall should not be included in this observation; and description of floatables should be attributable to discharges from the outfall. See Figure 25 for examples of how to determine the severity of floatables.



Source: *Illicit Discharge Detection and Elimination: A Guidance Manual*

**Figure 22. Measuring Flow**



Source: *Illicit Discharge Detection and Elimination: A Guidance Manual*

Figure 23. Determining the Severity of Floatables

### **Section 5 – Physical Indicators for Both Flowing and Non-Flowing Outfalls**

No flow during the time of the inspection, should not rule out the potential of illicit discharges. Corroding or stained pipes, dead or absence of vegetation, are potential indicators of illicit discharges from direct or indirect (i.e. dumping) sources.

### **Section 6 – Overall Outfall Characterization**

Check the appropriate characterization based on the indicators present in Sections 4 and 5.

- Unlikely: No flow present or physical indicators present. No future action needed.
- Potential: Two or more indicators present. Follow-up inspection low priority.
- Suspect: One or more indicators with severity of 3 present. Follow-up inspection high priority.
- Obvious: When obvious discharges are encountered, field crews should stop the survey, track down the source of the discharge and immediately contact the Director of Public Works. Crews should photo-document the discharge and estimate its flow volume. If it can be done safely, field crew should collect a sample for water quality analysis. All three kinds of evidence are extremely helpful to support subsequent enforcement.

### **Section 8 – Any Non-Illicit Discharge Concerns**

Any problems, unusual features, or necessary maintenance are to be recorded here.

### **Daily Closeout**

In the office, copies of the completed data forms should be filed. Any problems locating outfalls should be discussed with appropriate supervisory personnel so that alternate sampling locations can be identified. If consistent access points are determined, the Outfall Location Map in Figure 2 will be updated, modifications will be documented in Section 4 of this document, and an updated SOP will be submitted with the MS4 Annual Report.

### **Field Screening Definitions**

- **Color:** Both industrial liquid wastes and sewage tend to have various colors. Some clean flow types can also have color characteristics other than clear. Overall, color may be a good first screen for problem outfalls but needs to be supplemented by other indicator parameters.
- **Odor:** Water is a neutral medium and does not produce odor; however, most organic and some inorganic chemicals contribute odor to water. Odor in water may originate from municipal and industrial waste discharges, from natural sources such as decomposition of vegetative matter, or from associated microbial activity. Odor is recognized as a quality factor affecting the acceptability of drinking water, tainting of aquatic life, and aesthetics of recreational waters. Odor is generally a good indicator of illicit sanitary sewer connections to a municipal sewer system.
- **Oil Sheen/Surface Scum:** The presence of an oil sheen in dry-weather flow discharges from a municipal storm sewer system may indicate the presence of a leaking underground storage tank in the vicinity or illegal dumping of items such as used automobile oil into the storm sewer system. Surface scum in dry-weather flow may consist of floatable materials such as foam, grease, waxes, soaps, food wastes, hair, paper and cotton, grit particles, and other materials. Surface scum may also indicate the presence of detergents or other chemicals in dry-weather flow. In addition, surface scum is an important parameter to note in the outfall screening program because it is subject to wind-induced transport in the receiving water and may contain pathogenic bacteria and/or viruses associated with individual particles.
- **Surfactants:** Surfactants are the active ingredient in most commercial detergents, and are typically measured as Methyl Blue Active Substances (MBAS). They are a synthetic replacement for soap which builds up deposits on clothing over time. Since surfactants are not found in nature, but are always present in detergents, they are excellent indicators of sewage and wash waters. The presence of surfactants in cleansers, emulsifiers and lubricants also makes them an excellent indicator of industrial or commercial liquid wastes.
- **Surface Tension:** Surfactants remove dirt particles by reducing the surface tension of the bubbles formed in laundry water when it is agitated. Reduced surface tension makes dirt particles less likely to settle on a solid surface (e.g., clothes or dishes) and become suspended instead on the water's surface. The visible manifestation of reduced surface tension is the formation of foam or bubbles on the water surface. Surface tension may be a good indicator of surfactants, but only when they are present at relatively high concentrations.
- **Turbidity:** A measure of the cloudiness in water. While turbidity itself cannot always distinguish between contaminated flow types, it is a potentially useful screening indicator to determine if the discharge is contaminated.
- **Chlorine:** Chlorine is used throughout the country to disinfect tap water. Chlorine concentrations in tap water tend to be significantly higher than most other discharge types. Chlorine is extremely volatile, and even moderate levels of organic materials can cause chlorine

levels to drop below detection levels. Because chlorine is non-conservative, it is not a reliable indicator. However, if chlorine is detected, it is a reliable indicator of activity occurring that requires further investigation. If very high chlorine levels are measured, it is a strong indication of a water line break, swimming pool discharge, or industrial discharge from a chlorine bleaching process.

- **Copper:** Concentrations of copper in dry-weather flows can be a result of corrosion of water pipes and automotive sources (for example, radiators, brake lines, and electrical equipment). The occurrence of copper in dry-weather flows could also be caused by inappropriate discharges from facilities that either use or manufacture copper-based products.
- **Detergents:** Most illicit discharges have elevated concentration of detergents. Sewage and washwater discharges contain detergents used to clean clothes or dishes, whereas liquid wastes contain detergents from industrial or commercial cleansers. The nearly universal presence of detergents in illicit discharges, combined with their absence in natural waters or tap water, makes them an excellent indicator.
- **pH:** A measure of the hydrogen ion concentration of water. A pH of 7 is neutral. A pH less than 7 is acidic, and a pH greater than 7 is basic. Most discharge flow types are neutral, having a pH value around 7. pH is a reasonably good indicator for liquid wastes from industries, which can have very high or low pH (ranging from 3 to 12). The pH of residential wash water tends to be rather basic (pH of 8 or 9). Although pH data is often not conclusive by itself, it can identify problem outfalls that merit follow-up investigations using more effective indicators.
- **Phenols:** Phenol is a very commonly occurring chemical and can be found in foods, medicines, and cleaning products, as well as industrial products and by-products. Generally, the appearance of phenols in stormwater would indicate a misconnected industrial sewer to a storm drain or ditch. Exceptions would include runoff from treated wood storage yards (for example, treated lumber and telephone poles) and improper disposal of cleaning products and compounds by institutions such as hospitals and nursing homes.

### *Sample Collection & Processing*

During a dry weather flow event or any time an illicit discharge is suspected, stormwater samples are collected by the City and processed by North Shore Water Commission.

All batches of stormwater samples must be approved by the Plant Manager or Working Foreman in advance before North Shore Water Commission (Commission) personnel will accept them. Because the Commission has a small lab, it must be verified that they have adequate personnel and bench space on the requested analysis day before approval can be granted.

### *Collection Protocol*

Stormwater samples are to be collected in vessels provided by the Commission. The vessels shall be pre-cleaned glass vials that have a capacity of 60 mL. The City shall use the vessel to collect the sample taking every precaution to avoid contamination. It is the responsibility of the sampler to identify and to take the appropriate safety procedures in collecting the samples.

The Commission will perform only one analysis per collection vessel (unless alternative arrangements have been made in advance). In other words, if multiple tests are needed from one site, you need to use as many collection vessels.

Label each vessel with the following information (labels will be provided):

1. Sampler Name
2. Location of Sample
3. Analysis Requested
  - a. Total Chlorine
  - b. pH
  - c. Phenol
  - d. Detergents
  - e. Total Copper
  - f. Fecal coliform/E.coli
4. Date and Time Sample was collected

*All samples must be collected the same day of analysis.*

### ***Storage Protocol***

The Commission will provide the City, a Styrofoam cooler with an insert for holding 48 vials as well as a cooler pack (multiple coolers available). Sample vessels will not be released by Commission personnel unless the City has a cooler and a frozen cooler pack. All samples must be kept in cooler with cold cooler pack until sample is delivered to the Commission.

### ***Data Recording***

The Commission will return the sample analysis results to the City the same day that the Commission lab receives the sample to process. The results will be emailed to the email address that was specified at time of sample delivery. The Commission will provide the City with a results form stating the levels of each parameter tested.

### ***Action Levels***

Recommended action levels for indicator parameters are found in Table 4. Sample results above these levels suggest the presence of an illicit discharge is likely. However, illicit discharges or connections should not be automatically ruled out in cases where parameters are detected below the recommended action levels. In some instances, illicit discharges can be masked by non-illicit sources depending on the time of year, recent precipitation events, or other conditions, especially at outfalls with large contributing drainage areas. With this in mind, the recommended action levels should be considered as a starting point for making decisions. Table 4 has been adapted from the WDNR Illicit Discharge Detection and Elimination Program Guidance, document number 3800-2012-01, dated March 2012.

PARAMETER	ACTION LEVEL	ILLICIT SOURCE(S)	NON-ILLICIT SOURCE(S)
<b>Ammonia</b>	0.1 mg/L	Sanitary sewage and industrial wastewater	Pets, wildlife and potentially WPDES permitted discharges
<b>Detergents</b>	0.5 mg/L	Industrial cleansers, commercial wash water and sanitary sewage	Residential car washing
<b>pH</b>	Less than 6 or greater than 9	Industrial wastewater and concrete truck wash-out	Groundwater and WPDES permitted discharges
<b>Total Chlorine</b>	Detection or positive test unless associated with a WPDES permitted discharge at background water supply levels	Industrial wastewater, swimming pools and sanitary sewage	WPDES permitted discharges
<b>Total Copper</b>	0.1 mg/L	Copper-based product use and manufacturing	WPDES permitted discharges
<b>Phenol</b>	Detection or positive test	Chemical, textile, paint, resin, tire, plastic, electronics and pharmaceutical manufacturing	None
<b>Fluoride</b>	Detection above background groundwater or water supply levels	Commercial and industrial wastewaters with a water supply component	Groundwater and WPDES permitted discharges
<b>Potassium</b>	10 mg/L	Sanitary sewage and industrial wastewater	Groundwater and WPDES permitted discharges
<b>E. coli</b>	10,000 MPN/100 mL	Sanitary sewage	Wildlife and pets
<b>Human Bacteriodes</b>	Detection or positive test	Sanitary sewage	None

Table 3. Action Level Guidance

## 2.3 Fecal Coliform Reduction Efforts

Fecal Coliform reduction elements in the MS4 Permit seek to identify and eliminate sewage contamination in storm sewers. In many municipal systems, trace amounts of human waste is found to travel between the sanitary sewer system and the storm sewer system, mainly at each leaking sanitary lateral or sanitary sewer pipe that may be in the vicinity of a storm drain or pipe.

Glendale will propose that the fecal coliform reduction requirement be conducted using E. Coli as the indicator bacteria. Similar to e coli limits in wastewater effluent analysis, Glendale will propose that the actionable limits for E Coli in the selected outfalls is 125 #/100 ml. monitored and tested between the months of May and September.

This will be proposed to the Department within the permit period, and testing for E Coli will be included in the Illicit Discharge monitoring program.

Should the IDDE program and testing identify sewage contamination in any of the stormwater outfalls, the City will propose to conduct a detailed tracing study to identify and eliminate these contamination sources from the drainage system.

The commitment to do so will be included in the City's Fecal Coliform Reduction Plan to be submitted to the Department by May 2024.

## **2.4 Enforcement Response Plan**

### *Identification of Suspected Spill or Illicit Discharge*

If the outfall screening identified dry-weather flows, several of the screening indicators will more than likely test positive for pollutant discharges. The screening results should be reviewed to determine the magnitude of the dry-weather pollution problem and to determine the necessary steps to identify and remove the sources of any detected pollutants. Once an illicit discharge has been detected, the field crew will immediately contact the Director of Public Works to brief them on the details of the situation so that the Director, or their designee, can begin to immediately follow the City response procedures.

- The suspected illicit discharge shall be tracked by screening manholes and other screening points upstream until the source of the spill or discharge is identified.
- Once the manhole inspection has identified an outfall or area (between two manholes) suspected of containing an inappropriate discharge, sample collection for laboratory analysis will be necessary. Collection of samples for laboratory analysis will be conducted following the North Shore Water Commission sampling protocol.
- Measures shall be taken to prevent or contain spills that have discharged or may discharge into the drainage system.
- The WDNR shall be notified immediately in accordance with NR 706, Wisconsin Administrative Code, in the event that a spill or release of a hazardous substance is identified that has resulted or may result in the discharge pollutants into waters of the state. The WDNR shall be notified via the 24-hour toll free spill hotline at (800) 943-0003. The City will cooperate with WDNR staff in efforts to investigate and prevent such discharges from polluting waters of the state.
- Once an illicit discharge is identified, the City will contact the WDNR within 24 hours.
- Identified illicit discharges shall be eliminated within three (3) working days to the maximum extent practicable. If the source is not identified within six (6) months, the City must maintain written documentation of all actions taken to locate the source. Additionally, a minimum of three (3) separate investigations to observe and sample flow at the outfall must be made within the six (6) month period.
- If a suspected illicit discharge that originates from the City's permitted area is found to discharge directly to a storm sewer or property under the jurisdiction of another municipality, the City shall notify the affected municipality within one working day.

In order to remove an illicit discharge to the storm sewer system, the City will follow the procedures outlined in the Title 6 Public Works Ordinance, Sec. 6.5.14:

- The Public Works Director shall notify the responsible owner or operator, by certified mail, of any non-complying land development activity. The notice shall describe the nature of the violation, remedial actions needed, a schedule for remedial action and additional enforcement action which may be taken.
- The responsible owner or operator shall remediate the illicit discharge within 24 hours of notification.
- If the illicit discharge is not remediated within this time, the City may take such action itself and seek reimbursement in Municipal or Circuit Court.
- If the illicit discharge is likely to result in damage to properties, public facilities, or waters of the state, City personnel may enter the land and take any emergency actions necessary to prevent such damage. The cost incurred by the City, plus interest and legal costs, shall be billed to the owner of title of the property.

### *Leakage from Sanitary Conveyance System*

Leakages from sanitary conveyance system into the MS4 shall be eliminated to the maximum extent practicable. Any actions taken to eliminate sanitary conveyance leakage will be recorded and reported to the WDNR in the Annual Report. The WDNR shall be notified immediately in accordance with NR 706, Wisconsin Administrative Code, in the event that a spill or release of a hazardous substance is identified that has resulted or may result in the discharge pollutants into waters of the state. The WDNR shall be notified via the 24-hour toll free spill hotline at (800) 943-0003. The City will cooperate with WDNR staff in efforts to investigate and prevent such discharges from polluting waters of the state.

### *Dye Testing Notification*

The City will provide the WDNR with advance notice of the time and location of dye testing within the MS4.

## **2.5 Record Keeping & Reporting**

Outfall inspections forms and documentation of any known or suspected illicit discharges, shall be maintained at the City of Glendale, Department of Public Works along with a copy of this SOP. The City will submit inspection reports to the WDNR for outfalls with known or suspected illicit discharges within 30 days of the outfall inspection.

Employee training will be conducted at a minimum, once during the permit term. Training will also take place for all new employees and any time changes to the procedures in this SOP are made. All training will be documented using the Employee Training Tracking Form located in Appendix D. The City of Glendale conducts an IDDE training annually on the first Wednesday of December.

## **2.6 Program Evaluation**

The IDDE Program is evaluated each year after the outfall screening process. The program evaluation portion seeks to find improvements or identify deficiencies within the IDDE program. Any changes

made to the program will be reflected in this SOP, documented in the Section 4, and will result in the City submitting the updated SOP to the WDNR with the MS4 Annual Report.

## Section 3: Public Illicit Discharge Reporting

### 3.1 Method of Reporting & Responding

The City Website includes information for homeowners to report illicit discharges. The City will have the ability to follow up with these reports and follow the procedures outlined below:

The public has the ability to report suspected illicit discharges by calling the City of Glendale Public Works Department at 414-228-1710. When a suspected illicit discharge has been reported to the City, the Director of Public Works' Designee will complete the following procedures:

- i. Designee completes the "Illicit Discharge Hotline Incident Tracking Sheet", that can be found in Appendix F.
- ii. Designee visits the reported location with field supplies to inspect for any evidence of an illicit discharge.
- iii. Designee inspects surrounding storm structures, and several storm manholes upstream and downstream of reported location.
- iv. If an illicit discharge is discovered, samples are taken based on sample protocols, source of discharge is traced, and proper spill materials are used to isolate the illicit discharge in order to prevent further contamination to the storm system.
- v. Established reporting and record keeping procedures are followed based on the procedures outlined in Section 2.2.



## **Appendix A: Emergency Contacts**

## **EMERGENCY CONTACTS**

<b>Contact</b>	<b>Telephone Number</b>
Primary Contact – Director of Public Works Name – Charlie Imig	Office: 414-228-1746 Cell:
Alternate Contact – Superintendent of Public Works Name – Steve Scheldroup	Office: 414-228-1749 Cell:
Emergency/Fire/Ambulance/Police/HazMat Response	911
Milwaukee County Office of Emergency Management	414-257-4709
Wisconsin Department of Natural Resources - 24 Hour Spill Reporting Hotline	800-943-0003
U.S. EPA Region V Spill Reporting	312-353-2318
National Response Center (may be contacted for any spill)	800-424-8802
Adjoining Community – Village of Whitefish Bay Primary Contact – Director of Public Works Name – John Edlebeck	Office: 414-962-6690 ext 114
Sample Processing Lab North Shore Water Commission 400 W Bender Rd, Glendale, WI 53217 Plant Manager: Eric Kiefer	414-963-0160

## **Appendix B: Stormwater Outfall Screening Data Form**

**CITY OF GLENDALE, WI**  
**OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET**

**Section 1: Background Data**

Subwatershed:	Outfall ID:
Today's date:	Time:
Investigators:	Form completed by:
Temperature (°F):	Precipitation (in.) Last 72 hours:
Outfall Location Description:	
Camera:	Photo #s:
Land Use in Drainage Area (Check all that apply):	
<input type="checkbox"/> Industrial	<input type="checkbox"/> Open Space
<input type="checkbox"/> Ultra-Urban Residential	<input type="checkbox"/> Institutional
<input type="checkbox"/> Suburban Residential	Other: _____
<input type="checkbox"/> Commercial	Known Industries: _____
Notes (e.g., origin of outfall, if known):	

**Section 2: Outfall Description**

LOCATION	MATERIAL	SHAPE	DIMENSIONS (IN.)	SUBMERGED
<input type="checkbox"/> Closed Pipe	<input type="checkbox"/> RCP <input type="checkbox"/> CMP <input type="checkbox"/> PVC <input type="checkbox"/> HDPE <input type="checkbox"/> Steel <input type="checkbox"/> Other: _____	<input type="checkbox"/> Circular <input type="checkbox"/> Single <input type="checkbox"/> Elliptical <input type="checkbox"/> Double <input type="checkbox"/> Box <input type="checkbox"/> Triple <input type="checkbox"/> Other: _____ <input type="checkbox"/> Other: _____	Diameter/Dimensions: _____	In Water: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully  With Sediment: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully
<input type="checkbox"/> Open drainage	<input type="checkbox"/> Concrete <input type="checkbox"/> Earthen <input type="checkbox"/> rip-rap <input type="checkbox"/> Other: _____	<input type="checkbox"/> Trapezoid <input type="checkbox"/> Parabolic <input type="checkbox"/> Other: _____	Depth: _____ Top Width: _____ Bottom Width: _____	
<input type="checkbox"/> In-Stream	(applicable when collecting samples)			
Flow Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>If No, Skip to Section 5</i>		
Flow Description (If present)	<input type="checkbox"/> Trickle <input type="checkbox"/> Moderate <input type="checkbox"/> Substantial			

**Section 3: Quantitative Characterization**

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER	RESULT	UNIT	EQUIPMENT	
<input type="checkbox"/> Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
<input type="checkbox"/> Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch

CITY OF GLENDALE, WI  
Outfall Reconnaissance Inventory Field Sheet

**Section 4: Physical Indicators for Flowing Outfalls Only**

Are Any Physical Indicators Present in the flow?  Yes  No (If No, Skip to Section 5)

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
			1 - Faint	2 - Easily detected	3 - Noticeable from a distance
Odor	<input type="checkbox"/>	<input type="checkbox"/> Sewage <input type="checkbox"/> Rancid/sour <input type="checkbox"/> Sulfide <input type="checkbox"/> Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Color	<input type="checkbox"/>	<input type="checkbox"/> Clear <input type="checkbox"/> Brown <input type="checkbox"/> Gray <input type="checkbox"/> Green <input type="checkbox"/> Orange <input type="checkbox"/> Red <input type="checkbox"/> Yellow <input type="checkbox"/> Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turbidity	<input type="checkbox"/>	See severity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Floatables -Does Not Include Trash!!	<input type="checkbox"/>	<input type="checkbox"/> Sewage (Toilet Paper, etc.) <input type="checkbox"/> Petroleum (oil sheen) <input type="checkbox"/> Suds <input type="checkbox"/> Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls**

Are physical indicators that are not related to flow present?  Yes  No (If No, Skip to Section 6)

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	<input type="checkbox"/>	<input type="checkbox"/> Spalling, Cracking or Chipping <input type="checkbox"/> Corrosion <input type="checkbox"/> Peeling Paint	
Deposits/Stains	<input type="checkbox"/>	<input type="checkbox"/> Oily <input type="checkbox"/> Flow Line <input type="checkbox"/> Paint <input type="checkbox"/> Other:	
Abnormal Vegetation	<input type="checkbox"/>	<input type="checkbox"/> Excessive <input type="checkbox"/> Inhibited	
Poor pool quality	<input type="checkbox"/>	<input type="checkbox"/> Odors <input type="checkbox"/> Suds <input type="checkbox"/> Colors <input type="checkbox"/> Excessive Algae <input type="checkbox"/> Floatables <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Other:	
Pipe benthic growth	<input type="checkbox"/>	<input type="checkbox"/> Brown <input type="checkbox"/> Orange <input type="checkbox"/> Green <input type="checkbox"/> Other:	

**Section 6: Overall Outfall Characterization**

Unlikely  Potential (presence of two or more indicators)  Suspect (one or more indicators with a severity of 3)  Obvious

**Section 7: Data Collection**

- Sample for the lab?  Yes  No
- If yes, collected from:  Flow  Pool

**Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?**

## **Appendix C: The North Shore Group**

### **WPDES Permit No. WI-S061565-04; Part II.D**

- c) Submit as part of the permit application (due November 30, 2025), a summary of the results of the education efforts and planned targeted education for the next permit term.

#### **C. PUBLIC INVOLVEMENT AND PARTICIPATION**

The permittee shall implement a public involvement and participation program that provides opportunities for the public to effectively participate in the development, implementation, and modification of the permittee's storm water management program. The approach must include provisions for receiving and considering public comments on the following permit activities: annual reports, SWMP revisions, adoption of storm water related ordinances, and TMDL pollutant load reduction benchmark development. The permittee shall also identify delivery mechanism and target participants associated with each permit activity. Delivery mechanisms may include public workshop, presentation of storm water information, government event (public hearing, council meeting, etc.), citizen committee meeting, or website.

#### **D. ILLICIT DISCHARGE DETECTION AND ELIMINATION**

Each municipality shall continue to implement a program to detect, remove, and eliminate illicit connections and discharges to the municipal separate storm sewer system. The program must include:

1. **Ordinance:** An ordinance or other regulatory mechanism, at a minimum, to:
  - a) Prohibit illicit discharge, spilling or dumping of non-storm water substances or material into the permittee's MS4 or waters of the state.
  - b) Identify non-storm water discharges or flows that are not considered illicit discharges. Non-storm water discharges that are not considered illicit discharges including water line flushing, landscape irrigation, diverted stream flows, uncontaminated groundwater infiltration, uncontaminated pumped groundwater, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, firefighting, and discharges authorized under a WPDES permit unless identified by the permittee as significant source of pollutants to waters of the state.
  - c) Establish inspection and enforcement authority.
  - d) The ordinance shall be updated no later than December 31, 2021. If after December 31, 2021, the permittee becomes aware the ordinance is out of date, the permittee shall update the ordinance within 3 months.

**Note:** Chapter NR 815, Wis. Adm. Code, regulates injection wells including storm water injection wells. Construction or use of a well to dispose of storm water directly into groundwater is prohibited under s. NR 815.11(5), Wis. Adm. Code.

2. **Dry Weather Outfall Screening:** A written IDDE field screening procedure. At a minimum, the procedure must include:
  - a) The name, title, and phone number of the individual(s) responsible for field screening activities.

b) Field screening during dry weather periods (72 hours after measurable rainfall) at the MS4 outfalls.

(1) Location. Screening locations shall be selected by the following criteria:

- (a) All major outfalls which showed no indication of illicit discharges during the previous permit term. Annually, at least 20 percent of such major outfalls shall be screened, on a rolling basis, such that at the end of the permit term all major outfalls which showed no indication of illicit discharges during the previous permit term have been screened.
- (b) All major outfalls which showed evidence of illicit discharges or exceeded a parameter action level during the last two samplings under the preceding permit term shall be evaluated at a minimum one time per year.
- (c) All other outfalls regardless of size, which have been identified as a priority screening location. Each permittee shall develop a prioritization structure begin inspecting priority outfalls by June 1, 2022. At least 20 percent of such priority outfalls shall be screened annually.

**Note:** The Menomonee Group Permittees developed the Human Illicit Discharge Potential methodology to prioritize non-major outfall screening. North Shore Permittees can use this methodology or develop their own system for prioritization. The prioritization of non-major outfalls should be periodically updated based upon the results of field screening.

- (2) Visual Observation. A narrative description of visual observations including color, odor, turbidity, oil sheen or surface scum, trash, flow rate, condition of conveyance system or outfall, and any other relevant observations regarding the potential presence of non-storm water discharges or illicit dumping shall be completed for each outfall visited.
- (3) Field Analysis. If flow is observed, a field analysis must be conducted to determine the cause of the dry weather flow. The field analysis shall include sampling for pH, total chlorine, total copper, total phenol, and detergents unless the permittee elects to use alternative indicator parameters such as ammonia, potassium, and fluoride. Other alternative indicator parameters may be authorized by the Department in writing. Where appropriate, pollutant parameter action levels identified by the permittee must be considered. Field analysis procedures shall describe when other investigation methods such as dye testing or televising will be used.
  - (a) The Permittee may propose alternative field analysis procedures for review and approval. The permittee shall follow the field analysis procedures identified in subsection (3) unless alternative procedures are approved in writing by the Department.

- (4) Pollutant parameter action levels that will be used as part of the field screening and analysis under Section II. D. 2. b) (3). The action levels will identify concentrations for identified pollutants that, if exceeded, will require further investigation, which may include laboratory analysis, to identify the source the illicit discharge.
  - (5) Laboratory Analysis. If general observations and field screening indicate the presence of a suspected illicit discharge and the source or cause of the illicit discharge cannot be determined through other investigatory methods, the permittee shall collect a water quality sample for laboratory analysis for ongoing discharges. The water quality sample must be analyzed for pollutant parameters or identifiers which will aid in the determination of the sources of the illicit discharge.
- c) Documentation. Visual observation and field screening results shall be recorded for each outfall and kept for 5 years. A summary of results shall be included with the annual report.
3. **Investigation and Elimination Procedures.** The permittee shall have written procedures for investigating and responding to known or suspected illicit discharges. Procedures must be developed for all of the following:
- a) The name, title, and phone number of the individual(s) responsible for responding to reports of illicit discharges and spills.
  - b) Immediately investigating portions of the municipal separate storm sewer system that, based on the results of visual observation, field screening, laboratory analysis, or other relevant information, such as a complaint or referral, indicates a reasonable potential for containing illicit discharges.
  - c) Responding to spills that discharge into and/or from the MS4 including tracking the source of the spill if unknown.
  - d) Preventing and containing spills that may discharge into or are already within the MS4.
  - e) Immediately notifying the Department in accordance with ch. NR 706, Wis. Adm. Code, if the permittee identifies a spill or release of a hazardous substance, which results in the discharge of pollutants into waters of the state. The Department shall be notified via the 24-hour toll free spill hotline at 1-800-943-0003. The permittee shall cooperate with Department in efforts to investigate and prevent such discharges from polluting waters of the state.
  - f) Elimination of the illicit discharge as soon as practicable.
    - (1) Once the source of an illicit discharge is determined, the permittee must take appropriate action to seek to eliminate the illicit discharges within 30 days. This includes an initial evaluation of the feasibility to eliminate the discharge within 30 days. The permittee shall contact the Department if the illicit discharge cannot be

eliminated in the 30-day time period.

(2) If the permittee determines the elimination of the illicit discharge will take more than 30 days due to technical, logistical or other reasonable issues, the permittee must develop and implement an illicit discharge elimination plan to remove the illicit discharge in an expeditious manner. The elimination plan must be submitted to the Department within 45 days of determining the source of an illicit discharge. In lieu of developing and implementing an individual elimination plan for common types of illicit discharges, the permittee may document and implement response procedures, a response plan, or similar document. The action plan, response procedures, response plan or similar document must include a timeframe for elimination of the illicit discharge as soon as practicable.

- g) Elimination of any leakage or discharge from sanitary conveyance systems into the MS4 as required in s. NR 216.07 (3) (h), Wis. Adm. Code.
  - h) Providing the Department with advance notice of the time and location of dye testing within a MS4.
  - i) Notification of adjacent municipality. In the case of an illicit discharge that originates from the municipality's permitted area and discharges directly to a storm sewer system or property under the jurisdiction the adjacent municipality, the first municipality shall notify the affected municipality within one working day.
  - j) Documentation. The permittee shall maintain a system for documenting complaints, referrals, and any actions taken to investigate or eliminate an illicit discharge. A summary of illicit discharge activities for each year shall be included in the annual report.
4. **Enforcement Response.** Include documentation in an enforcement response plan or similar document, by May 31, 2023, a description of the enforcement response procedures the permittee implements when an illicit discharge investigation identifies a responsible party.
5. **Training:** All staff responsible for implementation of the IDDE program shall receive training at least once per permit term. This includes office staff, field staff, and emergency response staff.

#### **E. CONSTRUCTION SITE POLLUTION CONTROL**

The permittee shall continue to implement and enforce a written program that establishes measurable goals and reduces the discharge of sediment and construction materials from construction sites. The permittee through implementation of this program shall:

## **Appendix D: Employee Training Tracking Form**



## **Appendix E: Wisconsin DNR Spill Reporting Guidance**



## DNR Staff Provide Spill Response and Support

RR-559

July 2014

Rarely does anyone ever plan a spill. Spills are typically caused by accidents of some sort, but when they do occur, the people involved with a spill must comply with state requirements. Wisconsin law mandates that spills of hazardous substances be immediately reported and cleaned up to protect Wisconsin's citizens and natural resources. When a spill occurs, the DNR has staff located in regional offices around the state to help in a variety of ways.

### Responding To Spills

#### *During Normal Working Hours*

When calls are made to the DNR spill hotline during the day, the information comes directly to the DNR office in Madison, and is forwarded to the Regional Spill Coordinator for follow-up.

#### *After Hours*

During the evening hours and on weekends, the phone calls are directed to the Wisconsin State Patrol, who will forward the information to a DNR duty officer. That duty officer will then alert the On-Call Spill Coordinator to the situation.

**The DNR encourages the  
public to report  
hazardous substance  
spills using the  
24-hour toll-free hotline:  
1-800-943-0003**

### DNR Field Response

#### *DNR Wardens and Regional Spill Coordinators*

The first responders to a hazardous substance spill for the DNR may be a field warden or regional spill coordinator. Wardens are more likely to respond in remote areas since they are widely distributed across the state. Each county has at least one warden. Wardens know local responders, such as fire and police personnel, are familiar with the natural resources impacted by a spill, and can assist the responsible party in managing the spill.

Spill coordinators (working in the DNR's Remediation and Redevelopment Program) are located in each of the regional DNR offices. These spill coordinators specialize in technical spill response issues and are available before, during, and after spills occur.

When a field warden or regional spill coordinator gets a call about a spill, their follow up may include additional phone calls to get more information about the nature of the spill, going to the site, and/or requesting other DNR assistance (e.g. fish managers, water resources staff and public information specialists).

When an emergency situation occurs and the responsible party is not available or willing to take action, DNR will call in a zone contractor to respond to the spill. Zone contractors are emergency response companies that provide statewide emergency response services in such situations.



Wisconsin Department of Natural Resources  
P.O. Box 7921, Madison, WI 53707  
dnr.wi.gov, search "brownfield"



## Wisconsin DNR - Hazardous Substance Spills



### Remediation and Redevelopment Program

November 2016

## Immediate Reporting Required for Hazardous Substance Spills

If you are aware of a hazardous substance spill notify the Department of Natural Resources (DNR). State law requires the IMMEDIATE reporting of hazardous substance spills and other discharges to the environment.

**CALL 800-943-0003  
TO REPORT SPILLS**



**Use DNR Form 4400-225 to report other hazardous substance discharges**

Other hazardous substance discharges, including historical contamination and contamination caused by an ongoing long-term release, discovered during an environmental assessment or laboratory analysis of soil, sediment, groundwater or vapor samples, should be reported to the DNR by filling out and submitting DNR Form 4400-225, "Notification for Hazardous Substance Discharge (Non-Emergency Only)," which is available at [dnr.wi.gov](http://dnr.wi.gov).

- ✓ Report hazardous substance discharges as soon as visual or olfactory evidence confirms a discharge or laboratory data is available to document a discharge. **Do not wait** to complete a Phase II environmental assessment, or other similar report, to notify the DNR.

### Reporting is everyone's responsibility

Individuals and entities that cause a hazardous substance spill or discharge to the environment are required by state law to notify the DNR immediately - as soon as the spill or discharge is identified. Individuals and entities that own or control property where the spill or discharge occurred must report the discharge immediately if it is not reported by the person or entity that caused the discharge.

For public health and safety, the DNR encourages everyone to report known hazardous substance discharges. Reporting a spill or other discharge, in itself, does not make a person or entity liable for the contamination.

### Proper spill containment, cleanup, and disposal is always required

Every person/entity (including lenders and local governments) that causes a hazardous substance discharge, or owns or controls property at which a discharge occurred, must comply with the response action requirements in [Wis. Admin. Chs. NR 700 to 754](#). No spill or discharge is exempt from the duty to properly contain, clean up and dispose of the substance and associated contaminated media, such as soil, water and other affected materials.

Publication Number: DNR-RR-560

[dnr.wi.gov](http://dnr.wi.gov), search "spills"

## Spill reporting exemptions

All spills must be cleaned up, but it is generally not necessary to report recent spills that are:

- less than 1 gallon of gasoline
- less than 5 gallons of any petroleum product other than gasoline
- any amount of gasoline or other petroleum product that is completely contained on an impervious surface
- individual discharges authorized by a permit or program approved under Wis. Stats. Chs. 289 - 299
- less than 25 gallons of liquid fertilizer
- less than 250 pounds of dry fertilizer
- pesticides that would cover less than 1 acre of land if applied according to label instructions
  - \* NOTE: Reporting is required if the ongoing, long-term release or application of a permitted pesticide, fertilizer or other substance accumulates to levels that exceed current health or safety standards.
- less than the federal reportable quantities listed in 40 C.F.R. §§ 117 or 302
  - \* NOTE: U.S. EPA (federal) spill reporting requirements are outlined on the internet at <https://www.epa.gov/emergency-response/when-are-you-required-report-oil-spill-and-hazardous-substance-release>.

## Spill reporting exemptions do not apply (and reporting is required) when:

- the spilled substance has not evaporated or been cleaned up in accordance with Wis. Admin. chs. NR 700 - 754
- the spilled substance is a potential fire, explosion or safety hazard
- the spilled substance causes, or threatens to cause, chronic or acute human health concerns
  - \* NOTE: If you are unsure about potential human health effects, consult with local or state health officials.
- the spilled substance adversely impacts, or threatens to impact, the air, lands or waters of the state (as either a single discharge or when accumulated with past discharges) - even if the degree of the impact has not yet been thoroughly evaluated
  - \* NOTE: If the substance causes sheen on surface water, has entered or is on the verge of entering the waters of the state, DNR will consider the spilled substance a threat to impact, or to have adversely impacted, waters of the state and reporting is required.

## Terms, definitions, statutes and rules

**Hazardous substance** — Any substance that can cause harm to human health and safety, or the environment, because of where it is spilled, the amount spilled, its toxicity or its concentration. Even common products such as milk, butter, pickle juice, corn, beer, etc., may be considered a hazardous substance if discharged to a sensitive area.

**Discharge** — Spilling, leaking, pumping, pouring, emitting, emptying, dumping, etc., to land, air or water.

**Spill** — A discharge that is typically a one-time event or occurrence, and usually inadvertent.

**Wis. Stat. § 292.11(2) and Wis. Admin. § NR 706.05** — Require individuals and entities that possess or control a hazardous substance, or that cause the discharge of a hazardous substance to the environment, to notify the DNR immediately about the discharge.

**Wis. Stat. § 292.99** — Authorizes penalties up to \$5,000 for each violation of the notification requirement.

Consult Wis. Stat. Ch. 292 and Wis. Admin. §§ 700 - 754, and [dnr.wi.gov](http://dnr.wi.gov) for further information on hazardous substance spill and discharge reporting, investigation and cleanup.

## DNR contact information

To report a discharge call 1-800-943-0003. For more information on the spills program, including [contact information](#), visit [dnr.wi.gov](http://dnr.wi.gov), search "Spills".

This document is intended solely as guidance and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.

## **Appendix F: Illicit Discharge Hotline Incident Tracking Sheet**

Illicit Discharge Hotline Incident Tracking Sheet				
<b>Incident ID:</b>				
<b>Responder Information</b>				
Call taken by:		Call date:		
Call time:		Precipitation (inches) in past 24-48 hrs:		
<b>Reporter Information</b>				
Incident time:		Incident date:		
Caller contact information (optional):				
<b>Incident Location</b> (complete one or more below)				
Latitude and longitude:				
Stream address or outfall #:				
Closest street address:				
Nearby landmark:				
<b>Primary Location Description</b>		<b>Secondary Location Description:</b>		
<input type="checkbox"/> Stream corridor (In or adjacent to stream)		<input type="checkbox"/> Outfall		
<input type="checkbox"/> Upland area (Land not adjacent to stream)		<input type="checkbox"/> In-stream flow		
		<input type="checkbox"/> Along banks		
		<input type="checkbox"/> Near storm drain		
		<input type="checkbox"/> Near other water source (storm water pond, wetland, etc.):		
Narrative description of location:				
<b>Upland Problem Indicator Description</b>				
<input type="checkbox"/> Dumping		<input type="checkbox"/> Oil/solvents/chemicals		
<input type="checkbox"/> Wash water, suds, etc.		<input type="checkbox"/> Sewage		
		<input type="checkbox"/> Other: _____		
<b>Stream Corridor Problem Indicator Description</b>				
Odor	<input type="checkbox"/> None		<input type="checkbox"/> Sewage	
	<input type="checkbox"/> Sulfide (rotten eggs); natural gas		<input type="checkbox"/> Rancid/Sour	
<input type="checkbox"/> "Normal"		<input type="checkbox"/> Petroleum (gas)		
<input type="checkbox"/> Other: Describe in "Narrative" section		<input type="checkbox"/> Other: Describe in "Narrative" section		
Appearance	<input type="checkbox"/> Oil sheen		<input type="checkbox"/> Cloudy	
	<input type="checkbox"/> "Normal"		<input type="checkbox"/> Suds	
<input type="checkbox"/> Other: Describe in "Narrative" section		<input type="checkbox"/> Other: Describe in "Narrative" section		
Floatables	<input type="checkbox"/> None:		<input type="checkbox"/> Sewage (toilet paper, etc)	
	<input type="checkbox"/> Other: Describe in "Narrative" section		<input type="checkbox"/> Algae	
		<input type="checkbox"/> Dead fish		
Narrative description of problem indicators:				
Suspected Violator (name, personal or vehicle description, license plate #, etc.):				

*Source: Illicit Discharge Detection and Elimination: Technical Appendices*

Investigation Notes	
Initial investigation date:	Investigators:
<input type="checkbox"/> No investigation made:	Reason:
<input type="checkbox"/> Referred to different department/agency:	Department/Agency:
<input type="checkbox"/> Investigated: No action necessary:	
<input type="checkbox"/> Investigated: Requires action:	Description of actions:
Hours between call and investigation:	Hours to close incident:
Date case closed:	
Notes:	

Source: *Illicit Discharge Detection and Elimination: Technical Appendices*

# Appendix 4



## Construction Site Pollution Control

**CITY OF GLENDALE, WI  
MUNICIPAL OPERATIONS  
WPDES Permit #WI-S061565-04**



**MS4 STANDARD OPERATING PROCEDURE (SOP) FOR:**

**CONSTRUCTION SITE POLLUTION CONTROL**

**SOP Number: MS4-SOP-4**

**Created June 2021**

## BACKGROUND

The City of Glendale, along with the Villages of River Hills, Bayside, Brown Deer, Fox Point, Whitefish Bay and Shorewood, referred to as the North Shore Group, own and operate municipal separate storm sewer systems (MS4) that discharge to waters of the state. The North Shore Group has been issued a permit to discharge under the Wisconsin Pollutant Discharge Elimination Systems (WPDES Permit #WI-S061565-04) in accordance with s. 283.33, Wis. Stats., and subch. I. of NR 216, Wis. Adm. Code. State and Federal regulations require that MS4 operators shall develop and implement a program to ensure that municipal operations are performed in ways that will reduce contamination of stormwater discharges.

Per the State and Federal regulations, the program **must include** written documentation of maintenance activities, maintenance schedules, and long term inspection procedures for Best Management practices (BMPs) to reduce floatables and other pollutants discharged from the separate storm sewers. Specifically, the City of Glendale, as part of the North Shore Group, WPDES permit requires the following for the Construction Site Pollution Control portion of the permit:

### II.E Construction Site Pollution Control

The permittee shall continue to implement and enforce a written program that establishes measurable goals and reduces the discharge of sediment and construction materials from construction sites. The permittee through implementation of this program shall:

1. Maintain and enforce the municipal ordinance regarding construction site storm water discharges on all sites, including municipal projects. The municipal ordinance must include the following items:
  - a. Performance standards equivalent to, or more restrictive than, those under ss. NR 151.11 and 151.23, Wis. Adm Code.
  - b. Sanctions to ensure compliance to the extent authorized by law.
  - c. Requirements for construction site operators to manage waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site so to reduce adverse impacts to waters of the state.
  - d. The ordinance shall be updated no later than November 30, 2021. If after November 30, 2021, the permittee becomes aware the ordinance is out of date, the permittee shall update the ordinance within 3 months.
2. Implement procedures for conducting plan reviews to ensure site planning considers potential water quality impacts. Erosion and sediment control best management practices must comply with design, installation, and maintenance standards that meet or exceed the Department's technical standards or permittee's ordinance.
3. Conduct erosion control inspections at sites one acre or more in size within the permittee's jurisdiction. Beginning May 1, 2022, conduct erosion control inspections following the frequency and actions outlined in Table 2.

**Table 2: Construction Site Inspection Frequency**

Site	Inspection Frequency
All sites on acre or more in size	<ul style="list-style-type: none"> <li>• New projects shall be inspected within the first two weeks of commencement of land disturbing activity</li> <li>• All active sites shall be inspected once every 45 days</li> <li>• All inactive sites shall be inspected at least once every 60 days</li> </ul>
Follow up inspection	<ul style="list-style-type: none"> <li>• Follow up inspections are required within 7 days of any sediment discharge or inadequate control measure, unless corrections were made and observed by the inspector during initial inspection or corrections were verified via photographs submitted to the inspector</li> </ul>
Final Inspection	<ul style="list-style-type: none"> <li>• Confirm that all graded areas have reached final stabilization and that all temporary control measures are removed, and permanent storm water management BMPs are installed as designed</li> </ul>

4. Maintain records of site inspections, including any follow up necessary on sites out of compliance with their site-specific erosion control plans, as identified in the permittee’s program.
5. Enforce erosion and sediment control plan requirements for landowners of construction sites equivalent to those contained in s. NR 216.46, Wis. Adm. Code, including municipal projects applicable under the permittee’s ordinance.
6. Enforce permit coverage termination requirements for landowners of construction sites equivalent to those contained in s. NR 216.55, Wis. Adm. Code, including removal of all temporary erosion and sediment control best management practices and complete site restoration with perennial vegetative cover.
7. Maintain an enforcement response plan or similar document describing the enforcement procedures the permittee will follow when addressing issues at construction sites. The enforcement procedures must ensure construction activities are in compliance with the ordinances.
8. Implement procedures for responding to information submitted by the public, including complaints.

Failure to implement the state regulations cited above in Part II.E will result in the City of Glendale being found in non-compliance with the North Shore Group’s WPDES storm water permit. An accepted practice for establishing written documentation of maintenance activities is through the use of SOPs. This SOP has been prepared and issued for Construction Site Pollution Control and has been named City of Glendale SOP No. MS4-SOP-4.

## INTRODUCTION

**Objectives:** This Standard Operating Procedure (SOP) prescribes the procedures to be used when performing Construction Site Pollutant Control activities in the City of Glendale MS4 area as follows:

- Provide background to the City staff regarding permit requirements for Construction Site Pollutant Control
- Provide procedures to the City staff for implementing and maintaining a Construction Site Pollutant Control Program.
- Provide tools for tracking and documenting efforts towards achieving the goals for Construction Site Pollutant Control

**Applicable/Responsible Personnel:** All City staff performing and managing activities related to Construction Site Pollutant Control in the City of Glendale. See the Contact Information on page four (4) of this document for specific City personnel responsible for the Construction Site Pollutant Control program.

**Previous Policy and Procedures Canceled/Superseded:** MS4 program procedures governing Construction Site Pollutant Control that were in use at the time of the effective date of this SOP.

## POLICY

The City of Glendale will maintain a Construction Site Pollutant Control Program for the purpose of reducing floatables and other pollutants from the City's separate storm sewers and conveyance systems. This SOP will identify the components of the program that address the WPDES permit requirements. Each component will address procedures and record keeping and reporting methods and requirements. Each section requires identification of a person(s) responsible for overseeing the program and ensuring that all permit requirements are being met and are able to provide the necessary documentation to the WDNR as requested, or on the MS4 annual report. The program components will be assessed annually to determine if any modifications need to be made to improve efficiencies and/or to meet all permit requirements.

## PROCEDURES & IMPLEMENTATION

- 1. The City conducts plan reviews to ensure site erosion control plans are in accordance with design, installation, and maintenance standards and specifications that meet or exceed the Department's technical standards and the City's ordinance.**
  - a. Development applications are received at City Hall via email or in person.
  - b. Applications are dispersed to the City Engineer and Building Inspector for review.
  - c. Once all application requirements are approved, the Building Inspector issues the permit to the permittee.
- 2. The City conducts erosion control inspections at all sites holding open Erosion Control Permits within**

- the City’s jurisdiction, looking for violations or threats to waters of the state.**
- a. The Building Inspector conducts erosion control inspections at sites one acre or more in size within the City of Glendale’s jurisdiction, following the frequency described in Table 2 of the WPDES Permit cited above, “Construction Site Inspection Frequency”.
- 3. The City maintains records of site inspections, including any follow up necessary on sites out of compliance with site specific erosion control plans**
- a. The Building Inspector maintains a file at their desk of all open permits
  - b. The Building Inspector emails or delivers by hand copies of completed inspection forms
    - i. Inspection forms can be found in Appendix A
- 4. The City notifies landowners who apply for erosion control permits of the possible applicability of subchapter III of NR216 Wis Adm Code, Construction Site Stormwater Discharge Permits, or other Department waterway and wetland permits.**
- a. The Erosion Control permit application requires proof that the project will not impact of a lake, stream, or wetland.
  - b. The Erosion Control permit application requires that disturbance of one or more acres must submit a WRAPP (NOI) application to the WI-DNR at least 14 working days in advance.
- 5. The City enforces the construction site performance standards equivalent to or more restrictive than those in NR 151.11 and 151.23 Wis. Adm. Code on all sites including municipal projects applicable under the City Ordinance.**
- a. The City Ordinance references NR151.11 and NR151.23 as the enforceable construction site performance standards in the City.
  - b. While performing the review, the Building Inspector ensures the ordinance and Wis. Adm. Code performance standards are met.
- 6. The City enforces the erosion and sediment control plan requirements for landowners of construction sites equivalent to those contained in s. NR216.46, Wis. Adm. Code including municipal projects applicable under the City Ordinance.**
- a. The City Ordinance contains the requirements for the sediment and erosion control plans.
  - b. The Building Inspector, while performing the erosion control plan review ensures the ordinance and Wis. Adm. Code plan requirements are met.
- 7. The City enforces permit coverage termination requirements, including removal of all temporary erosion and sediment control BMPs and complete site restoration with perennial vegetative cover.**
- 8. The City maintains an enforcement plan that is followed when addressing issues at construction sites.**
- 9. The City follows procedures to respond to information submitted by the public, including complaints.**
- 10. The City maintains and enforces the municipal ordinance regarding construction site stormwater discharges.**

## REPORTING & RECORD KEEPING

The City has a procedure to document the Construction Site Pollutant Control program. The City evaluates and assesses the effectiveness of the program annually, during the permit term. The program documentation consists of the following:

- a. Maintain records of erosion control permits issued
- b. Maintain records of erosion control inspections performed for each construction site.
- c. Identification and description of any specific stormwater related issues identified by the City throughout the calendar year. If specific issues arise throughout the year, the City will incorporate those known issues into the procedures
- d. Tracking documents will be kept in the MS4 binder located in the Director of Public Works' Office, and provided to the WDNR at the time of the MS4 Annual Report, or as requested.

**CONTACT INFORMATION**

The City of Glendale has identified the person(s) responsible for overseeing the Construction Site Pollutant Control Program as outline in this SOP. The City Staff identified below is responsible for ensuring that all requirements are being met and necessary documentation is being maintained to conduct a program evaluation and to complete the MS4 Annual Report.

NAME	TITLE	PHONE	EMAIL
Charlie Imig	Director of Public Works	(414) 228-1746	c.imig@glendalewi.gov

**MODIFICATIONS**

Any changes to this SOP shall be documented in the table below. If a change to the SOP occurs, the updated SOP shall be submitted to the WDNR with the MS4 Annual Report.

DATE	DESCRIPTION	NAME

**SOP APPROVAL/ADOPTION**

This SOP has been approved and adopted by the following individuals and is effective immediately:

---

Charlie Imig  
Director of Public Works  
City of Glendale

---

Date

**APPENDIX A**

**EROSION CONTROL INSPECTION SHEET**

State of Wisconsin  
 Department of Natural Resources  
 dnr.wi.gov

**CONSTRUCTION SITE INSPECTION REPORT**  
 Form 3400-187 (rev. 9/04) Page 1 of 2

**Notice:** Use of this specific form is voluntary, but the information contained on this form must be collected and kept by the permittee under s. NR 216.48(4), Wis. Adm. Code, for a construction site covered under the General WPDES Construction Site Storm Water Discharge Permit, Permit No. WI-0067831-2. This form is provided for the convenience of the permittee to meet the requirements of s. NR 216.48(4), Wis. Adm. Code. Multiple copies of this form may be made to compile the inspection report.

Inspections of implemented erosion and sediment control best management practices must be performed weekly and within 24 hours after a precipitation event 0.5 inches or greater which results in runoff.

Weekly written reports of all inspections conducted by or for the permittee must be maintained throughout the period of general permit coverage. The information maintained in accordance with s. NR 216.48 (4) must be submitted to the Department upon request.

<b>Name of Permittee:</b>				
<b>Construction Site Name (Project):</b>			<b>Construction Site ID No.:</b>	
<b>Location:</b>			<b>County:</b>	
<b>Contractor:</b>			<b>Field Office Phone:</b>	
<b>Note:</b> Weekly inspection reports, along with erosion control and stormwater management plans, are required to be maintained on site and made available upon request.				
<b>Date of inspection (mm/dd/yy):</b> _____		<b>Type of inspection:</b> <input type="checkbox"/> Weekly <input type="checkbox"/> Precipitation Event <input type="checkbox"/> Other (specify) _____		
<b>Time of inspection:</b> Start: _____ a.m./p.m. End: _____ a.m./p.m.		<b>Name(s) of individual(s) performing inspection:</b>		
<b>Weather:</b>				
<b>Description of present phase of construction:</b>				
<b>Modifications Required</b>	<b>Yes</b>	<b>No</b>	<b>Not Applicable</b>	<b>Comments/Recommendations</b> about the overall effectiveness of the erosion and sediment control measures. <b>Note:</b> For each item checked "Yes", complete the follow-up information on page 2.
Ditch Checks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erosion Control Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Erosion Mat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Grading Practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Inlet Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mulch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Offsite Sediment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Permanent Seeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Schedule / Phasing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Silt Fence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Silt Screen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sod	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Stabilized Outlet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Temp. Diversion Channel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Temp. Settling Basin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Temporary Seeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tracking Pads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Turbidity Barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other (specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**CONSTRUCTION SITE INSPECTION REPORT**

Form 3400-187 (rev. 9/04)

Page 2 of 2

Name of Permittee:		
Construction Site Name (Project):		Construction Site ID No.:
<i>Use the space below for detailed follow-up action items.</i>		
Exact place of erosion/sediment control inspected	Type of erosion/sediment control and its observed condition	Description of any necessary maintenance or repair to erosion/sediment control, including anticipated date of completion

**APPENDIX B**

**EROSION CONTROL PERMIT TRACKING**





# Appendix 5

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## Post Construction Stormwater Management

**CITY OF GLENDALE, WI  
MUNICIPAL OPERATIONS  
WPDES Permit #WI-S061565-04**



**MS4 STANDARD OPERATING PROCEDURE (SOP) FOR:**

**POST CONSTRUCTION STORMWATER MANAGEMENT**

**SOP Number: MS4-SOP-5**

**Created June 2021**

## BACKGROUND

The City of Glendale, along with the Villages of River Hills, Bayside, Brown Deer, Fox Point, Whitefish Bay and Shorewood, referred to as the North Shore Group, own and operate municipal separate storm sewer systems (MS4) that discharge to waters of the state. The North Shore Group has been issued a permit to discharge under the Wisconsin Pollutant Discharge Elimination Systems (WPDES Permit #WI-S061565-03) in accordance with s. 283.33, Wis. Stats., and subch. I. of NR 216, Wis. Adm. Code. State and Federal regulations require that MS4 operators shall develop and implement a program to ensure that municipal operations are performed in ways that will reduce contamination of stormwater discharges.

Per the State and Federal regulations, the program **must include** written documentation of maintenance activities, maintenance schedules, and long term inspection procedures for Best Management practices (BMPs) to reduce floatables and other pollutants discharged from the separate storm sewers. Specifically, the City of Glendale, as part of the North Shore Group, WPDES permit requires the following for the Post Construction Stormwater Management section of the permit:

### II.F POST-CONSTRUCTION STORM WATER MANAGEMENT

Each municipality shall continue to implement and enforce a written program that establishes measurable goals and to control the quantity and quality of discharges from areas of new development and redevelopment, after construction is completed. The program shall include:

1. An ordinance or other regulatory mechanism to regulate post-construction storm water discharges from new development and redevelopment. At a minimum, the ordinance or other regulatory mechanism shall establish or include:
  - a) Applicability and jurisdiction that shall apply to new development and redevelopment projects with one acre or more of land disturbance, and sites of less than one acre if they are part of a larger common plan of development or sale within the jurisdiction of the permittee. The jurisdiction shall include any adjacent developing areas that are planned to have a minimum density of 500 people per square mile, the urbanized area, and developing areas whose runoff will connect to the MS4.
  - b) Design criteria, standards and specifications equivalent to the technical standards approved by the Department. The Department approved technical standards are available at <http://dnr.wi.gov/topic/stormwater/standards/index.html>.
  - c) Post-construction performance standards equivalent to, or more restrictive than, those in ss. NR 151.121 through 151.125, Wis. Adm. Code.
  - d) Storm water management plan requirements for landowners of construction sites equivalent to those contained in s. NR 216.47, Wis. Adm. Code.
  - e) Permitting requirements, procedures, and fees.
  - f) Long-term maintenance requirements for landowners and other persons responsible for long-term maintenance of post-construction storm water control measures, including requirement for routine inspection and maintenance of privately-owned post-construction storm water control measures that discharge into the MS4 to maintain their pollutant removal operating efficiency.
    - a) Inspection and enforcement authority.
    - b) The ordinance shall be updated no later than November 30, 2021. If after November 30, 2021, the permittee becomes aware the ordinance is out of date, the permittee shall update the ordinance within 3 months.

2. Written procedures for post-construction site plan review which incorporate consideration of potential water quality impacts, including source water protection areas where applicable. Post-construction reviews must be conducted for all construction sites with one or more acres of land disturbance.
3. A system for tracking and completing long-term maintenance, inspections, and enforcement of all post-construction BMPs, public and private. This system shall include:
  - a) An inventory of all municipally owned or operated BMPs which includes:
    - (1) BMP, name, location, BMP type, and year constructed.
    - (2) Record drawing.
    - (3) An operation and maintenance plan with inspection procedures and schedule.
    - (4) Written documentation of the municipalities' ability to use a privately-owned BMP to meet a water quality requirement of this permit.
  - b) Written procedures that will be used by the permittee through its ordinance jurisdiction, approval process, and authority, to track and enforce the long-term maintenance of storm water management facilities implemented to meet the post-construction performance standards in Section II F. 1. c).
  - c) Long-term maintenance inspections at least once per permit term.
  - d) Inspection documentation.
  - e) A description of the inspection and enforcement response procedures the permittee will follow when addressing project compliance issues with the enforceable post-construction storm water management performance standards.
4. Green Infrastructure Barrier Removal. Each permittee shall review design, construction, landscaping and other related ordinances to identify and remove barriers to implementation of green infrastructure projects within the MS4. Barriers shall be removed through adopted ordinance revisions by April 30, 2023. If barriers are identified after April 30, 2023, the barriers shall be removed within 18 months of barrier identification.

Failure to implement the state regulations cited above in Part II.F will result in the City of Glendale being found in non-compliance with the North Shore Group's WPDES storm water permit. An accepted practice for establishing written documentation of maintenance activities is through the use of SOPs. This SOP has been prepared and issued for Post-Construction Stormwater Management and has been named City of Glendale SOP No. MS4-SOP-5.

## INTRODUCTION

**Objectives:** This Standard Operating Procedure (SOP) prescribes the procedures to be used when performing Post Construction Stormwater Management activities in the City of Glendale MS4 area as follows:

- Provide background to the City staff regarding permit requirements for Post Construction Stormwater Management
- Provide procedures to the City staff for implementing and maintaining a Post Construction Stormwater Management Program.
- Provide tools for tracking and documenting efforts towards achieving the goals of the Post Construction Stormwater Management Program.
- Create general acceptance of Stormwater Regulations throughout the City.

**Applicable/Responsible Personnel:** All City staff performing and managing activities related to Post Construction Stormwater Management in the City of Glendale. See the Contact Information on page three (3) of this document for specific City personnel responsible for the Post Construction Stormwater Management program.

**Previous Policy and Procedures Canceled/Superseded:** MS4 program procedures governing Post Construction Stormwater Management that were in use at the time of the effective date of this SOP.

## POLICY

The City of Glendale will maintain a Post Construction Stormwater Management Program for the purpose of reducing floatables and other pollutants from the City's separate storm sewers and conveyance systems. This SOP will identify the components of the program that address the WPDES permit requirements. Each component will address procedures and record keeping and reporting methods and requirements. Each section requires identification of a person(s) responsible for overseeing the program and ensuring that all permit requirements are being met and are able to provide the necessary documentation to the WDNR as requested, or on the MS4 annual report. The program components will be assessed annually to determine if any modifications need to be made to improve efficiencies and/or to meet all permit requirements.

## PROCEDURES & IMPLEMENTATION

1. **The City conducts plan reviews to ensure storm water management and long-term operation and maintenance plans are in accordance with design, installation, and maintenance standards and specifications that meet or exceed the Department's technical standards, MMSD's Chapter 13 standards, and the City's Stormwater Management Ordinance.**
  - a. Development applications are received at City Hall via email or in person.
  - b. Applications are dispersed to the City Engineer, Director of Public Works and Building Inspector for review.
  - c. Once all application requirements are approved, the issues the permit to the permittee.

- 3. The City enforces post-construction performance standards equivalent to or more restrictive than those in NR 151.121 and 151.241 Wis. Adm. Code on all sites including municipal projects applicable under the City Ordinance.**
  - a. The City Ordinance references NR151 and MMSD Chapter 13 as the enforceable performance standards in the City.
  - b. The City Engineer, while performing the review ensures the ordinance and Wis. Adm. Code performance standards are met.
  
- 4. The City enforces stormwater management plan requirements for landowners of construction sites equivalent to those contained in s. NR216.47, Wis. Adm. Code including municipal projects applicable under the City Ordinance.**
  - a. The City Ordinance contains the requirements for the stormwater management plans.
  - b. The City Engineer, while performing the stormwater management plan review, ensures the ordinance and Wis. Adm. Code plan requirements are met.
  
- 5. The City enforces long-term maintenance agreement requirements for land owners and other persons responsible for long-term maintenance of post-construction stormwater management facilities.**
  - a. The City maintains a record of all maintenance agreements for stormwater management facilities that have been installed in the City.
  - b. The City collects and records annual inspection reports from the landowners that hold maintenance agreements with the City.
  
- 6. The City has implemented a maintenance and inspection program of municipally and privately owned BMPs.**
  - a. Routine and non-routine inspection and maintenance is conducted for City and privately owned BMPs
  - b. The City maintains an inventory of all municipally owned or operated BMPs
  - c. The City has developed an enforcement response procedure to follow when addressing project compliance issues.
  
- 7. The City maintains and enforces the municipal ordinance regarding construction site stormwater discharges.**
  
- 8. The City will review design, construction, landscaping and other related ordinances to identify and remove barriers to implementation of green infrastructure by April 20, 2023.**

## REPORTING & RECORD KEEPING

The City has a procedure to document the Post Construction Stormwater Management program. The City evaluates and assesses the effectiveness of the program annually, during the permit term. The program documentation consists of the following:

- a. Maintain records of stormwater management plan review approvals issued
- b. Maintain records of recorded maintenance agreements with landowners

- c. Identification and description of any specific stormwater related issues identified by the City throughout the calendar year. If specific issues arise throughout the year, the City will incorporate those known issues into the procedures
- d. Tracking documents will be kept in the MS4 binder located in the Director of Public Works' Office, and provided to the WDNR at the time of the MS4 Annual Report, or as requested. The Pollution Prevention SOP contains inspection procedures for both public and private stormwater BMPs. Annual tracking will be through the Pollution Prevention SOP.

DRAFT

**CONTACT INFORMATION**

The City of Glendale has identified the person(s) responsible for overseeing the Post Construction Stormwater Management Program as outline in this SOP. The City Staff identified below is responsible for ensuring that all requirements are being met and necessary documentation is being maintained to conduct a program evaluation and to complete the MS4 Annual Report.

NAME	TITLE	PHONE	EMAIL
Charlie Imig	Director of Public Works	(414) 228-1746	c.imig@glendalewi.gov

**MODIFICATIONS**

Any changes to this SOP shall be documented in the table below. If a change to the SOP occurs, the updated SOP shall be submitted to the WDNR with the MS4 Annual Report.

DATE	DESCRIPTION	NAME

**SOP APPROVAL/ADOPTION**

This SOP has been approved and adopted by the following individuals and is effective immediately:

---

Charlie Imig  
Director of Public Works  
City of Glendale

Date

DRAFT

DRAFT

# Appendix 6



## Pollution Prevention

**CITY OF GLENDALE, WI  
MUNICIPAL OPERATIONS  
WPDES Permit #WI-S061565-04**



**MS4 STANDARD OPERATING PROCEDURE (SOP) FOR:**

**POLLUTION PREVENTION**

**SOP Number: MS4-SOP-3**

**Created June 2021**

## BACKGROUND

The City of Glendale, along with the Villages of Bayside, Brown Deer, Fox Point, River Hills, Shorewood, and Whitefish Bay referred to as the North Shore Group, own and operate municipal separate storm sewer systems (MS4) that discharge to waters of the state. The North Shore Group has been issued a permit to discharge under the Wisconsin Pollutant Discharge Elimination Systems (WPDES Permit #WI-S061565-04) in accordance with s. 283.33, Wis. Stats., and subch. I. of NR 216, Wis. Adm. Code. State and Federal regulations require that MS4 operators shall develop and implement a program to ensure that municipal operations are performed in ways that will reduce contamination of storm water discharges.

Per the State and Federal regulations, the program **must include** written documentation of maintenance activities, maintenance schedules, and long term inspection procedures for Best Management practices (BMPs) to reduce floatables and other pollutants discharged from the separate storm sewers. Specifically, the City of Glendale, as part of the North Shore Group, WPDES permit requires the following for the Pollution Prevention portion of the permit:

**II.G Pollution Prevention:**

Each municipality shall develop and implement a written pollution prevention program that establishes measurable goals for pollution prevention. The program shall include:

1. Winter Road Management:
  - a) Road salt or other deicer shall not be applied in quantities larger than required to maintain public safety. The permittee shall develop and implement a written salt application or salt reduction strategy to minimize over application of deicers. The strategy shall include a description of the temperature, precipitation event, and road conditions, and other factors which warrant different management techniques. The plan will also include a description of the equipment and products used for road management.
  - b) All salt application equipment shall be calibrated annually beginning November 2021. Calibration methods shall be documented in the salt application strategy or similar document and calibration records kept for 5 years.
  - c) Training on the salt strategy shall be provided at a frequency no less than every other year.
  - d) The quantity of salt and other deicing products shall be tracked on a monthly basis and reported on the annual report.
2. Nutrient Management:
  - a) The application of turf and garden fertilizers on five acres or more of municipally controlled properties shall be done in accordance with a site-specific nutrient application schedule based on appropriate soil tests. The nutrient application schedule shall be designed to maintain the optimal health of the turf or garden vegetation. All properties subject to this section shall be identified on an MS4 map.
3. Street Sweeping and Catch Basin Cleaning:
  - a) If street sweeping or catch basin cleaning is utilized to meet a water quality requirement under this permit, sweeping and catch basin shall continue at the frequency specified in the SWMP. The number of lane miles swept, number of catch basins cleaned, and the weight in tons of the material collected shall be tracked and included in the Annual Report.
  - b) Material collected through street sweeping and catch basin cleaning shall be handled and stored in a manner that prevents contamination of storm water runoff and shall be disposed of or beneficially reused in accordance with applicable solid and hazardous waste statutes and administrative codes. Non-storm water discharges to waters of the state associated with dewatering and drying material collected under subsection a) of this section are not authorized by this permit.

**Note:** Information on managing waste and materials is available on the Department's Internet site at: <https://dnr.wi.gov/topic/Waste/>. Information on WPDES permits for non-storm water discharges is available on the Department's Internet site at: <https://dnr.wi.gov/topic/wastewater/>

4. Management of Leaves and Grass Clippings:

If the permittee provides leave and grass clipping collection, the program shall include the following:

  - a) A description of the leaf collection program, including pick-up methodology and equipment used, timing of associated street cleaning, standard operating procedures, schedule and frequency, and instructions for residents and property owners.
  - b) Identification of leave disposal locations.
  - c) An estimate of the weight in tons of material collected annually and a description of how the weight is estimated.

d) By April 30, 2024, a description of the BMPs which the permittee employs or will employ to its leaf collection program that reduce nutrient loading to the receiving waters. The permittee shall consider source, transport and discharge location when considering BMPs for the leaf collection program.

5. Storm Water Pollution Prevention Planning:

All municipal garages, municipal storage areas, and other public works related municipal facilities shall have a Storm Water Pollution Prevention Plan (SWPPP). The SWPPPs shall:

- a) Be developed and implemented by December 31, 2021 for sites without a SWPPP.
- b) Include the information under s. NR 216.27 (3), Wis. Adm. Code, minus the monitoring requirements under s. NR 216.27 (3) (l), Wis. Adm. Code.

Note: The SWPPP requirements can be located here:

[https://docs.legis.wisconsin.gov/code/admin\\_code/nr/200/216/II/27](https://docs.legis.wisconsin.gov/code/admin_code/nr/200/216/II/27).

- c) Conduct and document quarterly visual inspections of the property and annual facility compliance inspections.
- d) Describe spill prevention and response for each facility.
- e) Contain procedures for annual training of municipal staff on implementation of the SWPPP.

6. Internal Training and Education:

The permittee shall provide education for appropriate municipal and other personnel involved in implementing their community's pollution prevention programs.

Documentation shall be maintained of the date, the names of each person attending, and the content of the training.

Failure to implement the state regulations cited above in Part II.G will result in the City of Glendale being found in non-compliance with the North Shore Group's WPDES storm water permit. An accepted practice for establishing written documentation of maintenance activities is through the use of Standard Operating Procedures, or SOPs. This SOP has been prepared and issued for Pollution Prevention and has been named City of Glendale SOP No. MS4-SOP-3.

## INTRODUCTION

**Objectives:** This Standard Operating Procedure (SOP) prescribes the procedures to be used when performing Pollution Prevention activities in the City of Glendale MS4 area as follows:

- Provide background to the City staff regarding permit requirements for Pollution Prevention.
- Provide procedures to the City staff for implementing and maintaining a Pollution Prevention Program.
- Provide tools for tracking and documenting efforts towards achieving the goals for Pollution Prevention.
- Create general acceptance of Stormwater Regulations throughout the City.

**Applicable/Responsible Personnel:** All City staff performing and managing activities related to Pollution Prevention in the City of Glendale. See the Contact Information on page eight (8) of this document for specific City personnel responsible for the Pollution Prevention program.

**Previous Policy and Procedures Canceled/Superseded:** MS4 program procedures governing Pollution Prevention that were in use at the time of the effective date of this SOP.

## POLICY

The City of Glendale will maintain a Pollution Prevention Program for the purpose of reducing floatables and other pollutants from the City's separate storm sewers and conveyance systems. This SOP will identify the components of the program that address the WPDES permit requirements. Each component will address procedures and record keeping and reporting methods and requirements. Each section requires identification of a person(s) responsible for overseeing the program and ensuring that all permit requirements are being met and are able to provide the necessary documentation to the WDNR as requested, or on the MS4 annual report. The program components will be assessed annually to determine if any modifications need to be made in order to improve efficiencies and/or to meet all permit requirements.

## STORMWATER BMP INSPECTIONS & MAINTENANCE

### PROCEDURES

The City of Glendale maintains a maintenance and inspection program of municipally and privately owned stormwater best management practices (BMPs). This includes routine and non-routine inspection and maintenance of City and privately owned BMPs, including Detention Basins, Swales, and Bioretention Basins. The procedures and inspection form for this program can be found in Appendix A in the document titled, "Maintenance and Inspection of Storm Water Management Best Practices". All applicable City personnel are to be trained properly on the procedures, as well as where the document can be found. Any changes to these procedures will result in an updated document, record of when and why changes occurred, and subsequent training for all applicable City personnel.

### REPORTING & RECORD KEEPING

The City will utilize the inspection and maintenance forms that are included in the document, "Maintenance and Inspection of Storm Water Management Best Practices". Completed forms will be filed in the MS4 Binder in the Director of Public Works' Office. and provided to the WDNR during the MS4 Annual Report, or as requested. As

stated above, any changes to municipal procedures will result in this document being updated, a description of the update recorded in the Modifications section on page eight (8) of this SOP. Additionally, any changes should be summarized in the MS4 Annual Report or the next permit application, whichever comes sooner.

#### Measurable Goals

The City's goal will be to maintain records of BMP inspections which will be reported on the MS4 Annual Report.

## MUNICIPAL STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

### PROCEDURES

The City of Glendale will continue to implement Storm Water Pollution Prevention Plans (SWPPP) for applicable City owned facilities. A SWPPP is a site-specific document that identifies potential sources of storm water pollutants, describes practices to reduce those pollutants, and outlines procedures that the facility will implement to comply with the terms of the WPDES permit. All SWPPPs will be updated if any changes occur at the facility and will train City personnel accordingly on those changes. Currently, the City maintains two (2) facilities that require a SWPPP:

1. Village of Whitefish Bay / City of Glendale Municipal Yard – West
2. Department of Public Works Facilities

### REPORTING & RECORD KEEPING

The City will continue to ensure that all applicable City personnel are aware of facility SWPPPs and are properly trained on the procedures outlined in each document. A current copy of each SWPPP is stored in the MS4 Binder located in the Director of Public Works' Office. Should any changes occur at the facility that require an update to the SWPPP, the City will document in the Modifications section of that SWPPP, train City personnel accordingly, and submit an updated SWPPP with the MS4 Annual Report.

#### Measurable Goals

The City's goal will be to maintain records of yard inspections which will be reported on the MS4 Annual Report.

## STREET SWEEPING

### PROCEDURES

Street sweeping for the City of Glendale is completed by the Public Works Department. Once the winter weather is no longer present in the City, typically beginning in the month of March or April, the City will begin to perform street sweeping based on the direction the Director of Public Works. The City conducts street sweeping activities along approximately 150 lane miles of City streets. During each street sweeping event, the Department conducts a complete sweeping of the entire City. Each event takes the City on average two (2) to three (3) weeks to complete. On average, the City maintains a monthly frequency of street sweeping.

All street sweeping debris is collected and disposed of in a solid waste dumpster located at the City of Glendale Public Works Yard. The dumpster is disposed of by a third party contractor as needed. The amount of debris that

is collected is tracked based on the weight of the dumpster and the billing invoices from the disposal company. The City utilizes this information as part of the record keeping and reporting portion of this SOP.

## REPORTING & RECORD KEEPING

The City of Glendale Public Works Department shall record all street sweeping activities. City personnel utilizes paper maps to keep track of street sweeping activities. Once an entire map has been completed, it is filed in the MS4 Binder in The Director of Public Works' Office. Additionally, the street sweeping machine is equipped with a GPS device that can record the activity of the machine. The Director of Public Works is able to generate a report to show the completed routes, as needed. The amount of debris collected during sweeping activities, are reported on the MS4 Annual Report.

### Measurable Goals

The City's goal will be to maintain records of total amount of material collected by street sweeping and will be reported on the MS4 Annual Report.

## CATCH BASIN CLEANING

### PROCEDURES

The City of Glendale Public Works Department maintains 1,613 catch basins (with sumps) and 1,147 inlets (without sumps) throughout the City MS4 Area. The City has created a City Wide Storm Sewer Catch Basin Cleaning and Inspection Plan. The plan has outlined a three (3) year cleaning and inspection cycle, utilizing a private contractor and city staff. Once the leaf season is complete, each catch basin (with sumps) is inspected and cleaned once every year; while each inlet (without sumps) is inspected and cleaned every three (3) years. Catch basins and inlets are cleaned utilizing a City owned vacuum truck, or by contractor owned equipment for the portion that is cleaned and inspected by a private contractor.

All street sweeping debris is collected and disposed of in a solid waste dumpster located at the City of Glendale Public Works Yard. The dumpster is disposed of by a third party contractor as needed. The amount of debris that is collected is tracked based on the weight of the dumpster and the billing invoices from the disposal company. The City utilizes this information as part of the record keeping and reporting portion of this SOP.

## REPORTING & RECORD KEEPING

The Glendale Public Works Department shall record all catch basin cleaning activities. City and Contractor personnel shall utilize paper maps and inspection forms to track how many and which catch basins were cleaned. Once an entire map has been completed, it is filed in the MS4 Binder in The Director of Public Works' Office. Additionally, the number of catch basins cleaned each year and the volume of debris collected are reported on the MS4 Annual Report.

### Measurable Goals

The City's goal will be to maintain records of total amount of catchbasins cleaned and will be reported on the MS4 Annual Report.

## LEAF AND YARD WASTE MANAGEMENT

### PROCEDURES

The City of Glendale offers curbside leaf to its residents. Yard waste is collected by the City wide waste management private contractor. The City informs its residents about this service through the City website, newsletter, and use of social media. Residents are instructed to not pile material near a storm sewer in order to prevent organic material from entering the storm sewer system.

Leaf material is collected utilizing City equipment, including: a leaf vacuum unit, a pusher unit, and a yard waste truck. Each collection location is thoroughly cleaned at time of leaf collection to prevent any debris from entering the storm sewer system. When weather allows, the City completes a street sweeping event after leaf collection.

The City of Glendale will pick up leave beginning early in October through November (contingent upon the weather) provided the following procedures are followed:

1. Leaves raked to the curb and gutter, and road should areas will be collected by the City of Glendale Department of Public Works.
2. Leaves placed on City right-of-ways for City pickup should be raked in long narrow piles that are within reach of the leaf vacuum tube.
3. Piles should not extend into traffic lanes, thereby creating traffic hazards.
4. Crews will not pick up leaves mixed with debris, logs, branches, rocks, plastic, metal or glass containers or any other type of refuse
5. Leaves should not be placed on City cul-de-sacs, vacant land or City property except on the public right-of-way along the curb and gutter, and road shoulder areas.

#### Roadways with curbs and gutters

Leaves should be placed on the pavement on the roadside of the curb. To prevent street flooding, do not place leaves on top of storm sewer grates.

#### Roadways with shoulders

Leaves should be placed on the shoulder of the road and not to extend into the roadway.

#### Roadways with ditches

Leave should be placed no farther than 4 feet from the edge of the pavement, but in no event shall they extend into the water flow line of the ditch.

#### Alley collection

Leaf collection will no longer be made from “dead end” or “no outlet” alleys.

### REPORTING & RECORD KEEPING

The Glendale Public Works Department shall record all leaf collection activities. City personnel shall utilize paper maps to track leaf collection. Once an entire map has been completed, it is filed in the MS4 Binder in The Director of Public Works' Office.

#### Measurable Goals

The City's goal will be to maintain records of total amount of leaf material collected and will be reported on the MS4 Annual Report.

## WINTER ROAD MANAGEMENT

### PROCEDURES

The City's goal for winter road management is to make roadways safe for the public and to limit the effect on the receiving waters to the maximum extent possible. The City of Glendale is responsible for approximately 150 lane miles of City roadways during winter road management operations. While plowing is the primary means of snow removal, the City performs de-icing practices in an attempt to keep snow from bonding to the pavement, which allows for more thorough clearing of the pavement. The following procedures are in place during winter road management throughout the City MS4 area:

1. The City mechanic staff calibrates all salt and brine applying machinery at the beginning of each season, following the manufacturer's guidelines for calibration. Each piece of equipment is calibrated before the snow removal season begins in order to ensure that the correct amount of material is used. Calibration records are kept for 5 years.
2. The Director of Public Works, the Public Works Superintendent and the lead mechanic set the application rate of all equipment based on the snow event, the temperature and road conditions.
3. Department of Public Works staff attends salt reduction workshops and works with other local municipalities to ensure that Best Management Practices are implemented.
4. The quantity of salt and brine are tracked on a monthly basis and reported on the annual report.
5. The City pre-wets with Calcium Chloride based on pavement temperatures using a mixture that contains 90% Brine and 10% Calcium Chloride.
6. All salt is stored at the Public Works Yard in a covered building. The City is able to ensure that all material is stored away from storm drains that lead to surrounding waterways.
7. Each year, the City of Glendale Department of Public Works budgets and purchases a new snow removal truck that replaces an older model. The City will continue this until all older model trucks are replaced with updated equipment that include brine applicator tanks and pavement temperature sensors.
8. The City monitors pavement temperatures using a hand-held laser, as well as utilizing pavement temperature information through a subscription with the University of Wisconsin Milwaukee Meteorology Department.
9. Roadways considered major collectors and arterials will be treated with salt, as necessary.
10. Roadways considered secondary, will only be treated with salt in the intersections, along curves and hills, and mid-block, as necessary.
11. The City regularly cleans and inspects all salt and brine applying equipment.
12. At the end of the season, the City cleans and maintains the trucks, tanks, brine-making systems and pumps according to manufacturer specifications.
13. Any material that remains at the end of the season is stored securely on an impervious surface in a securely covered building.

### REPORTING & RECORD KEEPING

The City of Glendale recognizes that thorough documentation helps use less material, reduce cost and environmental impacts, while allowing the Public Works Department to operate a more effective winter road management program. The Public Works Department shall maintain records regarding all winter road management operations. City personnel shall utilize paper maps to track their salting route. A copy of the salting route map is filed in the MS4 Binder in The Director of Public Works' Office. As well as the following items:

1. Equipment calibrations.

2. Salt and Brine material use.
3. Salt storage area inspections conducted by the WisDOT.

#### Measurable Goals

The City's goal will be to lower the amount of salt applied on average over the five year permit term. This will be measured by maintaining records of total amount of salt applied in the reporting years and comparing the previous 5 year salt applied.

## NUTRIENT MANAGEMENT

### PROCEDURES

The City of Glendale's Nutrient Management Plan is implemented by a private contractor procured with a 3-year contract. Additionally, the City maintains on staff, at a minimum, one employee that is certified to apply pesticides or herbicides as needed throughout the season. The City follows specific guidelines when purchasing, storing and applying chemicals throughout the City MS4 area:

1. Only a Certified Pesticide Applicator may apply pesticides or herbicides.
2. Private contractor shall base Nutrient Management Plan on appropriate soil tests.
3. Use proper Personal Protection Equipment (PPE) when handling and applying chemicals.
4. All personnel handling, mixing and applying chemicals to be trained on the location and use of MSDS.
5. Personnel applying chemicals are to read the MSDS for each product they use.
6. Calibrate application equipment to ensure proper amount of product is applied.
7. Follow manufacturer's recommendations for handling, mixing and applying chemicals.
8. Mix only enough chemicals for immediate use.
9. Purchase products only as needed and use before the end of the spraying season.
10. Use caution when spraying product near a waterway or storm drain structure.
11. Use a designated wash station to wash equipment.
12. Do not apply products when the ground is frozen.
13. Do not apply products when public is utilizing parks or green spaces.

### REPORTING & RECORD KEEPING

The City will keep an updated record of all chemical use throughout the City MS4 area and include on the MS4 Annual Report:

1. Keep an up-to-date inventory of all Turf Management chemicals stored by the City. The list should include the name of the product, manufacturer, number of containers, and expiration date.
2. Maintain a binder of all MSDS for chemicals used throughout the City.
3. Keep an up-to-date list of all Certified Pesticide Applicators.
4. Keep an up-to-date contract of Turf Management Plan.

#### Measurable Goals

The City's goal will be to maintain a record of nutrient applications on an annual basis. This will be measured by reporting annually how many applications happened within the year.

**CONTACT INFORMATION**

The City of Glendale has identified the person(s) responsible for overseeing the Pollution Prevention Program as outline in this SOP. The City Staff identified below is responsible for ensuring that all permit requirements are being met and necessary documentation is being maintained to conduct a program evaluation and to complete the MS4 Annual Report.

NAME	TITLE	PHONE	EMAIL
Charlie Imig	Director of Public Works	(414) 228-1746	c.imig@glendalewi.gov
Steve Scheldroup	Superintendent of Public Works	(414) 228-1749	s.scheldroup@glendalewi.gov

**MODIFICATIONS**

Any changes to this SOP shall be documented in the table below. If a change to the SOP occurs, the updated SOP shall be submitted to the WDNR with the MS4 Annual Report.

DATE	DESCRIPTION	NAME

**SOP APPROVAL/ADOPTION**

This SOP has been approved and adopted by the following individuals and is effective immediately:

---

Charlie Imig  
Director of Public Works  
City of Glendale

---

Date

## **APPENDIX A            MAINTENANCE AND INSPECTION OF STORMWATER BEST MANAGEMENT PRACTICES**

**MAINTENANCE AND INSPECTION OF  
STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES  
CITY OF GLENDALE, WI  
JULY 2020**

**1. BEST MANAGEMENT PRACTICE (BMP) OWNERSHIP**

- a. Municipality-owned/maintained stormwater BMP.
  - i. Develop a site specific maintenance plan/program, if necessary
  - ii. Follow the maintenance plan/program, herein.
- b. Privately-owned/maintained BMP.
  - i. Obtain a maintenance agreement that has an attached maintenance plan as required by the stormwater management ordinance.
  - ii. Follow the maintenance plan/program, herein.

**2. MAINTENANCE**

The cornerstone of a preventive maintenance program is establishment of a routine inspection program. This program must contain routine and non-routine maintenance. The program is defined below. Use the attached Inspection and Maintenance Documentation Form to document the inspections and maintenance performed. Submit the forms by February 15 of each year to the City of Glendale Director of Public Works documenting the previous year's activities.

- a. Routine Maintenance
  - i. Inspections
    - 1. Inspect wet and dry detention basins, bioretention basins, and grass-lined swales after major storm events (2-year, 24 hour storm event: 2.6 inches) and at a minimum once per year.
    - 2. Obtain the construction as-built plans for reference during the inspection.
  - ii. Mowing
    - 1. Wet Detention Basins – Mow the side slopes, embankments, and swales on a regular basis to discourage weeds, woody plants, and invasive species.
    - 2. Dry Detention Basins- Mow the side slopes, embankments, bottom and swales on a regular basis to discourage weeds, woody plants, and invasive species.
    - 3. Grass-Lined Swales – Mow the side slopes and bottom twice per year to maintain a dense stand of grass.
    - 4. Bioretention Basins - Mow the side slopes on a regular basis to discourage weeds, woody plants, and invasive species. With a string trimmer, trim the bottom of basin to height of 6 to 9 inches in the fall of each year.
    - 5. Mow at heights beneficial to the planted and desired vegetation cover.
      - a. 3 to 4 inches for grasses.
      - b. 6 inches for native plantings.

**MAINTENANCE AND INSPECTION OF  
STORMWATER BEST MANAGEMENT PRACTICES****CITY OF GLENDALE  
JULY 2020**

## iii. Debris/Litter Removal

Remove debris and litter on a monthly basis from the basin edges, embankments, bottom (for dry detention basins) and outlet structure including the emergency spillway, as applicable.

## iv. Erosion Control/Revegetation

Eroded areas of the basin edges, embankments, bottom (for dry detention basins), emergency spillway, and rip rapped areas shall be repaired in a timely manner. Consider reseeding/replanting with native vegetation with appropriate erosion control mat suited to site condition with possible consultation with an ecological-restoration company. For grass-lined swales, reseed and repair eroded areas with appropriate erosion control mat.

v. Nuisance Control – Provide control of algae and mosquitoes per recommendations from a pond maintenance contractor, as necessary.

## b. Non-Routine Maintenance (Dry and Wet Detention Basins)

A more detailed inspection is to be done every 3 years on wet detention basins to determine sediment depth. A forebay is typically located where flows enter the detention basin and has the purpose of settling out sediment in a more convenient location for ease of maintenance. At this time, a sediment depth survey should be performed to determine the approximate average depth of sediment. The survey would normally be done by obtaining the water surface elevation by surveyor's level and then measuring the distance from water surface to top of sediment from a boat using applicable safety standards. The depth is converted to an elevation to determine depth of sediment and to determine the permanent pool depth. The survey can be completed by the City if the capability exists. Otherwise, this would be consulted out. Sediment survey and sampling would normally be consulted out once a sediment removal project is necessary.

i. Outlet Structure – Provide maintenance, as needed. Replace outlet structure when not performing as originally intended.

## ii. Sediment Removal/Excavation from Wet Detention Basins

## 1. Sediment Forebay

- a. Maintain 3 feet of water depth except on safety shelves which will be shallower.
- b. When the forebay accumulates sediment and there is 3 feet or less water depth, perform sediment removal /excavation to original depth (typically 5 feet or more). See as-builts for original elevations.
- c. Sediment Removal/Excavation Frequency: Every 3 to 5 years, depending on source area loadings. Maintain records of sediment loading.

**MAINTENANCE AND INSPECTION OF  
STORMWATER BEST MANAGEMENT PRACTICES**

**CITY OF GLENDALE  
JULY 2020**

2. Permanent Pool
    - a. Maintain 3 feet of water depth except on safety shelves which will be shallower.
    - b. When the forebay accumulates sediment and there is 3 feet or less water depth, perform sediment removal /excavation to original depth (typically 5 feet or more). See record drawings for original elevations.
    - c. Sediment Removal/Excavation Frequency: Every 15 to 20 years, depending on source area loadings. Maintain records of sediment removal.
  
  3. Sediment Removal/Excavation/Disposal Regulations-Perform sediment removal/excavation according to applicable state, federal and local regulations.
    - a. NR 103.06(4) (a)-Artificial wetland exemptions – Allows maintenance of ponds that revert to wetlands. Contact DNR for confirmation.
    - b. Contact DNR for Chapter 30 jurisdictional determination.
    - c. NR 216 Stormwater Discharge Permit (NOI) necessary for disturbance of one or more acres of land.
    - d. Sediment Sampling-Contact DNR to determine if sediment sampling is necessary.
      - i. Sediment and parent material sampling procedures should follow DNR guidance documents and NR 347 and NR 528.
      - ii. Resources:
        1. *Guidance for Applying the Sediment Sampling Requirements of NR 347*, Wisconsin Administrative Code, WDNR Publication WT-778, 2003.
        2. *Technical Guidance for Contaminated Sediment Cleanup Decisions in Wisconsin*. WDNR, December 21, 1995
        3. *Consensus-Based Sediment Quality Guidelines (CBSQG), Recommendations for Use and Application, Interim Guidance*, WDNR, December 2003.
        4. Laboratory results to be checked for conformance with NR 204.07(5) pollutant concentration limits. Consult NR 204 land application standards.
        5. NR 528-Management of Accumulated Sediment From Stormwater Management Structures
    - e. Sediment Disposal-See NR 528 and the above resources. Contact the WDNR.
  
  - iii. Sediment Removal/Excavation from Dry Detention Basins-Remove sediment and dispose of properly to maintain the originally-designed flood-storage capacity of the facility.
- 
- c. Non-Routine Maintenance (Bioretention Basins)
 

Bioretention basins are designed to capture sediment on the surface of the bioretention basin. Plug planting in the bottom of the basins is typically initially protected with a hardwood mulch layer. Over time, a bioretention basin may become clogged causing ponding on the surface of

**MAINTENANCE AND INSPECTION OF  
STORMWATER BEST MANAGEMENT PRACTICES****CITY OF GLENDALE  
JULY 2020**

the bioretention basin. Bioretention basins are typically designed to drawdown within 24 hours of the end of a storm event. If the drawdown time of a bioretention basin is greater than 36 hours, maintenance shall occur consisting of: (1) remove all hardwood mulch material while not disturbing established native vegetation, (2) Gently scarify the engineered soil surface to promote infiltration into the engineered soil while not disturbing established native vegetation, (3) replace bioretention soil mixture per WDNR Bioretention for Infiltration Technical Standard 1004 as necessary, (4) replace hardwood mulch layer per WDNR Bioretention for Infiltration Technical Standard 1004. Maintenance shall occur only during dry conditions while taking measures to minimize compaction of remaining engineered soil.

If bioretention basins are experiencing scour, consider removing mulch and engineered soil in those areas to allow for replacing with geotextile and appropriately sized stone to provide energy dissipation.

If bioretention basins have appreciable bare areas, plant with appropriate native plugs.

If bioretention basins appear to be experiencing compaction due to snow storage in the footprint of the bioretention basin, reinforce with the property owner that snow storage is not allowed within the footprint of the bioretention basin.

If bioretention basins appear to be experiencing clogging due to underdrain failure, underdrains shall be inspected. If necessary, underdrains shall be jetted to remove debris. If needed, the underdrain and all components of the bioretention basin above the underdrain shall be replaced per the WDNR Bioretention for Infiltration Technical Standard 1004.

Inspection and Maintenance Documentation Form  
 Stormwater Best Management Practices (BMPs)  
 Wet and Dry Detention Basins, Bioretention Basins, and Grass-Lined Swales  
 City of Glendale, Wisconsin

Inspection Date: \_\_\_\_\_  
 Maintenance Date: \_\_\_\_\_

Inspector Name: \_\_\_\_\_ Maintenance Provided by: \_\_\_\_\_  
 Company Name: \_\_\_\_\_ Phone Number: \_\_\_\_\_  
 Company Address: \_\_\_\_\_  
 \_\_\_\_\_  
 Company Phone Number: \_\_\_\_\_  
 Company Fax Number: \_\_\_\_\_

Stormwater Facility Location: \_\_\_\_\_

- Wet Detention Basin
- Dry Detention Basin
- Bioretention Basin
- Grass-Lined Swale

Items Inspected	Checked		Maintenance Needed		Remarks
	Yes	No	Yes	No	
<b>Wet and Dry Detention Basin (Items below are applicable to both wet and dry basins. Items in italics are applicable to only wet basins)</b>					
A. Berms					
1. Settlement					
2. Breaks					
3. Erosion					
4. Signs of Piping Leakage					
5. Signs of Seepage					
B. Vegetation					
1. Woody growth on berm					
2. Need for cutting/trimming					
3. Need for reseeding					
4. Ruts					
5. <i>Dead vegetation at water's edge</i>					
C. Shoreline					
1. Erosion and rip rap failure					
2. Undermining					
3. Damage or deterioration					
4. Rodent or wildlife damage					

Items Inspected	Checked		Maintenance Needed		Remarks
	Yes	No	Yes	No	
<b>Wet and Dry Detention Basin</b>					
D. Outlet Structure and Emergency Outlet					
1. Obstruction blocking outlet pipe, channel, or spillway					
2. Condition of outlet and inlet structure					
a. Seepage					
b. Separation of joints					
c. Cracks, breaks or deterioration					
d. Differential Settlement					
e. Sediment level in relation to crest of inlet structure					
f. Sediment level in relation to crest of inlet structure					
g. Scour and erosion at outlet					
h. Condition of trash racks					
i. Gates or valves (Operate them twice per year)					
j. Damage by debris, ice, or freezing.					
k. Outlet channel condition downstream.					
E. Inlets					
1. Is trash on or inside pipe grate?					
2. Any ice damage to pipe outlet?					
3. Undermining of any of the pipe?					
F. Sediment Forebay					
1. Approximate depth of sediment =					
2. Sediment Removal Necessary					
3. Floating debris					
G. Permanent Pool					
1. Approximate depth of sediment =					
2. Sediment Removal Necessary					
3. Floating debris					

Items Inspected	Checked		Maintenance Needed		Remarks
	Yes	No	Yes	No	
<b>Wet and Dry Detention Basin</b>					
H. Access for Maintenance Equipment					
1. Obstructions					
2. Soft Areas					
3. Visible pollution					
4. Shoreline problems					
5. Other (specify)					
I. Safety Features					
1. Access Controls to Hazardous Areas					
2. Fences					
a. Loose or damaged posts					
b. Loose or broken wires					
c. Accumulated debris in fences?					
d. Condition of gates					
<b>Bioretention Basins</b>					
A. Sediment buildup					
B. Clogging/ponding of water					
C. Eroded areas					
D. Bare spots					
E. Trash					
F. Overflow Structure					
G. Plant health					
H. Compaction due to snow storage					
I. Adequate mulch layer					
<b>Grass-Lined Swales</b>					
A. Eroded areas					
B. Bare spots					
C. Mowing Necessary					

**NOTES:**

1. Inspection/Maintenance Comments:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Overall Condition of Facility (Check One)

Acceptable    
  Unacceptable    
  Maintenance Completed

# Appendix 7

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Department of Public Works  
Stormwater Pollution Prevention  
Plan (SWPPP)

# STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

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## City of Glendale Department of Public Works

City of Glendale, Wisconsin  
5909 N. Milwaukee River Parkway  
Glendale, WI 53209

**Adopted \_\_\_\_\_ 2021**

Prepared by:



Clark Dietz, Inc.  
759 N. Milwaukee Street  
Suite 624  
Milwaukee, WI 53202

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# Section 1: Overview

## 1.1 Introduction

The City of Glendale has prepared the following Stormwater Pollution Prevention Plan (SWPPP) for the City's Department of Public Works Facilities. This report is prepared in compliance with the conditions of the NR 216 (Appendix E) permit pursuant to Part III.D.4 of Wisconsin Pollutant Discharge Elimination System (WPDES) Permit Issuance No. WI-S061565-04 (Appendix F). This report provides information related to the daily operations and maintenance activities for the Department of Public Works Facilities. This SWPPP describes the facilities and its operations, identifies potential sources of stormwater pollution at each location, recommends appropriate best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in stormwater runoff, describes the inspection schedule and reporting requirements for the facilities and provides for periodic review of this SWPPP.

## 1.2 Objectives

The primary goal of the stormwater permit program is to improve the quality of surface waters in the City's MS4 by reducing the amount of pollutants potentially contained in the stormwater runoff. The purpose of this SWPPP is to provide the following:

1. Identification of potential sources of stormwater and non-stormwater contamination to the MS4 system from the facility;
2. Identification of and recommendation of appropriate source area control BMPs designed to reduce or prevent stormwater contamination from occurring;
3. Identification of stormwater treatment BMPs to reduce potential pollutants within contaminated stormwater prior to discharging to the MS4 system and to the waters of the state;
4. Prescribe actions needed either to bring non-stormwater discharges under WPDES permit or to remove these discharges from the storm drainage system;

### 1.3 Stormwater Pollution Prevention Team

The stormwater pollution prevention team is responsible for developing, implementing, maintaining, and revising this SWPPP. The members of the team are familiar with the management and operations of the City of Glendale Public Works Department.

The member(s) of the team and their responsibilities are as follows:

**Chief:** Charlie Imig **Title:** Director of Public Works

**Phone:** 414-228-1746

**Responsibilities:** Implementing and maintaining program, submitting reports, conducting the annual compliance evaluation, signing and submitting the required certifications, point-of-contact for regulatory officials.

**Leader:** Steve Scheldroup **Title:** Superintendent of Public Works

**Phone:** 414-228-1749

**Responsibilities:** Implementing and maintaining program, record keeping, conducting inspections, employee training, daily onsite housekeeping.

### 1.3 SWPPP Certification

Operator: City of Glendale

Operator Address: 5909 N. Milwaukee River Parkway  
Glendale, WI 53209

Name of Facilities: City of Glendale Department of Public Works Facility

Facility Address: 5909 N. Milwaukee River Parkway  
Glendale, WI 53209

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations and blatantly ignoring them.

Name: Charlie Imig Title: Director of Public Works

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Section 2: Municipal Facilities

### 2.1 Department of Public Works Facility

#### Facility Information

**Name of Facility:** City of Glendale Department of Public Works Facility  
**Address:** 5909 N. Milwaukee River Parkway; Glendale, WI 53209  
**County:** Milwaukee County  
**Watershed:** Milwaukee River South  
**HUC:** 040400030606

#### **Latitude and Longitude:**

Latitude: 43° 07' 30" N  
Longitude: 87° 55' 51" W

Source: WDNR Surface Water Data Viewer

#### Contact Information

**Facility Operator:** Charlie Imig  
5909 N. Milwaukee River Parkway  
Glendale, WI 53209  
T: 414-228-1746  
Email: c.imig@glendalewi.gov

#### Impervious Cover

**Total site area:** 3.9 Acres  
**Impervious cover (buildings, pavement):** 2.1 Acres  
**Percent impervious:** 54%

#### Activities at the Facility

In addition to the Department of Public Works Staff offices, the City of Glendale Public Works Facility consists of a vehicle and equipment maintenance garage, vehicle storage, vehicle washing and minimal chemical storage.

#### Facility Site Map

See Figure 12 at the end of this section for the Facility Site Map of the Glendale Department of Public Works Facility.

### Discharge Information

Section 303(d) of the Clean Water Act requires each state to assess and publish a list of impaired waters every two years. Impaired waters do not meet water quality standards and may not support recreation or public health and welfare. The Public Works Facility storm sewer system ultimately discharges into the Milwaukee River. The Milwaukee River is listed on the 2018 303(d) list of impaired waterbodies for E. coli, metals, phosphorous, and PCBs. Each of these impairments are defined below.

#### **E. Coli**

E. coli is a bacteria present in the feces of warm-blooded animals. E. coli in surface waters indicates the presence of pathogens that can cause illness in humans.

#### **Polychlorinated Biphenyls (PCBs)**

PCBs, which are now banned in the United States, can accumulate in fish tissue from both the water in which fish live and the food the fish consume if either or both have been contaminated in the past.

#### **Metals**

Heavy metals, such as zinc, nickel copper and lead when dissolved in surface waters can have harmful effects on aquatic life. When dissolved, metals can interfere with the bodily functions of fish and aquatic insects.

#### **Phosphorus, Total**

Phosphorus promotes plant growth. Excessive phosphorous can cause an excess of algae blooms which affect the amount of oxygen in the water and decrease light penetration.

### Potential Pollutant Sources

The primary activities which can contribute potential pollutants to stormwater runoff are listed below.

Activity	Associated Pollutant
Vehicle Maintenance	Oil, antifreeze, brake cleaner, lubricants
Vehicle Storage	Oil, antifreeze
Vehicle Washing	Mud, rock, silt, detergent, sand, vehicle oil and other vehicle fluids
Chemical Storage	Paint, pesticides, fertilizer
Material Storage	Salt, gravel, top soil, brine mixture, mulch

### Stormwater Control Measures (BMPs)

The City of Glendale has implemented a variety of measures to minimize and reduce stormwater runoff from the Public Works Facility. Stormwater management controls, or BMPs, are implemented to reduce the amount of pollutants associated with the Public Works Facility from entering the City's MS4 and

from reaching nearby water resources. The following stormwater control measures are currently in place to minimize exposure of pollutants to stormwater:

#### Vehicle Maintenance

- Vehicle maintenance is performed inside covered buildings
- Floor drains in maintenance bays all drain directly into sanitary sewer
- Maintenance facility is regularly visually inspected for any noticeable leaks
- Floors are routinely swept to minimize the build-up of pollutants

#### Vehicle Storage

- Vehicles are stored inside covered buildings
- Floor drains in maintenance bays all drain directly into the sanitary sewer
- Motor oil, antifreeze and other minor operations materials are stored in properly labeled containers
- Facility is regularly visually inspected for any noticeable leaks
- Vehicles are regularly visually inspected for any noticeable leaks or required maintenance
- Floors are routinely swept to minimize the build-up of pollutants
- Any leaks found in vehicles require a drip pan to be placed under the vehicle immediately upon discovery

#### Vehicle Washing

- Vehicle washing operations drain directly to the sanitary sewer

#### Chemical Storage

- All chemicals used for the operations of the Public Works Facility are stored indoors
- A full list of items along with their Material Safety Data Sheet (MSDS) are available at the Public Works Facility

#### Material Storage

- All materials are stored in covered buildings
- The storm sewer system is protected from any material entering the system

#### Good Housekeeping

Good housekeeping practices are designed to maintain a clean and orderly work environment. This will reduce the potential for significant materials to come in contact with stormwater. The following practices are included in the Public Works Facility good housekeeping routine.

- Routine sweeping is done in the vehicle storage and maintenance areas
- Oil dry is available in the Public Works Facility and disposed of through a licensed disposal company
- Used oil rags and oil filters are drained and disposed of properly
- Vehicle batteries and tires are routinely recycled

#### Preventive Maintenance

Preventive maintenance involves the inspection, testing, and cleaning of facility equipment and operational systems before use. These inspections will help to uncover conditions that might lead

to a release of materials. The following equipment/activities are included in the inspection schedule for the Public Works Facility:

- Vehicles
- Equipment

### Pollution Prevention Training

- The pollution prevention team and responsible employees are trained on the requirements of the SWPPP and methods for its implementation. They are familiar with pollution prevention, pollutant sources, and City BMPs.
- Public Works Management and Staff attend stormwater management related courses and seminars conducted by institutions such as, the UW Extension Office, American Public Works Association (APWA), Milwaukee Metropolitan Sewerage District (MMSD), and Southeastern Wisconsin Watersheds Trust, Inc. (Sweet Water).



Figure 4. Chemical Storage



Figure 3. Vehicle Storage

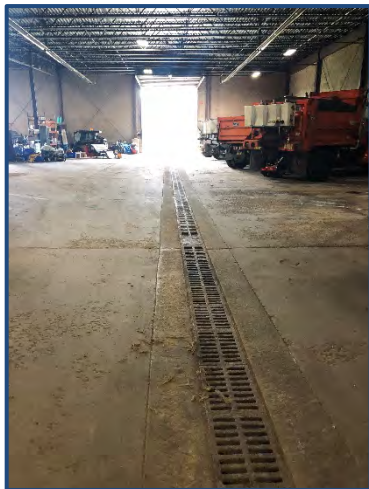


Figure 2. Vehicle Storage

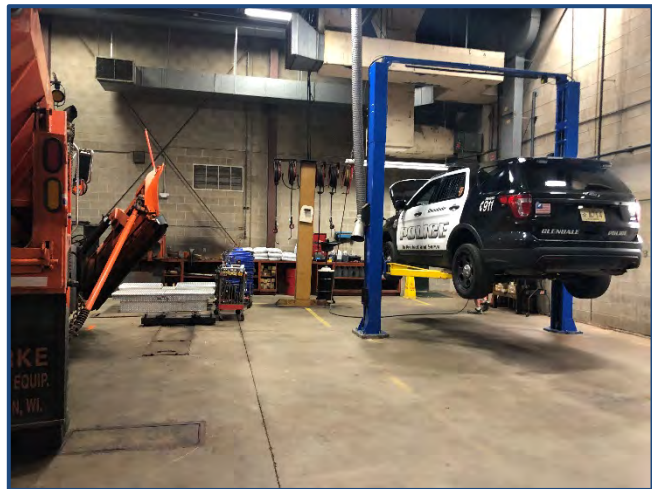


Figure 1. Vehicle Maintenance



Figure 5. Oil Storage



Figure 6. Oil Storage



Figure 7. Brine Storage



Figure 8. Salt Storage



Figure 9. Material Storage



Figure 10. Salt Storage



Figure 9. Material Storage



Figure 11. Spill Clean Up Material



Figure 10. Spill Clean Up Material



### Future Stormwater Control Measures

During SWPPP development, additional stormwater control measures were targeted for implementation. This section of the SWPPP should be a living document and the measures targeted for the Public Works Facility may change as updates are implemented. The City will work to implement the following BMPs to the maximum extent practicable and as budget allows.

- Review and update existing spill prevention and response procedures, including an inventory and update of spill response materials and signage.
- Review and update existing Department of Public Works staff training for stormwater pollution prevention at the Public Works facility.
  - Develop an annual training schedule for Public Works staff that includes the following topics:
    - Spill Prevention and Response
    - BMP Inspection and Maintenance
    - Winter Road Maintenance
    - Construction Erosion Control
    - Illicit Discharge Detection and Reporting
    - Good Housekeeping Procedures
    - Material Storage Techniques
  - All training events and attendance will be documented by the Public Works Superintendent utilizing the City of Glendale *Employee Training Tracking Form* located in Appendix C of this document.

### Inspections

The Public Works Department is required to conduct both quarterly inspections and an annual facility inspection. The objective is to analyze the existing SWPPP and make any changes or revisions to increase the effectiveness of the stormwater measures. All inspection documentation shall be kept in the MS4 Binder located in the office of the Director of Public Works, and submitted with the MS4 Annual Report.

#### **Quarterly Inspections:**

The purpose of the quarterly inspection is to look for evidence of, or the potential for, pollutants entering the stormwater drainage system. The inspections confirm that potential pollutant sources are being properly controlled. Quarterly inspections are to take place on or near the first of the following months: January, April, July and October and require a completed inspection form that can be found in Appendix B of this document. Quarterly inspections will be performed by the Department of Public Works Superintendent or their designee. Inspections are performed by a person specifically trained in inspection protocols. Inspections will address the following topics:

- Potential sources of stormwater pollutants
- Indoor chemical storage areas (i.e. motor oil, antifreeze, etc.)
- Loading/unloading areas
- Areas where spills/leaks have occurred in the past
- Inspect storm sewer structures located within facility for evidence of pollutants entering the drainage system and adversely impacting the receiving water body

### **Annual Inspections:**

Annual inspections will be performed at least once a year and require a completed inspection form that can be found in Appendix B of this document. Annual inspections will occur on or near the beginning of May. Annual inspections will be performed by the Department of Public Works Superintendent or their designee. Inspections are performed by a person specifically trained in inspection protocols. The purpose of the annual inspection is to address the following topics, as applicable:

- Modify or update the site map to reflect current conditions
- Identify all potential pollution sources
- Verify that source and structural controls have been implemented, are being maintained, and are effective in controlling stormwater pollution
- Determine if improvements or additional control measures are needed
- Inspect the availability of adequate spill response equipment and supplies

If it is found during the annual inspection that the SWPPP is lacking in a particular area, revisions to the SWPPP shall be made to continue to minimize the potential for pollutants to be discharged. If revisions to the SWPPP are required, then those changes shall be documented in Section 3 - SWPPP Modifications. Updated SWPPPs shall be submitted with the MS4 Annual Report any time that revisions are made.

### Record Keeping and Reporting

Facility Inspections, both quarterly and annual, shall be All inspection documentation shall be kept in the MS4 Binder located in the office of the Director of Public Works. Additionally, a copy of the current SWPPP for the facility shall be located with the completed inspection forms. The Public Works Superintendent is responsible for ensuring that all inspections are taking place, inspection forms are completed properly, are filed in the designated location and are submitted with the MS4 Annual Report. All inspection reports are to be kept on record for a minimum of five (5) years.

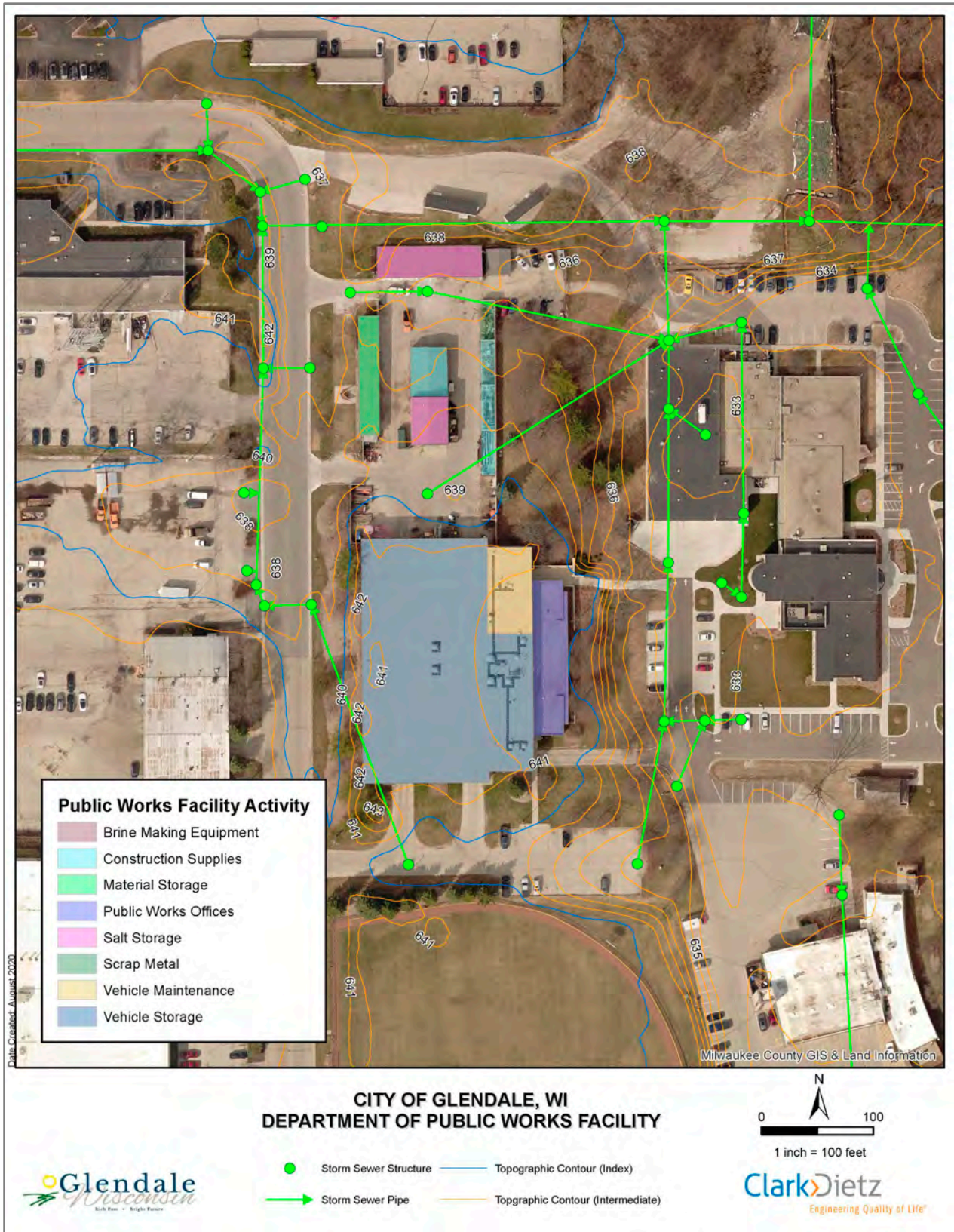


Figure 12. Facility Map of the Public Works Building and Yard



## **Appendix A: Emergency Contacts**

## EMERGENCY CONTACTS

Contact	Telephone Number
Primary Contact – Director of Public Works Name – Charlie Imig	Office: 414-228-1746 Cell:
Alternate Contact – Superintendent of Public Works Name – Steve Scheldroup	Office: 414-228-1749
Emergency/Fire/Ambulance/Police/HazMat Response	911
Milwaukee County Office of Emergency Management	1-414-257-4709
Wisconsin Department of Natural Resources - 24 Hour Spill Reporting Hotline	1-800-943-0003
U.S. EPA Region V Spill Reporting	1-312-353-2318
National Response Center (may be contacted for any spill)	1-800-424-8802

## **Appendix B: Public Works Yard Facility Inspection Form**



**City of Glendale, WI**  
**Public Works Yard Facility**  
**Inspection Form**  
North Shore Group  
WPDES Permit No. WI-S061565-2



**Inspection Date:** \_\_\_\_\_ **Inspected By:** \_\_\_\_\_

**Inspection Type (Quarterly or Annual):** \_\_\_\_\_

**Facility Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Have any spills occurred since last inspection, if yes describe:**  
\_\_\_\_\_

**Date of Last Rainfall (must be at least 24 hours after any 0.1" rainfall):** \_\_\_\_\_

GROUNDS – OUTER PERIMETER		
A1	<input type="checkbox"/>	Evidence of possible contaminated storm water runoff leaving the perimeter
COMMENT:		
A2	<input type="checkbox"/>	Outfalls need stabilization and/or repair
COMMENT:		
A3	<input type="checkbox"/>	Perimeter needing management practice installation and/or repair
COMMENT:		
A4	<input type="checkbox"/>	
COMMENT:		
FACILITY YARD/PARKING		
B1	<input type="checkbox"/>	Storm water conveyance and/or storage needs repair/improvement (swales, drains, ditches, detention...)
COMMENT:		
B2	<input type="checkbox"/>	Need to have designated snow stockpile area
COMMENT:		
B3	<input type="checkbox"/>	Storm drain inlets need to be marked
COMMENT:		
B4	<input type="checkbox"/>	Bulk hazardous materials storage/tanks issues
COMMENT:		
B5	<input type="checkbox"/>	Address vehicle storage and/or repair in yard
COMMENT:		
B6	<input type="checkbox"/>	Dumpster in poor condition, location, and/or uncovered
COMMENT:		
B7	<input type="checkbox"/>	Address grounds litter and debris
COMMENT:		
B8	<input type="checkbox"/>	Need to re-vegetate area(s) with grass, shrubs, trees (see below)
COMMENT:		
B9	<input type="checkbox"/>	Address potential pollutants stored near storm drain inlet(s)
COMMENT:		
B10	<input type="checkbox"/>	Parking areas need surface maintenance or replacement with pervious materials
COMMENT:		
B11	<input type="checkbox"/>	Deicing material stockpile lacks adequate storage

COMMENT:		
B12	<input type="checkbox"/>	Address liquid fertilizer/herbicide application, equipment calibration, handling, and/or storage
COMMENT:		
B13	<input type="checkbox"/>	Address dry fertilizer/herbicide application, equipment calibration, handling, and/or storage
COMMENT:		
B14	<input type="checkbox"/>	Address areas subject to flooding
COMMENT:		
B15	<input type="checkbox"/>	Storm drain inlets need additional protection
COMMENT:		
B16	<input type="checkbox"/>	
COMMENT:		
B17	<input type="checkbox"/>	
COMMENT:		
BUILDING		
C1	<input type="checkbox"/>	Address gutters and downspouts
COMMENT:		
C2	<input type="checkbox"/>	Floor drains are not connected to sanitary drainage system or sealed
COMMENT:		
C3	<input type="checkbox"/>	Building lacks pollution prevention signage
COMMENT:		
C4	<input type="checkbox"/>	Address dry and liquid materials storage, handling and/or labeling
COMMENT:		
C5	<input type="checkbox"/>	Update MSDS binder and place in location
COMMENT:		
C6	<input type="checkbox"/>	No area(s) designated for vehicle repair
COMMENT:		
C7	<input type="checkbox"/>	Equipment needs to be calibrated
COMMENT:		
C8	<input type="checkbox"/>	Address leaking from motor vehicle repair
COMMENT:		
C9	<input type="checkbox"/>	Facility lacks appropriate spill cleanup materials
COMMENT:		
C10	<input type="checkbox"/>	Floor is not clean and/or has debris that could be tracked out
COMMENT:		
C11	<input type="checkbox"/>	Address vehicle washing location and detergents
COMMENT:		
C12	<input type="checkbox"/>	Spill trays are needed
COMMENT:		
C13	<input type="checkbox"/>	
COMMENT:		
C14	<input type="checkbox"/>	
COMMENT:		
BUILDING		
D1	<input type="checkbox"/>	Lack of facility specific Storm Water Pollution Prevention Plan (SWPPP)
COMMENT:		
D2	<input type="checkbox"/>	Staff need additional training and/or certifications
COMMENT:		
D3	<input type="checkbox"/>	SOPs are not developed and/or implemented
COMMENT:		
D4	<input type="checkbox"/>	Facility self-inspections are not being conducted
COMMENT:		
D5	<input type="checkbox"/>	Need to keep records to track annual amount of materials collected and applied (salt, sediment...)
COMMENT:		
D6	<input type="checkbox"/>	

Next Inspection Scheduled for (date): \_\_\_\_\_

Pollutant(s) discharge needs to be addressed immediately

Description \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Public Works Yard SWPPP needs to be updated

Description \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Additional Explanation of Comments (with reference to Item #): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Inspector Signature: \_\_\_\_\_

## **Appendix C: Pollution Prevention Employee Training Tracking Form**



## **Appendix D: North Shore Fire Department SOP**

NORTH SHORE FIRE DEPARTMENT SOP# 711 1

<b>NORTH SHORE FIRE DEPARTMENT</b>	
<b>STANDARD OPERATING PROCEDURES</b>	SECTION: 700                      SOP. 711
	INITIAL: 05-01-05
	LAST REVISION: 04-01-15
SUBJECT: Hazardous Materials (HAZMAT) Incident Response, Reporting & Notifications	
PAGE 1 OF 10	

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**PURPOSE**

Establish guidelines to assure safe and appropriate response to hazardous material incidents, as well as appropriate reporting and incident notifications.

**SCOPE**

This procedure shall apply to all Fire Department personnel that are called to respond to hazardous material incidents, or that may find an incident that contains hazardous materials or suspected hazardous materials.

**PROCEDURE**

**DEFINITIONS**

- **FIRST RESPONDER OPERATIONS LEVEL (Per OSHA 29 CFR 1910.120)**  
First Responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures and assist other trained responders in non-hot zone operations.
- **REGIONAL HAZARDOUS MATERIALS RESPONSE TEAM (RHMRT)**  
Regional Hazardous Materials Response Teams are designated by the State of Wisconsin to provide assistance in hazardous materials emergencies. As a RHMRT, they may be activated for any incident involving hazardous materials spill, leak, explosion, injury or potential of immediate threat to life, the environment, or property. The RHMRT may offer assistance that ranges from telephone advice to full Level A response. The North Shore Fire Department can expect advice on immediate actions and an estimated time of arrival for the Team.
- **HAZARDOUS SUBSTANCE**  
Any substance or combination of substances including waste of a solid, semisolid, liquid or gaseous form which may cause or significantly contribute to an increase in mortality (death) or an increase in serious irreversible or incapacitating reversible illness or which

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2. Perform Hazard/Risk Evaluation.
    - a) Hazardous nature of the material(s) involved.  
(IE: toxicity, reactivity, and flammability. What is the primary hazard?)
    - b) Quantity of material involved.
    - c) Type of container or containment system involved.
    - d) Type of stress applied to the container.
      - Thermal
      - Chemical
      - Mechanical
    - e) Identify the hazards using:
      - Warning Labels/Markings
      - Manufactures Labels/Logos
      - Container Shapes/Types
      - Information provided by person(s) reporting the barrel(s).
      - Look for signs of leaks, spills, or vapor releases.
      - Use metering equipment to check for explosive or toxic atmosphere.
    - f) Proximity of exposures (this includes emergency response personnel)
    - g) Level of available resources at the time.
    - h) Incident Priorities:
      - Life Safety
      - Public Health
      - Protection of Property
      - Protection of the Environment
- C. Operations
1. Based on the initial size-up and all information available, the IC will have to formulate an incident action plan to begin the process of incident stabilization and mitigation. The action plan must provide for the following:
    - a) Safety of the public and emergency responders
    - b) Possible evacuation of endangered areas or shelter in place options
    - c) Elevation of the level of response
    - d) Incident stabilization
    - e) Proper notifications
    - f) Proper incident termination
  2. Establish initial Hot and Warm zones. All unknown and unidentified material(s) shall be treated as a Level A response until proven otherwise. The minimum zone size is 500 feet in all directions. Refer to the DOT guidebook for assistance

- 174 c) If they are unavailable, call 1-800-943-0003. This number is the  
175 emergency hotline, which will connect you with the Wisconsin  
176 Division of Emergency Management. (DEM)  
177 d) Following the recorded instructions to request a Team.  
178 e) Also Notify Milwaukee Co Emergency Management 278-4709.  
179 f) The HAZMAT Team contact person or DEM Duty Officer will ask  
180 you to provide the following information:  
181     • Location of the incident  
182     • Name and amount of spilled product, if known  
183     • Name and telephone call back number and alternate  
184     number  
185 g) With this information, the DEM duty officer will notify the  
186 designated RHMRT.  
187 h) A member of the RHMRT will call you back for further  
188 information.  
189 i) Answers to the following questions will help determine the level of  
190 response that may be provided by the RHMRT:  
191     1. Type of incident- transportation/ fixed facility?  
192     2. Product involved?  
193     3. Quantity of product involved?  
194     4. Container damage?  
195     5. Location?  
196     6. Injuries or Potential injuries?  
197     7. Special considerations?  
198     8. Weather conditions?  
199     9. Level of training of the onsite responders?  
200     10. Onsite contact person(s) name?  
201     11. Placard # or CAS #?  
202     12. Have you contacted Milwaukee Co. Emergency  
203     Management?  
204     13. The RHMRT will also want the best route to the scene &  
205     staging area
- 206
- 207 3. North Shore Fire Department responsibilities and expectations:  
208 a) The North Shore Fire Department is responsible for management of the  
209 incident, this includes:  
210     1. Scene security  
211     2. Fire related activities  
212     3. Mutual Aid, if needed  
213     4. Evacuations, if necessary  
214     5. Traffic control  
215     6. Staffing  
216     7. Ambulance and EMS personnel on scene  
217     8. Provide Liaison with RHMRT (HAZMAT Specialist if available)  
218     9. Maintaining of reports and records  
219     10. Notification of proper agencies

- 266 9. Notify Captain James Mayer as North Shore Fire Department Hazardous  
267 Materials Specialist  
268 10. Milwaukee Co Emergency Management (414) 278-4709  
269 11. Wisconsin DNR/DEG Duty Officer 1-800-943-0003  
270 Note: Milwaukee Co Emergency Management may handle #4  
271 12. Local Govt. Officials (Managers, Mayors, Village President) of the  
272 community(s) involved.  
273 13. United States Coast Guard if spill has occurred in navigable waterway.  
274 14. Private HAZMAT Contractor for Level B services. North Shore Fire  
275 Department Personnel will not call for a Level B Private Contractor at any  
276 time.  
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279  
280 • Spill of Known Level A or Unknown Material(s) (Any size or quantity)  
281 1. Notify the Assistant Chief  
282 2. Notify Captain James Mayer as North Shore Fire Department Hazardous  
283 Materials Specialist  
284 3. Milwaukee Co Emergency Management (414) 278-4709  
285 4. Wisconsin DNR/DEG Duty Officer 1-800-943-0003  
286 Note: Milwaukee Co Emergency Management may handle #4  
287 5. Local Govt. Officials (Managers, Mayors, Village President) of the  
288 community(s) involved.  
289 6. United States Coast Guard if spill has occurred in navigable waterway.  
290 7. Private HAZMAT Contractor for Level B services. North Shore Fire  
291 Department Personnel will not call for a Level B Private Contractor at any  
292 time.  
293  
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295 **REQUIRED REPORTING**

296  
297 The following are procedures for the North Shore Fire Department to report spills/releases of any  
298 hazardous material or substance to the environment as required by state (NR 706) and federal  
299 law to Milwaukee Co. Emergency Management and Wisconsin Department of Natural  
300 Resources. This applies to all incidents involving a spill or uncontained release of any hazardous  
301 material or substance. This is of particular importance when the party(s) responsible for the  
302 incident is unknown or there is reason to believe that the responsible party(s) will not report the  
303 spill/release as required by law.  
304

305 It is the spiller(s) responsibility by federal and state law to report the spill/release to the State of  
306 Wisconsin Department of Natural Resources Spill Hot Line 1-800-943-0003. North Shore Fire  
307 Department Form HAZ-SPILL 1 has been developed to assist the spiller with their reporting  
308 responsibilities and to remove the reporting burden from the Department. Copies of HAZ-SPILL  
309 1 can be found on the North Shore Fire Department Intranet under the North Shore Fire  
310 Department Docs section. If the spiller is unknown the North Shore Fire Department is  
311 responsible for reporting the spill/release to Milwaukee County Emergency Management at 278-

358 **ABANDONED BARRELS**

359

360 The following are procedures for the North Shore Fire Departments response to reports of  
361 abandoned or possible abandoned barrel(s).

362

363 **Response Procedure**

364

365 The North Shore Fire Department shall respond to a report of abandoned barrel(s) in two ways.

366 1. For non-leaking, undamaged barrel(s), a Limited Response will be sent.

367 2. For leaking, damaged, fuming barrel(s), a Hazardous Materials Still Alarm (see MABAS  
368 Cards) with all appropriate hazardous materials notification as outlined above.

369 Companies responding to reports of abandoned or leaking barrels should attempt to identify the  
370 hazards using:

- 371 • Warning Labels/Markings
- 372 • Manufactures Labels/Logos
- 373 • Container Shapes/Types
- 374 • Information provided by person(s) reporting the barrel(s).
- 375 • Look for signs of leaks, spills, or vapor releases.
- 376 • Use metering equipment to check for explosive or toxic atmosphere.

377

378 **DO NOT MOVE BARREL (S) UNLESS IT IS FOR IMMEDIATE LIFE SAFETY**

379

380 Companies shall set up defensive containment (Booms, Dikes, Dams, etc) if it is safe to do so  
381 and can be done without the use of specialized chemical protective clothing.

382

383 The following agencies/personnel should be contacted:

- 384 • Battalion 8 (if not already on scene)
- 385 • Milwaukee Co. Emergency Management (414) 278-4709
- 386 • Local Law Enforcement and/or Milwaukee Co. Sheriff
- 387 • Property owner
- 388 • Local Government representative

389

390 Company Officers should gather the following information

- 391 • Property owner
- 392 • Accurate Address/Location
- 393 • Description of dumper if witnessed
- 394 • Document the scene with a simple sketch
- 395 • File Firehouse NFIRS with a HAZMAT Supplemental

396

397 The Milwaukee Co. Emergency Management Duty Officer or onsite representative will handle  
398 or advise regarding contacting other agencies or responders. Milwaukee Co. Emergency  
399 Management and Wisconsin Department of Natural Resources are the agencies responsible for  
400 the mitigation of abandoned barrels. These two agencies will respond and take all other required  
401 action to handle the incident with our cooperation and assistance.

## **Appendix E: s. NR 216.27, Wis. Adm. Code**

1. The process or operation is managed so that no storm water is contaminated with any of the pollutants identified in s. NR 216.27 (3) (j).

2. The permittee certifies that there is no unauthorized discharge at the outfall.

3. The permittee has completed a minimum of 3 years of industrial activity under a SWPPP, with no confirmed problems identified by public complaint or the annual facility site compliance inspection reports required under s. NR 216.29 (2).

(b) The department may elect to cover any industrial storm water discharge under a tier 2 general permit where the department determines that a tier 2 general permit is appropriate.

(4) CHANGING TO TIER 1. If the department determines that a facility or an industrial activity covered under a tier 2 general permit may be discharging storm water contaminated with pollutants listed in s. NR 216.27 (3) (j), the department may require that the facility or activity be covered by a tier 1 general permit.

History: CR 03-028; cr. Register July 2004 No. 583, eff. 8-1-04.

**NR 216.24 Industry-specific general permits.**

(1) INDUSTRY-SPECIFIC PERMITS. In addition to statewide general permits issued under s. NR 216.23 (1) or (2), the department may issue industry-specific general storm water discharge permits to one or more categories of industries identified in s. NR 216.21 (2).

(2) REQUIREMENTS. Industry-specific general industrial storm water discharge permits shall differ from the statewide storm water general permits by factoring in characteristics common to the industry including the characteristic that requirements of the permit may contain phased source area control compliance schedules.

(3) COOPERATIVE COMPLIANCE PROGRAM. (a) The department may allow a permittee to participate in a program to assist the facility with maintaining compliance with an industry-specific permit. The department may waive certain requirements of this subchapter via permit in exchange for alternative requirements such as mandatory education and a facility inspection program that the department finds to be equivalent or more effective at controlling pollution from storm water runoff.

(b) The department may terminate a cooperative compliance program if it finds that the program is ineffective.

History: CR 03-028; cr. Register July 2004 No. 583, eff. 8-1-04.

**NR 216.25 Individual permit. (1) PERMIT REQUIREMENTS.**

Requirements of an individual WPDES permit issued under s. 283.31 or 283.33, Stats., shall be consistent with similar requirements in general storm water discharge permits, except where the department determines that more stringent requirements are necessary to meet a performance standard of ch. NR 151 or a water quality standard. The department may require that specific source area controls be used as a requirement of an individual permit.

(2) EFFLUENT LIMITATIONS. A facility covered by an individual WPDES storm water permit under s. 283.33 (1) (d), Stats., may be subject to an effluent limitation for a point source discharge, as defined in s. 283.01 (6), Stats., for storm water discharge.

(3) INDIVIDUAL PERMIT COVERAGE. If it determines that one or more of the following conditions are met, the department may require that a storm water discharge be covered by an individual WPDES permit under s. 283.31 or 283.33, Stats.:

(a) The storm water discharge is a significant source of pollution and more appropriately regulated by an individual WPDES storm water permit.

(b) The storm water discharger is not in compliance with the terms and conditions of this chapter, or a general storm water discharge permit issued under this subchapter.

(c) Effluent limitations or standards are promulgated for a storm water discharge.

(4) PETITION. Any person may submit a written request to the department that it take action under this section.

(5) REVOCATION OF GENERAL PERMIT COVERAGE. If the department determines that an industrial facility should be covered by an individual WPDES permit, the department shall explain its decision in writing to the permittee prior to revoking general permit coverage and issuing an individual WPDES permit.

History: CR 03-028; cr. Register July 2004 No. 583, eff. 8-1-04.

**NR 216.27 Storm water pollution prevention plan.**

(1) APPLICABILITY. Any person who owns or operates a storm water discharge covered by a general or individual storm water discharge permit shall prepare and implement an SWPPP.

(2) INCORPORATION BY REFERENCE. When plans are developed or activities conducted in accordance with other federal, state or local regulatory programs that meet the requirements of this section, the plans may be incorporated into the SWPPP by reference.

(3) PLAN REQUIREMENTS. The SWPPP shall contain, at a minimum, the following items and provisions:

(a) The SWPPP shall identify by job title the specific individual who has primary responsibility for all aspects of SWPPP development and implementation and identify any other individuals concerned with SWPPP development or implementation, and their respective roles. The specific individual who has primary responsibility shall develop, evaluate, maintain and revise the SWPPP; and carry out the specific management actions identified in the SWPPP, including: maintenance practices, monitoring activities, preparing and submitting reports and serving as facility contact for the department.

(b) The SWPPP shall contain a short summary of the major activities conducted at various locations throughout the facility.

(c) The SWPPP shall include a drainage base map depicting all of the following:

1. How storm water drains on, through and from the facility to groundwater, surface water or wetlands.

2. The facility property.

3. A depiction of the storm drainage collection and disposal system including all surface and subsurface conveyances.

4. Any secondary containment structures.

5. The location of all outfalls that discharge channelized flow to surface water, ground water or wetlands, including outfalls recognized as permitted outfalls under another WPDES permit, numbered for reference.

6. The drainage area boundary for each outfall.

7. The surface area in acres draining to each outfall, including the percentage that is impervious such as paved, roofed or highly compacted soil, and the percentage that is pervious such as grassy areas and woods.

8. Existing structural storm water controls.

9. The name and location of receiving waters.

10. The location of activities and materials that have the potential to contaminate storm water.

(d) The SWPPP shall summarize any results of available storm water sampling data or other observations that characterize the quality of storm water discharges or identifying sources of storm water contamination. Available data that characterizes the quality of storm drainage discharges under dry weather flow conditions shall also be included, except when the data has been or will be reported to the department under another WPDES permit.

(e) The SWPPP shall identify all potential source areas of storm water contamination including:

1. Outdoor manufacturing areas.

2. Rooftops contaminated by industrial activity.

3. Industrial plant yards.

4. Storage and maintenance areas for material handling equipment.

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5. Immediate access roads and rail lines.
6. Material handling sites including storage, loading, unloading, transportation, or conveyance of any raw material, finished product, intermediate product and by-product or waste areas.
7. Storage areas for raw materials, finished and intermediate products including tank farms.
8. Disposal or application of wastewater.
9. Areas containing residual pollutants from past industrial activity.
10. Areas of significant soil erosion.
11. Refuse sites.
12. Vehicle maintenance and cleaning areas.
13. Washing areas for equipment, vehicles, containers or other material.
14. Shipping and receiving areas.
15. Manufacturing buildings.
16. Residual treatment, storage and disposal sites.
17. Any other areas capable of contaminating storm water runoff.

(f) Specific pollutants likely to be present in storm water as a result of contact with source areas identified in par. (e) shall also be listed.

(g) The SWPPP shall identify all contaminated and uncontaminated sources of non-storm water discharges to the storm sewer system and indicate which are covered by WPDES permits. The SWPPP shall contain the results of the non-storm water discharge monitoring required by s. NR 216.28. If monitoring is not feasible due to the lack of suitable access to an appropriate monitoring location, the SWPPP shall include a statement that the monitoring could not be conducted and an explanation of the reasons why.

(h) The SWPPP shall rely to the maximum extent practicable, and to the extent it is cost effective, on the use of source area control best management practices that are designed to prevent storm water from becoming contaminated at the site. Source area control best management practices that are either proposed or in place at the facility shall be indicated on the facility drainage base map. The SWPPP shall provide for the use of the following applicable source area control best management practices:

1. Practices to control significant soil erosion.
2. Good housekeeping measures, preventive maintenance measures, visual inspections, spill prevention and response measures and employee training and awareness.
3. Covering or enclosing salt storage piles so that neither precipitation nor storm water runoff can come into contact with the stored salt; or, for facilities that use brine and have salt storage piles on impervious curbed surfaces, a means of diverting contaminated storm water to a brine treatment system for process use.
4. Use of a combination of precipitation control, containment, drainage controls or diversions to control section 313 water priority chemicals potentially discharged through the action of storm water runoff, leaching or wind.

(i) The SWPPP shall maintain best management practices necessary to maintain compliance with the performance standards in s. NR 151.12 for those areas that are described in s. NR 151.12 (2).

(j) The SWPPP shall identify pollutants that are likely to contaminate storm water discharges to waters of the state following implementation of source area control best management practices. Past sampling data collected at the facility or at sufficiently similar outfalls at other facilities may be used in making this determination. At a minimum, all of the following pollutants shall be considered for their potential to contaminate storm water:

1. Any pollutant for which an effluent limitation is contained in any WPDES permit issued to the facility by the department.
2. Any pollutant contained in a categorical effluent limitation or pre-treatment standard to which the facility is subject.

3. Any section 313 water priority chemical for which the facility has reporting requirements and which has the potential for contaminating storm water.

4. Any other toxic or hazardous pollutants from present or past activity at the site that remain in contact with precipitation or storm water and which could be discharged to the waters of the state and which are not regulated by another environmental program.

5. Any of the following parameters that might be present in significant concentrations: oil and grease; acids or bases; total suspended solids; 5-day biological oxygen demand; chemical oxygen demand.

(k) When source area control best management practices are not feasible, not cost effective or are inadequate to control storm water pollution, or when the department determines source area control best management practices are inadequate to achieve a water quality standard, the SWPPP shall prescribe appropriate storm water treatment practices as needed to reduce the pollutants in contaminated storm water prior to discharge to waters of the state. Proposed or existing storm water treatment practices shall be shown on the facility drainage basin map. The SWPPP shall provide for the following types of storm water treatment practices:

1. Storm water significantly contaminated with petroleum products shall be treated for oil and grease removal by an adequately sized, designed and functioning wastewater treatment device. Coverage under an individual or general WPDES permit is required for discharges of storm water from oil/water treatment devices.

2. Point source discharges of storm water contaminated by significant amounts of sediment from eroding areas, including bare earth industrial lots and ongoing industrial processes, shall be treated by filtration or settling type practices.

(L) The SWPPP shall include provisions for complying with the monitoring requirements specified in s. NR 216.28. The SWPPP shall include a checklist of inspections to be made during the annual facility site inspection described in s. NR 216.28 (2). The SWPPP shall also identify for each outfall the type of monitoring that will be conducted, such as non-storm water discharge monitoring; storm water discharge quality inspections; or chemical pollutant monitoring for facilities covered under a tier 1 permit. The following are requirements for facilities covered under a tier 1 permit:

1. A list of chemical parameters proposed for testing at each outfall shall be included along with the analytic sample testing procedures from ch. NR 219 that will be used to determine pollutant concentrations.

2. The list of chemical parameters shall include each of the residual pollutants identified in par. (j), or an explanation of why the pollutant should not be included in the chemical testing.

(m) The SWPPP shall include an implementation schedule that is consistent with the compliance schedule in the general storm water discharge permit.

(n) The SWPPP shall be signed in accordance with s. NR 216.22 (7) prior to submittal to the department.

(4) PLAN AMENDMENT. A permittee shall amend an SWPPP if any of the following circumstances occur:

(a) When expansion, production increases, process modifications, changes in material handling or storage or other activities are planned which will result in significant increases in the exposure of pollutants to storm water discharged either to waters of the state or to storm water treatment devices. The amendment shall contain a description of the new activities that contribute to the increased pollutant loading, planned source control activities that will be used to control pollutant loads, an estimate of the new or increased discharge of pollutants following treatment and, when appropriate, a description of the effect of the new or increased discharge on existing storm water treatment facilities.

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DEPARTMENT OF NATURAL RESOURCES

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(b) The facility finds through its comprehensive annual facility site compliance inspection, quarterly visual inspection of storm water quality, annual chemical storm water sampling or other means that the provisions of the SWPPP are ineffective in controlling storm water pollutants discharged to waters of the state.

(c) Upon written notice that the department finds the SWPPP to be ineffective in achieving the conditions of the storm water discharge permit applicable to the facility.

**History:** CR 03-028; cr. Register July 2004 No. 583, eff. 8-1-04.

**NR 216.28 Monitoring requirements. (1) NON-STORM WATER DISCHARGES.** The permittee shall evaluate all outfalls for non-storm water discharges into the storm drainage system beginning in the first year of permit coverage. Evaluations shall take place during dry periods. The following are additional requirements for evaluating non-storm water discharges:

(a) Any monitoring shall be representative of non-storm water discharges from the facility.

(b) One of the following monitoring procedures shall be followed:

1. End of pipe screening shall consist of visual observations made at least twice per year at each outfall of the storm sewer collection system. Observations shall be made at times when non-storm water discharges from the facility are considered most likely to occur. Instances of dry weather flow, stains, sludges, color, odor or other indications of a non-storm water discharge shall be recorded; or

2. A detailed testing of the storm sewer collection system may be performed. Testing methods include dye testing, smoke testing or video camera observation. Should the permittee use detailed testing as an alternative, the department shall require a re-test after 5 years or a lesser period as deemed necessary by the department.

(c) All permitted facilities shall maintain the results of their non-storm water evaluations on site. Facilities shall report the results of the initial non-storm water evaluations to the department within the SWPPP summary form required pursuant to s. NR 216.29 (1) (e). Information reported shall include date of testing, test method, outfall location, testing results and potential significant sources of non-storm water discovered through testing.

**Note:** The department storm water pollution prevention summary Form 3400-167 contains a table for recording the results of the non-storm water discharge evaluations.

(d) Any permittee unable to evaluate outfalls for non-storm water discharges shall sign a statement certifying that this requirement could not be complied with, and include a copy of the statement in the SWPPP. The statement shall be submitted to the department.

(e) If a permittee identifies an unauthorized discharge of pollutants, the permittee shall immediately cease the discharge and contact the department to determine if a permit is required under s. 283.31 or 283.35, Stats.

**(2) ANNUAL SITE INSPECTIONS.** Permittees under this subchapter shall perform and document the results of an annual facility site compliance inspection. The inspection shall be adequate to verify that the site drainage conditions and potential pollution sources identified in the SWPPP remain accurate, and that the best management practices prescribed in the SWPPP are being implemented, properly operated and adequately maintained. Information reported shall include the inspection date, inspection personnel, scope of the inspection, major observations and revisions needed in the SWPPP.

**(3) QUARTERLY VISUAL INSPECTION.** Permittees under this subchapter shall perform and document quarterly visual inspections of storm water discharge quality at each outfall. Inspections shall be conducted within the first 30 minutes or as soon thereafter as practical, but not to exceed 60 minutes, after runoff begins discharging at the outfall. The inspections shall include any observations of color, odor, turbidity, floating solids, foam, oil sheen or

other obvious indicators of storm water pollution. Information documented shall include: the inspection date, inspection personnel, visual quality of the storm water discharge and probable sources of any observed storm water contamination.

**(4) STORM WATER SAMPLING AND ANALYSIS.** Unless an alternative monitoring plan is required as part of the SWPPP, owners or operators of facilities covered under a tier 1 general permit issued under this subchapter or an individual WPDES permit issued under s. 283.31, Stats., containing tier 1 general permit requirements, or individual storm water discharge permits issued under s. 283.33 (1) (a) and (d), Stats., shall perform annual chemical storm water sampling at each outfall for those residual pollutants listed in the permittee's SWPPP as required by s. NR 216.27 (3) (j). The following are specific requirements for chemical storm water monitoring:

(a) The list of pollutants to be tested in the discharge at the outfall shall be identified in the facility monitoring plan portion of the SWPPP.

(b) When a facility has more than one outfall which have storm water discharges substantially similar based on consideration of industrial activity, significant materials and management, one outfall may be selected to represent the group of similar outfalls provided that this strategy has been clearly stated in the facility monitoring plan and that the representative outfall is clearly identified as such on the drainage base map. No more than 5 outfalls with discharges representative of storm water discharged from the facility need to be sampled.

(c) After review of the facility monitoring plan portion of the SWPPP, the department shall add additional pollutants to the monitoring list if it has cause to do so based on a reasonable probability that the pollutants will be present in storm water discharges from the facility. The department shall remove pollutants from the monitoring list if it determines that continued monitoring for the pollutant serves no further purpose. Chemical monitoring may be discontinued after submitting the second round of chemical monitoring results to the department with the annual facility site compliance inspection report unless the department directs the permittee otherwise. The department shall require additional chemical sampling within a tier 1 general permit for industrial facilities where chemical monitoring has shown a reasonable potential that the storm water discharge from an individual facility or a type of industry will exceed a water quality standard.

(d) Storm water samples shall be collected during the period of March through November from rainfall events that produce greater than 0.1 inch of rainfall and occur at least 72 hours after a previous rainfall of 0.1 inch or greater.

(e) Storm water samples shall be representative of the "first flush" of storm water runoff at the outfall using one of the following sampling methods:

1. Composite sample shall be collected during the first 30 minutes of runoff. At least 3 separate samples shall be collected for compositing, and the collection of samples shall be evenly spaced throughout the sampling period. Composite samples are required for all pollutants except those for which analytic techniques require grab samples.

2. A grab sample is required for all pollutants in storm water discharged from a detention pond or other structure that has greater than a 24-hour holding time for a representative storm. The grab sample shall be representative of the storm water discharge at the pond outfall.

3. An alternative sampling collection time specified by the department if the department determines it is necessary to obtain a representation sample of storm water runoff from the site.

(f) Monitoring samples shall be representative of the monitored discharge. Analytic testing shall be in conformance with ch. NR 219, unless an alternate procedure is approved by the department prior to the initiation of sampling.

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## **Appendix F: North Shore Group WPDES Permit No. WI-S061565-04**

state associated with dewatering and drying material collected under subsection a) of this section are not authorized by this permit.

**Note:** Information on managing waste and materials is available on the Department's Internet site at: <https://dnr.wi.gov/topic/Waste/>. Information on WPDES permits for non-storm water discharges is available on the Department's Internet site at: <https://dnr.wi.gov/topic/wastewater/>

4. Management of Leaves and Grass Clippings:

If the permittee provides leave and grass clipping collection, the program shall include the following:

- a) A description of the leaf collection program, including pick-up methodology and equipment used, timing of associated street cleaning, standard operating procedures, schedule and frequency, and instructions for residents and property owners.
- b) Identification of leave disposal locations.
- c) An estimate of the weight in tons of material collected annually and a description of how the weight is estimated.
- d) By May 31, 2024, a description of the BMPs which the permittee employs or will employ to its leaf collection program that reduce nutrient loading to the receiving waters. The permittee shall consider source, transport and discharge location when considering BMPs for the leaf collection program.

5. Storm Water Pollution Prevention Planning:

All municipal garages, municipal storage areas, and other public works related municipal facilities shall have a Storm Water Pollution Prevention Plan (SWPPP). The SWPPPs shall:

- a) Be developed and implemented by December 31, 2021 for sites without a SWPPP.
- b) Include the information under s. NR 216.27 (3), Wis. Adm. Code, minus the monitoring requirements under s. NR 216.27 (3) (l), Wis. Adm. Code.  
**Note:** The SWPPP requirements can be located here: [https://docs.legis.wisconsin.gov/code/admin\\_code/nr/200/216/II/27](https://docs.legis.wisconsin.gov/code/admin_code/nr/200/216/II/27).
- c) Conduct and document quarterly visual inspections of the property and annual facility compliance inspections.
- d) Describe spill prevention and response for each facility.
- e) Contain procedures for annual training of municipal staff on implementation of the SWPPP.

6. Internal Training and Education:

The permittee shall provide education for appropriate municipal and other personnel involved in implementing their community's pollution prevention programs. Documentation shall be maintained of the date, the names of each person attending, and the content of the training.

**H. STORM WATER QUALITY MANAGEMENT**

Each municipality shall develop and implement a municipal storm water management program that controls the discharge of total suspended solids from the MS4 system to waters of the state.

1. The storm water management program shall achieve compliance with the developed urban area performance standards of s. NR 151.13(2), Wis. Adm. Code, for those areas of the municipality that were not subject to the post-construction performance standards of s. NR 151.12 or 151.24, Wis. Adm. Code. (Note: projects prior to Oct. 1, 2004).
2. The permittee shall ensure continued operation and maintenance of all best management practices implemented on or before July 1, 2011 to achieve a total suspended solids reduction of more than 20 percent as compared to no controls.

**I. STORM SEWER SYSTEM MAP**

Each municipality shall maintain a municipal separate storm sewer system map. The municipal storm sewer system map shall include:

1. Identification of waters of the state, watershed boundaries, name and classification of receiving waters, and identification of whether the receiving water is listed as an impaired water under s. 303 (d) of the Clean Water Act.
2. Identification of all known municipal storm sewer system outfalls discharging to waters of the state or other municipal separate storm sewer systems, stormwater drainage basin boundaries for each MS4 outfall, and municipal separate storm sewer conveyance systems with flow direction. Major outfalls shall be categorized and priority outfalls for illicit discharge detection and elimination shall be identified. Other major municipal, government, or privately-owned storm water conveyance systems lying within, but not owned by the permittee, shall also be identified.
3. A boundary defining the municipal border and the storm water planning area.
4. The location of any known discharge to the municipal separate storm sewer system that has been issued a WPDES permit by the Department.
5. Location of municipally owned or operated structural storm water controls including detention basins, infiltration basins, and manufactured treatment devices. If the permittee will be taking credit for pollutant removal from privately-owned facilities, they must be identified.
6. Identification of publicly owned parks, recreational areas and other open lands.