

**Forest Hills Public Schools**  
**Good Housekeeping**  
**And Pollution Prevention**  
**Best Management**  
**Practices Operation &**  
**Maintenance Manual**  
**For Stormwater Controls**

**Prepared by:**

**GVMC**

**Department of Environmental Programs**

**In Cooperation with:**

**The MS4 Permitted Communities**  
**Of The Lower Grand River Watershed**

**Contents**

Introduction.....2

Background.....2

Manual Organization .....2

Partners.....3

Structural Control BMPs.....4

    Catch Basins .....5

    Secondary Containment.....7

    Underground Storage Vaults or Tanks .....9

    Detention Ponds .....12

    Infiltration Basins and Trenches.....16

    Oil/Water or Grit Separator .....19

Operational BMPs .....22

    Sidewalk and Parking Maintenance.....24

    Cold Weather Operations .....25

    Fleet Maintenance .....26

        Inspection .....26

        Vehicle and Equipment Fueling.....26

        Vehicle and Equipment Cleaning .....27

        Vehicle and Equipment Repair .....28

    Solid Waste Handling and Disposal.....31

    Materials Storage.....32

    Spill Response and Prevention.....33

References: .....34

# Introduction

## Background

As the owner and operator of a municipal separate storm sewer system (MS4) FOREST HILLS PUBLIC SCHOOLS, must implement stormwater pollution prevention on their properties as well as within their MS4. The State of Michigan regulates FOREST HILLS PUBLIC SCHOOLS, through a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES permit program identifies six minimum control measures that operators of regulated small MS4s must incorporate into stormwater management programs. These measures are expected to result in significant reductions of pollutants discharged into receiving waterbodies. This manual identifies the Best Management Practices (BMPs) implemented by FOREST HILLS PUBLIC SCHOOLS to address pollution prevention and good housekeeping.

This manual is intended to provide the staff at FOREST HILLS PUBLIC SCHOOLS and regulators with information necessary to ensure uniform and correct implementation of procedures and maintenance related to structural and operational stormwater controls at municipally owned and operated facilities. A complete inventory of these facilities is provided in Appendix 6 of the Stormwater Management plan. The procedures in this will be reviewed annually for effectiveness and accuracy. In the event that a new facility or structural control is added it will be reviewed and added to the inventory within 90 days. Relevant portions of this manual will also be provided to contractors working on behalf of t FOREST HILLS PUBLIC SCHOOLS to ensure they are complying with the approved procedures, inspections, and maintenance intervals.

## Manual Organization

The manual is divided into two sections: Structural BMPs and Operational BMPs.

Structural BMPs identify devices that are constructed to protect, treat, convey, control or infiltrate stormwater. Each BMP includes a brief description, a sample design, and inspection and maintenance guidance including a tracking tool. Specific inspection and maintenance intervals are identified in the SWMP. The estimated number of stormwater structural controls is identified in the facility inventory included in Appendix 6.

Operational BMPs are activities that have the potential to impact stormwater quality such as cutting lawns, applying fertilizer, and washing vehicles. Operational BMPs provide guidelines for conducting these activities in a manner that prevents stormwater pollution. Each operational BMP identifies a procedure, and any maintenance, if applicable.

**Partners**

This manual was prepared as a cooperative effort by the MS4 permitted members of the Lower Grand River Watershed identified below and the Department of Environmental Programs at the Grand Valley Metropolitan Council. Individual procedures and tracking tools have been customized to meet the needs of each community.

<b>Kent County</b>	<b>Ottawa County</b>
Cascade Charter Township	City of Ferrysburg
City of East Grand Rapids	City of Grand Haven
City of Grand Rapids	City of Hudsonville
City of Grandville	Georgetown Charter Township
City of Kentwood	Grand Valley State University
City of Rockford	Ottawa County Water Resource Commissioner
City of Walker	Ottawa County Road Commission
City of Wyoming	Village of Spring Lake
Forest Hills Public Schools	
Grand Rapids Charter Township	
Kent County Drain Commissioner	
Kent County Road Commission	
Plainfield Charter Township	
Village of Sparta	

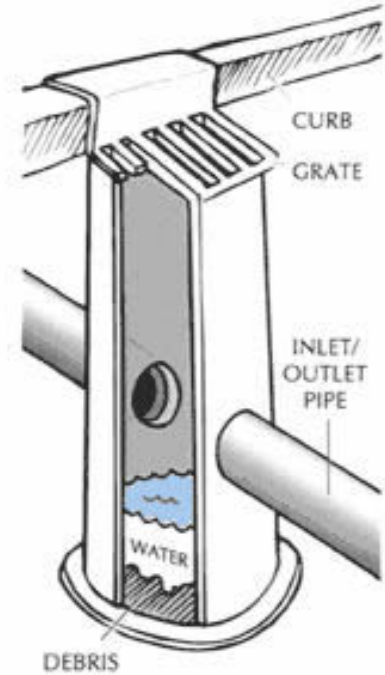
## **Structural Control BMPs**

## Catch Basins

A catch basin is an underground concrete structure typically fitted with a slotted grate to collect stormwater runoff and route it through underground pipes. Catch basins can also be used as a junction in a pipe system and may have a solid lid (commonly called a manhole).

Catch basins typically provide a storage volume (sump) below the outlet pipe to allow sediment and debris to settle out of the stormwater runoff. Some catch basins are also fitted with a spill control device (inverted elbow on outlet pipe) intended to contain large quantities of grease or oils. Stormwater manholes are not designed to allow for the removal of sediment but, nonetheless, are important components of the stormwater conveyance system.

A catch basin may be an enclosed space where harmful chemicals and vapors can accumulate. Therefore, if the inspection and maintenance requires entering a catch basin, it should only be conducted by an individual trained and certified to work in hazardous confined spaces.



Beginning in 2015, Forest Hills Public Schools will have catch basins inspected and cleaned at the permit designated frequency by a qualified contractor. A log of catch basin locations will be provided to the selected contractor. This will serve as the catch basin inspection form for each identified structure. If the catch basin sump is over 50% full, the sump will be cleaned and the amount of removed material will be recorded and disposed of at the contractor's designated disposal location in accordance with Part 121 of Act 451 of 1994 (Natural Resources and Environment Protection Act).

<b>Catch Basins</b>			
<b>Drainage System Feature</b>	<b>Potential Defect</b>	<b>Conditions When Maintenance Is Needed</b>	<b>Results Expected When Maintenance Is Performed Or Not Needed</b>
General	Trash and Debris	Trash or debris is located immediately in front of the catch basin opening or is blocking inletting capacity of the basin.	No trash or debris located immediately in front of catch basin or on grate opening.
	Sediment	Sediment (in the basin) impedes the functionality of the catch basin.	No sediment in the catch basin.
	Structure Damage to Frame and/or Top Slab	Top slab has large holes or cracks; trash or debris material is running into basin.	Top slab is free of holes and cracks.
		Frame not sitting flush on top slab or not securely attached.	Frame is sitting flush on the riser rings or top slab and firmly attached.
	Fractures or Cracks in Basin Walls/ Bottom	Maintenance person judges that structure is unsound.	Basin replaced or repaired to design standards.
		Grout fillet has significantly separated or cracked or any evidence of soil particles entering catch basin through cracks.	Pipe is re-grouted and secure at basin wall.
	Settlement/ Misalignment	If failure of basin has created a safety, function, or design problem.	Basin replaced or repaired to design standards.
	Vegetation	Vegetation growing across and blocking more than 50% of the basin opening.	No vegetation blocking opening to basin.
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants, or other pollutants (Coordinate removal/cleanup with local water quality response agency).	No contaminants or pollutants present.
	Cover Not in Place	Cover is missing or only partially in place. Any open catch basin requires maintenance.	Catch basin cover is closed.
	Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, not securely attached to basin wall, misalignment, rust, cracks, or sharp edges.	Ladder meets design standards and allows maintenance person safe access.
	Grate Opening Unsafe	Grate with opening wider than design standard.	Grate opening meets design standards.
Grate Damaged or Missing	Grate missing or broken member(s) of the grate.	Grate is in place and meets design standards.	

## Secondary Containment

Secondary containment is a second barrier or an outer wall of a double enclosure which will contain any leak or spill from a storage container. Secondary containment helps protect the surface water, groundwater, and soils and reduce worker exposure to regulated substances. This enclosure is usually needed wherever regulated substances are being handled and stored in tanks, totes, drums, small pails, or other containers. Tanks with secondary containment need to be inspected regularly for damage, corrosion and leaks. The MDEQ has prepared a comprehensive guidance document on secondary containment requirements in the State of Michigan. It is available at: [http://www.michigan.gov/documents/deq/deq-whm-hwp-Undrstnd-SC-Rqrmnts\\_248135\\_7.pdf](http://www.michigan.gov/documents/deq/deq-whm-hwp-Undrstnd-SC-Rqrmnts_248135_7.pdf).

The only tank requiring secondary containment throughout Forest Hills Public Schools is housed at the Buildings & Grounds facility. Beginning in 2015, Forest Hills Public Schools will have secondary containment structures inspected at the permit designated frequency by a the fuel provider (tank owner).





<b>Secondary Containment</b>			
<b>Drainage System Feature</b>	<b>Potential Defect</b>	<b>Conditions When Maintenance Is Needed</b>	<b>Maintenance And Expected Results</b>
General	Leaks or drips	Evidence of tank contents within the secondary containment reservoir or outside the tank	Observe the tank to determine the origin of the leak and repair it. If drips are occurring when materials are added or removed review and revise procedure as necessary.
	Corrosion	Evidence of tank contents within the secondary containment reservoir or outside the tank	Conduct a comprehensive tank inspection to determine the cause of the corrosion and repair or replace the tank.
	Structural Damage	Evidence of tank contents within the secondary containment reservoir or outside the tank	Conduct a comprehensive tank inspection to determine the cause of the damage and repair or replace the tank. If damage occurred when materials were added or removed review and revise procedure as necessary.

# SECONDARY CONTAINMENT INSPECTION FORM

Staff Person Conducting Inspection: \_\_\_\_\_ Date: \_\_/\_\_/\_\_\_\_

Location: \_\_\_\_\_

- Functioning properly? Yes  No
- Evidence of leaks or drips? Yes  No
- Evidence of corrosion? Yes  No
- Visible trash or debris? Yes  No
- Damaged pipes? Yes  No
- Damage to tank or lining? Yes  No
- Drain system block in place? Yes  No
- Adequate signage or labeling Yes  No
- Maintenance required? Yes  No
- Scheduled on: \_\_/\_\_/\_\_\_\_ or n/a
- Completed on: \_\_/\_\_/\_\_\_\_ or n/a

Maintenance description: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Location: \_\_\_\_\_

- Functioning properly? Yes  No
- Evidence of leaks or drips? Yes  No
- Evidence of corrosion? Yes  No
- Visible trash or debris? Yes  No
- Damaged pipes? Yes  No
- Damage to tank or lining? Yes  No
- Drain system block in place? Yes  No
- Adequate signage or labeling Yes  No
- Maintenance required? Yes  No
- Scheduled on: \_\_/\_\_/\_\_\_\_ or n/a
- Completed on: \_\_/\_\_/\_\_\_\_ or n/a

Maintenance description: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Location: \_\_\_\_\_

- Functioning properly? Yes  No
- Evidence of leaks or drips? Yes  No
- Evidence of corrosion? Yes  No
- Visible trash or debris? Yes  No
- Damaged pipes? Yes  No
- Damage to tank or lining? Yes  No
- Drain system block in place? Yes  No
- Adequate signage or labeling Yes  No
- Maintenance required? Yes  No
- Scheduled on: \_\_/\_\_/\_\_\_\_ or n/a
- Completed on: \_\_/\_\_/\_\_\_\_ or n/a

Maintenance description: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Location: \_\_\_\_\_

- Functioning properly? Yes  No
- Evidence of leaks or drips? Yes  No
- Evidence of corrosion? Yes  No
- Visible trash or debris? Yes  No
- Damaged pipes? Yes  No
- Damage to tank or lining? Yes  No
- Drain system block in place? Yes  No
- Adequate signage or labeling Yes  No
- Maintenance required? Yes  No
- Scheduled on: \_\_/\_\_/\_\_\_\_ or n/a
- Completed on: \_\_/\_\_/\_\_\_\_ or n/a

Maintenance description: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

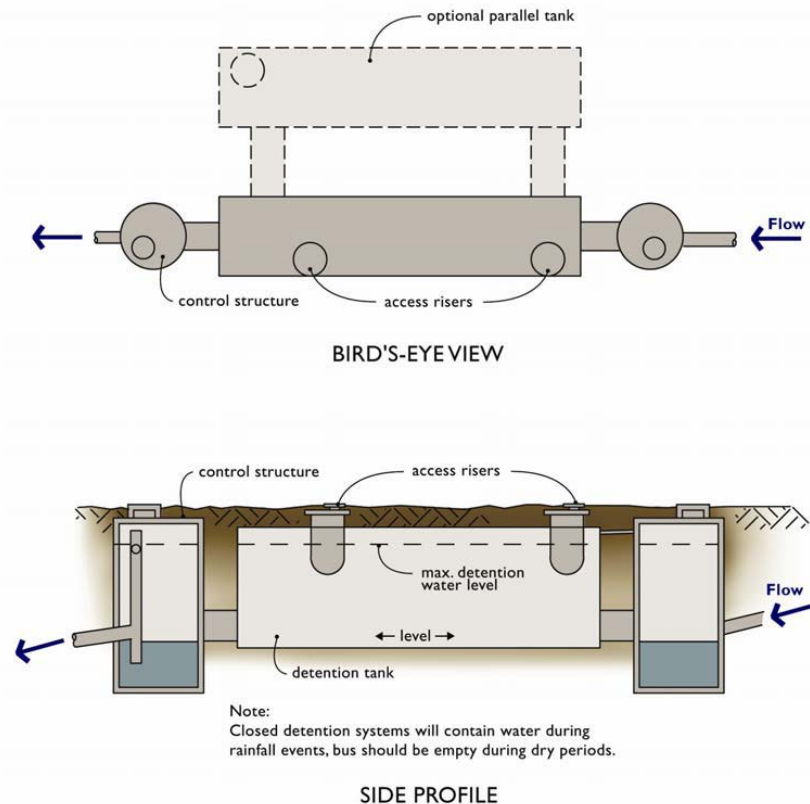
## Underground Storage Vaults or Tanks

## Underground Storage Vaults or Tanks

Underground vaults are stormwater storage facilities usually constructed of precast reinforced concrete or a structural high density polyethylene plastic system. Tanks are usually constructed of large diameter metal or plastic pipe.

Underground detention beds can be used where space is limited but subsurface infiltration is not feasible. Underground vaults provide minimal water quality treatment and should be used in combination with pretreatment. Maintenance needs to include regular sediment and debris removal.

Beginning in 2015, Forest Hills Public Schools will have underground stormwater storage vaults inspected and cleaned at the permit designated frequency by a qualified contractor. Storage vault locations will be included in the catch basin log and will be provided to the selected contractor. The log will serve as the storage vault inspection form for each identified structure. If sumps are over 50% full, the sump will be cleaned and the amount of removed material will be recorded and disposed of at the contractor's designated disposal location in accordance with Part 211 of Act 451 of 1994 (Natural Resources and Environment Protection Act).

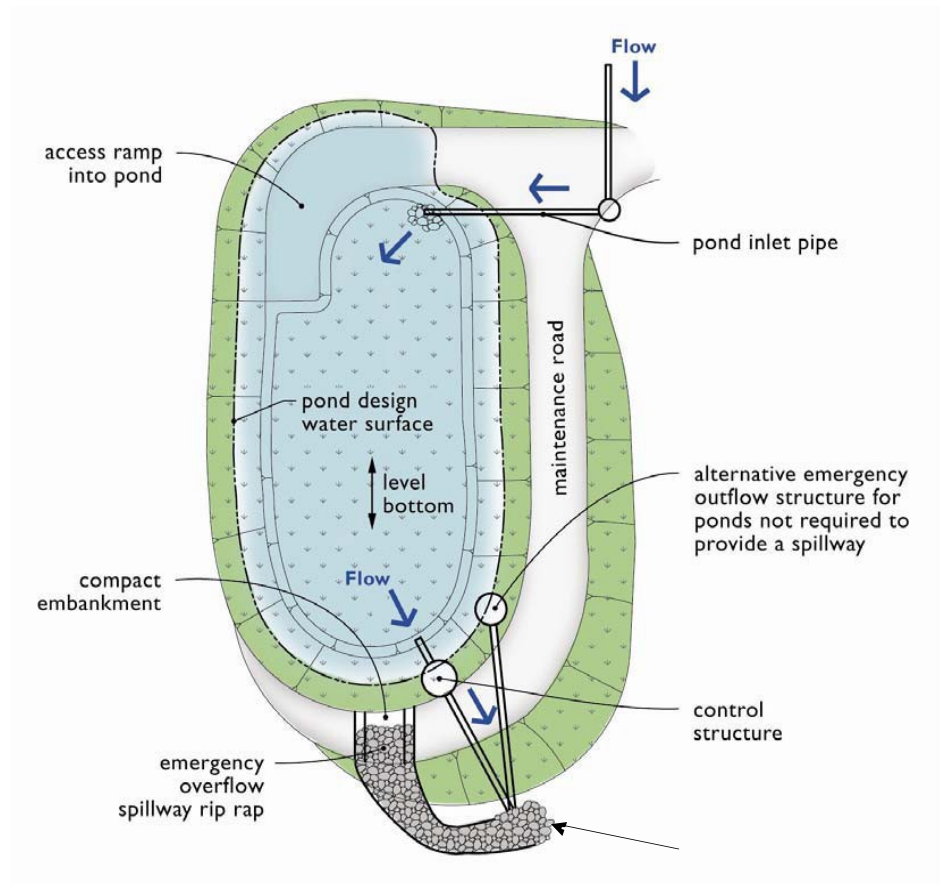


Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance And Expected Results
Vault or Tank	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants at the outlet	Contaminants or pollutants vactored out of structure or cleaned out of inlet/outlet No contaminants or pollutants present.
	Sediment	Accumulated sediment that affects inlet, outlet or capacity of the facility.	Sediment vactored out of structure or cleaned out of inlet/outlet. System holds design capacity

## Detention Ponds

A stormwater detention pond is an open basin built by excavating below existing ground or by constructing above-ground berms (embankments). The detention pond temporarily stores stormwater runoff during rain events and slowly releases it through an outlet (control structure). The primary purpose of detention ponds is to reduce stormwater runoff peaks. Detention ponds are typically designed to completely drain within 24 hours after the completion of a storm event. Styles vary greatly from well manicured to natural appearing. Generally, more natural-appearing vegetation is preferred for reduced maintenance and enhanced wildlife habitat. Some facilities are designed to appear as natural water bodies or are in park-like areas.

Forest Hills Public Schools Head Custodian or Grounds personnel will inspect detention ponds at the permit designated frequency.



<b>Detention Pond</b>			
<b>Drainage System Feature</b>	<b>Potential Defect</b>	<b>Conditions When Maintenance Is Needed</b>	<b>Maintenance And Expected Results</b>
General	Trash and Debris	Any trash and debris which exceed 5 cubic feet per 1,000 square feet (this is about equal to the amount of trash it would take to fill up one standard size garbage can in a 10 foot wide by 100 foot long area). In general, there should be no visual evidence of dumping.  If less than threshold all trash and debris will be removed as part of next scheduled maintenance.	Trash and debris cleared from site.
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants  (Coordinate with the Clean Water Plant)	No contaminants or pollutants present.
	Rodent Holes	Any evidence of rodent holes if facility is acting as a dam or berm, or any evidence of water piping through dam or berm via rodent holes.	Rodents destroyed and dam or berm repaired.
	Tree Growth and Hazard Trees	Tree growth does not allow maintenance access or interferes with maintenance activity (i.e., slope mowing, silt removal, vactoring, or equipment movements). If trees are not interfering with access or maintenance, do not remove.  If dead, diseased, or dying trees are identified that inhibit functionality, remove.	Trees do not hinder maintenance activities.
Side Slopes of Pond	Erosion	Eroded damage where cause of damage is still present or where there is potential for continued erosion.  Any erosion observed on a compacted berm embankment.	Slopes should be stabilized using appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.  If erosion is occurring on compacted berms, the City Engineer should be consulted to resolve source of erosion.
Storage Area	Sediment	Accumulated sediment exceeding maintenance specifications or affecting inletting or out-letting condition of the facility.	Sediment cleaned out to designed pond shape and depth; pond reseeded if necessary to control erosion.
	Liner (If Applicable)	Liner is visible and has more than three 1/4-inch holes in it.	Liner repaired or replaced. Liner is fully covered.

<b>Detention Pond (Continued)</b>			
<b>Drainage System Feature</b>	<b>Potential Defect</b>	<b>Conditions When Maintenance Is Needed</b>	<b>Maintenance And Expected Results</b>
Pond Berms (Dikes)	Settlements	<p>Any part of berm which has settled significantly lower than the design elevation.</p> <p>If settlement is apparent, measure berm to determine amount of settlement.</p> <p>Settling can be an indication of more severe problems with the berm or outlet works. Consult with the City Engineer to determine the source of the settlement.</p>	Dike is built back to the design elevation.
	Piping	Discernable water flow through pond berm. Ongoing erosion with potential for erosion to continue.	Piping eliminated. Erosion potential resolved.
Emergency Overflow/ Spillway and Berms Over 4 Feet in Height.	Tree Growth	<p>Tree growth on emergency spillways creates blockage problems and may cause failure of the berm due to uncontrolled overtopping.</p> <p>Tree growth on berms over 4 feet in height may lead to piping through the berm which could lead to failure of the berm.</p>	Trees should be removed. If root system is small (base less than 4 inches) the root system may be left in place. Otherwise the roots should be removed and the berm restored. The City Engineer should be consulted for proper berm/spillway restoration.
	Piping	<p>Discernable water flow through pond berm. Ongoing erosion with potential for erosion to continue.</p> <p>(Recommend the City Engineer be called to inspect and evaluate condition and recommend repair of condition.)</p>	Piping eliminated. Erosion potential resolved.
Emergency Overflow/ Spillway	Rock Missing	<p>Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil at the top of out-flow path of spillway.</p> <p>(Rip-rap on inside slopes need not be replaced.)</p>	Rocks and pad depth are restored to design standards.
	Erosion	<p>Eroded damage where cause of damage is still present or where there is potential for continued erosion.</p> <p>Any erosion observed on a compacted berm embankment.</p>	<p>Slopes should be stabilized using appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.</p> <p>If erosion is occurring on compacted berms, the City Engineer should be consulted to resolve source of erosion.</p>

# DETENTION POND INSPECTION FORM

Staff Person Conducting Inspection: \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

Pond Location: \_\_\_\_\_

- Functioning properly?      Yes     No
- Inlet blocked?            Yes     No
- Outlet blocked?          Yes     No
- Sediment accumulating?    Yes     No
- Vegetation accumulating?    Yes     No
- Erosion or slope instability?    Yes     No
- Excessive tree growth?      Yes     No
- Trash or debris?          Yes     No
- Pollution (oils, gas, etc.)?    Yes     No
- Maintenance required?      Yes     No
- Scheduled on: \_\_\_/\_\_\_/\_\_\_      or n/a
- Completed on: \_\_\_/\_\_\_/\_\_\_      or n/a

Maintenance description: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Pond Location: \_\_\_\_\_

- Functioning properly?      Yes     No
- Inlet blocked?            Yes     No
- Outlet blocked?          Yes     No
- Sediment accumulating?    Yes     No
- Vegetation accumulating?    Yes     No
- Erosion or slope instability?    Yes     No
- Excessive tree growth?      Yes     No
- Trash or debris?          Yes     No
- Pollution (oils, gas, etc.)?    Yes     No
- Maintenance required?      Yes     No
- Scheduled on: \_\_\_/\_\_\_/\_\_\_      or n/a
- Completed on: \_\_\_/\_\_\_/\_\_\_      or n/a

Maintenance description: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Pond Location: \_\_\_\_\_

- Functioning properly?      Yes     No
- Inlet blocked?            Yes     No
- Outlet blocked?          Yes     No
- Sediment accumulating?    Yes     No
- Vegetation accumulating?    Yes     No
- Erosion or slope instability?    Yes     No
- Excessive tree growth?      Yes     No
- Trash or debris?          Yes     No
- Pollution (oils, gas, etc.)?    Yes     No
- Maintenance required?      Yes     No
- Scheduled on: \_\_\_/\_\_\_/\_\_\_      or n/a
- Completed on: \_\_\_/\_\_\_/\_\_\_      or n/a

Maintenance description: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Pond Location: \_\_\_\_\_

- Functioning properly?      Yes     No
- Inlet blocked?            Yes     No
- Outlet blocked?          Yes     No
- Sediment accumulating?    Yes     No
- Vegetation accumulating?    Yes     No
- Erosion or slope instability?    Yes     No
- Excessive tree growth?      Yes     No
- Trash or debris?          Yes     No
- Pollution (oils, gas, etc.)?    Yes     No
- Maintenance required?      Yes     No
- Scheduled on: \_\_\_/\_\_\_/\_\_\_      or n/a
- Completed on: \_\_\_/\_\_\_/\_\_\_      or n/a

Maintenance description: \_\_\_\_\_

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Comments: \_\_\_\_\_

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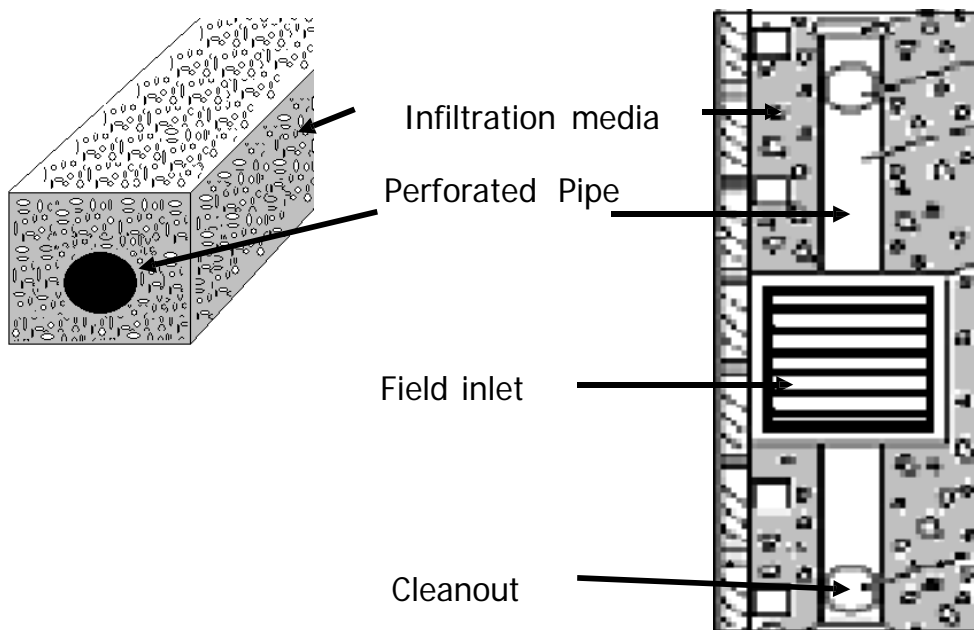
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## Infiltration Basins and Trenches

Infiltration basins are shallow surface impoundments that temporarily store, capture and infiltration runoff over a period of several days on a level and uncompacted surface. A stormwater infiltration trench is a closed basin built by excavating below existing ground. Infiltration trenches temporarily store stormwater runoff during rain events. Infiltration trenches do not discharge to a downstream conveyance system or nearby surface water. Instead, infiltration trenches rely on the ability of the site's soils to infiltrate the stormwater into the ground.

Forest Hills Public Schools Head Custodian or Grounds personnel will inspect infiltration basins at the permit designated frequency.



<b>Infiltration Basins &amp; Trenches</b>			
<b>Drainage System Feature</b>	<b>Potential Defect</b>	<b>Conditions When Maintenance Is Needed</b>	<b>Maintenance And Expected Results</b>
General	Sediment Accumulation	Sediment depth exceeds 2 inches.	Remove sediment deposits while minimizing disturbance to vegetated areas. If depositions persist review the site conditions to determine the source and if pretreatment is necessary. Area should infiltrate water according to the design standard.
	Poor Vegetation Coverage	Plantings are insufficient to stabilize the infiltration area	Determine why plant growth is poor and correct that condition. Re-plant according to the planting design and provide additional water if necessary to allow the vegetation to reestablish.
	Vegetation	When the grass becomes excessively tall (greater than 12-inches); when nuisance weeds and other vegetation starts to take over.	Mow vegetation or remove nuisance vegetation so that flow not impeded. Grass should be mowed to a height of 3 to 4 inches. Remove grass clippings.
	Underdrain	Underdrain inlet areas clogged with sediment and/or debris.	Remove material so that there is no clogging or blockage in the inlet and outlet area.
	Trash and Debris Accumulation	Trash and debris accumulated in the bio-swale.	Remove trash and debris
	Erosion/Scouring	Eroded or scoured bottom in linear devices due to flow channelization, or higher flows.	Slopes should be restored stabilized using appropriate erosion control measures. Channelized erosion or scouring may require the installation of turf reinforcement mat if conditions warrant.
	Stone washouts	Areas covered with stone or other hard-scaping have exposed soils or substrate showing through	Replace missing material to design condition so that no underlying substrate is exposed.

# INFILTRATION TRENCH OR BASIN INSPECTION FORM

Staff Person Conducting Inspection: \_\_\_\_\_ Date: \_\_/\_\_/\_\_

Location: \_\_\_\_\_

Type:	Basin <input type="checkbox"/>	Trench <input type="checkbox"/>
Functioning properly?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Inlet blocked?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Sediment accumulating?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Vegetation accumulating?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Erosion or slope instability?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Excessive tree growth?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Trash or debris?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Pollution (oils, gas, etc.)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Underdrain blocked?	Yes <input type="checkbox"/>	No <input type="checkbox"/> n/a <input type="checkbox"/>
Maintenance required?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Scheduled on: __/__/__	or n/a <input type="checkbox"/>	
Completed on: __/__/__	or n/a <input type="checkbox"/>	

Maintenance description: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Location: \_\_\_\_\_

Type:	Basin <input type="checkbox"/>	Trench <input type="checkbox"/>
Functioning properly?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Inlet blocked?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Sediment accumulating?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Vegetation accumulating?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Erosion or slope instability?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Excessive tree growth?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Trash or debris?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Pollution (oils, gas, etc.)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Underdrain blocked?	Yes <input type="checkbox"/>	No <input type="checkbox"/> n/a <input type="checkbox"/>
Maintenance required?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Scheduled on: __/__/__	or n/a <input type="checkbox"/>	
Completed on: __/__/__	or n/a <input type="checkbox"/>	

Maintenance description: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Location: \_\_\_\_\_

Type:	Basin <input type="checkbox"/>	Trench <input type="checkbox"/>
Functioning properly?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Inlet blocked?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Sediment accumulating?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Vegetation accumulating?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Erosion or slope instability?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Excessive tree growth?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Trash or debris?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Pollution (oils, gas, etc.)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Underdrain blocked?	Yes <input type="checkbox"/>	No <input type="checkbox"/> n/a <input type="checkbox"/>
Maintenance required?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Scheduled on: __/__/__	or n/a <input type="checkbox"/>	
Completed on: __/__/__	or n/a <input type="checkbox"/>	

Maintenance description: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Location: \_\_\_\_\_

Type:	Basin <input type="checkbox"/>	Trench <input type="checkbox"/>
Functioning properly?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Inlet blocked?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Sediment accumulating?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Vegetation accumulating?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Erosion or slope instability?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Excessive tree growth?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Trash or debris?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Pollution (oils, gas, etc.)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Underdrain blocked?	Yes <input type="checkbox"/>	No <input type="checkbox"/> n/a <input type="checkbox"/>
Maintenance required?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Scheduled on: __/__/__	or n/a <input type="checkbox"/>	
Completed on: __/__/__	or n/a <input type="checkbox"/>	

Maintenance description: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

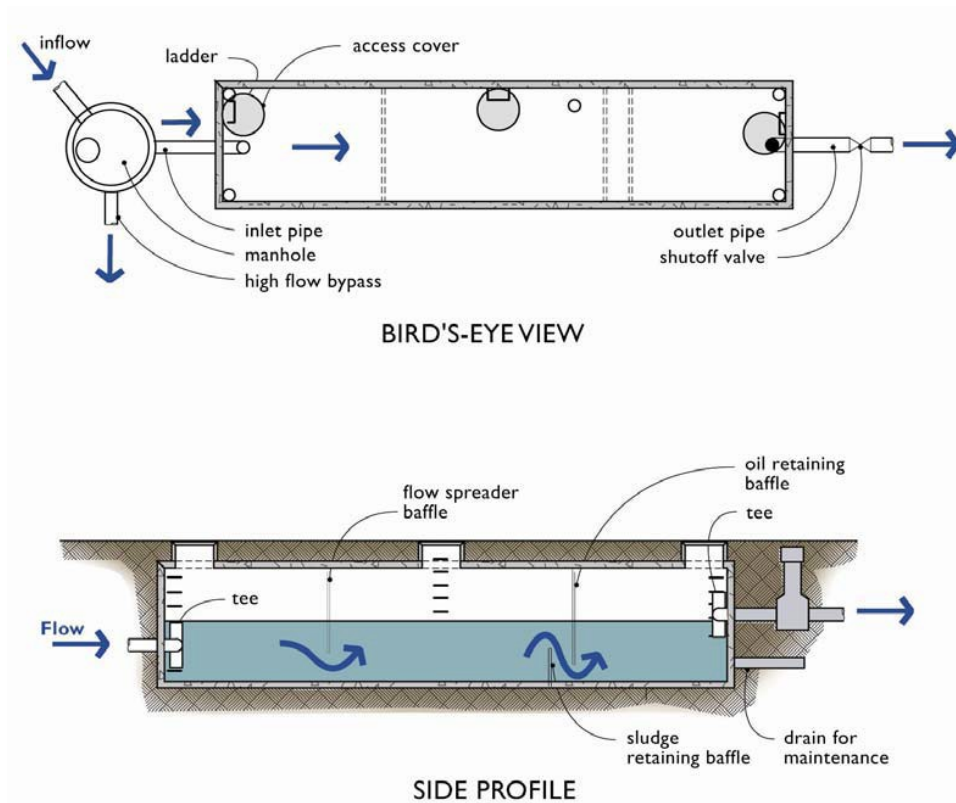
Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Oil/Water or Grit Separator

An oil/water separator is an underground vault that treats stormwater by mechanically separating oil from water. The oil rises to the surface and floats on the water and sediment settles to the bottom. Oil/water separators are typically utilized in locations where high oil concentrations in the stormwater runoff are anticipated (e.g. service and fuel stations). Oil/water separators are most commonly used as the first pre-treatment facility in a series of stormwater management facilities.

Grit separators are similarly designed. By slowing the water flow down as it passes through the device, solids (grit) settle out by gravity to the bottom of separator. Grit separators are used in locations where there are high sand or solids concentrations, such as vehicle wash areas or vactor/street sweeping washout areas.

Beginning in 2015, Forest Hills Public Schools will have oil/water and grit separators inspected and cleaned at the permit designated frequency by a the contractor that conducts septic system inspections and maintenance. Inspection form(s) will be provided for each structure inspected.



<b>Oil/Water or Grit Separator</b>			
<b>Drainage System Feature</b>	<b>Potential Defect</b>	<b>Conditions When Maintenance Is Needed</b>	<b>Maintenance and Expected Results</b>
General	Monitoring	Inspection of discharge water for obvious signs of poor water quality (i.e. obvious oil or other contaminants present)	Effluent discharge from vault should be clear without thick visible sheen.
	Floatable Material and Sediment Accumulation	Accumulated floatable material and bottom sediment exceeds 25% of the total capacity.	No sediment deposits on vault bottom that would impede flow through the vault and reduce separation efficiency.
	Trash and Debris Accumulation	Trash and debris accumulation in vault, or pipe inlet/outlet, floatables and non-floatables.	Trash and debris removed from vault, and inlet/outlet piping.
	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.	Pipe repaired or replaced.
	Access Cover Damaged/Not Working	Cover cannot be opened, corrosion/deformation of cover.	Cover repaired to proper working specifications or replaced.
	Vault Structure Damage - Includes Cracks in Walls Bottom, Damage to Frame and/or Top Slab	Top slab has holes larger than 2 square inches or cracks wider than 1/4 inch. (Intent is to make sure no material is running into basin).	Top slab is free of holes and cracks.
		Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached.	Frame is sitting flush on the riser rings or top slab and firmly attached.
		Maintenance person judges that structure is unsound.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound.
	Baffles	Baffles corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.
Inlet and/or Outlet Tee	Tee is missing or turned sideways, such that the entering or exiting water is not dispersed.	Tee is securely in place and functioning properly.	

# OIL/WATER OR GRIT SEPARATOR INSPECTION FORM

Staff Person Conducting Inspection: \_\_\_\_\_ Date: \_\_/\_\_/\_\_\_\_

Location: \_\_\_\_\_

- Functioning properly? Yes  No
- Chamber contents >25%? Yes  No
- Visible trash or debris? Yes  No
- Damaged pipes? Yes  No
- Damaged access covers? Yes  No
- Internal structural damage? Yes  No
- Inlet or Outlet Tee? Yes  No
- Maintenance required? Yes  No
- Scheduled on: \_\_/\_\_/\_\_\_\_ or n/a
- Completed on: \_\_/\_\_/\_\_\_\_ or n/a

Maintenance description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Location: \_\_\_\_\_

- Functioning properly? Yes  No
- Chamber contents >25%? Yes  No
- Visible trash or debris? Yes  No
- Damaged pipes? Yes  No
- Damaged access covers? Yes  No
- Internal structural damage? Yes  No
- Inlet or Outlet Tee? Yes  No
- Maintenance required? Yes  No
- Scheduled on: \_\_/\_\_/\_\_\_\_ or n/a
- Completed on: \_\_/\_\_/\_\_\_\_ or n/a

Maintenance description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Location: \_\_\_\_\_

- Functioning properly? Yes  No
- Chamber contents >25%? Yes  No
- Visible trash or debris? Yes  No
- Damaged pipes? Yes  No
- Damaged access covers? Yes  No
- Internal structural damage? Yes  No
- Inlet or Outlet Tee? Yes  No
- Maintenance required? Yes  No
- Scheduled on: \_\_/\_\_/\_\_\_\_ or n/a
- Completed on: \_\_/\_\_/\_\_\_\_ or n/a

Maintenance description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Location: \_\_\_\_\_

- Functioning properly? Yes  No
- Chamber contents >25%? Yes  No
- Visible trash or debris? Yes  No
- Damaged pipes? Yes  No
- Damaged access covers? Yes  No
- Internal structural damage? Yes  No
- Inlet or Outlet Tee? Yes  No
- Maintenance required? Yes  No
- Scheduled on: \_\_/\_\_/\_\_\_\_ or n/a
- Completed on: \_\_/\_\_/\_\_\_\_ or n/a

Maintenance description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Operational BMPs

Municipal operations and maintenance activities have the potential to negatively impact stormwater quality. Operational BMPs refer to the common practices and procedures listed in the table below, that can prevent the discharge of polluting materials to the MS4 or surface waters. The following operational BMPs have been developed and are being implemented to ensure compliance with operation and maintenance requirements and to effectively minimizing pollutant runoff to the maximum extent practicable from municipal operations.

### Municipal Operations & Maintenance

Operational BMPs	Potential Pollutants									
	Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Oxygen Demanding Substances	Salt
Parking Lot & Sidewalk Maintenance	x	x	x	x	x	x	x		x	x
Cold Weather operations	x									x
Fleet Maintenance	x			x		x	x			
Building & Grounds	x	x	x		x		x	x	x	
Solid Waste Handling and Disposal	x	x	x	x	x	x	x	x	x	
Materials Storage	x	x	x	x		x	x	x	x	x
Spill Response and Prevention	x	x	x	x	x	x	x	x	x	x



## Sidewalk & Parking Maintenance

### General

Sidewalks and parking lots are potential sources of pollutants to stormwater and waters of the state. Operation and maintenance (O&M) practices, if not conducted properly, can contribute to the problem. Stormwater pollution from sidewalk and parking lot maintenance should be addressed on a site-specific basis.

### Procedures

#### *Parking Lots*

##### *Maintenance*

- Use dry cleaning methods (e.g. sweeping or vacuuming) to prevent the discharge of pollutants into the stormwater conveyance system.
- When cleaning heavy oily deposits:
  - Use absorbent materials on oily spots prior to sweeping or washing.
  - Dispose of used absorbents appropriately.

##### *Repair Work*

- Pre-heat, transfer or load hot bituminous material away from storm drain inlets.
- Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff.
- Cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc., where applicable. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal.
- Use only as much water as necessary for dust control, to avoid runoff.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

## Cold Weather Operations

### General

Cold weather operations include plowing, sanding, deicing, and snow pile storage and disposal. These operations have the potential to discharge sediment and salt to the MS4 and waters of the state. The application and storage of deicing materials, most commonly sodium chloride, can lead to water quality problems for surrounding areas. Salts are applied to streets to reduce the amount of ice during winter storm events. Salts lower the melting point of ice, allowing roadways to stay free of ice buildup during cold winters making travel safer. Salt storage requirements of the State of Michigan Part 5 Rules (Rules 324.2001 through 324.2009) of Act 451 of 1994, as amended, must be followed. Implementing the following management practices can help minimize the discharge of pollutants.

### Procedures

- Sand, salt and other deicers applied for improved traction on roads and parking lots shall be prevented from enter municipal storm sewers and receive waters to the maximum extent practicable.
- Use the minimum amount of salt needed to get the job done.
- Consider pre-wetting of salt or use brine solution as a way to reduce and better control salt applications.
- Salt should be stored under cover to prevent loss due to runoff.
- Salt application rates and frequency should be based on traffic volume, road grade and curvature, intersections, and weather conditions.
- Good housekeeping procedures shall be practice at salt and sand storage facilities to prevent the discharge of salt and stand from these areas
- During loading or unloading, good housekeeping practices shall be observed to limit the amount of residual salt and sand left in an open environment. Care shall be taken to scrape, sweep, or remove salt and sand and place in the covered storage areas.
- Discharge wash water from trucks used for salting into sanitary sewers.
- Cleanup loading area after winter storm events that require salt application.
- Snow piles storage will occur in vegetated areas wherever feasible to allow snow melt to infiltrate and vegetation to filter suspended solids, salt and other pollutants.
- In areas where snow cannot be stored in a vegetated areas adjacent catch basins will be protected from the discharge of pollutants during melting events.
- Snow will not be disposed of via the MS4 or surface waters.

## Fleet Maintenance

### Inspection

A comprehensive inspection of fleet maintenance facilities with an identified high potential for pollutant discharge should occur once every six months and include inspection of fueling areas, storage tanks, catch basin inserts, containment areas, and drip pans.

### Vehicle and Equipment Fueling

Spills and leaks that occur during vehicle and equipment fueling can contribute hydrocarbons, oil and grease, as well as heavy metals to stormwater runoff. Implementing the following management practices can help prevent fuel spills and leaks. The potential for pollutant discharge can be reduced through source control, pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

### Procedures

#### *General*

- "Spot clean" leaks and drips routinely. Leaks are not cleaned up until the absorbent is picked up and disposed of properly.
- Post signs to remind employees not to top off the fuel tank when filling.
- Report leaking vehicles to supervisor.
- Install inlet catch basin equipped with a small sedimentation basin or grit chamber to remove large particles from stormwater in highly impervious areas. Proper maintenance of these devices is necessary.
- Ensure the following safeguards are in place:
  - Overflow protection devices on tank systems to warn the operator to automatically shutdown transfer pumps when the tank reaches full capacity.
  - Protective guards around tanks and piping to prevent vehicle or forklift damage.
  - Clearly tagging or labeling all valves to reduce human error.
  - Automatic shut off for severed fuel hoses.

#### *Fuel Dispensing Areas*

- Maintain clean fuel-dispensing areas using dry cleanup methods such as sweeping for removal of litter and debris, or use of rags and absorbents for leaks and spills. Do not wash down areas with water.

- Comply with Part 121, Underground Storage Tank Regulations, of Act 451 of 1994, as amended, and the [Michigan Underground Storage Tank Rules \(MUSTR\)](#)
- Fit fuel dispensing nozzles with "hold-open latches" (automatic shutoffs) except where prohibited by local fire departments.
- Post signs at the fuel dispenser or fuel island warning vehicle owners/operators against "topping off" of vehicle fuel tanks.
- Design fueling area to prevent stormwater runoff and spills.
- Cover fueling area with an overhanging roof structure or canopy so that precipitation cannot come in contact with the fueling area and if possible use a perimeter drain or slope pavement inward with drainage to a blind sump (must be properly maintained and water properly disposed of); pave area with concrete rather than asphalt.
- Apply a suitable sealant that protects the asphalt from spilled fuels in areas where covering is infeasible and the fuel island is surrounded by pavement.
- Use secondary drip containment when transferring fuel from the tank truck to the fuel tank.

## Vehicle and Equipment Cleaning

Wash water from vehicle and equipment cleaning activities performed outdoors or in areas where wash water flows onto the ground can contribute toxic hydrocarbons and other organic compounds, oils and greases, nutrients, phosphates, heavy metals, and suspended solids to stormwater runoff. Use of the procedures outlined below can prevent or reduce the discharge of pollutants to stormwater during vehicle and equipment cleaning. Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives. In general, use properly maintained off-site commercial washing and steam cleaning businesses whenever possible. These businesses are better equipped to handle and properly dispose of the wash waters.

### Procedures

#### *General*

- Use off-site, professional vehicle wash services if no onsite area directs wash water to the sanitary sewer
- Use biodegradable, phosphate-free detergents for washing vehicles as appropriate.
- Mark the area clearly as a wash area.
- Provide a trash container in wash area.

#### *Vehicle and Equipment Cleaning*

- Consider washing vehicles and equipment inside the building if washing/cleaning must occur on-site. This will help to control the targeted constituents by directing them to the sanitary sewer.
- If washing must occur on-site and outdoor, use grassy or impervious areas
- Perform pressure cleaning and steam cleaning off-site to avoid generating runoff with high pollutant concentrations. If done on-site, no pressure cleaning and steam cleaning should be done in areas designated as wellhead protection areas for public water supply.

### *Disposal*

- Discharge equipment wash water to the sanitary sewer, a holding tank, or a process treatment system, regardless of the washing method used.
- Discharge vehicle wash water to (1) the sanitary sewer, a holding tank, or process treatment system or (2) an enclosed recycling system.
- Discharge wash water to sanitary sewer only after contacting the Clean Water Plant to find out if pretreatment is required.

## **Vehicle and Equipment Repair**

Vehicle or equipment maintenance and repair is potentially a significant source of stormwater pollution, due to the use of materials and wastes created that are harmful to humans and the environment. Engine repair and service (e.g. parts cleaning), replacement of fluids (e.g. oil change), and outdoor equipment storage and parking (dripping engines) can impact water quality if stormwater runoff from areas with these activities occurring on them becomes polluted by a variety of contaminants. Implementation of the following activities will prevent or reduce the discharge of pollutants to stormwater from vehicle and equipment maintenance and repair activities.

### **Procedures**

#### *General*

- Move maintenance and repair activities indoors whenever feasible.
- Otherwise, cover the work area so as to limit exposure to the rain.
- Wherever possible, store idle equipment containing fluids under cover.
- Use a vehicle maintenance area designed to prevent stormwater pollution – either indoors or minimize contact of stormwater with outside operations through berming and appropriate drainage routing.
- Avoid hosing down your work areas. If work areas are washed, collect and direct wash water to sanitary sewer.

- Mark storm drain inlets to indicate that they are not to receive liquid or solid wastes.
- Clean yard storm drain inlets(s) regularly.
- Do not pour materials down drains or hose down work areas; use dry sweeping.

### *Material and Waste Handling*

- Store materials and wastes under cover whenever possible.
- Designate a special area to drain and replace motor oil, coolant, and other fluids. This area should not have any connections to the storm drain or the sanitary sewer and should allow for easy clean up of drips and spills.
- Drain all fluids from wrecked vehicles immediately. Ensure that the drain pan or drip pan is large enough to contain drained fluids (e.g. larger pans are needed to contain antifreeze, which may gush from some vehicles).
- Do not pour liquid waste to floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections.
- Dispose of all waste materials according to applicable laws and regulations.
- Collect leaking or dripping fluids in drip pans or containers. Fluids are easier to recycle if kept separate.
- Promptly transfer used fluids to the proper waste or recycling drums and store in an appropriately designed area that can contain spills. Don't leave drip pans or other open containers lying around.
- Do not dispose of oil filters in trash cans or dumpsters, which may leak oil and contaminate stormwater. Place the oil filter in a funnel over a waste oil recycling drum to drain excess oil before disposal. Most municipalities prohibit or discourage disposal of these items in solid waste facilities. Oil filters can also be recycled. Ask your oil supplier or recycler about recycling oil filters.
- Store cracked and/or dead batteries in a non-leaking covered secondary container and dispose of properly at recycling or household hazardous waste facilities.

### *Maintenance and Repair Activities*

- Provide a designated area for vehicle maintenance.
- Keep equipment clean; don't allow excessive build-up of oil and grease.
- If temporary work is being conducted outside: Use a tarp, ground cloth, or drip pans beneath the vehicle or equipment to capture all spills and drips., The collected drips and spills must be disposed, reused, or recycled properly.
- If possible, perform all vehicle fluid removal or changing inside or under cover to prevent the run-on of stormwater and the runoff of spills:
  - Keep a drip pan under the vehicle while you unclip hoses, unscrew filters, or remove other parts. Use a drip pan under any vehicle that might leak while you work on it to keep splatters or drips off the shop floor.

- Promptly transfer used fluids to the proper waste or recycling drums. Don't leave drip pans or other open containers lying around.
- Keep drip pans or containers under vehicles or equipment that might drip during repairs.
- Do not change motor oil or perform equipment maintenance in non-appropriate areas.
- If equipment (e.g., radiators, axles) is to be stored outdoors, oil and other fluids should be drained first. This is also applicable to vehicles being stored and not used on a regular basis.
- Monitor parked vehicles closely for leaks and place pans under any leaks to collect the fluids for proper disposal or recycling.

### *Parts Cleaning*

- Clean vehicle parts without using liquid cleaners wherever possible to reduce waste.
- Do all liquid cleaning at a centralized station so the solvents and residues stay in one area.
- Discharge wastewater generated from steam cleaning and pressure washing to an appropriate treatment control that is connected to a blind sump. Non-caustic detergents should be used instead of caustic cleaning agents, detergent-based or water-based cleaning systems in place of organic solvent degreasers, and non-chlorinated solvent in place of chlorinated organic solvents for parts cleaning.
- Locate drip pans, drain boards, and drying racks to direct drips back into a solvent sink or fluid holding tank for reuse.

## Solid Waste Handling and Disposal

### General

Proper waste handling ensures that waste generated onsite or during maintenance activities does not come into contact with stormwater runoff or surface waters. Waste reduction is also a major component of waste management and should be encouraged through training and periodic procedure review. Management of waste once it is collected may involve reuse, recycling, or proper disposal.

### Procedures

#### *Solid Waste Collection*

For solid waste generated at owned or operated facilities, the following procedures should be followed:

- All trash dumpsters must have lids or be placed under a covered area.
- Regularly inspect solid waste containers for structural damage. Repair or replace damaged containers as necessary.
- Secure solid waste containers; containers must be closed tightly when not in use.
- Do not fill waste containers with washout water or any other liquid.
- Ensure that only appropriate solid wastes are added to the solid waste container. Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc. may not be disposed of in solid waste containers (see chemical/ hazardous waste collection section below).
- Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.
- Recycle whenever possible

#### *Dewatering, Storage and Disposal of Catch Basin and Street Sweeping Waste*

- If materials collected during catch basin cleaning and street sweeping will be dewatered prior to disposal, dewatering is to occur where no discharge to the MS4 or surface waters will occur.
- Materials stored onsite awaiting disposal should be covered or otherwise protected from precipitation and prevented from discharging liquids or solids into the MS4 or surface waters.
- Disposal locations are identified in their respective BMP tables



## Materials Storage

### General

Outdoor raw materials and material storage areas which are exposed to rain and/or runoff can pollute stormwater. Materials include any items used in municipal operations that could have the potential to pollute stormwater or surface waters if discharged including, but not limited to chemicals, oils solvents, pesticides or waste. Raw materials typically include sand, topsoil, asphalt, or other construction materials.

Improper storage of these materials can result in accidental spills discharge to the MS4 or surface waters. Use the procedures below to prevent and minimize the discharge of pollutants to the stormwater drainage system from material storage areas.

### Procedures

- Inventories should be kept of stored materials.
- Minimize inventory of materials.
- Try to keep chemicals in their original containers, and keep them well labeled.
- Avoid storing chemicals, drums, or bagged materials directly on the ground.
- Store materials indoors or under covered areas whenever possible.
- Keep outdoor storage areas in good condition.
- Prevent stormwater transport of eroded stockpile material.
- Keep outdoor storage areas and containers in good condition.
- Minimize the pooling of water on the site.
- Tanks should be surrounded by secondary containment if required
- Conduct periodic inspections of storage areas, material containers, and storage tanks.
- Comply with the Standard Operating Procedure identified in the stormwater management plan for any facility with a high potential for pollutant discharge.
- Have an employee trained in spill containment and cleanup present during loading/unloading of dangerous waste and hazardous materials.

## Spill Response and Prevention

### General

Spill response and prevention is an important part of operational BMPs. All staff and contractors should be trained to prevent and respond to spills as instructed in the Pollution Incident Prevention Plan (PIPP) if one is required. Depending on the nature of the material spilled, spills have the potential to discharge sediment, nutrients, trash, metals, bacteria, oil/grease, organics, pesticides, oxygen demanding substances, and salt in to the MS4 or waters of the state. In addition the following procedures are recommended for all sites with or without a PIPP:

### Procedures

- Do not store potentially polluting materials near storm drains or surface waters.
- When working on municipal operations near storm drains or surface waters protect these areas from the discharge of potentially polluting materials.
- Have adequate stockpiles of spill cleanup materials and/or a spill kit readily available and in a known location.
- Store portable absorbent booms or soak up in, or near un-bermed fueling areas.
- Cleanup leaks, drips and spills immediately. Use dry methods if possible, such as the application of adsorbent materials and sweeping.
- Never hose down a spill.
- Properly dispose of spill cleanup material including prompt removal of adsorbent materials.
- Report spills promptly.

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# Catch Basin Cleaning Activities Guidance Document

## Catch Basin Cleaning

### Catch Basin Cleaning Activities

Catch basins are included in storm sewer system designs in order to remove solids such as gravel, sand, oils, and organic material carried by storm water. Catch basins also contain elevated concentrations of metals (attached to the solids) from street runoff or drainage from industrial, commercial and residential properties. In order to maintain the storm sewer systems effectiveness, catch basins must be periodically cleaned out. The Department of Environmental Quality (DEQ) Water Bureau (WB) and Waste and Hazardous Materials Division (WHMD) oversee environmental regulations pertaining to this activity. The Michigan Occupational Safety and Health Administration ([MIOSHA](#)) within the Department of Labor and Economic Growth oversee confined space entry and other worker health and safety standards.

In the past, the waste generated from the catch basin cleaning activities was typically discharged back into the storm sewer system. This type of discharge is unauthorized per [Part 31, Water Resources Protection \(Part 31\) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended \(NREPA\)](#) and is therefore illegal. The combined solid and liquid waste stream (solid/liquid waste) from cleaning storm sewers systems is legally defined as “liquid industrial waste” pursuant to [Part 121, Liquid Industrial Wastes \(Part 121\) of NREPA](#).

The following are options recommended to properly deal with the waste stream generated from catch basin cleaning activities:

1. Have the waste transported to drying beds to separate the solid/liquid waste. This is usually performed at a publicly owned treatment plant or at a privately owned permitted facility where the liquid portion of the waste stream is separated from the solids and treated.
2. Request permission from the local wastewater treatment plant operator to discharge the combined solid/liquid waste into the sanitary system. Most treatment plants will require pre-treatment prior to the discharge. All applicable local ordinance provisions must be followed.
3. When conducting catch basin maintenance activities where the above options are not available, the following method can be used as long as there are no discharges to surface waters during dry weather conditions.



- Conduct visual inspection to ensure the water in the sump has not been contaminated. If necessary, collect a grab sample of the water and look for signs of contamination such as visible sheen, discoloration, obvious odor, etc. See the EPA [Visual Inspection](#) guidance for more tips. If there is any doubt of the quality of the water, it should be collected into the Vactor truck and treated as waste under Part 121 or [Part 115 Solid Waste Management \(Part 115\) of NREPA](#).
- Using a sump pump, or any other pumping mechanism, remove the majority of water in the sump of the basin without disturbing the solid material below. Do not use pumps connected to the Vactor truck's holding tank.
- The clear water may then be directly discharged to one of the following:
  - Sanitary system (with prior approval from local sewer authority)
  - Curb and gutter
  - Back into the storm sewer system as long as it is contained within the system during dry weather condition to ensure no discharge into surface water
  - Applied to the ground adjacent to the catch basin (evenly distributed at a maximum rate of 250 gallons/acre/year)
- The remaining liquid/solid in the sump should be collected with a Vactor truck and disposed of off-site in accordance with Parts 115 or 121.

The entity whose catch basin is being cleaned is responsible for meeting the generator requirements under Part 121. See the [Liquid Industrial Waste Generator](#) guidance for more information.

The entity transporting the solid/liquid waste must meet the applicable transporter requirements. A local, state, or federal government may use its own vehicle to service catch basins or other parts of the sewer system without being a permitted and registered transporter under the provisions of the [Hazardous Materials Transportation Act, 1998 PA 138, as amended \(HMTA\)](#).

If the local government contracts with a private company to transport the liquids generated from cleaning the catch basins or other parts of the sewer system, that entity must be registered and permitted as a uniform liquid industrial waste transporter under the provisions of HMTA.

The transporter must notify the WHMD about their activity and obtain a site identification number. Follow the instructions and links to the form EQP5150 and online paying option posted at [www.deq.state.mi.us/wdsp](http://www.deq.state.mi.us/wdsp). There is a fee.

A [uniform hazardous waste manifest](#) must accompany the load, or a consolidated manifest may be used per [Operational Memo 121-3](#), when the liquid waste is transported over public roadways by the local government or by a contract transporter. Keep the records at least three years from shipment. The waste transporting portion of the vehicle and/or containers used to

transport the waste must be kept closed except when adding or removing the waste, and the exteriors must be kept free of the liquid waste and residue.

The facility accepting the solid/liquid waste must meet operating requirements:

- They must notify the WHMD that they are operating a liquid industrial waste designated facility, obtain a site identification number, and meet operating requirements under Part 121. This includes practices to prevent unauthorized discharge of the waste, sign manifests, and keep required records. If waste containers are used, they must be kept closed and protected from the weather, fire, physical damage and vandals.
- The discharge of the liquids into the treatment plant that is permitted by the WB must meet the wastewater treatment plant requirements. Any other discharge of the liquids would require a separate DEQ discharge permit.
- The resulting solid waste must be managed under Part 115 requirements. Dispose of the solid waste in a licensed landfill. Contact the landfill authority for their specific disposal requirements, including any tests they require to document the solids are not hazardous or liquid waste. Do not use the solids as fill on local government or private property, or for any other use, unless it meets the conditions of being an inert material according to the solid waste rules [R299.4114 through R299.4118](#). See the [Waste Characterization Guidance](#) for information how to determine if the waste is hazardous or not.

Street sweeping activities are also subject to the above solid waste requirements. Street sweeping involves the use of specialized equipment to remove litter, loose gravel, soil, pet waste, vehicle debris and pollutants, dust, de-icing chemicals, and industrial debris from road surfaces. See the BMPs for [Street Sweeping](#) and [Parking Lot and Street Cleaning](#).

<b>Follow-up Answers Can be Found as Follows:</b>	
<b>Topic</b>	<b>Contact:</b>
Using the solids as fill or other use under Part 115	Duane Roskoskey at 517-335-4712
Part 121 transportation requirements and HMTA	<a href="#">WHMD District Office</a>
Managing waste under Part 31, or general questions regarding this guidance	Mark Fife at 517-241-8993
Confined space entry requirements	MIOSHA Consultation, Education and Training Division at 517-322-1809