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**OPERATION, MAINTENANCE,  
INSPECTION, AND REPAIR  
PROGRAM FOR ALL MUNICIPALLY  
OWNED STORMWATER FACILITIES**

**FOR**

**UPPER MERION TOWNSHIP  
MONTGOMERY COUNTY,  
PENNSYLVANIA**

**FEBRUARY 2008**

# **OPERATION, MAINTENANCE, INSPECTION, AND REPAIR PROGRAM FOR ALL MUNICIPALLY OWNED STORMWATER FACILITIES**

**FOR**

## **UPPER MERION TOWNSHIP MONTGOMERY COUNTY, PENNSYLVANIA**

### **Introduction and Purpose**

Polluted stormwater runoff has been identified by the US Environmental Protection Agency (EPA) as one of the main causes of the nation's water quality problems. To help alleviate this situation, the EPA requires communities with municipal separate storm sewer systems (MS4s) to obtain a general permit under the National Pollutant Discharge Elimination System (NPDES) program authorizing their stormwater discharges.

Under the NPDES permit for its MS4, Upper Merion Township is required to establish a regular inspection and maintenance program for all of its municipally owned stormwater management facilities. All components of the stormwater collection system owned by the Township are included in this program. The components of the municipally owned stormwater system include municipal roads, parking lots, or other paved areas; storm drain inlets, storm sewer piping and outfalls, swales, ditches or other stormwater conveyances, detention/retention basins and other stormwater management structures.

The goal of this Operations, Maintenance, Inspection and Repair Manual (O&M manual) is to ensure that all of Upper Merion Township's storm water management facilities are functioning properly and to prevent or reduce pollutant runoff to the maximum extent practical. If work on any part of the Township's stormwater system is conducted by outside contractors, they will be also required to follow the procedures outlined in this manual.

## **Pollution Prevention/Good Housekeeping Procedures for Municipal Operations**

Pollution prevention and good housekeeping are the simplest and least costly methods to implement to help protect stormwater quality from municipal facilities. These are integral components to an effective stormwater management policy because it is easier to prevent pollution from entering waterways than to clean it up later.

### **Good Housekeeping**

Good housekeeping practices are designed to maintain a clean and orderly work environment. Often the most effective first step towards preventing pollution in the stormwater collection system simply involves using good common sense to improve basic housekeeping methods. A clean and orderly work area reduces the possibility of accidental spills caused by mishandling of chemicals or equipment and should reduce safety hazards to Township personnel.

- Maintain clean, dry floors and ground surfaces by using brooms, shovels, vacuum cleaners or cleaning machines. Sweeping shall be conducted as needed to remove dirt and other debris, as well as immediately following loading/unloading activities, when practical.
- Regularly pickup garbage and waste materials and place all trash, dirt, and other debris in the dumpster. The Township's recycling program shall be utilized to collect and properly dispose of paper, plastic, cans, and bottles.

### **Material Storage Practices**

Improper storage can result in the release of materials or chemicals that can cause stormwater runoff pollution. Keep storage areas clean and well organized and provide adequate aisle space to facilitate material transfer and easy access for inspections.

- All containers, drums, and bags shall be stored away from direct traffic routes to prevent accidental spills.
- When practical, chemicals, fluids, and supplies should be kept indoors.

- If containers containing chemicals are stored outside, they must be covered when not being used and placed on spill platforms.
- All containers shall be properly labeled or marked and kept in good condition and tightly closed when not in use.
- Perform regular inspections of all indoor and outdoor storage locations.

## **Materials Handling Practices**

Absorbent material, spill kits and drip pans must be kept near any potential spill hazard and protected from rainfall. If spills or accidents occur, contain with dikes, berms, or appropriate absorbent materials and dispose of properly after use. Spills of hazardous materials require special care and should only be attempted by trained Township or contracted personnel. Collect all waste fluids in properly labeled containers and dispose of properly.

## **Stormwater Facility Operation, Inspection and Maintenance**

### **Stormwater Facility Operation**

All municipally owned stormwater facilities will be operated according to their design specifications and in a manner that prevents or reduces adverse environmental or public health and safety impacts.

### **Stormwater Facility Inspection**

Inspections are to be conducted by Upper Merion Township Public Works personnel (or other Township representatives) to evaluate the performance of the stormwater facilities and to determine the potential amounts of pollutants, trash and debris entering and discharging from the stormwater collection system. These inspections should occur as part of regular job duties.

- Inspections will check for excessive silt build-up, erosion, collapsed pipes, misaligned joints and water quality concerns such as unusual algae growth, discolored water, water with a sheen, and suspect odors.

- Inspections will occur after severe weather conditions, such as heavy rains, to ensure they are working properly and are clear of debris. Inspection frequencies will depend on a variety of factors including weather conditions and type and function of the stormwater structures.
- All inspection activities, results and recommendations are to be documented in writing and kept on file with the Township. Typical records to be retained for future reference include a log of all inspections, repairs and maintenance performed at the site, copies of inspection reports, invoices for work performed, and photographs of facilities.

## **Roadways**

Upper Merion Township owns and maintains approximately 84 miles of township roadways. There are approximately 35 miles of state owned roads that run within the Township. There are approximately 24 miles of privately owned roads that run within the Township.

The overall condition and cleanliness of township roads and parking lots shall constantly be inspected and evaluated during routine travels by public works personnel. Those areas with excessive staining, trash or sediment will be investigated and scheduled for cleaning or repairs as necessary. Appropriate corrective actions shall be considered for any areas exhibiting flooding or poor drainage patterns.

## **Storm Drain Inlets**

Upper Merion Township owns and maintains approximately 3,000 storm drain inlets located along roadways and in parking lots throughout the township.

All of the Township's storm drain inlets are to be inspected at least annually to determine the trash and sediment load and overall condition of the structure. If the depth of deposits is greater than or equal to one-third the depth from the basin bottom to the invert of the lowest pipe or opening into or out of the basin, cleaning will be scheduled. Storm drain inlets that accumulate trash and deposits quickly will be inspected more frequently and the drainage area will also be inspected to determine possible causes. Inlet grates will be inspected to ensure that there is no trash blocking the inlets, especially before heavy rains are forecast. While inspecting storm

drains inlets, Township staff will check for evidence of illegal dumping or illicit discharges. If evidence of illegal dumping or illicit discharges is found, efforts are to be made to identify the source of these discharges.

### **Storm Sewer Piping, Drainage Channels, and Outfalls**

The Township owns several large box culverts and more than approximately 12.5 miles of underground storm sewer piping ranging in size from 12 inches to 52 inches. The age of the piping ranges from 60 years old to new pipe that was recently installed. The piping is constructed of reinforced concrete pipe, clay pipe, corrugated metal pipe, cast iron/ductile iron pipe, PVC pipe and polyethylene pipe. The Township maintains several ditches, culverts and swales that function as storm drainage channels.

Open conveyances will be inspected annually by public works personnel to check for trash, debris, sediment build-up, obstructions and general water quality conditions. Piping will be inspected as needed to check for structural integrity, blockages, or any other unusual conditions such as improper cross-connections or excessive inflow/infiltration. Storm water outfalls will be periodically inspected to check for any unusual conditions such as excessive erosion or illicit discharges.

### **Stormwater Best Management Practices (BMPs)**

The Township owns 5 storm water BMPs throughout the Township to include a retention pond, constructed wetlands, level spreaders and infiltration systems. These BMPs are to be inspected at least annually to check for sediment accumulation and overall conditions and they should be inspected after large rain events to evaluate overall performance and drainage characteristics.

### **Stormwater Facility Maintenance and Repair**

Upper Merion Township's storm water facility O&M program is structured to provide inspections of all facilities and to provide maintenance as needed. All maintenance activities are to be documented in writing and kept on file with the Township. When possible, pictures will be taken of various storm sewer system components to document before and after maintenance conditions.

## **Roadways**

Upper Merion Township is responsible for repairs and maintenance of all township roadways. If road paving, repairs or line painting is needed, the work will be performed by outside contractors. The following guidelines should be followed:

### **Roadway Paving Repair**

- Avoid paving activities during wet weather.
- Ensure that storm drain inlets and open manholes are protected during road repair work to prevent slurry mixes, dust, and debris from entering the storm sewers.
- Avoid using water to clean up. Mechanically sweep and/or vacuum dust and debris following all activities. DO NOT wash residue into the storm drain system.
- Place stockpiles away from waterways and stormwater inlets to prevent materials from being washed into streams. Cover stockpiles or contain with berms.
- Contain water and wastes generated during cleaning and flushing of spray equipment and field servicing of equipment. Use inlet protection and allow area to dry before uncovering storm drain inlets.
- Recycle used materials such as asphalt. Store these materials properly.
- Use drip pans to contain leaks from vehicles and equipment parked at the site overnight.
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### **Traffic Line Painting**

- Develop paint-handling procedures for proper use, storage and disposal of paints to keep the material contained.
- Protect storm drain inlets, open manholes and roadside ditches during grinding and pressure washing activities.
- Avoid using water to clean up. Mechanically sweep and/or vacuum grindings and dust following all activities. DO NOT wash residue into the storm drain system.

- Contain water and wastes generated during cleaning and flushing of equipment and field servicing of equipment. Use inlet protection and allow area to dry before uncovering storm drain inlets.

### **Snow Removal and De-Icing**

The storage and application of materials used for roadway de-icing or traction control shall be conducted in a manner that reduces the impact to the storm sewer system and the environment. Upper Merion Township uses salt for de-icing. All road salt is stored indoors at the public works maintenance facility. All salt storage is to be protected from precipitation.

- During loading and unloading of road salt, prevent and/or minimize spills by utilizing safe work practices and sound judgment.
- If any material is spilled, promptly collect it using dry cleaning methods. All collected material shall be either reused or properly discarded.
- Minimize the tracking of materials from the storage area and the distance that road salt is transported during loading/unloading operations.
- Salt is frequently spilled outside the storage area. This area is swept as needed to prevent contaminated storm water runoff.
- All operators of snow plows/salt spreaders are to be trained in the proper application rates of road salt. The salt spreaders are to be examined before operating to ensure that they are functioning properly.
- The application of road salt to roads or parking lots will be only enough to accomplish the task and will take into consideration site specific characteristics such as road width and design, traffic concentration, and proximity to surface waters.

### **Street Sweeping**

The Township's roads and parking lots are to be cleaned on a regular basis. The Township's street sweeping program runs



throughout the entire year, weather permitting. Currently, the Township has one street sweeping unit. The street sweeping program helps to keep the streets and storm drain inlets clear of debris and occurs in coordination with the Township's street overlay activities.

Prior to the installation of new roadway overlay, the street is swept as are the streets in the general area. The street sweeping program generally ensures that all streets in the Township are swept at least once a year. Those areas identified by inspections as being more debris prone, such as the state roads within the township, will be prioritized and cleaned more often. Roadway cleaning will occur after the winter de-icing season is over, in order to remove accumulated materials. Roadway cleaning may also occur under conditions when oil spill clean up materials such as sand or oil dry are applied. This will prevent these oil contaminated materials from being washed into the storm sewer system.

### **Storm Drain Inlets**

Upper Merion Township personnel shall schedule cleaning of municipal storm drain inlets when inspections reveal an excessive accumulation of sediment or debris. Structural repairs to any part of storm drain inlets will be performed as needed including replacement of damaged or deficient piping.

### **Storm Sewer Piping, Drainage Channels, and Outfalls**

If inspections of storm sewer piping reveal structural deficiencies, cross-connections, tree roots, sediment build-up or obstructions, then the appropriate maintenance solution will be selected and implemented as soon as possible. These solutions may include excavation and repair, tree root removal, and physical cleaning. Chemical agents will not be utilized. For cleaning techniques such as jet/vactor use, rodding or bucketing, the downstream end of the pipe will be blocked off and the debris will be captured and removed from the system.

- For storm culverts, ditches and swales, maintenance of free flowing conditions will be achieved by physical removal of any debris, sediment or overgrown vegetation.
- For storm sewer easements, the Township will remove any obstruction that is identified.

- Trash/obstructions will be removed at outfalls to maintain free flowing conditions.

### **Stormwater Basins**

When deemed necessary by inspections, removal of yard waste, non-degradable waste, nuisance or exotic/invasive vegetation and sediment in detention basins will occur during dry conditions when possible. In the process of effecting repairs or performing basin cleaning, vegetation may be disturbed or removed. These areas will be immediately stabilized and re-vegetated. Mowing and/or trimming of vegetation will occur as needed to sustain the basin and all detritus will be removed. Areas of bare or sparse vegetation will be addressed by soil aerating, conditioning, seeding and mulching, as necessary to restore a proper vegetative cover. Vegetative basin cover will be maintained at 95% at all times. Basin outlet structures will be cleared of debris when needed to allow for unimpeded flow.

### **Disposal of Debris**

Any materials recovered from any part of the storm sewer collection system will be handled and disposed of in accordance with all applicable state and federal disposal regulations. All recovered materials, especially those from storm drain inlets, piping, or basins, will be evaluated to determine if it is municipal, residual or hazardous waste.

The following are guidelines for the proper disposal of materials recovered from municipal operations. Recovered materials that need to be disposed of can be classified as municipal, residual or hazardous waste. Most of the typical materials recovered by Township personnel will be municipal wastes that can be discarded with the Township's normal waste yard. This includes street sweepings and storm drain inlet cleanings. If medical wastes are recovered, they are classified as "special handling municipal waste". If Township personnel discover wastes that they believe to be hazardous or medical waste, they should immediately contact the Director of Public Works and inform him or her of the situation.

Recovered leaves will be brought back to the Township leaf composting facility at Heuser Park Leaf Compost Site on West Beidler Road.

It ultimately will be up to the Township staff collecting or handling recovered materials to determine the proper waste designation and disposal methods.

### **Fertilizers, Herbicides and Pesticides**

Any planned herbicide or pesticide application on Township lands or around any part of the storm sewer collection system will be reviewed by Upper Merion Township personnel in order to comply with all applicable regulations and to prevent adverse water quality impacts.

Applications will only be conducted by licensed Township staff or contractors who have an appropriate applicators license from the PA Department of Agriculture. Fertilizers, herbicides, and pesticides shall be applied exactly according to manufacture guidelines, as more is not always better in the case of chemical application. The use of these chemicals will be limited as much as possible and non-hazardous alternatives shall be encouraged.

**This O&M manual will be reviewed periodically and revised as needed.**