

# Municipal Stormwater Infrastructure Operation and Maintenance Plan

## Town of Norfolk, Massachusetts

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*Credit for the template design to Fuss & O'Neill and Central Massachusetts Regional  
Stormwater Coalition (CMRSWC).*

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### Central Massachusetts Regional Stormwater Coalition

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# 1 Introduction

This Operation and Maintenance (O&M) Plan has been prepared by Norfolk to address stormwater infrastructure O&M requirements<sup>1</sup> of the United States Environmental Protection Agency's (USEPA's) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts, hereafter referred to as the "2016 Massachusetts MS4 Permit" or "MS4 Permit."

This O&M Plan addresses Minimum Control Measure 6, Good Housekeeping and Pollution Prevention for Permittee Owned Operations, by describing the activities and procedures the Town of Norfolk will implement so that the MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4. The O&M Plan outlines inspection and maintenance procedures for catch basins, municipally-owned streets and parking lots, and structural stormwater Best Management Practices (BMPs).

The Town of Norfolk is responsible for inspection and maintenance of the stormwater infrastructure in Norfolk. A map of the existing stormwater infrastructure in The Town of Norfolk is provided in **Appendix A**.

## 2 Definitions

**Best Management Practices (BMPs)** is schedules of activities, practices (and prohibitions of practices), structures, vegetation, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

**Erosion** is the removal of soil particles by wind and water. Often the eroded debris (silt or sediment) becomes a pollutant via stormwater runoff. Erosion occurs naturally but can be intensified by human activities such as farming, development, road-building, and timber harvesting.

**Hazardous materials** are common everyday products that are used in and around homes and municipal facilities including paint, paint thinner, herbicides, and pesticides-that, due to their chemical nature, can be hazardous if not properly disposed.

An **illicit discharge** is any discharge to a municipal separate storm sewer that is not composed entirely of stormwater, except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from firefighting activities.

**Municipal Separate Storm Sewer** is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

- (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or

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<sup>1</sup> See Part 2.3.7.a.iii of the 2016 MS4 Permit for Infrastructure Operation and Maintenance program requirements.

an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

- (ii) Designed or used for collecting or conveying stormwater;
- (iii) Which is not a combined sewer; and
- (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

**Municipal Separate Storm Sewer System (MS4)** means all separate storm sewers that are defined as “large” or “medium” or “small” municipal storm sewer systems pursuant to paragraphs 40 CFR 122.26 (b)(4) and (b)(7), or designated under paragraph 40 126.26(a) (1)(v). For the purposes of this permit “MS4” may also refer to the permittee with jurisdiction over the sewer system.

**Pollutants** are contaminants existing at a concentration high enough to endanger the environment or the public health or to be otherwise objectionable.

**Sediment** is solid material, both mineral and organic, that is being transported or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface. Soil, sand, and minerals washed from land into water, usually after rain.

**SWPPP** stands for "Stormwater Pollution Prevention Plan." It is a plan of practices specific to a facility or site to make sure that the stormwater discharged from the site is clean and not polluted. The plan describes all the site operator's activities to prevent stormwater contamination, control sedimentation and erosion, and comply with the requirements of the Clean Water Act.

## **3 Municipal Facilities Operation and Maintenance**

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### **3.1 Parks and Open Space**

Parks and open space operations and maintenance activities commonly involve the operation of equipment such as mowers and tractors; disposal of waste from mowing, planting, weeding, raking, pruning, and trash collection; application of pesticides, herbicides, and fertilizers; cleaning and maintenance of park amenities such as play equipment, portable toilets, and structures; and snow removal. These activities have the potential to generate contaminants such as sediments and toxic chemicals that may be picked up by rainwater, thereby entering the storm drainage system and receiving waters. Norfolk's Standard Operating Procedure for the Operation and Maintenance of Municipal Parks and Open Space is included as **Appendix B**.

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

The Town maintains its public spaces and parks utilizing the DPW Grounds Division staff and subcontractors. Town employees and subcontractors apply fertilizers, lime, pesticide and herbicide on open spaces and public parks as needed. When these chemicals are needed, use shall be in strict accordance with the manufacturer's instructions and with local regulations and use shall be minimized. Fertilizers, pesticides and herbicides are stored at Site One Landscape Supply Company, the Towns vendor for these products.

#### **Lawn Maintenance and Landscaping Activities**

Lawn maintenance and landscaping activities in town are minimal and limited to mowing, tree-trimming and general landscaping on Town-owned land.

The use of landscaping equipment with small engines such as lawn mowers and weed whackers requires the transport and use of gasoline and oil, which provides a risk of spills. Spills may occur while fueling vehicles or equipment and poorly maintained equipment may leak during use.

Best management practices for lawn and landscaping activities include the following:

- All vehicles and equipment receive regular maintenance and are inspected for leaks or defective parts.
- Fueling activities should occur on impervious surfaces when possible with proper containment and a spill response kit in close proximity.
- Vehicles transporting landscaping equipment, pesticides, fertilizer, or paint shall be equipped with a spill response kit in case a spill or leak does occur.
- Personnel involved in fuel or oil handling are familiar with the spill response kit and spill response and cleanup procedures” and are properly trained to efficiently respond to spill and leak events.
- Never wash debris from parking lots into the storm drain.
- Leave clippings on grassy areas or dispose of them in the trash or by composting.
- Collect grass clippings and leaves after mowing. Do not blow or wash them into the street, gutter, or storm drains. Properly recycle or dispose of organic waste after mowing, weeding, and trimming.
- Brush off mowers (reels and decks) and tractors over grassy areas or in contained washout areas. Do not hose off mowers over paved areas that drain into the MS4 or directly to surface waters.
- Repair broken sprinkler heads as soon as possible.
- Only irrigate at a rate that can infiltrate into the soil to limit run-off and avoid irrigating close to impervious surfaces such as parking lots and sidewalks.
- When establishing new plantings, use alternative landscaping materials, such as drought resistant or native plants to reduce the need for irrigation and extensive application of fertilizers and pesticides.

### **Water Fowl**

The Town does not currently have issues with waterfowl in specific areas. If needed to address waterfowl congregation areas and prevent droppings from entering the MS4, best management practices for waterfowl management include the following:

- Install signage discouraging the feeding waterfowl.

Using good landscaping practices to discourage waterfowl. Plant low-growing bushes near the water's edge and avoid lawn areas around surface water, instead opt for more natural landscaping.

### **Pet Waste and Trash Management**

Parks in Town have trash barrels that are available year-round. A dog waste stations is provided at Pond Street Recreation Facility. The DPW collects from trash receptacles throughout Town daily, and on an as needed basis.

The Town's General Bylaw includes dog restraint and illicit discharges to stormdrains and does include a bylaw specific to pet waste Article 13 Sec. 3-D-2.

Best management practices for pet waste and trash management include the following:

- Provide pet waste stations with bags and trash receptacles where pets are permitted. Post signs describing the proper disposal of pet waste.
- All waste and recycling containers must be leak-tight with tight-fitting lids or covers.
- Place waste and recycling containers indoors or under a roof or overhang whenever possible.
- Clean and sweep up around outdoor waste containers regularly.
- Arrange for waste and recyclables to be picked up regularly and disposed of at approved disposal facilities.
- Do not wash out waste or recycling containers outdoors or in a parking lot.
- Conduct periodic inspections of waste areas to check for leaks and spills.
- Ensure there are enough trash and recycling containers at appropriate areas and monitor waste and recycling containers at heavily-used sites and on holidays to ensure that there is no overflow.

### **Erosion Control**

Parks and open space maintenance activities include erosion control, specifically in regards to poor vegetation cover and particularly within 50 feet of surface water. Best management practices include the following:

- Prevention of erosion and sedimentation is preferable to installing treatments devices.
- Protect vegetated and wooded buffers and leave vegetated areas undisturbed to the extent possible.
- Inspect sites regularly for locations of poor vegetation cover, erosion and sedimentation and channelization. If stabilization is required, corrective actions should be identified and implemented as soon as possible.
- If exposed, soils should be stabilized by mulching, seeding with fast-growing native grass and/or planted with native tree and shrubs. Use erosion control blankets when seeding slopes.
- If necessary, slow stormwater runoff velocities with conveyance measures such as riprap channels or vegetated swales, check dams, level spreaders and outlet protection, etc.
- A buffer/filter strip should be left around surface waters. No fertilizers or pesticides should be applied in the buffer/filter strip except where necessary.

**Inventory of Municipal Parks and Open Spaces  
Norfolk, Massachusetts**

<b>Name of Park/Open Space</b>	<b>Location</b>	<b>Manager/Contact – Name, Position, Department, Phone Number</b>	<b>Potential Stormwater Pollutant Sources (e.g., trash containers, fertilizers, fuel)</b>
City Mills Pond	Main Street, Norfolk MA	Norfolk DPW, 508-528-4990	Trash Containers
Pondville Cemetery	Everett Street, Norfolk MA	Norfolk DPW, 508-528-4990	Trash Containers, Fertilizers
Norfolk Cemetery	Seekonk Street, Norfolk MA	Norfolk DPW, 508-528-4990	Trash Containers, Fertilizers
Town Common/Town Hill	1 Liberty Lane, Norfolk MA	Norfolk DPW, 508-528-4990	Trash Containers, Fertilizers
Community Park at Rockwood Road	49 Rockwood Road, Norfolk MA	Norfolk Recreation Department, 508-520-1315	Trash Containers, Fertilizers
Freeman Kennedy School Fields	70 Boardman Street, Norfolk MA	Norfolk Recreation Department, 508-520-1315	Trash Containers, Fertilizers
Pond Street Complex	33 Pond Street, Norfolk MA	Norfolk Recreation Department, 508-520-1315	Trash Containers, Fertilizers
King Philip Regional Middle School Field	18 King Street, Norfolk MA	King Philip Regional School District 508-520-7991	Trash Containers, Fertilizers
Harold Campbell Forest	49 North Street, Norfolk MA	Norfolk Conservation Commission 508-541-8455	None
Comey's Pond	383 Main Street, Norfolk MA	Norfolk Conservation Commission 508-541-8455	None
Fales Memorial Park	22 Campbell Street, Norfolk MA	Norfolk Conservation Commission 508-541-8455	Trash Containers
Kingsbury Pond	28 Kingsbury Road, Norfolk, MA	Norfolk Conservation Commission 508-541-8455	Trash Containers
Mirror Lake	Mirror Lake Avenue, Norfolk MA	Norfolk Conservation Commission 508-541-8455	Trash Containers
River Road Fishing and Boat Launch	River Road, Norfolk MA	Norfolk Conservation Commission 508-541-8455	Trash Containers
Bush Pond	74 Lawrence Street, Norfolk MA	Norfolk Conservation Commission 508-541-8455	None
Town Pond	Main Street, Norfolk MA	Norfolk Conservation Commission 508-541-8455	None
Lind Farm Conservation Land	Marshall Street, Norfolk MA	Norfolk Conservation Commission 508-541-8455	None
Pondville Conservation Land	Pond Street, Norfolk MA	Norfolk Conservation Commission 508-541-8455	None

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## 3.2 Buildings and Facilities

Municipal buildings and facilities (schools, municipal offices, police and fire stations, etc.) often house various chemicals, such as petroleum products and hazardous materials. As a result, these buildings and facilities are potential sources of pollutant discharges to the storm drainage system. The goal of these procedures is to provide guidance to municipal employees on the use, storage, and disposal of chemicals and other stormwater pollutants to reduce the discharge of pollutants from the MS4. Norfolk's Standard Operating Procedures for Operation and Maintenance of Municipal Buildings and Facilities is included as **Appendix C**.

### Use Storage and Disposal of Potential Pollutants

Potential pollutants or hazardous wastes that may be used and stored in or around municipal building and facilities include pesticides, paints, cleaners, petroleum products, fertilizers, and solvents. Careful handling and proper storage of these products are the best means of preventing spills and pollution to the environment. Best management practices include the following:

- Storage and handling areas should be covered or enclosed to reduce potential contact with stormwater and wind.
- Potential pollutants should be transported using approved methods and containers to minimize the chance of spillage, and by employees that have familiarity with the potential environmental and human health hazards of the products.
- Proper spill kits applicable to the products being used at each specific building or facility should be easily accessible, and marked clearly so employees can follow procedures quickly and effectively. Leaks or spills should be cleaned up in a timely manner.
- Establish separate storage areas for these types of products with measures in place to contain any spill leaking out of the storage area.
- A designated person should be responsible for these areas.
- The storage area should be inspected frequently, kept clean and in good order with proper labels and signs, and consistent disposal practices.
- Floor drains in storage areas should be disconnected from the stormwater system.
- Routinely inspect buildings and facilities for areas of potential leaks.
- Paint and other chemicals should not be applied on the outside of buildings when it is raining or prior to expected rain.
- When sanding, painting, power washing, etc., ensure that sites are properly prepared (e.g., use tarps) and cleaned (e.g., use dry cleaning methods) especially if they are near storm drains. Protect catch basins when maintenance work is conducted upgradient of them.
- When painting, use a drop cloth and clean up any spills immediately.
- Do not leave open containers on the ground where they may accidentally tip over.
- Do not discharge chlorinated pool water into the stormwater system. Water must be properly dechlorinated and tested before it is discharged.
- Ensure that the washwater does not flow into the storm system. Containment or filtering systems should be provided.

- The Town has spill kits and prevention and control plans in place for all buildings and facilities where its applicable. These are coordinated with the fire department as necessary.
- Per the Massachusetts Clean Water Toolkit Fact Sheet for Spill Prevention and Control Plans, it is recommended that Spill Prevention and Control Plans (SPCP) clearly state measures to stop the source of a spill, contain the spill, clean up the spill, dispose of contaminated materials, and train personnel to prevent and control future spills. The SPCP should define material handling procedures and storage requirements and outline actions necessary to reduce spill potential and impacts on stormwater quality. The plan can be a procedural handbook or a poster placed in several locations at the site.

### **Waste Management**

All liquid and solid waste must be disposed of properly. Some of the most common sources of pollution at municipal facilities are a result of littering, improper collection of debris, and improper disposal of solid or liquid waste. Best management practices for handling, storage, transfer and disposal of trash and recyclables include the following:

- All waste and recycling receptacles must be leak-tight with tight-fitting lids or covers.
- Keep lids on dumpsters and containers closed at all times unless adding or removing material. If using an open-top roll-off dumpster, cover it and tie it down with a tarp unless adding materials.
- Place waste or recycling receptacles indoors or under a roof or overhang whenever possible.
- Locate dumpsters on a flat, paved surface and install berms or curbs around the storage area to prevent run-on and run-off.
- Do not locate dumpsters over or adjacent to catch basins.
- Prior to transporting waste, trash, or recycling, ensure that containers are not leaking (double bag if needed) and properly secure containers to the vehicle.
- Clean up any liquid leaks or spills with dry cleanup methods.
- Arrange for waste or recycling to be picked up regularly and disposed of at approved disposal facilities.
- Never place hazardous materials, liquids, or liquid-containing wastes in a dumpster or recycling or trash container.
- Do not wash trash or recycling containers outdoors or in parking lots.
- Conduct periodic inspections of solid and liquid waste storage areas to check for leaks and spills.
- Conduct periodic inspections of work areas to ensure that all wastes are being disposed of properly.
- In dumpster areas, regularly pick up surrounding trash and debris and regularly sweep the area.
- In compactor areas, regularly check the hydraulic fluid hoses and reservoir to ensure that there are no cracks or leaks. Regularly sweep the area.

### **Sweeping and Cleaning of Parking Lots**

Vehicle surfaces can collect a variety of contaminants such as sediments, oil, grease, and metals during daily activities. The MS4 permit requires that parking lots are swept and surrounding areas of the facility are kept clean to reduce runoff of pollutants.

Parking lot sweeping and cleaning follows the same schedule as street sweeping, at least twice per year in Spring and Fall, with additional sweeping as need for specific sites. Procedures for sweeping parking lots are included in **Section 4.2** Streets and Parking Lots.

#### **Catchbasin and Stormwater Management BMP Maintenance**

All catchbasin on town-owned sites are to be included in the Town catchbasin inspection and cleaning optimization program described in **Section 4.1**.

Stormwater BMPs for facilities are to be included in the Town Stormwater Treatment Structures BMP Inspection and Maintenance program described in **Section 4.1** and maintained as necessary to provide optimum treatment of stormwater runoff.

**Inventory of Municipal Buildings and Facilities  
Norfolk, Massachusetts**

Name of Building/Facility	Location	Manager/Contact – Name, Position, Department, Phone Number	Potential Stormwater Pollutant Sources (e.g., trash containers, fertilizers, fuel)
Department of Public Works	33 Medway Branch, Norfolk MA	Norfolk DPW, 508-528-4990	Trash Containers, Fuel
Recycling/Transfer Station Facility	33 Medway Branch, Norfolk MA	Norfolk DPW, 508-528-4991	Trash Containers, Fuel
Fire Department	117 Main Street, Norfolk MA	Norfolk FD, 508-528-3207	None
Police Department	14 Sharon Avenue, Norfolk MA	Norfolk PD, 508-528-3206	None
Senior Center	28 Medway Branch Road, Norfolk MA	Council On Aging, 508-541-4430	None
Library	139 Main Street, Norfolk MA	Norfolk Library, 508-258-3380	Trash Containers, Fertilizers
Town Hall	1 Liberty Lane, Norfolk MA	Town Hall, 508-440-2855	Trash Containers, Fertilizers
Old Town Hall	Main Street, Norfolk MA	Facilities, 508-528-1408	None
Freeman Kennedy School	70 Boardman Street, Norfolk MA	Facilities, 508-528-1409	Trash Containers, Fertilizers
H. Olive Day School	232 Main Street, Norfolk MA	Facilities, 508-528-1410	Trash Containers, Fertilizers
King Philip Regional Middle School	18 King Street, Norfolk MA	King Philip Regional School District 508-520-7991	Trash Containers, Fertilizers
Hillcrest Village (Elderly Housing)	33 Rockwood Road, Norfolk MA	Housing Authority, 508-528-6882	None
Pine Knoll Family Housing	Arnold Road, Norfolk MA	Housing Authority, 508-528-6883	None

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### 3.3 Vehicles and Equipment

Regular maintenance of both municipal and contracted vehicles and heavy equipment not only prolongs the life of municipal assets but also helps reduce the potential for leaking of fluids associated with normal wear and tear. Potential pollutants include fuels, oil, antifreeze, brake fluid, solvents, and battery acid. The goal of this procedure is to provide guidance to municipal employees to help reduce the discharge of pollutants from the MS4 as a result of leaks from vehicles and equipment. Norfolk's Standard Operating Procedures for Operation and Maintenance of Municipal Vehicles and Equipment is included as **Appendix D**.

#### Storage

Rainfall on vehicles and equipment storage areas has the potential to collect pollutants and result in high loads of nutrients, metals, and hydrocarbons in stormwater runoff. To prevent this, best management practices include the following:

- All vehicles, equipment and hazardous waste storage containers should receive regular maintenance and be inspected for leaks or defective parts.
- Vehicles and equipment should be stored on a covered slab or within a building with a common drain that discharges to an oil/water separator.
- Outdoor storage of vehicles and equipment should not occur in areas that drain to the storm drain system unless adequate devices are in place to remove oil, sediment and other pollutants.
- Vehicles with fluid leaks should be stored indoors or containment be provided until repaired.

#### Vehicle and Equipment Maintenance

Vehicle and equipment maintenance shall be conducted in a manner to reduce the discharge of pollutants by following these best management practices:

- Conduct routine inspections of heavy equipment and vehicles to proactively identify maintenance needs or potential leaks.
- Use drip pans as needed until repairs can be performed and when drip pans are used, avoid overtopping.
- Drain fluids from leaking or wrecked vehicles and parts as soon as possible. Dispose of fluids properly.
- Perform routine preventive maintenance to ensure heavy equipment and vehicles are operating optimally.
- Recycle or dispose of waste properly and promptly.
- Conduct all body repair and painting work indoors.
- Minimize waste from paints and thinners. Calculate paint needs based on surface area.
- Do not wash or hose down storage areas unless there is prior approval to collect and discharge the water into the sanitary sewer. Use dry cleanup methods (vacuum, sweep) to clean up metal filings and dust and paint chips from grinding, shaving and sanding. Sweep debris from wet sanding after allowing it to dry overnight on the shop floor. Dispose of waste properly; never dump waste into storm or sanitary sewers.

- Do not dump any liquids or other materials outside, especially near or in storm drains or ditches.
- Store materials and waste in labeled containers under cover and in secondary containment.
- Chemicals should not be combined in containers.
- Carefully transfer collected fluids from containers into designated storage areas as soon as possible.
- Store new and used batteries securely to avoid breakage. Store indoors or in secondary containment to contain potential acid leaks. Recycle used batteries.

### **Fueling Areas**

Vehicle fueling activities can result in gasoline and diesel fuel entering the storm drain system. Spills can occur by topping off fuel tanks and during deliveries. If possible, fueling areas are to be places under cover in order to minimize exposure. Best management practices for fueling areas include the following:

- Deliveries to fuel tanks and fueling of vehicles and equipment should occur on impervious surfaces with proper containment and that spill response kits be readily accessible at fueling and maintenance areas.
- Fueling areas owned or operated by the municipality should be covered.

### **Parts Cleaning**

Cleaning of parts can transport pollutants into the municipal system storm drain system or surface waters. The Permit does not authorize these types of discharges. Best management practices to avoid this include the following:

- Use designated areas for engine, parts, or radiator cleaning. Do not wash or rinse parts outdoors. If parts cleaning equipment is not available, then capture parts cleaning fluids.
- Recycle cleaning solution. Never discharge waste to the sanitary sewer or storm sewer.
- Use steam cleaning or pressure washing of parts instead of solvent cleaning. Cleaning equipment must be connected to an oil/water interceptor prior entering the sanitary sewer.
- When using solvents for cleaning, drain parts over the solvent tank to avoid drips to the floor. Catch excess solutions and divert them back to tank. Allow parts to dry over the hot tank.

### **Vehicle and Equipment Wash Waters**

Washing down of maintenance and fueling areas and vehicles can transport pollutants into the municipal system storm drain system or surface waters. The Permit does not authorize these types of discharges. Best management practices to ensure that vehicle wash waters are not discharged to the municipal system or surface waters include the following:

- Vehicles and equipment should be washed inside whenever possible to reduce runoff to the stormwater system.
- Grassy and pervious (porous) surfaces may be used to promote direct infiltration of wash water, providing treatment before recharging groundwater and minimizing runoff to an adjacent stormwater system. Pervious surfaces or other infiltration-based systems should not be used within wellhead protection areas or within other protected resources.

- Avoid discharge of any wash water directly to the storm drainage system or surface water (e.g., stream, pond, or drainage swale)
- Do not use solvents except in dedicated solvent parts washer systems.
- Wash vehicles with non-toxic, phosphate-free, biodegradable cleaners
- Wash vehicles on an asphalt lot using a collection system with containment berms and discharge to water quality devices that will remove pollutants. Detergents should not be used in areas where oil/water separators provide pre-treatment of drainage.
- Floor drains should be connected to a sanitary sewer or tight tank. Floor drains discharging to adjacent surface water bodies or engineered storm drain systems should be permanently plugged or otherwise abandoned before any vehicle wash activities are completed.
- Designate separate areas for routine maintenance and vehicle cleaning. This helps prevent contamination of wash water by motor oils, hydraulic lubricants, greases, or other chemicals.

## 4 Municipal Infrastructure Operation and Maintenance

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### 4.1 Catch Basins

The Town of Norfolk performs routine inspections, cleaning, and maintenance of the approximately 1,937 catch basins that are located within the MS4 regulated area. The Town of Norfolk will implement the following catch basin inspection and cleaning procedures to reduce the discharge of pollutants from the MS4

- Routine inspection and cleaning of catch basins. Catch basins should be cleaned such that they are no more than 50 percent full<sup>2</sup> at any time. The Town of Norfolk will initially inspect all catch basins within the regulated area within two (2) years of the effective date of the permit to evaluate sediment or debris accumulation and establish optimal inspection and maintenance frequencies to meet the “50 percent” goal. A catch basin inspection/cleaning procedure, inspection form, and log of catch basins cleaned or inspected are included in **Appendix E**.
- If a catch basin sump is more than 50 percent full during two consecutive routine inspections or cleaning events, the finding will be documented, the contributing drainage area will be investigated for sources of excessive sediment loading, and to the extent practicable, contributing sources will be addressed. If no contributing sources are found, the inspection and cleaning frequency will be increased.
- Catch basins located near construction activities (roadway construction, residential, commercial, or industrial development or redevelopment) will be inspected and cleaned more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings (i.e., catch basins more than 50 percent full). Priority will also be given to catch basins that discharge to impaired waters.

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<sup>2</sup> A catch basin sump is more than 50 percent full if the contents within the sump exceed one half the distance between the bottom interior of the catch basin to the invert of the deepest outlet of the catch basin

- The following information will be included in each annual report:
  - Any action taken in response to excessive sediment or debris loadings
  - Total number of catch basins
  - Number of catch basins inspected
  - Number of catch basins cleaned
  - Total volume or mass of material removed from catch basins.

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## 4.2 Streets and Parking Lots

Streets and municipally-owned parking lots are swept once per year and on an as needed basis. Main streets and municipal parking lots are swept first in or early spring using the Town's Elgin sweeper. Secondary and neighborhood roads are then swept by an outside contractor, Consider It Done. As needed sweeping is done throughout the remainder of the year based on field observations and resident requests.

The Town of Norfolk will implement the following street and parking lot sweeping procedures to reduce the discharge of pollutants from the MS4:

- All streets with the exception of rural uncurbed roads with no catch basins or high speed limited access highways will be swept and/or cleaned a minimum of once per year in the spring (following winter activities such as sanding).
- More frequent sweeping will be considered for targeted areas based on pollutant load reduction potential, inspections, pollutant loads, catch basin cleaning or inspection results, land use, impaired waters, or other factors.
- More frequent sweeping is required for municipally-owned streets and parking lots in areas that discharge to certain nutrient-impaired waters. Sweeping must be performed in these areas a minimum of two times per year, once in the spring (following winter activities such as sanding) and at least once in the fall (Sept 1 – Dec 1; following leaf fall).
- For rural uncurbed roadways with no catch basins and limited access highways, the Town of Norfolk will either meet the minimum frequencies above, or develop and implement an inspection, documentation, and targeted sweeping plan outlining reduced frequencies within two (2) year of the effective date of the permit, and submit such plan with its year one annual report.
- The following information will be included in each annual report:
  - Number of miles cleaned or the volume or mass of material removed (see sweeping log in **Appendix F**).

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### 4.3 Catch Basin Cleanings and Street Sweepings

Catch basin cleanings (i.e., solid materials such as leaves, sand and twigs removed from stormwater collection systems during cleaning operations) and street sweepings will be managed in compliance with current Massachusetts Department of Environmental Protection policies:

- Catch Basin Cleanings  
<http://www.mass.gov/eea/agencies/massdep/recycle/regulations/management-of-catch-basin-cleanings.html>
- Street Sweepings  
<http://www.mass.gov/eea/docs/dep/recycle/laws/stsweep.pdf>

Prior to disposal or reuse, catch basin cleanings and street sweepings will be stored indoors or using proper controls such that they do not discharge to receiving waters.

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### 4.4 Winter Road Maintenance

The Town of Norfolk performs a variety of maintenance activities to ensure safe winter driving conditions on its 72 miles of roads 12 miles of sidewalk and municipal parking lots. The Town's winter road maintenance fleet consists of 7 six wheel dump trucks with sanders and plows, 1 Backhoe, 3 Loaders, 15 various heavy and light duty trucks with plows 1 JD1145 w/Snow Thrower and 1 JD-317 Mini Loader. In addition, the Town employs up to 12 outside contractors providing additional equipment and man power to aid in winter road maintenance.

The Town treats the roadway surface and municipal parking lots with liquid calcium, and salt. Sidewalks and municipal walkways are treated with Inferno Ice Melt. The standard sand to salt ratio is 3 salt to 1 sand and is typically mixed and prepped before the storm. Salt and sand ratios may increase or decrease depending on the type and severity of the storm event. Liquid calcium is used during a storm event as needed and applied where applicable. When time and staffing allows, the road way surface is pre-treated with salt and liquid calcium. Sanders are inspected and calibrated before the start of the winter and re-calibrated during the first winter event. Inspections of liquid calcium tanks and spray nozzles and sanders are performed at the start and end of each storm event.

The Town of Norfolk will implement the following winter maintenance procedures to reduce the discharge of pollutants from the MS4:

- Minimize the use and optimize the application of sodium chloride and other salt<sup>3</sup> (while maintaining public safety) and consider opportunities for use of alternative materials.
- Optimize sand and/or chemical application rates through the use, where practicable, of automated application equipment (e.g., zero velocity spreaders), anti-icing and pre-wetting

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<sup>3</sup> For purposes of the MS4 Permit, salt means any chloride-containing material used to treat paved surfaces for deicing, including sodium chloride, calcium chloride, magnesium chloride, and brine solutions.

techniques, implementation of pavement management systems, and alternate chemicals. Maintain records of the application of sand, anti-icing and/or de-icing chemicals to document the reduction of chemicals to meet established goals.

- Prevent exposure of deicing product (salt, sand, or alternative products) storage piles to precipitation by enclosing or covering the storage piles. Implement good housekeeping, diversions, containment or other measures to minimize exposure resulting from adding to or removing materials from the pile. Store piles in such a manner as not to impact surface water resources, groundwater resources, recharge areas, and wells.
- The MS4 Permit prohibits snow disposal into waters of the United States. Snow disposal activities, including selection of appropriate snow disposal sites, will adhere to the Massachusetts Department of Environmental Protection Snow Disposal Guidance, Guideline No. BWR G2015-01 (Effective Date: December 21, 2015), located at: <http://www.mass.gov/eea/agencies/massdep/water/regulations/snow-disposal-guidance.html>
- Provide training for municipal employees on winter roadway maintenance procedures.

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## 4.5 Structural Stormwater BMPs

Norfolk is currently under agreement with its stormwater consultant BETA Group Inc. to map and locate Town owned structural stormwater BMPs. Once completed an inventory of structural stormwater Best Management Practices (BMPs) owned and/or maintained by The Town of Norfolk will be provided in **Appendix G**. The stormwater infrastructure map in **Appendix A** will show the locations of the structural BMPs.

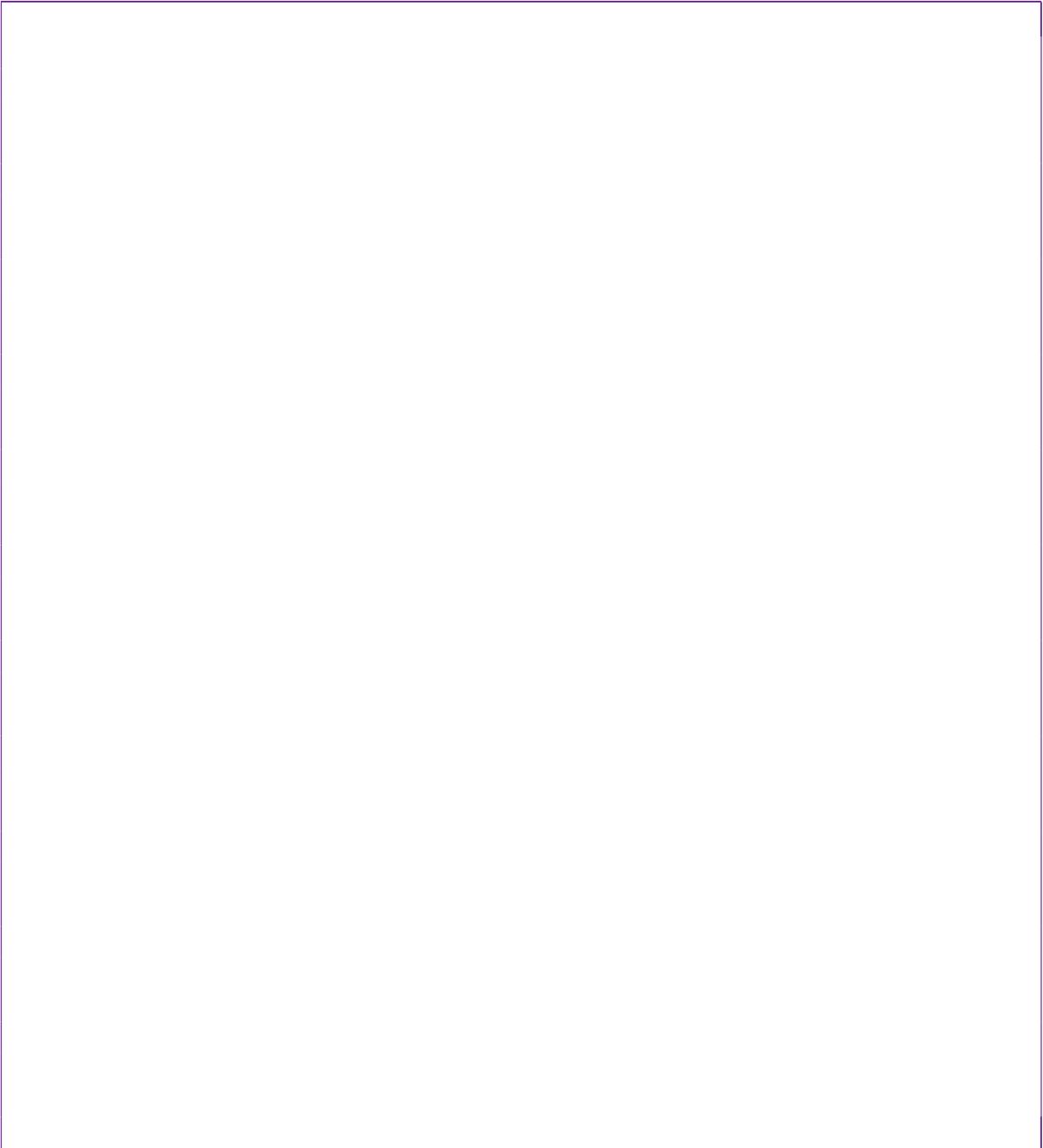
Structural stormwater BMPs will be inspected annually at a minimum. Recommended inspection procedures and checklists are provided in **Appendix H**.

## Appendix A

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### Stormwater Infrastructure Map Located in

R:\Stormwater Management\Maps\Norfolk Stormwater 10.17.18.pdf



### Operations and Maintenance of Parks and Open Spaces

## SOP 19: Operations and Maintenance of Parks and Open Spaces

### Introduction

Parks and open space operations and maintenance activities commonly involve the operation of equipment such as mowers and tractors; disposal of waste from mowing, planting, weeding, raking, pruning, and trash collection; application of pesticides, herbicides, and fertilizers; cleaning and maintenance of park amenities such as play equipment, restrooms, and structures; and snow removal. These activities have the potential to generate contaminants such as sediments and toxic chemicals that may be picked up by rainwater, thereby entering the storm drainage system and receiving waters. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees to reduce the discharge of pollutants from the MS4 and to receiving waters as a result of parks and open space operations and maintenance. If services are contracted, this SOP should be provided to the contractor. The contract should specify that the contractor is responsible for compliance with all applicable laws.

The Town of Norfolk (the “Town”) performs a variety of operations and maintenance activities at its municipal parks and open spaces.

Within two years of the effective date of the MS4 Permit, the Town will create an inventory of all municipal parks and open spaces and update this inventory annually (refer to the attached inventory template).

### Procedures

The Town will implement the following procedures at municipal parks and open spaces to reduce the discharge of pollutants from the MS4:

#### General

- Repair damage to landscaped or mulch or vegetated bare areas as soon as possible to prevent erosion. If there are areas of erosion or poor vegetation, repair them as soon as possible, especially if they are within 50 feet of a surface water (e.g., pond, lake, or river).
- Remove (sweep or shovel) materials such as soil, mulch, and grass clippings from parking lots, streets, curbs, gutters, sidewalks, and drainage-ways.
- Do not clean up any unidentified or possibly hazardous materials found during maintenance; notify a supervisor immediately.

## **Maintenance**

- Wastewater from power washing signs, structures, or bleachers cannot be discharged into the stormwater system.
- When painting park equipment, use a drop cloth and clean up any spills immediately.
- Do not leave open containers on the ground where they may accidentally tip over.
- Sweep parking lots with a street sweeper and dispose of street sweepings in designated areas (see SOP 16: Streets and Parking Lots).
- Never wash debris from parking lots into the storm drain.

## **Mowing**

- Remove debris and trash from landscaped areas prior to mowing.
- Collect grass clippings and leaves after mowing. Do not blow or wash them into the street, gutter, or storm drains.
- Properly recycle or dispose of organic waste after mowing, weeding, and trimming.
- Reduce mowing frequencies wherever possible by establishing low/no-mow areas in lesser-used spaces.
- Brush off mowers (reels and decks) and tractors over grassy areas or in contained washout areas.
- Leave clippings on grassy areas or dispose of them in the trash or by composting.
- Do not hose off mowers over paved areas that drain into the MS4 or directly to surface waters.
- Follow proper vehicle and equipment maintenance procedures to prevent leaks (see SOP 21: Operations and Maintenance of Municipal Vehicles and Equipment)
- Do not allow grease from mowers to fall onto areas where they can be washed into the stormwater system.

## **Irrigation**

- Repair broken sprinkler heads as soon as possible.
- Only irrigate at a rate that can infiltrate into the soil to limit run-off.
- Avoid irrigating close to impervious surfaces such as parking lots and sidewalks.

## **Landscaping**

- When establishing new plantings, use alternative landscaping materials, such as drought resistant or native plants to reduce the need for irrigation and extensive application of fertilizers and pesticides.
- Follow proper fueling procedures for all equipment to ensure that petroleum products do not enter the stormwater system (see SOP 7: Fuel and Oil Handling Procedures).
- Fertilizers, herbicides, and pesticides should be properly used, stored, and handled (see SOP 12: Storage and Use of Pesticides and Fertilizer).
- In accordance with the Charles River Watershed Phosphorus TMDL requirements, the Town will document its compliance with Massachusetts Regulation 330 CMR 31 in its Phosphorus Control Plans (PCPs) and certify that all turf grass areas and fertilizer use are managed in accordance with the policy (<https://www.mass.gov/files/documents/2018/01/22/330cmr31.pdf>).

## **Snow Removal**

- Store salt or sand for snow removal indoors under a roof or in a covered container and on impervious surfaces.
- See SOP 18: Winter Road Maintenance for more information on proper snow disposal and storage procedures.
- Any damage done to vegetated areas caused by plows or deicing materials should be repaired as early as possible in the spring.

## **Trash Management**

- All waste and recycling containers must be leak-tight with tight-fitting lids or covers.
- Place waste and recycling containers indoors or under a roof or overhang whenever possible.
- Clean and sweep up around outdoor waste containers regularly.
- Arrange for waste and recyclables to be picked up regularly and disposed of at approved disposal facilities.
- Do not wash out waste or recycling containers outdoors or in a parking lot.
- Conduct periodic inspections of waste areas to check for leaks and spills.
- Ensure there are enough trash and recycling containers at appropriate areas.
- Monitor waste and recycling containers at heavily-used sites and on holidays to ensure that there is no overflow.
  - The following sites are known to have higher frequency of use or need more frequent inspection to prevent trash overflow: ##LIST APPLICABLE SITES.

## **Other Activities**

- Provide pet waste stations with bags and trash receptacles where pets are permitted. Post signs describing the proper disposal of pet waste.
- All portable toilets should be staked down in flat, secure locations where they are less likely to be knocked down or blown over. They should be placed in a location that would retain any spillage from washing into the MS4 or receiving waters. Ensure routine maintenance and cleaning of portable toilets.
- Identify undesirable waterfowl congregation areas and take steps to prevent waterfowl droppings from entering the stormwater system or surrounding waterbodies.
  - Take measures to discourage congregation near waterbodies and the storm system (e.g., use strobe lights or reflective tape, establish no-mow zones to reduce available feeding areas, or plant thick vegetation along waterlines). If waterfowl congregation cannot be managed, then isolate the drainage from congregation areas away from the storm system and waterbodies.
  - Install signage to educate the public on the negative effects of waterfowl feces entering the stormwater system or nearby waterbodies in order to discourage public feeding. Alternatively, enact feeding bans.

## **Employee Training**

- Employees who perform maintenance or other applicable work at municipal parks and open spaces are trained ##NUMBER times per year on these procedures and the proper operation of related equipment.
- Employees are also trained on stormwater pollution prevention, illicit discharge detection and elimination (IDDE) procedures, and spill and response procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.

## **Attachments**

1. Inventory of Municipal Parks and Open Spaces

## **Related Standard Operating Procedures**

- SOP 7: Fuel and Oil Handling Procedures
- SOP 12: Storage and Use of Pesticides and Fertilizer
- SOP 16: Streets and Parking Lots
- SOP 18: Winter Road Maintenance
- SOP 21: Operations and Maintenance of Municipal Vehicles and Equipment

### Operations and Maintenance of Municipal Building Facilities

## SOP 20: Operations and Maintenance of Municipal Buildings and Facilities

### Introduction

Municipal buildings and facilities (schools, municipal offices, police and fire stations, municipal pools, parking garages, etc.) often house various chemicals, such as petroleum products and hazardous materials. As a result, these buildings and facilities are potential sources of pollutant discharges to the storm drainage system. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees on the use, storage, and disposal of chemicals and other stormwater pollutants to reduce the discharge of pollutants from the MS4. If services are contracted, this SOP should be provided to the contractor. The contract should specify that the contractor is responsible for compliance with all applicable laws.

The Town of Norfolk (the “Town”) performs a variety of operations and maintenance activities at its municipally owned and operated buildings.

Within two years of the effective date of the MS4 Permit, the Town will create an inventory of all municipal buildings and facilities and update this inventory annually (refer to the attached buildings and facilities inventory sheet).

### Procedures

The Town will implement the following procedures for municipally owned or operated buildings and facilities to reduce the discharge of pollutants from the MS4:

#### Handling, Storage, Transfer, and Disposal of Trash and Recyclables

All liquid and solid waste must be disposed of properly. Some of the most common sources of pollution at municipal facilities are a result of littering, improper collection of debris, and improper disposal of solid or liquid waste.

- All waste and recycling receptacles must be leak-tight with tight-fitting lids or covers.
- Keep lids on dumpsters and containers closed at all times unless adding or removing material. If using an open-top roll-off dumpster, cover it and tie it down with a tarp unless adding materials.
- Place waste or recycling receptacles indoors or under a roof or overhang whenever possible.
- Locate dumpsters on a flat, paved surface and install berms or curbs around the storage area to prevent run-on and run-off.
- Do not locate dumpsters over or adjacent to catch basins.
- Prior to transporting waste, trash, or recycling, ensure that containers are not leaking (double bag if needed) and properly secure containers to the vehicle.
- Clean and sweep up around outdoor waste containers regularly.

- Clean up any liquid leaks or spills with dry cleanup methods.
- Arrange for waste or recycling to be picked up regularly and disposed of at approved disposal facilities.
- Never place hazardous materials, liquids, or liquid-containing wastes in a dumpster or recycling or trash container (see SOP 17: Hazardous Materials Storage and Handling).
- Do not wash trash or recycling containers outdoors or in parking lots.
- Conduct periodic inspections of solid and liquid waste storage areas to check for leaks and spills.
- Conduct periodic inspections of work areas to ensure that all wastes are being disposed of properly.
- In dumpster areas, regularly pick up surrounding trash and debris and regularly sweep the area.
- In compactor areas, regularly check the hydraulic fluid hoses and reservoir to ensure that there are no cracks or leaks. Regularly sweep the area.

### **Building Maintenance**

- When power washing buildings and facilities, ensure that the washwater does not flow into the storm system. Containment or filtering systems should be provided.
- Paint and other chemicals should not be applied on the outside of buildings when it is raining or prior to expected rain.
- When sanding, painting, power washing, etc., ensure that sites are properly prepared (e.g., use tarps) and cleaned (e.g., use dry cleaning methods) especially if they are near storm drains. Protect catch basins when maintenance work is conducted upgradient of them.
- When painting, use a drop cloth and clean up any spills immediately.
- Do not leave open containers on the ground where they may accidentally tip over.
- Buildings should be routinely inspected for areas of potential leaks.
- Do not discharge chlorinated pool water into the stormwater system. Water must be properly dechlorinated and tested before it is discharged.
- Streets and parking lots surrounding municipal buildings and facilities should be swept and kept clean to reduce runoff of pollutants and debris to the stormwater system.
- Streets and parking lots around buildings and facilities will be swept in accordance with the procedures in SOP 16: Streets and Parking Lots.

### **Storage of Petroleum Products and Potential Pollutants**

- Floor drains in storage areas should be disconnected from the stormwater system.
- Routinely inspect buildings and facilities for areas of potential leaks.
- For storage and handling procedures of petroleum products and potential pollutants, refer to SOP 17: Hazardous Materials Storage and Handling and SOP 7: Fuel and Oil Handling Procedures.
- For storage and handling procedures for fertilizers, pesticides, and herbicides, refer to SOP 12: Fertilizers, Pesticides, and Herbicides.
- All municipal buildings and facilities should be periodically inspected to address potential pollutant sources (e.g., leaks).

### **Spill Prevention Plan**

- Spill prevention plans such as Spill Prevention Control and Countermeasure (SPCC) Plans should be in place where applicable, based on inventories of material storage and potential pollutants. Coordinate with the local fire department if necessary.
- Spill SOPs are outlined in SOP 4: Spill Response and Cleanup.

### **Employee Training**

- Employees who perform maintenance or other applicable work at municipal buildings and facilities are trained ##NUMBER times per year on these procedures and the proper operation of related equipment.
- Employees are also trained on stormwater pollution prevention, illicit discharge detection and elimination (IDDE) procedures, and spill and response procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.

### **Attachments**

1. Inventory of Municipal Buildings and Facilities

### **Related Standard Operating Procedures**

1. SOP 4: Spill Response and Cleanup
2. SOP 7: Fuel and Oil Handling
3. SOP 12: Storage and Use of Pesticides and Fertilizer
4. SOP 16: Streets and Parking Lots
5. SOP 17: Hazardous Material Storage and Handling

### Operation and Maintenance of Municipal Vehicles and Equipment

## SOP 21: Operations and Maintenance of Municipal Vehicles and Equipment

### Introduction

Regular maintenance of both municipal and contracted vehicles and heavy equipment not only prolongs the life of municipal assets but also helps reduce the potential for leaking of fluids associated with normal wear and tear. Potential pollutants include fuels, oil, antifreeze, brake fluid, solvents, and battery acid. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees to help reduce the discharge of pollutants from the MS4 as a result of leaks from vehicles and equipment. If services are contracted with respect to vehicles and equipment, this SOP should be provided to the contractor. The contract should also specify that the contractor is responsible for compliance with all applicable laws.

The Town of Norfolk undertakes various procedures in regard to its municipal vehicles and equipment.

Within two years of the effective date of the MS4 Permit, the Town of Norfolk will create an inventory of all municipal vehicles and equipment and update this inventory annually (refer to the attached vehicles and equipment inventory template).

### Procedures

The Town of Norfolk will implement the following procedures for municipally owned and operated vehicles and equipment to reduce the discharge of pollutants from the MS4:

#### Vehicle and Equipment Maintenance

##### *Vehicle Storage*

- Monitor vehicles and equipment for leaks and use drip pans as needed until repairs can be performed.
- When drip pans are used, avoid overtopping.
- Drain fluids from leaking or wrecked vehicles and parts as soon as possible. Dispose of fluids properly.
- Store and park vehicles on impervious surfaces and/or under cover or indoors whenever possible.

##### *Vehicle Maintenance*

- Conduct routine inspections of heavy equipment and vehicles to proactively identify maintenance needs or potential leaks.

- Perform routine preventive maintenance to ensure heavy equipment and vehicles are operating optimally.
- Recycle or dispose of waste properly and promptly.
- Sweep and pick up trash and debris as needed.
- Do not dump any liquids or other materials outside, especially near or in storm drains or ditches.

### ***Body Repair and Painting***

- Conduct all body repair and painting work indoors.
- Minimize waste from paints and thinners. Calculate paint needs based on surface area.
- Use dry cleanup methods (vacuum, sweep) to clean up metal filings and dust and paint chips from grinding, shaving and sanding. Sweep debris from wet sanding after allowing it to dry overnight on the shop floor. Dispose of waste properly; never dump waste into storm or sanitary sewers.
- Use sanding tools equipped with vacuum capability to pick up debris and dust.

### ***Fueling***

- Fueling areas owned or operated by the municipality should be covered.
- Fueling areas should be evaluated to ensure that pollutants (e.g., gasoline or oil) do not enter the MS4. Follow the procedures in SOP 7: Fuel and Oil Handling.

### ***Material Management***

- Store materials and waste in labeled containers under cover and in secondary containment.
- Chemicals should not be combined in containers.
- Hazardous waste must be labeled and stored according to hazardous waste regulations. Follow the procedures in SOP 17: Hazardous Materials Storage and Handling.
- Carefully transfer collected fluids from containers into designated storage areas as soon as possible.
- Store new and used batteries securely to avoid breakage. Store indoors or in secondary containment to contain potential acid leaks. Recycle used batteries.
- Conduct periodic inspections of storage areas to detect possible leaks.
- Do not wash or hose down storage areas unless there is prior approval to collect and discharge the water into the sanitary sewer. Use dry cleanup methods whenever possible.
- Keep lids on containers. Store them indoors or under cover to reduce exposure to rain.
- Inspect and maintain all pretreatment equipment, including interceptors, according to the manufacturer's maintenance schedule and at least once per year.
- Proper spill protocol should be followed to prevent chemicals from entering the stormwater system. Follow the procedures in SOP 4: Spill Response and Cleanup.

### ***Parts Cleaning***

- Use designated areas for engine, parts, or radiator cleaning. Do not wash or rinse parts outdoors. If parts cleaning equipment is not available then capture parts cleaning fluids.
- Recycle cleaning solution. Never discharge waste to the sanitary sewer or storm sewer.
- Use steam cleaning or pressure washing of parts instead of solvent cleaning. Cleaning equipment must be connected to an oil/water interceptor prior entering the sanitary sewer.

- When using solvents for cleaning, drain parts over the solvent tank to avoid drips to the floor. Catch excess solutions and divert them back to tank. Allow parts to dry over the hot tank.

### **Vehicle and Equipment Washing**

Vehicle washing can result in the discharge of nutrients, sediment, petroleum products, and other contaminants to a surface water body or to a stormwater system. The MS4 Permit does not authorize the discharge of municipal vehicle washing byproducts into the MS4.

#### ***Outdoor Vehicle Washing Procedures***

Outdoor washing of municipal vehicles should be avoided unless wash water is contained in a tight tank or similar structure. Where no alternative wash system is available, and full containment of wash water cannot be achieved, adhere to the following procedures:

- Avoid discharge of any wash water directly to the storm drainage system or surface water (e.g., stream, pond, or drainage swale)
- Minimize the use of water to the extent practicable.
- Where the use of detergent cannot be avoided, use products that do not contain regulated contaminants. The use of a biodegradable, phosphate-free detergent is preferred.
- Do not use solvents except in dedicated solvent parts washer systems or in areas not connected to a sanitary sewer.
- Do not power wash, steam clean, or perform engine or undercarriage cleaning.
- Grassy and pervious (porous) surfaces may be used to promote direct infiltration of wash water, providing treatment before recharging groundwater and minimizing runoff to an adjacent stormwater system. Pervious surfaces or other infiltration-based systems should not be used within wellhead protection areas or within other protected resources.
- Impervious surfaces discharging to the storm drainage system should not discharge directly to a surface water unless treatment is provided. The treatment device should be positioned such that all drainage must flow through the device, preventing bypassing or short-circuiting.
- Periodic sweeping and/or cleaning should be completed to prevent accumulation from forming on the washing area.
- Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities. Follow the procedures in SOP 4: Spill Response and Cleanup.
- Heavily soiled vehicles or vehicles dirtied from salting or snow removal efforts should follow the SOPs in the “Heavy Equipment Washing Procedures” below.

#### ***Indoor Vehicle Washing Procedures***

- Vehicles and equipment should be washed inside whenever possible to reduce runoff to the stormwater system.
- Where the use of detergent cannot be avoided, use products that do not contain regulated contaminants. The use of biodegradable, phosphate-free detergent is preferred.
- Detergents should not be used in areas where oil/water separators provide pre-treatment of drainage.

- Floor drains should be connected to a sanitary sewer or tight tank. Floor drains discharging to adjacent surface water bodies or engineered storm drain systems should be permanently plugged or otherwise abandoned before any vehicle wash activities are completed.
- Designate separate areas for routine maintenance and vehicle cleaning. This helps prevent contamination of wash water by motor oils, hydraulic lubricants, greases, or other chemicals.
- Dry cleanup methods are recommended within garage facilities. Do not wash down floors and work areas with water.
- Bring smaller vehicles to commercial washing stations.
- Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities. Follow the procedures in SOP 4: Spill Response and Cleanup.

### ***Heavy Equipment Washing Procedures***

- Mud and heavy debris removal should occur on impervious surfaces or within a retention area.
- Maintain these areas with frequent mechanical removal and proper disposal of waste.
- Impervious surfaces with engineered storm drain systems should not discharge directly to a surface water.
- Floor drains should be connected to a sanitary sewer or tight tank. Floor drains discharging to adjacent surface waterbodies or engineered storm drain systems should be permanently plugged or otherwise abandoned before any vehicle wash activities are completed.
- Where the use of detergent cannot be avoided, use products that do not contain regulated contaminants. The use of biodegradable, phosphate-free detergent is preferred.
- Detergents should not be used in areas where oil/water separators provide pre-treatment of drainage.
- Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities. Follow the procedures in SOP 4: Spill Response and Cleanup.

### ***Engine and Steam Washing Procedures***

- Do not wash parts outdoors.
- Maintain drip pans and smaller containers to contain motor oils, hydraulic lubricants, greases, etc. and to capture and collect spills or noticeable leaks observed during washing activities, to the extent practicable. Follow the procedures in SOP 4: Spill Response and Cleanup.
- Where use of detergent cannot be avoided, use products that do not contain regulated contaminants. The use of a biodegradable, phosphate-free detergent is preferred.
- Avoid cleaning with solvents except in dedicated solvent parts washer systems. Make use of pressure washing and steam cleaning.
- Recycle clean solutions and rinse water to the extent practicable.
- Wash water should discharge to a tight tank or a sanitary sewer via an oil/water separator. Detergents should not be used in areas where oil/water separators provide pre-treatment of drainage.

### ***Employee Training***

- Employees who perform work on/with municipal vehicles or equipment are trained ##NUMBER times per year on these procedures and the proper operation of related equipment.
- Employees are also trained on stormwater pollution prevention, illicit discharge detection and elimination (IDDE) procedures, and spill and response procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.

## **Attachments**

1. Inventory of Municipal Vehicles and Equipment

## **Related Standard Operating Procedures**

1. SOP 4: Spill Response and Cleanup
2. SOP 7: Fuel and Oil Handling
3. SOP 17: Hazardous Material Storage and Handling

## Catch Basin Inspection and Cleaning Procedure Catch Basin Inspection Form Catch Basin Cleaning Log

### SOP 3: CATCH BASIN INSPECTION AND CLEANING

#### *Introduction*

Catch basins help minimize flooding and protect water quality by removing trash, sediment, decaying debris, and other solids from stormwater runoff. These materials are retained in a sump below the invert of the outlet pipe. Catch basin cleaning reduces foul odors, prevents clogs in the storm drain system, and reduces the loading of suspended solids, nutrients, and bacteria to receiving waters.

During regular cleaning and inspection procedures, data can be gathered related to the condition of the physical basin structure and its frame and grate and the quality of stormwater conveyed by the structure. Observations such as the following can indicate sources of pollution within the storm drain system:

- Oil sheen
- Discoloration
- Trash and debris

Both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by a oil will remain intact and move in a swirl pattern; a sheen caused by bacteria will separate and appear “blocky”. Bacterial sheen is not a pollutant but should be noted.

Observations such as the following can indicate a potential connection of a sanitary sewer to the storm drain system, which is an illicit discharge.

- Indications of sanitary sewage, including fecal matter or sewage odors
- Foaming, such as from detergent
- Optical enhancers, fluorescent dye added to laundry detergent

Each catch basin should be cleaned and inspected at least annually. Catch basins in high-use areas may require more frequent cleaning. Performing street sweeping on an appropriate schedule will reduce the amount of sediment, debris, and organic matter entering the catch basins, which will in turn reduce the frequency with which structures need to be cleaned.

#### *Cleaning Procedure*

Catch basin inspection cleaning procedures should address both the grate opening and the basin's sump. Document any and all observations about the condition of the catch basin structure and water quality on the Catch Basin Inspection Form (attached).

Catch basin inspection and cleaning procedures include the following:

1. Work upstream to downstream.
2. Clean sediment and trash off grate.
3. Visually inspect the outside of the grate.
4. Visually inspect the inside of the catch basin to determine cleaning needs.
5. Inspect catch basin for structural integrity.
6. Determine the most appropriate equipment and method for cleaning each catch basin.
  - a. Manually use a shovel to remove accumulated sediments, or
  - b. Use a bucket loader to remove accumulated sediments, or
  - c. Use a high pressure washer to clean any remaining material out of catch basin while capturing the slurry with a vacuum.
  - d. If necessary, after the catch basin is clean, use the rodder of the vacuum truck to clean downstream pipe and pull back sediment that might have entered downstream pipe.
7. If contamination is suspected, chemical analysis will be required to determine if the materials comply with the Massachusetts DEP Hazardous Waste Regulations, 310 CMR 30.000 (<http://www.mass.gov/dep/service/regulations/310cmr30.pdf>). Chemical analysis required will depend on suspected contaminants. Note the identification number of the catch basin on the sample label, and note sample collection on the Catch Basin Inspection Form.
8. Properly dispose of collected sediments. See following section for guidance.
9. If fluids collected during catch basin cleaning are not being handled and disposed of by a third party, dispose of these fluids to a sanitary sewer system, with permission of the system operator.
10. If illicit discharges are observed or suspected, notify the appropriate Department (see "SOP 10: Addressing Illicit Discharges").
11. At the end of each day, document location and number of catch basins cleaned, amount of waste collected, and disposal method for all screenings.
12. Report additional maintenance or repair needs to the appropriate Department.

### *Disposal of Screenings*

Catch basin cleanings from storm water-only drainage systems may be disposed at any landfill that is permitted by MassDEP to accept solid waste. MassDEP does not routinely require stormwater-only catch basin cleanings to be tested before disposal, unless there is evidence that they have been contaminated by a spill or some other means.

Screenings may need to be placed in a drying bed to allow water to evaporate before proper disposal. In this case, ensure that the screenings are managed to prevent pollution.

### *Attachments*

1. Catch Basin Inspection Form

*Related Standard Operating Procedures*

1. SOP 10, Addressing Illicit Discharges
2. SOP 13, Water Quality Screening in the Field

## Appendix F

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### Street and Parking Lot Sweeping Log

*Instructions: Maintain a street and parking lot sweeping log, including the following information:*

- *Date*
- *Operator*
- *Weather conditions*
- *Streets/parking lots swept*
- *Number of miles swept*
- *Volume or mass of material removed*
- *Corrective action taken or recommended*

## Appendix G

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### Inventory of Structural Stormwater Best Management Practices

*Instructions: Provide an inventory of structural stormwater BMPs owned or maintained by the municipality.*

**Inventory of Structural Stormwater Best Management Practices (BMPs)  
Norfolk, Massachusetts**

BMP ID or Description	Location	BMP Type	Inspection Frequency	Date of Last Inspection	Additional Notes

### Structural Stormwater BMP Inspection Procedures and Checklists

#### **SOP 9: INSPECTING CONSTRUCTED BEST MANAGEMENT PRACTICES**

Best Management Practices (BMPs) are policies, procedures and structures designed to reduce stormwater pollution, prevent contaminant discharges to natural water bodies, and reduce stormwater facility maintenance costs. Constructed BMPs are permanent site features designed to treat stormwater before infiltrating it to the subsurface or discharging it to a surface water body.

This Standard Operating Procedure provides a general summary of inspection procedures for eight common constructed BMPs, including:

1. Bioretention Areas and Rain Gardens
2. Constructed Stormwater Wetlands
3. Extended Dry Detention Basins
4. Proprietary Media Filters
5. Sand and Organic Filters
6. Wet Basins
7. Dry Wells
8. Infiltration Basins

This SOP is based on the Massachusetts Stormwater Handbook and is not intended to replace that document. This SOP is also not intended to replace the Stormwater BMP Operation and Maintenance (O&M) Plan required by the Massachusetts Wetlands Protection Act, Order of Conditions.

#### **Bioretention Areas and Rain Gardens**

Bioretention areas and rain gardens are shallow depressions filled with sandy soil, topped with a thick layer of mulch and planted with dense native vegetation. There are two types of bioretention cells:

1. Filtering bioretention area: Areas that are designed solely as an organic filter; and
2. Exfiltration bioretention area: Areas that are configured to recharge groundwater in addition to acting as a filter.

#### *Inspection & Maintenance*

Regular inspection and maintenance are important to prevent against premature failure of bioretention areas or rain gardens. Regular inspection and maintenance of pretreatment devices and bioretention cells for sediment buildup, structural damage and standing water can extend the life of the soil media.

#### **Maintenance Schedule: Bioretention Areas and Rain Gardens**

Activity	Time of Year	Frequency
Inspect for soil erosion and repair	Year round	Monthly
Inspect for invasive species and remove if present	Year round	Monthly
Remove trash	Year round	Monthly
Mulch Void Areas	Spring	Annually
Remove dead vegetation	Fall and Spring	Bi-Annually
Replace dead vegetation	Spring	Annually
Prune	Spring or Fall	Annually
Replace all media and vegetation	Late Spring/Early Summer	As Needed

When failure is discovered, excavate the bioretention area, scarify the bottom and sides, replace the filter fabric and soil, replant vegetation and mulch the surface.

Never store snow within a bioretention area or rain garden. This would prevent required water quality treatment and the recharge of groundwater.

### Constructed Stormwater Wetlands

Constructed stormwater wetlands maximize the pollutant removal from stormwater through the use of wetland vegetation uptake, retention and settling. Constructed storm water wetlands must be used in conjunction with other BMPs, such as sediment forebays.

#### *Inspection & Maintenance*

Regular inspection and maintenance are important to prevent against premature failure of bioretention areas or rain gardens. Regular inspection and maintenance of pretreatment devices and bioretention cells for sediment buildup, structural damage and standing water can extend the life of the soil media.

### Maintenance Schedule, Constructed Stormwater Wetlands: Years 0-3

Activity	Time of Year	Frequency
Inspect for invasive species and remove if present	Year round	Monthly
Record and Map:	Year round	Annually
Types and distribution of dominant wetland plants	Year round	Bi-Annually
Presence and distribution of planted wetland species	Spring	Annually
Presence and distribution of invasive species	Fall and Spring	Bi-Annually
Indications other species are replacing planted wetland species	Spring	Annually
Percent of standing water that is not vegetated	Spring or Fall	Annually
Replace all media and vegetation	Late Spring/Early Summer	As Needed
Stability of original depth zones and micro-topographic features		
Accumulation of sediment in the forebay and micropool and survival rate of plants		

### Maintenance Schedule, Constructed Stormwater Wetlands: Years 4-Lifetime

Activity	Time of Year	Frequency
Inspect for invasive species and remove if present	Year round	Monthly
Clean forebays	Year round	Annually
Clean sediment in basin/wetland system	Year round	Once every 10 years
Mulch Void Areas	Spring	Annually
Remove dead vegetation	Fall and Spring	Bi-Annually
Replace dead vegetation	Spring	Annually
Prune	Spring or Fall	Annually
Replace all media and vegetation	Late Spring/Early Summer	As Needed

When failure is discovered, excavate the bioretention area, scarify the bottom and sides, replace the filter fabric and soil, replant vegetation and mulch the surface.

Never store snow within a constructed stormwater wetland. This would prevent required water quality treatment and the recharge of groundwater.

### Extended Dry Detention Basins

Extended dry detention basins are designed to control both stormwater quantity and quality. These BMPs are designed to hold stormwater for at least 24 hours, allowing solids to settle and to reduce local and downstream flooding. Pretreatment is required to reduce the potential for overflow clogging. The outflow may be designed as either fixed or adjustable. Additional nutrient removal may be achieved by a micropool or shallow marsh.

### *Inspection & Maintenance*

Annual inspection of extended dry detention basins is required to ensure that the basins are operating properly. Potential problems include: erosion within the basin and banks, tree growth on the embankment, damage to the emergency spillway and sediment accumulation around the outlet. Should any of these problems be encountered, necessary repairs should be made immediately.

### **Maintenance Schedule: Extended Dry Detention Basins**

Activity	Time of Year	Frequency
Inspect basins	Spring and Fall	Bi-Annually, and during and after major storms
Examine outlet structure for clogging or high outflow release velocities	Spring and Fall	Bi-Annually
Mow upper stage, side slopes, embankment and emergency spillway	Spring through Fall	Bi-Annually
Remove trash and debris	Spring	Bi-Annually
Remove sediment from basin	Year round	At least once every 5 years

### **Proprietary Media Filters**

Media Filters are designed to reduce total suspended solids and other target pollutants, such as organics, heavy metals or nutrients, which are sorbed onto the filter media, which is contained in a concrete structure. The substrate used as filter media depends on the target pollutants, and may consist of leaf compost, pleated fabric, activated charcoal, perlite, amended sand in combination with perlite, and zeolite. Two types of Media Filters are manufactured: Dry Media Filters, which are designed to dewater within 72 hours; and Wet Media Filters, which maintain a permanent pool of water as part of the treatment system.

#### *Inspection & Maintenance*

Maintenance in accordance with the manufacturer’s requirements is necessary to ensure stormwater treatment. Inspection or maintenance of the concrete structure may require OSHA confined space training. Dry Media Filters are required to dewater in 72 hours, thus preventing mosquito and other insect breeding. Proper maintenance is essential to prevent clogging. Wet Media Filters require tight fitting seals to keep mosquitoes and other insects from entering and breeding in the permanent pools. Required maintenance includes routine inspection and treatment.

### **Maintenance Schedule: Proprietary Media Filters**

Activity	Time of Year	Frequency
Inspect for standing water, trash, sediment and clogging	Per manufacturer’s schedule	Bi-Annually (minimum)

Remove trash and debris	N/A	Each Inspection
Examine to determine if system drains in 72 hours	Spring, after large storm	Annually
Inspect filtering media for clogging	Per manufacturer's schedule	Per manufacturer's schedule

## Sand and Organic Filters

Sand and organic filters, also known as filtration basins, are intended for quality control rather than quantity control. These filters improve water quality by removing pollutants through a filtering media and settling pollutants on top of the sand bed and/or in a pretreatment basin. Pretreatment is required to prevent filter media from clogging. Runoff from the filters is typically discharged to another BMP for additional treatment.

### *Inspection & Maintenance*

If properly maintained, sand and organic filters have a long design life. Maintenance requirements include raking the sand and removing sediment, trash and debris from the surface of the BMP. Over time, fine sediments will penetrate deep into the sand requiring replacement of several inches or the entire sand layer. Discolored sand is an indicator of the presence of fine sediments, suggesting that replacement of the sand should be completed.

### **Maintenance Schedule: Proprietary Media Filters**

Activity	Frequency
Inspect filters and remove debris	After every major storm for the first 3 months after construction completion. Every 6 months thereafter.

## Wet Basins

Wet basins are intended to treat stormwater quality through the removal of sediments and soluble pollutants. A permanent pool of water allows sediments to settle and removes the soluble pollutants, including some metals and nutrients. Additional dry storage is required to control peak discharges during large storm events, and if properly designed and maintained wet basins can add fire protection, wildlife habitat and aesthetic values to a property.

### *Inspection & Maintenance*

To ensure proper operation, wet basin outfalls should be inspected for evidence of clogging or excessive outfall releases. Potential problems to investigate include erosion within the basin and banks, damage to the emergency spillway, tree growth on the embankment, sediment accumulation

around the outlet and the emergence of invasive species. Should any of these problems be encountered, perform repairs immediately. An on-site sediment disposal area will reduce sediment removal costs.

### Maintenance Schedule: Wet Basins

Activity	Time of Year	Frequency
Inspect wet basins	Spring and/or Fall	Annually (Minimum)
Mow upper stage, side slopes, embankment and emergency spillway	Spring through Fall	Bi-Annually (Minimum)
Remove sediment, trash and debris	Spring through Fall	Bi-Annually (Minimum)
Remove sediment from basin	Year round	As required, but at least once every 10 years

### Dry Wells

Dry wells are used to infiltrate uncontaminated runoff. These BMPs should never be used to infiltrate stormwater or runoff that has the potential to be contaminated with sediment and other pollutants. Dry wells provide groundwater recharge and can reduce the size and cost required of downstream BMPs or storm drains. However, they are only applicable in drainage areas of less than one acre and may experience high failure rates due to clogging.

#### *Inspection & Maintenance*

Proper dry well function depends on regular inspection. Clogging has the potential to cause high failure rates. The water depth in the observation well should be measured at 24 and 48 hour intervals after a storm and the clearance rate calculated. The clearance rate is calculated by dividing the drop in water level (inches) by the time elapsed (hours).

### Maintenance Schedule: Dry Wells

Activity	Frequency
Inspect dry wells	After every major storm for the first 3 months after construction completion. Annually thereafter.

### Infiltration Basins

Infiltration basins are designed to contain stormwater quantity and provide groundwater recharge. Pollution prevention and pretreatment are required to ensure that contaminated stormwater is not infiltrated. Infiltration basins reduce local flooding and preserve the natural water balance of the site, however high failure rates often occur due to improper siting, inadequate pretreatment, poor design and lack of maintenance.

### *Inspection & Maintenance*

Regular maintenance is required to prevent clogging, which results in infiltration basin failure. Clogging may be due to upland sediment erosion, excessive soil compaction or low spots. Inspections should include signs of differential settlement, cracking, erosion, leakage in the embankments, tree growth on the embankments, riprap condition, sediment accumulation and turf health.

#### **Maintenance Schedule: Infiltration Basins**

<b>Activity</b>	<b>Time of Year</b>	<b>Frequency</b>
Preventative maintenance	Spring and Fall	Bi-Annually
Inspection	Spring and Fall	After every major storm for the first 3 months after construction completion. Bi-annually thereafter and discharges through the high outlet orifice.
Mow/rake buffer area, side slopes and basin bottom	Spring and Fall	Bi-Annually
Remove trash, debris and organic matter	Spring and Fall	Bi-Annually