

Millbury, MA

2019 Downtown Redevelopment Project

Operation and Maintenance of Drainage Improvements

The following operation and maintenance procedures have been compiled for the drainage improvements associated with the Millbury Downtown Redevelopment Project. These procedures are based on site conditions proposed in plans dated August 2019. In addition to procedures for individual structural BMPs, this document includes operation and maintenance procedures for all activities relating to the drainage system within the project area.

1.0 Structural BMPs

Drainage updates proposed as part of the Downtown Redevelopment Project include the installation of various structural BMPs. Four rain gardens are proposed along South Main Street, as well as one Stormtech underground detention basin with an interceptor row and one planting bed with a stone swale. Pervious pavers and/or pervious paver edging with underdrain pipe are proposed along sidewalks on the portions of South Main Street and Elm Street within the project area. Seven tree pits are proposed along South Main Street and Elm Street, which serve as mini-bioretenion areas. Maintained properly, these BMPs will promote infiltration and improve water quality.

Millbury is a member of the Central Massachusetts Regional Stormwater Coalition (CMRSWC). To ease compliance with the 2016 MS4 Permit for its members, the CMRSWC published a series of Standard Operating Procedure (SOP) templates, including an SOP for Structural BMP Inspection and Maintenance. The procedures for operation and maintenance of the rain gardens, the filter media in the tree pits and the swale, and the detention basin have been adapted from those templates, and are included as Attachment 1. Stormtech, the detention basin manufacturer, provides Operation and Maintenance guidelines for its product, which have been incorporated into the CMRSWC procedures.

Pervious Pavers

To maintain their permeability, pervious pavers must be cleaned according to the schedule below. Any paver cleaner from Unilock, Techniseal, Surebond, or BP-Pro is acceptable per the manufacturer's specifications. The level of granular fill in the voids between pavers shall be checked after cleaning and refilled as necessary.

Pervious Paver Maintenance Schedule		
Activity	Time of Year	Frequency
Deep Clean pavers with coarse-bristle broom and paver cleaner	Spring	Annually
Clean with street sweeper or street vacuum	Spring and Fall	Bi-annually
Clean with Hose or Pressure Washer	Year-Round	Every three months

Tree Pits

Runoff is directed toward tree filter pits, which improve water quality and reduce volume as the tree uses some of the collected runoff for irrigation. Routine maintenance is required to promote the growth and longevity of trees planted in these confined spaces. The maintenance activities included alleviate soil compaction and contamination, and help water and air reach the roots. Tree pit maintenance shall follow the schedule below.

Tree Pit Maintenance Schedule		
Activity	Time of Year	Frequency
Loosen the top 2-3 inches of soil with a hand cultivator and apply a 3-inch layer of mulch	Spring	Annually
Inspect tree pits for dog waste, garbage, weeds, and de-icing salt. Remove all unwanted objects from tree pit as found.	Year-Round	Monthly/As Needed

The maintenance associated with the filter media beneath the tree is outlined in the attached SOP from CMRSWC.

2.0 General Maintenance

Street Sweeping and Catch Basin Cleaning have significant impacts on the function of drainage infrastructure and receiving water quality. For this reason, they are included as necessary operation and maintenance activities relating to drainage improvements for this project.

General Project Area Maintenance Schedule		
BMP	Frequency	Minimum Maintenance and Key Items to Check
Street Sweeping	Bi-annually	<ul style="list-style-type: none">- Sweep or vacuum paved surfaces with municipally owned street sweeping equipment and properly dispose of cleanings. Streets and sidewalks should be swept once in the Spring when snowfall events have ceased, and once in the fall following leaf collection.
Catch Basin Cleaning	Annually, or as determined by sediment loading	<ul style="list-style-type: none">- All catch basins in the project area shall be inspected and cleaned so that no catch basin is more than 50% full at any time. At a minimum, catch basins must be inspected once per year.- Sediment and debris shall be removed from the catch basin using a vactor truck or clam shell, and disposed of in accordance with all applicable regulations.- The Catch Basin Inspection Form, provided by CMRSWC and included as Attachment 2, shall be filled out for each catch basin in the project area. Any structural damage shall be repaired as necessary.- During the winter, the catch basin grates shall be kept free of snow and ice.- During the spring, summer, and fall, catch basin grates shall be kept free of leaves, litter, sand, and debris.

Attachment 1: Structural BMP Operation and Maintenance SOP

SOP 9: Inspection and Maintenance of Structural Stormwater Best Management Practices (BMPs)

Introduction

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. Structural BMPs are permanent site features designed to treat stormwater before infiltrating it to the subsurface or discharging it to a surface water body. Regular inspection and maintenance of structural stormwater BMPs is critical for these engineered systems to function as designed (e.g., provide benefits to water quality, groundwater recharge, and peak flow attenuation).

This Standard Operating Procedure (SOP) provides general inspection and maintenance frequencies and procedures for applicable structural stormwater BMPs, including:

1. Bioretention Areas and Rain Gardens
2. Extended Dry Detention Basins
3. Sand and Organic Filters

This SOP is based on the Massachusetts Stormwater Handbook and is not intended to replace the stormwater BMP Operation and Maintenance guidance contained in the Handbook. 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.

The Millbury Department of Public Works is responsible for inspection and maintenance of structural stormwater BMPs and other stormwater infrastructure associated with the 2019 Downtown Redevelopment Project. A list of existing structural stormwater BMPs is included in the attachments, along with inspection and maintenance checklists for each type of BMP.

Structural stormwater BMPs will be inspected annually at a minimum. Inspection checklists for each type of structural BMP are provided in the attachments.

Procedures

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.
2. Exfiltration bioretention area: Areas that are configured to recharge groundwater in addition to acting as a filter.

Applicable Rain Gardens

This SOP shall apply to the following four (4) Rain Gardens, proposed under the Downtown Redevelopment Project and included in the attached Structural BMP inventory form:

- Rain Garden at the Northwest corner of South Main St. and Elm St. (RG-1)
- Rain Garden at the Southwest corner of South Main St. and Elm St. (RG-2)

- Rain Garden abutting the building at 4 South Main Street (RG-3)
- Rain Garden in front of 8 South Main St. (RG-4)

Inspection and 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 the recharge and water quality treatment of ground water.

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 reducing 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.

Applicable Dry Detention Basins

This SOP shall apply to the following dry detention basin, proposed under the Downtown Redevelopment Project and included in the attached structural BMP inventory form:

- Stormtech Detention Basin in front of 8 South Main St. (UG-1)

This proprietary underground detention system uses an Isolator Row to confine all sediment to one row of the system, eliminating the need to clean out every section of the basin. Stormtech provides an O&M manual for the isolator row, which is attached to this SOP.

Inspection and 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

Sand and Organic Filters

Sand and organic filters, also known as filtration basins, are intended for stormwater 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.

Applicable Organic Filters

This SOP shall apply to the following organic filters, proposed with the Downtown Redevelopment Project and included in the attached Structural BMP inventory form:

- Bio-retention soil mix within each tree pit as designated in Detail 6 on Sheet L7.08 of the design drawings (TP-1 – TP-7)
- Riverstones and soil mix in the planting bed with stone swale, as designated in Detail 8 on Sheet L7.08 of the design drawings (SW-1)

Inspection and Maintenance

If properly maintained, sand and organic filters have a long life. Maintenance requirements of the filters 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 the sand should be replaced.

Maintenance Schedule: Sand and Organic Filters

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

Attachments

1. Structural BMP Inventory
2. Structural BMP Inspection and Maintenance Checklists
3. Stormtech Isolator Row O&M Manual

**Inventory of Structural Stormwater Best Management Practices (BMPs)
Millbury Downtown Redevelopment, August 2019**

BMP ID or Description	Location	BMP Type	Inspection Frequency	Date of Last Inspection	Additional Notes
RG-1	NW Corner of S. Main St. and Elm St.	Rain Garden	Monthly		
RG-2	SW Corner of S. Main St. and Elm St.	Rain Garden	Monthly		
RG-3	Abutting building at 4 S. Main St.	Rain Garden	Monthly		
RG-4	Outside 8 S. Main St.	Rain Garden	Monthly		
UG-1	Under parking spaces outside 8 S. Main St.	Underground dry detention basin	Bi-annually and during and after major storms		
TFP-1	In front of Millbury Federated Church, closer to corner	Tree Filter Pit, Organic Filter	Bi-annually and after major storms		
TFP-2	In front of Millbury Federated Church	Tree Filter Pit, Organic Filter	Bi-annually and after major storms		
TFP-3	Next to bus shelter on Elm St. at NE corner of intersection with S. Main St.	Tree Filter Pit, Organic Filter	Bi-annually and after major storms		
TFP-4	S. Main St outside Centerview Apartments	Tree Filter Pit, Organic Filter	Bi-annually and after major storms		
TFP-5	Outside 8 S. Main St, closer to South Common	Tree Filter Pit, Organic Filter	Bi-annually and after major storms		
TFP-6	Outside 8 S. Main Street	Tree Filter Pit, Organic Filter	Bi-annually and after major storms		
TFP-7	Outside 8 S. Main Street	Tree Filter Pit, Organic Filter	Bi-annually and after major storms		
SW-1	NE Corner of S. Main St. and Elm St.	Planting bed with stone swale, organic filter	Bi-annually and after major storms		

INSPECTION OF BIORETENTION AREAS / RAIN GARDENS|**General Information**

BMP Description	Bioretention Area / Rain Garden		
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular <input type="checkbox"/> Pre-Storm Event <input type="checkbox"/> During Storm Event <input type="checkbox"/> Post-Storm Event <input type="checkbox"/>			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
Inspect for soil erosion and repair	Monthly	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Inspect for invasive species and remove if present	Monthly	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Remove trash	Monthly	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Mulch void areas	Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Remove dead vegetation	Bi-Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Replace dead vegetation	Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Prune	Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Replace all media and vegetation	As Needed	Yes <input type="checkbox"/> No <input type="checkbox"/>	

INSPECTION OF EXTENDED DRY DETENTION BASINS

Inspections should be conducted bi-annually, and during and after major storm events.

General Information

BMP Description	Extended Dry Detention Basin		
BMP Location			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular <input type="checkbox"/> Pre-Storm Event <input type="checkbox"/> During Storm Event <input type="checkbox"/> Post-Storm Event <input type="checkbox"/>			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
Examine outlet structure for clogging or high outflow release velocities	Bi-Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Mow upper stage, side slopes, embankment and emergency spillway	Bi-Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Remove trash and debris	Bi-Annually	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Remove sediment from basin	At least once every 5 years	Yes <input type="checkbox"/> No <input type="checkbox"/>	

INSPECTION OF SAND AND ORGANIC FILTERS

Inspections should be conducted after every major storm event for the first 3 months following completion, then every 6 months thereafter.

General Information

BMP Description	Sand/Organic Filter		
BMP Location			
Media Type			
Inspector's Name			
Date of Inspection		Date of Last Inspection	
Start Time		End Time	
Type of Inspection: Regular <input type="checkbox"/> Pre-Storm Event <input type="checkbox"/> During Storm Event <input type="checkbox"/> Post-Storm Event <input type="checkbox"/>			
Describe the weather conditions at time of inspection			

Specific Information

Maintenance Activity	Maintenance Frequency	Is Status of BMP Satisfactory?	Corrective Action Needed
Remove sediment, trash, and debris	Every 6 months	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Rake sand	Every 6 months	Yes <input type="checkbox"/> No <input type="checkbox"/>	

**Save Valuable Land and
Protect Water Resources**



Isolator[®] Row O&M Manual
StormTech[®] Chamber System for Stormwater Management

1.0 The Isolator[®] Row

1.1 INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a patented technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.



Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.

1.2 THE ISOLATOR ROW

The Isolator Row is a row of StormTech chambers, either SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-4500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC-310-3 and SC-740 models) allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

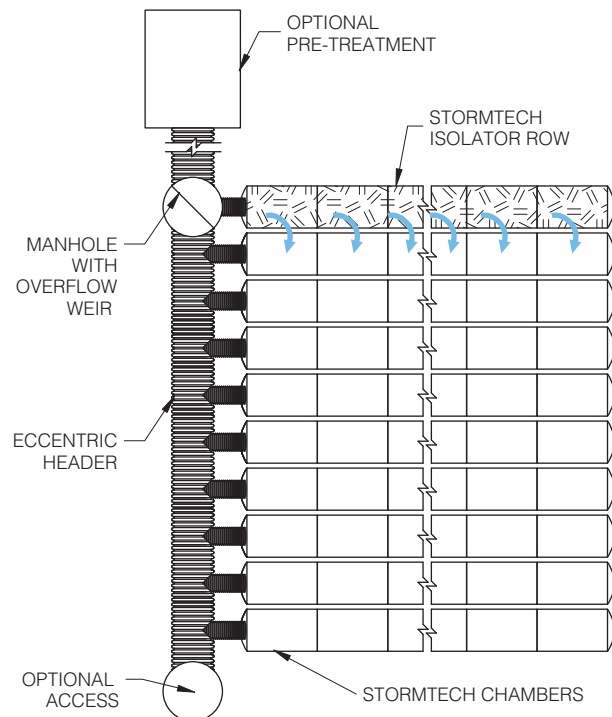
Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for storm water filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

The Isolator Row is typically designed to capture the “first flush” and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row but typically includes a high flow weir such that storm water flowrates or volumes that exceed the capacity of the Isolator Row overtop the over flow weir and discharge through a manifold to the other chambers.

The Isolator Row may also be part of a treatment train. By treating storm water prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins, oil-water separators or can be innovative storm water treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.

StormTech Isolator Row with Overflow Spillway (not to scale)



2.0 Isolator Row Inspection/Maintenance



2.1 INSPECTION

The frequency of Inspection and Maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

2.2 MAINTENANCE

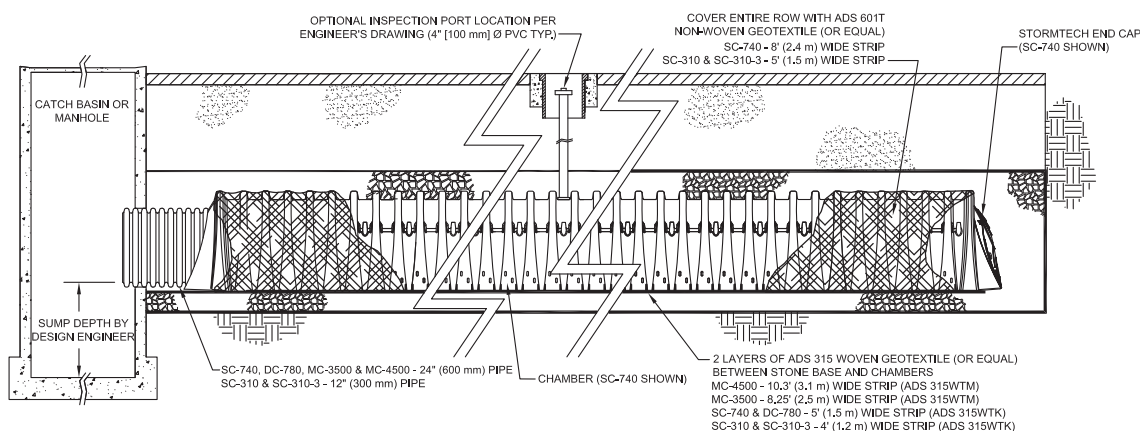
The Isolator Row was designed to reduce the cost of periodic maintenance. By “isolating” sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.



Examples of culvert cleaning nozzles appropriate for Isolator Row maintenance. (These are not StormTech products.)

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45” are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

StormTech Isolator Row (not to scale)



NOTE: NON-WOVEN FABRIC IS ONLY REQUIRED OVER THE INLET PIPE CONNECTION INTO THE END CAP FOR DC-780, MC-3500 AND MC-4500 CHAMBER MODELS AND IS NOT REQUIRED OVER THE ENTIRE ISOLATOR ROW.

3.0 Isolator Row Step By Step Maintenance Procedures

Step 1) Inspect Isolator Row for sediment

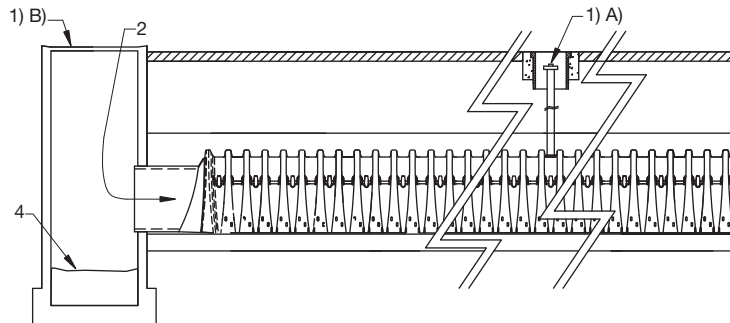
A) Inspection ports (if present)

- i. Remove lid from floor box frame
- ii. Remove cap from inspection riser
- iii. Using a flashlight and stadia rod, measure depth of sediment and record results on maintenance log.
- iv. If sediment is at, or above, 3 inch depth proceed to Step 2. If not proceed to step 3.

B) All Isolator Rows

- i. Remove cover from manhole at upstream end of Isolator Row
- ii. Using a flashlight, inspect down Isolator Row through outlet pipe
 1. Mirrors on poles or cameras may be used to avoid a confined space entry
 2. Follow OSHA regulations for confined space entry if entering manhole
- iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches) proceed to Step 2. If not proceed to Step 3.

StormTech Isolator Row (not to scale)



Step 2) Clean out Isolator Row using the JetVac process

- A) A fixed culvert cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

Step 3) Replace all caps, lids and covers, record observations and actions

Step 4) Inspect & clean catch basins and manholes upstream of the StormTech system

Sample Maintenance Log

Date	Stadia Rod Readings		Sediment Depth (1) - (2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/01	6.3 ft.	none		New installation. Fixed point is CI frame at grade	djm
9/24/01		6.2	0.1 ft.	Some grit felt	sm
6/20/03		5.8	0.5 ft.	Mucky feel, debris visible in manhole and in Isolator row, maintenance due	rv
7/7/03	6.3 ft.		0	System jetted and vacuumed	djm



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Attachment 2: Catch Basin Inspection Form

Job No.: _____ Town: _____
 Inspector: _____ Date: _____



CATCH BASIN INSPECTION FORM

Catch Basin I.D.			Final Discharge from Structure? Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, Discharge to Outfall No: _____	
Catch Basin Label:	Stencil <input type="checkbox"/> Ground Inset <input type="checkbox"/> Sign <input type="checkbox"/> None <input type="checkbox"/> Other _____			
Basin Material:	Concrete <input type="checkbox"/> Corrugated metal <input type="checkbox"/> Stone <input type="checkbox"/> Brick <input type="checkbox"/> Other: _____ <input type="checkbox"/>	Catch Basin Condition:		Good <input type="checkbox"/> Poor <input type="checkbox"/> Fair <input type="checkbox"/> Crumbling <input type="checkbox"/>
Pipe Material:	Concrete <input type="checkbox"/>	Depth from rim to top of sediment before cleaning: _____ ft		
	HDPE <input type="checkbox"/>	Depth from rim to bottom of basin after cleaning: _____ ft		
	PVC <input type="checkbox"/> Clay Tile <input type="checkbox"/> Other: _____ <input type="checkbox"/>	Depth from rim to invert of outlet pipe: _____ ft		
Required Maintenance/ Problems (check all that apply): <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <input type="checkbox"/> Tree Work Required <input type="checkbox"/> New Grate is Required <input type="checkbox"/> Pipe is Blocked <input type="checkbox"/> Frame Maintenance is Required <input type="checkbox"/> Remove Accumulated Sediment <input type="checkbox"/> Pipe Maintenance is Required <input type="checkbox"/> Basin Undermined or Bypassed </div> <div style="width: 48%;"> <input type="checkbox"/> Cannot Remove Cover <input type="checkbox"/> Ditch Work <input type="checkbox"/> Corrosion at Structure <input type="checkbox"/> Erosion Around Structure <input type="checkbox"/> Remove Trash & Debris <input type="checkbox"/> Need Cement Around Grate Other: _____ </div> </div>				
Catch Basin Grate Type :	Sediment Buildup Depth :		Description of Flow:	Street Name/ Structure Location:
Bar: <input type="checkbox"/> Cascade: <input type="checkbox"/> Other: _____ Properly Aligned: Yes <input type="checkbox"/> No <input type="checkbox"/>	0-6 (in): _____ 6-12(in): _____ 12-18 (in): _____ 18-24 (in): _____ 24 + (in): _____		Heavy <input type="checkbox"/> Moderate <input type="checkbox"/> Slight <input type="checkbox"/> Trickling <input type="checkbox"/>	
*If the outlet is submerged check yes and indicate approximate height of water above the outlet invert. h above invert (in): _____			Yes <input type="checkbox"/>	No <input type="checkbox"/>
<input type="checkbox"/> Flow <input type="checkbox"/> Standing Water (check one or both)	Observations:		Circle those present:	
	Color: _____	_____	Foam	Oil Sheen
Odor: _____		_____	Sanitary Waste	Bacterial Sheen
Weather Conditions :		Dry > 24 hours <input type="checkbox"/> Wet <input type="checkbox"/>	Orange Staining	Floatables
Sample of Screenings Collected for Analysis? Yes <input type="checkbox"/> No <input type="checkbox"/>			Excessive sediment	Pet Waste
Comments:			Other: _____	Optical Enhancers