CITY OF FIFE

City of Fife
Storm System Inspection Report Cover Sheet

Buiness Name _____

Site Address _____

Pond Location _____

Inspecton Date _____

Time On site _____ Time off site _____

Did the City contact the owner prior to making a site visit? **Yes/No/NA**

Contact Name _____

Contact Date/Time _____

Contact Phone # _____ Message? **Yes/No/NA**

Detention Pond ☐ Detention Pipe/ Valt/ Tank ☐ Storm Filter ☐ Control Structure ☐

Catch Basins ☐ Bioswale ☐ Filterra ☐ Vortechs ☐

Were non-compliant items discussed with pond owner? **Yes/No/NA**

Note Non-Compliant Items

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Printed Name (Inspector)

_____ _____

Signature Date/Time

CITY OF FIFE

Closed Detention Systems (Tanks/Vaults)

DOE Runoff Treatment BMPs 2005

Address _____

Date _____

Inspector _____

Maintenance Component	Defect	Conditions When Maintenance is Needed		Results Expected When Maintenance is Performed
Storage Area	Plugged Air Vents	One-half of the cross section of a vent is blocked at any point or the vent is damaged.	Yes / No / NA	Vents open and functioning.
	Debris and Sediment	Accumulated sediment depth exceeds 10% of the diameter of the storage area for 1/2 length of storage vault or any point depth exceeds 15% of diameter. (Example: 72-inch storage tank would require cleaning when sediment reaches depth of 7 inches for more than 1/2 length of tank.)	Yes / No / NA	All sediment and debris removed from storage area.
	Joints Between Tank/Pipe Section	Any openings or voids allowing material to be transported into facility. (Will require engineering analysis to determine structural stability).	Yes / No / NA	All joint betweentank/pipe sections are sealed.
	Tank Pipe Bent Out of Shape	Any part of tank/pipe is bent out of shape more than 10% of its design shape. (Reviewrequired by engineer to determine structural stability).	Yes / No / NA	Tank/pipe repaired or replaced to design.
	Vault Structure Includes Cracks in Wall, Bottom, Damage to Frame and/or Top Slab	Cracks wider than 1/2-inch and any evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determines that the vault is not structurally sound. Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or any evidence of soil particles entering the vault through the walls.	Yes / No / NA	Vault replaced or repaired to design specifications and is structurally sound. No cracks more than 1/4-inch wide at the joint of the inlet/outlet pipe.
Manhole	Cover Not in Place	Cover is missing or only partially in place. Any open manhole requires maintenance.	Yes / No / NA	Manhole is closed.
	Locking MechanismNot Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread (may not apply to self-locking lids).	Yes / No / NA	Mechanism opens with proper tools.
	Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. Intent is to keep cover from sealing off access to maintenance.	Yes / No / NA	Cover can be removed and reinstalled by one maintenance person.
	Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, misalignment, not securely attached to structure wall, rust, or cracks.	Yes / No / NA	Ladder meets design standards. Allows maintenance person safe access.
Catch Basins	See “Catch Basins” (No. 5)	See “Catch Basins”	Yes / No / NA	See “Catch Basins” (No. 5).

CITY OF FIFE

StormFilter Vault/Manhole Inspection

Address _____

Date _____

Inspector _____

The primary goal of an inspection is to assess the condition of the cartridges relative to the level of visual sediment loading as it relates to decreased treatment capacity. It may be desirable to conduct this inspection during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced. This short version inspection document is not intended to replace the StormFilter Inspection and Maintenance Procedures Manual and it is recommended that all persons review the manual carefully.

Visual Inspection Indicators

During A Rain Event

When water is flowing through the system, it may be difficult to see sediment loading; however visual observation of one or more of the following indicates that a StormFilter system needs maintenance.

_____ If inspection is conducted during an average rain fall event and StormFilter remains in bypass condition (water over the internal outlet baffle wall or submerged cartridges)

_____ Very little or no flow discharged from drainage pipes (indicates that media is clogged)

24 Hours After A Rain Event

Sediment loading can be observed and measured easily during dry conditions. A 24 hour window, with no flow into the system, is recommended prior to using the following indicators. Observation of one or more of the following indicates that a StormFilter system needs maintenance (Note: The following assumptions are being made: No rainfall for 24 hours or more, No upstream detention (at least not draining into StormFilter), Structure is online, Outlet pipe is clear of obstruction, Construction bypass is plugged.)

_____ If >4” of accumulated sediment on the vault floor (Quick Tip #1)

_____ If >¼” of accumulated sediment on top of the StormFilter cartridge (Quick Tip #2)

_____ If >4” of static water in the cartridge bay > 24 hours after flow into system has stopped (Quick Tip #3)

_____ If >¼” thick scum line is present on the wall (above the top cap of cartridges) (Quick Tip #4)

_____ If hazardous material release is reported

_____ If >3 years since last full maintenance

_____ Optional: If pore space between media granules is absent (removal of cartridge hood required)

Quick Tips

1. The distance from cartridge base to the bottom of the hood is just over 4”.

2. The distance from the top of the hood, to the bottom flange on the top cap is about ¼”

3. The StormFilter’s integrated trickle feature allows the water level to drain down to the base of the cartridge over time.

4. It is typical to have a high water mark, and associated scum line. An extraordinarily thick, pronounced scum line, above the top cap of the cartridges and protruding 1/4” or more from the wall surface, is indicative of the cartridges being clogged and submerged for long periods.

5. Accumulation of sediment over time can used to estimate the next likely maintenance event. (Example: If the unit historically captures about 1” of sediment annually, it can be estimated that maintenance will be required after the third year)

CITY OF FIFE

Wetvaults

DOE Runoff Treatment BMPs 2005

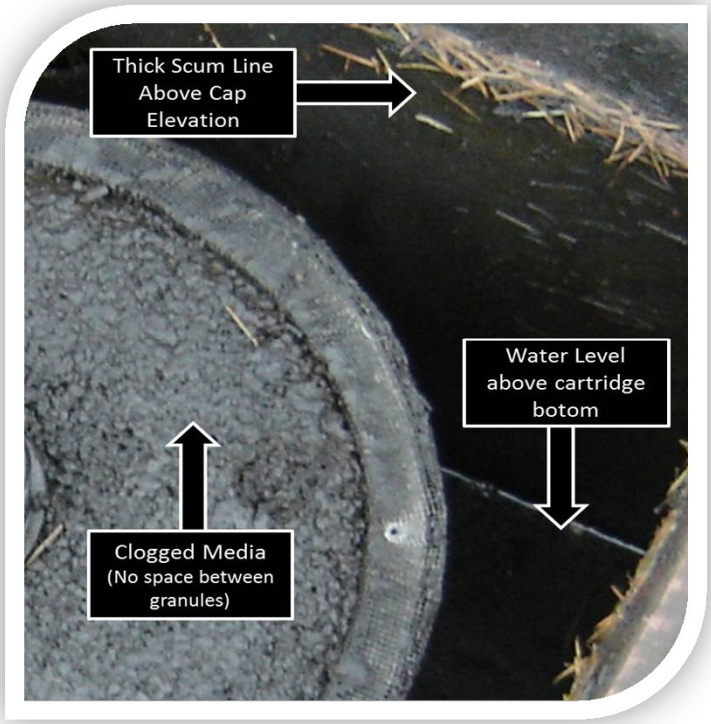
Address _____

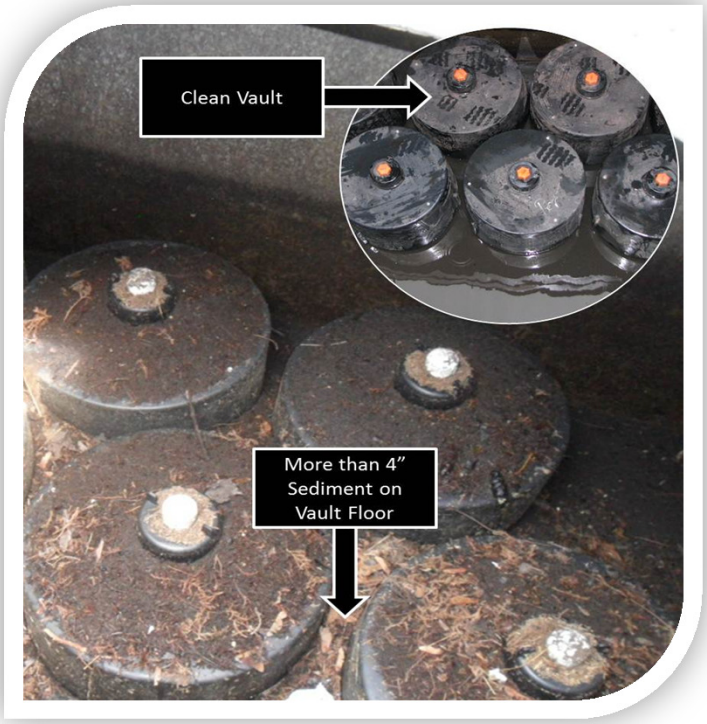
Date _____

Inspector _____

Maintenance Component	Defect	Condition When Maintenance is Needed		Results Expected When Maintenance is Performed
General	Trash/Debris Accumulation	Trash and debris accumulated in vault, pipe or inlet/outlet (includes floatables and non-	Yes/No/NA	Remove trash and debris from vault.
	Sediment Accumulation in Vault	Sediment accumulation in vault bottom exceeds the depth of the sediment zone plus 6-inches.	Yes/No/NA	Remove sediment from vault.
	Damaged Pipes	Inlet/outlet piping damaged orbroken and in need of repair.	Yes/No/NA	Pipe repaired and/or replaced.
	Access Cover Damaged/Not Working	Cover cannot be opened or removed, especially by one person.	Yes/No/NA	Pipe repaired or replaced to proper working specifications.
	Ventilation	Ventilation area blocked or plugged.	Yes/No/NA	Blocking material removed or cleared from ventilation area. A specified %of the vault surface area must provide ventilation to the vault interior (see design specifications).
	Vault Structure Damage -Includes Cracks in Walls Bottom, Damage to Frame and/or Top Slab	Maintenance/inspectionpersonnel determine that the vault is not structurally sound.	Yes/No/NA	Vault replaced or repairs made so that vault meets design specifications and is structurally sound.
		Cracks wider than 1/2-inch at the joint of any inlet/outlet pipeor evidence of soil particles entering through the cracks.	Yes/No/NA	Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.
	Baffles	Baffles corroding, cracking, warping and/or showing signs of failure as determined bymaintenance/inspection staff.	Yes/No/NA	Baffles repaired or replaced to specifications.
	Access Ladder Damage	Ladder is corroded or deteriorated, not functioning properly, not attached to structure wall, missing rungs, has cracks and/or misaligned.Confined space warning sign missing.	Yes/No/NA	Ladder replaced or repaired tospecifications, and is safe to use as determined by inspection personnel. Replace sign warning of confined space entry requirements. Ladder and entry notification complies with OSHA standards.

StormFilter Vault/Manhole Inspection Photos





CITY OF FIFE

Control Structure/Flow Restrictor

DOE Runoff Treatment BMPs 2005

Address _____

Date _____

Inspector _____

Maintenance Component	Defect	Condition When Maintenance is Needed		Results Expected When Maintenance is Performed
General	Trash and Debris (Includes Sediment)	Material exceeds 25% of sump depth or 1 foot below orifice plate.	Yes / No / NA	Control structure orifice is not blocked. All trash and debris removed.
	Structural Damage	Structure is not securely attached to manhole wall.	Yes / No / NA	Structure securely attached to wall and outlet pipe.
		Structure is not plumb and level	Yes / No / NA	Structure is plumb, level and set to design.
		Connections to outlet pipe are not watertight and show signs of rust.	Yes / No / NA	Connections to outlet pipe are water tight; structure repaired or replaced and works as designed.
		Any holes--other than designed holes--in the structure.	Yes / No / NA	Structure has no holes other than designed holes.
Cleanout Gate	Damaged or Missing	Cleanout gate is not watertight or is missing.	Yes / No / NA	Gate is watertight and works as designed.
		Gate cannot be moved up and down by one maintenance person.	Yes / No / NA	Gate moves up and down easily and is watertight.
		Chain/rod leading to gate is missing or damaged.	Yes / No / NA	Chain is in place and works as designed.
		Gate is rusted over 50% of its surface area.	Yes / No / NA	Gate is repaired or replaced to meet design standards.
Orifice Plate	Damaged or Missing	Control device is not working properly due to missing, out of place, or bent orifice plate.	Yes / No / NA	Plate is in place and works as designed.
	Obstructions	Any trash, debris, sediment, or vegetation blocking the plate.	Yes / No / NA	Plate is free of all obstructions and works as designed.
Overflow Pipe	Obstructions	Any trash or debris blocking (or having the potential of blocking) the overflow pipe.	Yes / No / NA	Pipe is free of all obstructions and works as designed.
Manhole	See “Closed Detention Systems” (No. 3).	See “Closed Detention Systems” (No. 3).	Yes / No / NA	See “Closed Detention Systems” (No. 3).
Catch Basin	See “Catch Basins” (No. 5).	See “Catch Basins” (No. 5).	Yes / No / NA	See “Catch Basins” (No. 5).

CITY OF FIFE

Catch Basins

DOE Runoff Treatment BMPs 2005

Address _____

Date _____

Inspector _____

		Trash or debris (in the basin) that exceeds 60% of the sump depth as measured from the bottom of basin to invert of the lowestpipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of lowest pipe.	Yes / No / NA	No trash or debris in the catch basin.
		Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height.	Yes / No / NA	Inlet and outlet pipes free of trash or debris.
		Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	Yes / No / NA	No dead animals or vegetation present within the catch basin.
	Sediment	Sediment (in the basin) that exceeds 60% of the sump depth as measured from the bottom of basin to invert of the lowestpipe into or out of the basin, **but in no case less than a minimum of 6 inches clearance from the sediment surface to the invert of the lowest pipe.**	Yes / No / NA	No sediment in the catch basin
	Structure Damage to Frame and/or Top Slab	Top slab has holes larger than 2 square inches or cracks wider than 1/4 inch (Intent is to make sure no material is running into basin).	Yes / No / NA	Top slab is free of holes and cracks.
		Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securelyattached	Yes / No / NA	Frame is sitting flush on the riser rings or top slab and firmly attached.
	Fractures or Cracks in Basin Walls/Bottom	Maintenance person judges that structure is unsound.	Yes / No / NA	Basin replaced or repaired to design standards.
		Grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence ofsoil particles entering catch basin throughcracks.	Yes / No / NA	Pipe is regrouted and secure at basin wall.
	Settlement/ Misalignment	If failure of basin has created a safety, function, or design problem.	Yes / No / NA	Basin replaced or repaired to design standards.
	Vegetation	Vegetation growing across and blocking more than 10% of the basin opening.	Yes / No / NA	No vegetation blocking opening to basin.
		Vegetation growing in inlet/outlet pipe joints that is more than six inches tall and less than six inches apart.	Yes / No / NA	No vegetation or root growth present.
	Contamination and Pollution	See "Detention Ponds" (No. 1).	Yes / No / NA	No pollution present.
Catch Basin Cover	Cover Not in Place	Cover is missing or only partially in place. Any open catch basin requires maintenance.	Yes / No / NA	Catch basin cover is closed
	Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.	Yes / No / NA	Mechanism opens with proper tools.
	Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. (Intent is keep cover from sealing off access to maintenance.)	Yes / No / NA	Cover can be removed byone maintenance person.

CITY OF FIFE

Wet Biofiltration Swale

DOE Runoff Treatment BMPs 2005

Address _____

Date _____

Inspector _____

Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**		**Recommended Maintenance to Correct Problem**
General	Sediment Accumulation	Sediment depth exceeds 2-inches in 10% of the swale treatment area.	Yes / No / NA	Remove sediment deposits in treatment area.
	Water Depth	Water not retained to a depth of about 4 inches during the wet season.	Yes / No / NA	Build up or repair outlet berm so that water is retained in the wet swale.
	Wetland Vegetation	Vegetation becomes sparse and does not provide adequate filtration, OR vegetation is crowded out by very dense clumps of cattail, which do not allow water to flow through the clumps.	Yes / No / NA	Determine cause of lack of vigor of vegetation and correct. Replant as needed. For excessive cattail growth, cut cattail shoots back and compost off-site. Note: normally wetland vegetation does not need to be harvested unless die-back is causing oxygen depletion in downstream waters.
	Inlet / Outlet	Inlet/outlet area clogged with sediment and/or debris.	Yes / No / NA	Remove clogging or blockage in the inlet and outlet areas.
	Trash and Debris Accumulation	See "Detention Ponds" (No. 1).	Yes / No / NA	Remove trash and debris from wet swale.
	Erosion/ Scouring	Swale has eroded or scoured due to flow channelization, or higher flows.	Yes / No / NA	Check design flows to assure swale is large enough to handle flows. By-pass excess flows or enlarge swale. Replant eroded areas with fibrous-rooted plants such as Juncus effusus (soft rush) in wet areas or snowberry (Symphoricarpos albus) in dryer areas.

CITY OF FIFE

Biofiltration Swale

DOE Runoff Treatment BMPs 2005

Address _____

Date _____

Inspector _____

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed		Recommended Maintenance to Correct Problem
General	Sediment Accumulation on Grass	Sediment depth exceeds 2 inches.	Yes / No / NA	Remove sediment deposits on grass treatment area of the bio-swale. When finished, swale should be level from side to side and drain freely toward outlet. There should be no areas of standing water once inflow has ceased.
	Standing Water	When water stands in the swale between storms and does not drain freely.	Yes / No / NA	Any of the following may apply: remove sediment or trash blockages, improve grade from head to foot of swale, remove clogged check dams, add underdrains or convert to a wet biofiltration swale.
	Flow spreader	Flow spreader uneven or clogged so that flows are not uniformly distributed through entire swale width.	Yes / No / NA	Level the spreader and clean so that flows are spread evenly over entire swale width.
	Constant Baseflow	When small quantities of water continually flow through the swale, even when it has been dry for weeks, and an eroded, muddy channel has formed in the swale bottom.	Yes / No / NA	Add a low-flow pea-gravel drain the length of the swale or by-pass the baseflow around the swale.
	Poor Vegetation Coverage	When grass is sparse or bare or eroded patches occur in more than 10% of the swale bottom.	Yes / No / NA	Determine why grass growth is poor and correct that condition. Re-plant with plugs of grass from the upper slope: plant in the swale bottom at 8-inch intervals. Or re-seed into loosened, fertile soil.
	Vegetation	When the grass becomes excessively tall (greater than 10-inches); when nuisance weeds and other vegetation starts to take over.	Yes / No / NA	Mow vegetation or remove nuisance vegetation so that flow not impeded. Grass should be mowed to a height of 3 to 4 inches. Remove grass clippings.
	Excessive Shading	Grass growth is poor because sunlight does not reach swale.	Yes / No / NA	If possible, trim back over-hanging limbs and remove brushy vegetation on adjacent slopes.
	Inlet/Outlet	Inlet/outlet areas clogged with sediment and/or debris.	Yes / No / NA	Remove material so that there is no clogging or blockage in the inlet and outlet area.
	Trash and Debris Accumulation	Trash and debris	Yes / No / NA	Remove trash and debris from bioswale.
	Erosion/Scouring	Eroded or scoured swale bottom due to flow channelization, or higher flows.	Yes / No / NA	For ruts or bare areas less than 12 inches wide, repair the damaged area by filling with crushed gravel. If bare areas are large, generally greater than 12 inches wide, the swale should be re-graded and re-seeded. For smaller bare areas, overseed when bare spots are evident, or take plugs of grass from the upper slope and plant in the swale bottom at 8-inch intervals.

CITY OF FIFE

Vortechs

DOE Runoff Treatment BMPs 2005

Address _____

Date _____

Inspector _____

Yes = Maintenance required From the Contech Storm filter maintenance Procedures

If there is less than 6 Inches of water above the sediment pile, the system should be cleaned out.	**Yes/No/NA**

Floatable Layer thickness (in). _____