

Biofiltration Swale

Date Inspected _____

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
General	Sediment Accumulation on Grass	Sediment depth exceeds two inches.	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.	<input type="checkbox"/>
	Standing Water	When water stands in the swale between storms and does not drain freely.	Any of the following may apply: sediment or trash blockages removed, grade from head to foot of swale improved, clogged check dams removed, or under drains installed.	<input type="checkbox"/>
	Flow Spreader	Flow spreader uneven or clogged so that flows are not uniformly distributed through entire swale width.	Level and clean the spreader so that flows are spread evenly over entire swale width.	<input type="checkbox"/>
	Constant Base Flow	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.	Add a low-flow pea-gravel drain the length of the swale or bypass the base flow around the swale.	<input type="checkbox"/>
	Poor Vegetation Coverage	When grass is sparse or bare or eroded patches occur in more than 10% of the swale bottom.	Re-seed into loosened, fertile soil.	<input type="checkbox"/>
	Vegetation	When the grass becomes excessively tall (greater than 10 inches); when nuisance weeds and other vegetation starts to take over.	Mow vegetation or remove nuisance vegetation so that flow not impeded. Mow grass to a height of three to four inches. Grass clippings removed.	<input type="checkbox"/>
	Excessive Shading	Grass growth is poor because sunlight does not reach swale.	If possible, over-hanging limbs trimmed back and brushy vegetation on adjacent slopes removed.	<input type="checkbox"/>
	Inlet/Outlet	Inlet/outlet areas clogged with sediment and/or debris.	Remove material so there is no clogging or blockage in the inlet and outlet area.	<input type="checkbox"/>
	Trash and Debris Accumulation	Trash and debris accumulated in the bio-swale.	Remove trash and debris from bioswale.	<input type="checkbox"/>
Erosion/Scouring	Eroded or scoured swale bottom due to flow channelization, or higher flows.	For ruts or bare areas less than 12 inches wide, the damaged area can be repaired by filling with crushed stone. If bare areas are large, generally greater than 12 inches wide, the swale should be re-graded and re-seeded.	<input type="checkbox"/>	

For questions and information on maintenance procedures contact Chuck Petty, Assistant County Engineer at (513) 695-3309 or charles.petty@co.warren.oh.us

Catch Basin or Field Inlet

Date Inspected _____

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
General	Trash and Debris	Trash or debris which is located immediately in front of the catch basin opening is blocking inletting capacity of the basin by more than 10%.	No trash or debris located immediately in front of catch basin or on grate opening.	<input type="checkbox"/>
		Trash or debris accumulated in the basin.	No trash or debris in the catch basin.	<input type="checkbox"/>
		Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height.	Inlet and outlet pipes free of trash or debris.	<input type="checkbox"/>
		Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No dead animals or vegetation present within the catch basin.	<input type="checkbox"/>
	Sediment	Sediment accumulated in the basin.	No sediment in the catch basin.	<input type="checkbox"/>
	Structure: Damage to Frame and/or Top Slab	Top slab has holes larger than two square inches or cracks wider than 1/4 inch (Intent is to make sure no material is running into basin).	Top slab is free of holes and cracks.	<input type="checkbox"/>
		Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached.	Frame is sitting flush on the riser rings or top slab and firmly attached.	<input type="checkbox"/>
	Fractures or Cracks in Basin Walls/ Bottom	Maintenance person judges that structure is unsound.	Replace basin or repair to design standards.	<input type="checkbox"/>
		Grout has separated or cracked wider than 1/2 inch and longer than one foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.	Re-grout pipe and secure at basin wall.	<input type="checkbox"/>
	Settlement/ Misalignment	If failure of basin has created a safety, function, or design problem.	Replace basin or repair to design standards.	<input type="checkbox"/>
	Vegetation	Vegetation growing across and blocking more than 10% of the basin opening.	No vegetation blocking opening to basin.	<input type="checkbox"/>
		Vegetation growing in inlet/outlet pipe joints that is more than six inches tall.	No vegetation or root growth present.	<input type="checkbox"/>
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants.	No contaminants or pollutants present. (Coordinate removal/cleanup with the Ohio Environmental Protection Agency by calling 1-800-282-9378).	<input type="checkbox"/>

Catch Basin or Field Inlet (cont.)

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
Catch Basin Cover	Cover Not in Place	Cover is missing or only partially in place. Any open catch basin requires maintenance.	Catch basin cover is closed.	<input type="checkbox"/>
	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.	Mechanism opens with proper tools.	<input type="checkbox"/>
	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).	Cover can be removed by one maintenance person.	<input type="checkbox"/>
Ladder	Ladder Rungs Unsafe	Ladder is unsafe due to rust, cracks, sharp edges, missing rungs, or is or misaligned or not securely attached to basin wall.	Ladder meets design standards and allows maintenance person safe access.	<input type="checkbox"/>
Metal Grates (If Applicable)	Grate Opening Unsafe	Grate with opening wider than 7/8 inch.	Grate opening meets design standards.	<input type="checkbox"/>
	Trash and Debris	Trash and debris that is blocking more than 20% of grate surface inletting capacity.	Grate free of trash and debris.	<input type="checkbox"/>
	Damaged or Missing	Grate missing or broken member(s) of the grate.	Grate is in place and meets design standards.	<input type="checkbox"/>

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Closed Detention Systems (Tanks/Vaults) Date Inspected _____

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
Storage Area	Plugged Air Vents	One-half of the cross section of a vent is blocked at any point or the vent is damaged.	Vents open and functioning.	<input type="checkbox"/>
	Debris and Sediment	Sediment or debris accumulated in storage area.	Remove all sediment and debris from storage area.	<input type="checkbox"/>
	Joints Between Tank/Pipe Section	Any openings or voids allowing material to be transported into facility.	Seal all joints between tank/pipe sections.	<input type="checkbox"/>
		(Will require engineering analysis to determine structural stability).		
	Tank Pipe Bent Out of Shape	Any part of tank/pipe is bent out of shape more than 10% of its design shape. (Review required by engineer to determine structural stability).	Repair tank/pipe or replace according to design.	<input type="checkbox"/>
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.	Replace vault or repair to design specifications.	<input type="checkbox"/>	
	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.	No cracks more than 1/4 inch wide at the joint of the inlet/outlet pipe.	<input type="checkbox"/>	
Manhole	Cover Not in Place	Cover is missing or only partially in place. Any open manhole requires maintenance.	Manhole is closed.	<input type="checkbox"/>
	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 (may not apply to self-locking lids).	Mechanism opens with proper tools.	<input type="checkbox"/>
	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.	Cover can be removed and reinstalled by one maintenance person.	<input type="checkbox"/>
	Ladder Rungs Unsafe	Ladder is unsafe due to rust, cracks, missing rungs, misalignment, or is not securely attached to structure wall.	Ladder meets design standards. Allows maintenance person safe access.	<input type="checkbox"/>

Closed Detention Systems (Tanks/Vaults) (cont.)

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
General	Trash and Debris	Trash or debris which is located immediately in front of the catch basin opening is blocking inletting capacity of the basin by more than 10%.	No trash or debris located immediately in front of catch basin or on grate opening.	<input type="checkbox"/>
		Trash or debris accumulated in the basin.	No trash or debris in the catch basin.	<input type="checkbox"/>
		Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height.	Inlet and outlet pipes free of trash or debris.	<input type="checkbox"/>
		Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No dead animals or vegetation present within the catch basin.	<input type="checkbox"/>
	Sediment	Sediment accumulated in the basin.	No sediment in the catch basin.	<input type="checkbox"/>
	Structure: Damage to Frame and/or Top Slab	Top slab has holes larger than two square inches or cracks wider than 1/4 inch (Intent is to make sure no material is running into basin).	Top slab is free of holes and cracks.	<input type="checkbox"/>
		Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached.	Frame is sitting flush on the riser rings or top slab and firmly attached.	<input type="checkbox"/>
	Fractures or Cracks in Basin Walls/ Bottom	Maintenance person judges that structure is unsound.	Basin replaced or repaired to design standards.	<input type="checkbox"/>
		Grout has separated or cracked wider than 1/2 inch and longer than one foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.	Pipe is re-grouted and secure at basin wall.	<input type="checkbox"/>
	Settlement/ Misalignment	If failure of basin has created a safety, function, or design problem.	Basin replaced or repaired to design standards.	<input type="checkbox"/>
	Vegetation	Vegetation growing across and blocking more than 10% of the basin opening.	No vegetation blocking opening to basin.	<input type="checkbox"/>
		Vegetation growing in inlet/outlet pipe joints that is more than six inches tall.	No vegetation or root growth present.	<input type="checkbox"/>
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants.	No contaminants or pollutants present. (Coordinate removal/cleanup with the Ohio Environmental Protection Agency by calling 1-800-282-9378).	<input type="checkbox"/>

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Conveyance Ditch

Date Inspected _____

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
General	Sediment Accumulation	Sediment depth exceeds six inches.	Remove sediment deposits. When finished, ditch should be level from side to side and drain freely in intended direction. There should be no areas of standing water once inflow has ceased.	<input type="checkbox"/>
	Standing Water	Excessive standing water in the ditch between storms due to ditch not draining freely.	If possible, repair cause of poor drainage. This may include, but is not limited to the following activities: remove sediment or trash blockages, improve grade of ditch.	<input type="checkbox"/>
	Eroded or Unstable Side Slopes	When grass is sparse or bare or eroded patches occur in more than 20% of the ditch.	Determine why grass growth is poor and correct that condition. Re-seed bare and eroded areas. If cause is excessive moisture replace grass with wetland plantings.	<input type="checkbox"/>
	Vegetation	Grass is excessively tall (greater than 15 inches). Nuisance weeds and other vegetation start to take over ditch.	Mow vegetation and/or remove nuisance vegetation so that flow is not impeded. Grass should be mowed to a height of three to four inches.	<input type="checkbox"/>
	Inlet/Outlet Pipes or Culverts	Inlet/outlet areas clogged with sediment and/or debris.	Remove material so that there is no clogging or blockage in the inlet and outlet area.	<input type="checkbox"/>
	Trash and Debris Accumulation	Accumulated trash and debris.	Remove trash and debris from ditch.	<input type="checkbox"/>
	Erosion/ Scouring	Eroded or scoured ditch bottom.	Permanently stabilize ditch bottom. Re-grade if necessary.	<input type="checkbox"/>

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Conveyance Storm Pipe

Date Inspected _____

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
General	Obstructions, Including Roots	Root enters or deforms pipe, reducing flow.	Use mechanical methods to remove root. Do not put root-dissolving chemicals in storm sewer pipes. If necessary, remove the vegetation over the pipe.	<input type="checkbox"/>
	Pipe Dented or Broken	Inlet/outlet piping damaged or broken and in need of repair.	Pipe repaired and/or replaced.	<input type="checkbox"/>
	Pipe Rusted or Deteriorated	Any part of the piping that is crushed or deformed more than 20% or any other failure to the piping.	Pipe repaired and/or replaced.	<input type="checkbox"/>
	Sediment & Debris	Sediment depth is greater than 20% of pipe diameter.	Install upstream debris traps (where applicable) then clean pipe and remove material.	<input type="checkbox"/>
	Debris Barrier or Trash Rack Missing	Stormwater pipes greater than 18 inches need debris barrier.	Debris barrier present on all stormwater pipes 18 inches and greater.	<input type="checkbox"/>

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Detention Basin

Date Inspected _____

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
General	Trash and Debris	Accumulated trash or debris.	Trash and debris cleared from site.	<input type="checkbox"/>
	Poisonous Vegetation and Noxious Weeds	Any poisonous or nuisance vegetation which may constitute a hazard to maintenance personnel or the public.	No danger of poisonous vegetation where maintenance personnel or the public might normally be.	<input type="checkbox"/>
		Any evidence of noxious weeds as defined by State or local regulations.	Complete eradication of noxious weeds may not be possible. Compliance with State or local eradication policies required.	<input type="checkbox"/>
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants, or other pollutants.	No contaminants or pollutants present. (Coordinate removal/cleanup with the Ohio Environmental Protection Agency by calling 1-800-282-9378).	<input type="checkbox"/>
	Rodent Holes	Any evidence of rodent holes if facility is acting as a dam or berm, or any evidence of water piping through dam or berm via rodent holes.	Rodents removed and dam or berm repaired.	<input type="checkbox"/>
	Beaver Dams	Beaver dam results in change or function of the facility.	Facility is returned to design function. (Coordinate trapping of beavers and removal of dams with the ODNR Division of Wildlife by calling 1-800-WILDLIFE).	<input type="checkbox"/>
	Insects	When insects such as wasps and hornets interfere with maintenance activities.	Insects destroyed or removed from site. Apply insecticides in compliance with product labels.	<input type="checkbox"/>
	Tree Growth and Hazard Trees	Tree growth within 15 feet of structures. Or tree growth interferes with maintenance activity (i.e., slope mowing, silt removal, vacuuming, or equipment movements). If trees are not interfering with access or maintenance, do not remove.	Trees do not hinder maintenance activities. Harvested trees should be recycled into mulch or other beneficial uses (e.g., for firewood).	<input type="checkbox"/>
		Dead, diseased, or dying trees. (Use a certified Arborist to determine health of tree or removal requirements)	Remove hazard trees.	<input type="checkbox"/>
Side Slopes of Pond	Erosion	Eroded damage over two inches deep where cause of damage is still present or where there is potential for continued erosion.	Slopes should be stabilized using appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.	<input type="checkbox"/>
		Any erosion observed on a compacted berm embankment.	If erosion is occurring on compacted berms a licensed civil engineer should be consulted to resolve source of erosion.	<input type="checkbox"/>

Detention Basin (cont.)

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
Storage Area	Sediment	Accumulated sediment that exceeds 10% of the designed pond depth unless otherwise specified or affects inletting or outletting condition of the facility.	Sediment cleaned out to designed pond shape and depth; pond reseeded if necessary to control erosion.	<input type="checkbox"/>
Pond Dams	Settlements	Any part of berm, which has settled four inches lower than the design elevation. If settlement is apparent, measure berm to determine amount of settlement. Settling can be an indication of more severe problems with the berm or outlet works. A licensed civil engineer should be consulted to determine the source of the settlement.	Dike is built back to the design elevation.	<input type="checkbox"/>
	Piping	Discernable water flow through pond berm. Ongoing erosion with potential for erosion to continue. (Recommend a licensed civil engineer be called in to inspect and evaluate condition and recommend repair of condition).	Piping eliminated. Erosion potential resolved.	<input type="checkbox"/>
Emergency Overflow/ Spillway and Dams Over Four Feet in Height.	Tree Growth	Tree growth on emergency spillways creates blockage problems and may cause failure of the berm due to uncontrolled overtopping. Tree growth on berms over four feet in height may lead to piping through the berm which could lead to failure of the berm.	Trees should be removed. If root system is small (base less than four inches) the root system may be left in place. Otherwise the roots should be removed and the berm restored. A licensed civil engineer should be consulted for proper berm/spillway restoration.	<input type="checkbox"/>
	Piping	Discernable water flow through pond berm. Ongoing erosion with potential for erosion to continue. (Recommend a licensed civil engineer be called in to inspect and evaluate condition and recommend repair of condition).	Piping eliminated. Erosion potential resolved.	<input type="checkbox"/>
Emergency Overflow/ Spillway	Rock Missing	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil at the top of out flow path of spillway.	Rocks and pad depth are restored to design standards.	<input type="checkbox"/>
	Erosion	Eroded damage over two inches deep where cause of damage is still present or where there is potential for continued erosion.	Slopes should be stabilized using appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.	<input type="checkbox"/>
		Any erosion observed on a compacted berm embankment.	If erosion is occurring on compacted berms a licensed civil engineer should be consulted to resolve source of erosion.	<input type="checkbox"/>

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Drywell

Date Inspected _____

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
General	Does Not Dissipate Stormwater	Continuous standing water.	Replace or repair.	<input type="checkbox"/>
	Opening Clogged	Openings are clogged, reducing capacity, and causing structure to drain slowly.	Water-jet the clogged openings, or convert the existing, clogged drywell to a sediment trap and install a new drywell or drainage trench.	<input type="checkbox"/>
	Standing Water	Standing water indicates the drywell is into the water table.	Rebuild drywell to prevent stormwater from going directly into groundwater.	<input type="checkbox"/>
	Trash and Debris	Trash, debris, or floatables that may exit through pipes.	No trash or debris in drywell.	<input type="checkbox"/>
		Trash or debris in any inlet or outlet pipe.	Inlet and outlet pipes free of trash or debris.	<input type="checkbox"/>
	Sediment	Sediment in drywell exceeds 60% of the depth below the inlet pipe.	No sediment in drywell.	<input type="checkbox"/>
	Structure Damage	Maintenance person judges that structure is unsound.	Drywell replaced or repaired to design standards.	<input type="checkbox"/>
Contaminants and Pollution	Any evidence of oil, gasoline, contaminants, or other pollutants.	No contaminants or pollutants present. (Coordinate removal/cleanup with the Ohio Environmental Protection Agency by calling 1-800-282-9378).	<input type="checkbox"/>	
Drywell Manhole	Cover Not in Place	Cover is missing or only partially in place. Any open catch basin requires maintenance.	Catch basin cover is closed.	<input type="checkbox"/>
	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).	Cover can be removed by one maintenance person.	<input type="checkbox"/>
Metal Grates (If Applicable)	Grate Opening Unsafe	Grate with opening wider than 7/8 inch.	Grate opening meets design standards.	<input type="checkbox"/>
	Trash and Debris	Trash and debris that is blocking more than 20% of grate surface inletting capacity.	Grate free of trash and debris.	<input type="checkbox"/>
	Damaged or Missing	Grate missing or broken.	Grate is in place and meets design standards.	<input type="checkbox"/>

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Exfiltration Trench

Date Inspected _____

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
General	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants in or around facility.	No contaminants or pollutants present. (Coordinate removal/cleanup with the Ohio Environmental Protection Agency by calling 1-800-282-9378).	<input type="checkbox"/>
	Observation Well	Sediment depth greater than one foot above stone aggregate or the surface inlet.	No sediment in exfiltration trench.	<input type="checkbox"/>
	Drainage Slow	Porous material clogged with sediment or debris.	Vacuum sediment and debris. Do not allow removed sediment and water to discharge back into the storm sewer. Replace aggregate material according to design specifications as needed.	<input type="checkbox"/>

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Flow Control Structure/Flow Restrictor Date Inspected _____

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	☑
General	Trash and Debris (Includes Sediment)	Trash and debris exceeds 25% of structure depth or one foot below orifice plate.	Control structure orifice is not blocked. All trash and debris removed.	<input type="checkbox"/>
	Structural Damage	Structure is not securely attached to manhole wall.	Structure securely attached to wall and outlet pipe.	<input type="checkbox"/>
		Structure is not in upright position (allow up to 10% from plumb).	Structure in correct position.	<input type="checkbox"/>
		Connections to outlet pipe are not watertight and show signs of rust.	Connections to outlet pipe are watertight; structure repaired or replaced and works as designed.	<input type="checkbox"/>
		Any holes, other than designed holes, in the structure.	Structure has no holes other than designed holes.	<input type="checkbox"/>
Cleanout Gate	Damaged or Missing	Cleanout gate is not watertight or is missing.	Gate is watertight and works as designed.	<input type="checkbox"/>
		Gate cannot be moved up and down by one maintenance person.	Gate moves up and down easily and is watertight.	<input type="checkbox"/>
		Chain/rod leading to gate is missing or damaged.	Chain is in place and works as designed.	<input type="checkbox"/>
		Gate is rusted over 50% of its surface area.	Gate is repaired or replaced to meet design standards.	<input type="checkbox"/>
Orifice Plate	Damaged or Missing	Control device is not working properly due to missing, out of place, or bent orifice plate.	Plate is in place and works as designed.	<input type="checkbox"/>
	Obstructions	Any trash, debris, sediment, or vegetation blocking the plate.	Plate is free of all obstructions and works as designed.	<input type="checkbox"/>
Overflow Pipe	Obstructions	Any trash or debris blocking (or having the potential of blocking) the overflow pipe.	Pipe is free of all obstructions and works as designed.	<input type="checkbox"/>
Manhole	Cover Not in Place	Cover is missing or only partially in place. Any open manhole requires maintenance.	Manhole is closed.	<input type="checkbox"/>
	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 (may not apply to self-locking lids).	Mechanism opens with proper tools.	<input type="checkbox"/>
	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.	Cover can be removed and reinstalled by one maintenance person.	<input type="checkbox"/>
	Ladder Rungs Unsafe	Ladder is unsafe due to rust, cracks, missing rungs, misalignment, or is not securely attached to structure wall.	Ladder meets design standards. Allows maintenance person safe access.	<input type="checkbox"/>

Flow Control Structure/Flow Restrictor (cont.)

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
Catch Basin	Trash and Debris	Trash or debris which is located immediately in front of the catch basin opening is blocking inletting capacity of the basin by more than 10%.	No trash or debris located immediately in front of catch basin or on grate opening.	<input type="checkbox"/>
		Trash or debris accumulated in the basin.	No trash or debris in the catch basin.	<input type="checkbox"/>
		Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height.	Inlet and outlet pipes free of trash or debris.	<input type="checkbox"/>
		Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No dead animals or vegetation present within the catch basin.	<input type="checkbox"/>
	Sediment	Sediment accumulated in the basin.	No sediment in the catch basin.	<input type="checkbox"/>
	Structure Damage to Frame and/or Top Slab	Top slab has holes larger than two square inches or cracks wider than 1/4 inch (Intent is to make sure no material is running into basin).	Top slab is free of holes and cracks.	<input type="checkbox"/>
		Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached.	Frame is sitting flush on the riser rings or top slab and firmly attached.	<input type="checkbox"/>
	Fractures or Cracks in Basin Walls/ Bottom	Maintenance person judges that structure is unsound.	Basin replaced or repaired to design standards.	<input type="checkbox"/>
		Grout has separated or cracked wider than 1/2 inch and longer than one foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.	Pipe is re-grouted and secure at basin wall.	<input type="checkbox"/>
	Settlement/ Misalignment	If failure of basin has created a safety, function, or design problem.	Basin replaced or repaired to design standards.	<input type="checkbox"/>
	Vegetation	Vegetation growing across and blocking more than 10% of the basin opening.	No vegetation blocking opening to basin.	<input type="checkbox"/>
		Vegetation growing in inlet/outlet pipe joints that is more than six inches tall and less than six inches apart.	No vegetation or root growth present.	<input type="checkbox"/>
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants.	No contaminants or pollutants present. (Coordinate removal/cleanup with the Ohio Environmental Protection Agency by calling 1-800-282-9378).	<input type="checkbox"/>

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Oil/Water Separator

Date Inspected _____

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
General	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants present at discharge.	Effluent discharge from vault should be clear without thick visible sheen. (Coordinate removal/cleanup with the Ohio Environmental Protection Agency by calling 1-800-282-9378).	<input type="checkbox"/>
	Sediment Accumulation	Sediment accumulated in bottom of vault.	No sediment deposits on vault bottom and plate media that would impede flow through the vault and reduce separation efficiency.	<input type="checkbox"/>
	Trash and Debris Accumulation	Trash and debris accumulation in vault, or pipe inlet/outlet (floatables and non-floatables).	Trash and debris removed from vault, and inlet/outlet piping.	<input type="checkbox"/>
	Oil Accumulation	Oil accumulations that exceed one inch, at the surface of the water.	Extract oil from vault by vacuuming. Disposal of materials in accordance with state and local rules and regulations.	<input type="checkbox"/>
	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.	Pipe repaired or replaced.	<input type="checkbox"/>
	Access Cover Damaged/Not Working	Cover cannot be opened, corrosion/deformation of cover.	Cover repaired or replaced to meet proper design specifications.	<input type="checkbox"/>
	Vault Structure Damage - Includes Cracks in Walls Bottom, Damage to Frame and/or Top Slab	Top slab has holes larger than two square inches or cracks wider than 1/4 inch. (Intent is to make sure no material is running into basin.)	Top slab is free of holes and cracks.	<input type="checkbox"/>
		Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached	Frame is sitting flush on the riser rings or top slab and firmly attached.	<input type="checkbox"/>
		Maintenance person judges that structure is unsound.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound.	<input type="checkbox"/>
		Grout has separated or cracked wider than 1/2 inch and longer than one foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.	Pipe is re-grouted and secure at basin wall.	<input type="checkbox"/>
		Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.	<input type="checkbox"/>
	Baffles	Baffles corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.	<input type="checkbox"/>
Access Ladder Damaged	Ladder is corroded or deteriorated, misaligned, not functioning properly, not securely attached to structure wall, is missing rungs, or has cracks.	Ladder replaced or repaired and meets specifications, and is safe to use as determined by inspection personnel.	<input type="checkbox"/>	

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Rain Garden

Date Inspected _____

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
General	Trash and Debris	Accumulated trash or debris.	Trash and debris cleared from site.	<input type="checkbox"/>
	Poisonous Vegetation and Noxious Weeds	Any poisonous or nuisance vegetation which may constitute a hazard to maintenance personnel or the public.	No danger of poisonous vegetation where maintenance personnel or the public might normally be.	<input type="checkbox"/>
		Any evidence of noxious weeds as defined by state or local regulations.	Complete eradication of noxious weeds may not be possible. Compliance with State or local eradication policies required.	<input type="checkbox"/>
	Lack of Native Vegetation	Rain garden plantings failing to thrive.	Re-establish plantings.	<input type="checkbox"/>
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants.	No contaminants or pollutants present. (Coordinate removal/cleanup with the Ohio Environmental Protection Agency by calling 1-800-282-9378).	<input type="checkbox"/>
	Rodent Holes	Any evidence of rodent holes if facility is acting as a dam or berm, or any evidence of water piping through dam or berm via rodent holes.	Rodents removed and dam or berm repaired.	<input type="checkbox"/>
	Insects	When insects such as wasps and hornets interfere with maintenance activities.	Insects destroyed or removed from site. Apply insecticides in compliance with product labels.	<input type="checkbox"/>
Storage Area	Sediment	Water ponding in rain garden after rainfall ceases and appropriate time allowed for infiltration. (A percolation test indicates facility is only working at 90% of its designed capabilities. If two inches or more sediment is present, remove).	Sediment removed and/or facility is cleaned so that infiltration system works according to design.	<input type="checkbox"/>
Filter Bags (If Applicable)	Filled with Sediment and Debris	Sediment and debris fill bag more than 1/2 full.	Replace filter bag or redesign system.	<input type="checkbox"/>
Rock Filters	Sediment and Debris	By visual inspection, little or no water flows through filter during heavy rain storms.	Replace gravel in rock filter.	<input type="checkbox"/>
Side Slopes of Pond	Erosion	Erosion damage over two inches deep where cause of damage is still present or where there is potential for continued erosion.	Slopes should be stabilized using appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.	<input type="checkbox"/>
		Any erosion observed on a compacted berm embankment.	If erosion is occurring on compacted berms a licensed civil engineer should be consulted to resolve source of erosion.	<input type="checkbox"/>

Rain Garden (cont.)

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
Pond Berms (Dikes)	Settlements	Any part of berm, which has settled four inches lower than the design elevation. If settlement is apparent, measure berm to determine amount of settlement. Settling can be an indication of more severe problems with the berm or outlet works. A licensed civil engineer should be consulted to determine the source of the settlement.	Build dike back to the design elevation.	<input type="checkbox"/>
Emergency Overflow/ Spillway and Berms Over Four Feet in Height.	Tree Growth	Tree growth on emergency spillways creates blockage problems and may cause failure of the berm due to uncontrolled overtopping. Tree growth on berms over four feet in height may lead to piping through the berm, which could lead to failure of the berm.	Trees should be removed. If root system is small (base less than four inches), the root system may be left in place. Otherwise, remove the roots and restore the berm. Consult a licensed civil engineer for proper berm/spillway restoration.	<input type="checkbox"/>
	Piping	Discernable water flow through pond berm. Ongoing erosion with potential for erosion to continue. (Recommend a licensed civil engineer be called in to inspect and evaluate condition and recommend repair of condition.	Piping eliminated. Erosion potential resolved.	<input type="checkbox"/>
Emergency Overflow/ Spillway	Rock Missing	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil at the top of outflow path of spillway.	Restore rocks and pad depth to design standards.	<input type="checkbox"/>
	Erosion	Eroded damage over two inches deep where cause of damage is still present or where there is potential for continued erosion.	Slopes should be stabilized using appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.	<input type="checkbox"/>
		Any erosion observed on a compacted berm embankment.	If erosion is occurring on compacted berms a licensed civil engineer should be consulted to resolve source of erosion.	<input type="checkbox"/>
Forebay	Forebay Filled With Sediment and/or Debris	Sediment accumulated in forebay.	Remove sediment.	<input type="checkbox"/>

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Retention Pond

Date Inspected _____

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
General	Water level	Water level is low due to leaking.	Repair leaks.	<input type="checkbox"/>
	Trash and Debris	Accumulated trash or debris.	Trash and debris removed from pond.	<input type="checkbox"/>
	Sediment Accumulation in Pond Bottom	Sediment accumulation in pond bottom that exceeds the depth of sediment zone plus 6-inches.	Sediment removed from pond bottom.	<input type="checkbox"/>
	Oil Sheen on Water	Prevalent and visible oil sheen.	Oil removed from water using oil-absorbent pads or vactor truck. Source of oil located and corrected. If chronic low levels of oil persist, plant wetland plants such as Juncus effusus (soft rush) which can uptake small concentrations of oil.	<input type="checkbox"/>
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants, or other pollutants.	No contaminants or pollutants present. (Coordinate removal/cleanup with the Ohio Environmental Protection Agency by calling 1-800-282-9378).	<input type="checkbox"/>
	Erosion	Erosion of the pond's side slopes and/or scouring of the pond bottom that exceeds six inches, or where continued erosion is prevalent.	Slopes stabilized using proper erosion control measures and repair methods.	<input type="checkbox"/>
	Beaver Dams	Dam results in change or function of the facility.	Facility is returned to design function. (Coordinate trapping of beavers and removal of dams with the ODNR Division of Wildlife by calling 1-800-WILDLIFE).	<input type="checkbox"/>
	Tree Growth and Hazard Trees	Tree growth within 15 feet of structures. Or tree growth interferes with maintenance activity (i.e., slope mowing, silt removal, vacuuming, or equipment movements). If trees are not interfering with access or maintenance, do not remove.	Trees do not hinder maintenance activities. Harvested trees should be recycled into mulch or other beneficial uses (e.g., for firewood).	<input type="checkbox"/>
		Dead, diseased, or dying trees. (Use a certified Arborist to determine health of tree or removal requirements)	Remove hazard trees.	<input type="checkbox"/>
	Internal Berm	Berm dividing cells is uneven.	Berm surface is leveled so that water flows evenly over entire length of berm.	<input type="checkbox"/>

Retention Pond (cont.)

Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Maintenance to be Performed/ Expected Results	<input checked="" type="checkbox"/>
Pond Dams	Settlements	Any part of berm, which has settled four inches lower than the design elevation. If settlement is apparent, measure berm to determine amount of settlement. Settling can be an indication of more severe problems with the berm or outlet. A licensed civil engineer should be consulted to determine the source of the settlement.	Dike is built back to the design elevation.	<input type="checkbox"/>
	Piping	Discernable water flow through pond berm. Ongoing erosion with potential for erosion to continue. (Recommend a licensed civil engineer be called in to inspect and evaluate condition and recommend repair of condition).	Piping eliminated. Erosion potential resolved.	<input type="checkbox"/>
Emergency Overflow/ Spillway and Dams Over Four Feet in Height.	Tree Growth	Tree growth on emergency spillways creates blockage problems and may cause failure of the berm due to uncontrolled overtopping. Tree growth on berms over four feet in height may lead to piping through the berm which could lead to failure of the berm.	Trees should be removed. If root system is small (base less than four inches) the root system may be left in place. Otherwise the roots should be removed and the berm restored. A licensed civil engineer should be consulted for proper berm/spillway restoration.	<input type="checkbox"/>
	Piping	Discernable water flow through pond berm. Ongoing erosion with potential for erosion to continue. (Recommend a licensed civil engineer be called in to inspect and evaluate condition and recommend repair of condition).	Piping eliminated. Erosion potential resolved.	<input type="checkbox"/>
Emergency Overflow/ Spillway	Rock Missing	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil at the top of out flow path of spillway.	Rocks and pad depth are restored to design standards.	<input type="checkbox"/>
	Erosion	Eroded damage over two inches deep where cause of damage is still present or where there is potential for continued erosion.	Slopes should be stabilized using appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.	<input type="checkbox"/>
		Any erosion observed on a compacted berm embankment.	If erosion is occurring on compacted berms a licensed civil engineer should be consulted to resolve source of erosion.	<input type="checkbox"/>

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