

**PRIVATE TREATMENT CONTROL BMP
OPERATION AND MAINTENANCE VERIFICATION FORM
BIORETENTION FACILITIES, VEGETATED SWALES & HIGHER RATE
BIOFILTERS-SIDE 2**

This guide sheet provides general indicators for maintenance only and for a wide array of treatment control BMPs. Your developer prepared maintenance plans specifically for your treatment control BMP as an appendix to the Stormwater Management Plan. Also, if you have a manufactured structure, please refer to the manufacturer’s maintenance instructions.

Biofilters include the following :

- Vegetated Filter Strip/Swale** **Bioswale** **Bioretention Facility** **Planter Boxes**
 Manufactured Higher-Flow-Rate Biofilters, such as Tree-Pit-Style Units.

Routine maintenance is needed to ensure that flow is unobstructed, that erosion is prevented, and that soils are held together by plant roots and are biologically active. Typical maintenance consists of the following:

Bioretention BMPs Inspection and Maintenance Checklist	
Typical Maintenance Indicators	Typical Maintenance Actions
Accumulation of sediment (over 2 inches deep or covers vegetation), litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation. Confirm that soil is not clogging and that the area drains after a storm event. Till or replace soil as necessary.
Poor vegetation establishment	Ensure vegetation is healthy and dense enough to provide filtering and to protect soils from erosion. Replenish mulch as necessary (if less than 3 inches deep), remove fallen leaves and debris, prune large shrubs or trees, and mow turf areas.
Overgrown vegetation—woody vegetation not part of design is present and grass excessively tall (greater than 10 inches)	Mow or trim as appropriate, but not less than the design height of the vegetation (typically 4-6 inches for grass). Confirm that irrigation is adequate and not excessive and that sprays do not directly enter overflow grates. Replace dead plants and remove noxious and invasive weeds.
Erosion due to concentrated irrigation flow	Repair/re-seed eroded areas and adjust the irrigation.
Erosion due to concentrated stormwater runoff flow	Repair/re-seed eroded areas and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or re-grading where necessary. Remove obstructions and sediment accumulations so water disperses.
Standing water (BMP not draining) . If mosquito larvae are present and persistent, contact the San Diego County Vector Control Program at (858) 694-2888. Mosquito larvicides should be applied only when absolutely necessary and then only by a licensed individual or contractor.	Where there is an underdrain, such as in planter boxes and manufactured biofilters, check the underdrain piping to make sure it is intact and unobstructed. Abate any potential vectors by filling holes in the ground in and around the biofilter facility and by insuring that there are no areas where water stands longer than 96 hours following a storm .
Obstructed inlet or outlet structure	Clear obstructions.
Damage to structural components such as weirs, inlet, or outlet structures	Repair or replace as applicable.
Before the wet season and after rain events: remove sediment and debris from screens and overflow drains and downspouts; ensure pumps are functioning, where applicable; check integrity of mosquito screens; and; check that covers are properly seated and locked.	Where cisterns are part of the system
For manufactured high-flow-rate biofilters, see manufacturer’s maintenance guidelines	

**PRIVATE TREATMENT CONTROL BMP
OPERATION AND MAINTENANCE VERIFICATION FORM
DETENTION – SIDE 2**

These larger-scale facilities remove pollutants by detaining runoff in a settling pool long enough for some of the particulates to settle to the bottom. The following list of typical maintenance indicators and maintenance activities for detention basins is included for your reference. **These are general indicators for maintenance only. Your developer prepared maintenance plans as an appendix to the Stormwater Management Plan specifically for your treatment control BMP. Also, if you have a manufactured structure, please refer to the manufacturer’s maintenance instructions.**

Detention BMPs Inspection and Maintenance Checklist	
Typical Maintenance Indicators	Typical Maintenance Actions
Poor vegetation establishment	Re-seed, re-establish vegetation.
Overgrown vegetation and invasive plants, or presence of woody plants or vegetation over 12 inches in height	Mow or trim as appropriate and remove invasive plants.
Erosion due to concentrated irrigation flow	Repair/re-seed eroded areas and adjust the irrigation system.
Erosion due to concentrated stormwater runoff flow	Repair/re-seed eroded areas and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or re-grading where necessary.
Gopher holes	Repair/re-seed holes and make appropriate corrective measures to prevent rodent activity.
Accumulation of sediment (generally 10% of design capacity), litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation. Dredge accumulated sediment. This may be required every five to 15 years, and more frequently if there are excess sources of sediment (as may occur on newly constructed sites where soils are not yet stabilized). Dredging is usually a major project requiring mechanized equipment. The work will include an initial survey of depths and elevations; sediment sampling and testing; removal, transport, and disposal of accumulated sediment, and reestablishment of original design grades and sections. Permits may be required.
Standing water (BMP not draining) If mosquito larvae are present and persistent, contact the San Diego County Vector Control Program at (858) 694-2888. Mosquito larvicides should be applied only when absolutely necessary and then only by a licensed individual or contractor.	Abate any potential vectors by filling holes in the ground in and around the pond and by insuring that there are no areas where water stands longer than 96 hours following a storm.
Obstructed inlet or outlet structure	Clear obstructions.
Damage to structural components such as weirs, inlet, or outlet structures	Remove any debris or sediment that could plug the outlets. Identify and correct any sources of sediment and debris. Check rocks or other armoring and replace as necessary.
Where cisterns or other manufactured detention systems are used	Before the wet season and after rain events: Remove sediment and debris from screens and overflow drains and downspouts/outflows; ensure pumps are functioning, where applicable; check integrity of mosquito screens where applicable; and check that covers are properly seated and locked. See manufacturer’s recommendations.

PRIVATE TREATMENT CONTROL BMP OPERATION AND MAINTENANCE VERIFICATION FORM HYDRODYNAMIC SEPARATOR SYSTEMS

1. Transcribe the following information from your notification letter and make corrections as necessary:

Permit No.: _____

BMP Location: _____

Responsible Party: _____

Phone Number: () **Email:** _____

Responsible Party Address: _____

Number Street Name & Suffix City/Zip

Check here for Address Change

2. Using the Table below, please describe the inspections and maintenance activities that have been conducted during the fiscal year (July 1 – June 30), and date(s) maintenance was performed. Under "Results of Inspection," indicate whether maintenance was required based on each inspection, and if so, what type of maintenance. If maintenance was required, provide the date maintenance was conducted and a description of the maintenance. **REFER TO THE BACK OF THIS SHEET FOR MORE INFORMATION DESCRIBING TYPICAL MAINTENANCE INDICATORS AND MAINTENANCE ACTIVITIES.** If no maintenance was required based on the inspection results, state "no maintenance required."

What To Look For?	Date Inspected	Results of Inspection: Work needed? (Yes/No)	Date Maintenance Completed and Description of Maintenance Conducted
Excessive Accumulation of Sediment, Litter, Grease			
Clogged Filter Media			
Structural Damage			

3. Attach copies of available supporting documents (photographs, copies of maintenance contracts, and/or maintenance records).

4. Sign the bottom of the form and return to: County of San Diego Watershed Protection Program
Treatment Control BMP Tracking
5201 Ruffin Road, Suite P, MS 0326
San Diego, CA 92123 **OR**
Email: Watersheds@sdcounty.ca.gov

Signature of Responsible Party Print Name Date

**PRIVATE TREATMENT CONTROL BMP
OPERATION AND MAINTENANCE VERIFICATION FORM
HYDRODYNAMIC SEPARATORS – SIDE 2**

The following list of typical maintenance indicators and maintenance activities for hydrodynamic separators is provided for your reference. **These are general indicators for maintenance only. These types of treatment control BMPs are proprietary so the best guidance is the manufacturer’s instructions. Please refer to the manufacturer’s maintenance instructions. If you have not been supplied the manufacturer’s instructions by the developer or previous owner, these can frequently be found on in the internet or by contacting the manufacturer. The specific make and model of treatment control BMP can be found on the structure.**

Hydrodynamic Separator BMPs Inspection and Maintenance Checklist	
Typical Maintenance Indicators	Typical Maintenance Actions
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials generally by vactor truck.
Accumulation of floating oil and grease	Remove and properly dispose of oil and grease.
Spent or clogged sorbent material or media pack	Remove and properly dispose of sorbent material or media pack, and replace with fresh material. These materials/media are potentially hazardous and must be handled by a properly trained contractor.
Damage to components of the hydrodynamic separator	Repair or replace as applicable.
For offline systems – There is no accumulation of sediment, oil or grease in collection chambers after significant rainfall.or there are damaged or obstructed flow diversion components.	Inspect flow diversion devices for damage and obstructions. Remove obstructions. Repair damage.

Maintenance of hydrodynamic separators involves handling of potentially hazardous material (oil and/or oil sorbent material), which requires special disposal. Additionally, maintenance may involve entry into the hydrodynamic separator underground. Therefore the maintenance operator must be trained in handling and disposal of hazardous waste, and must also be certified for confined space entry if the maintenance will require entry into the hydrodynamic separator. Therefore it is recommended that private BMP owners obtain a maintenance contract with a qualified contractor to provide inspection and maintenance. There are several storm drain cleaning service providers who are able to inspect and/or maintain hydrodynamic separators. Contact the manufacturer of the hydrodynamic separator to find qualified service providers.

**PRIVATE TREATMENT CONTROL BMP
OPERATION AND MAINTENANCE VERIFICATION FORM
MEDIA FILTERS & HIGHER RATE MEDIA FILTERS– SIDE 2**

The following list of typical maintenance indicators and maintenance activities for filtration BMPs is provided for your reference. **These are general indicators for maintenance only. Your developer prepared maintenance plans specifically for your treatment control BMP as an appendix to the Stormwater Management Plan. Also, if you have a manufactured structure, please refer to the manufacturer’s maintenance instructions. If you have not been supplied the manufacturer’s instructions by the developer or previous owner, these can frequently be found on the internet or by contacting the manufacturer. The specific make and model of treatment control BMP can be found on the structure.**

This category of treatment control BMPs includes the following:

Austin Sand Filters Delaware Sand Filter Multi-Chambered Treatment Trains (MCTT) Vault-based filters

Filtration BMPs Inspection and Maintenance Checklist	
Typical Maintenance Indicators	Typical Maintenance Actions
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials.
Accumulation of floating oil and grease	Remove and properly dispose of oil and grease.
Clogged filter media	Remove and properly dispose of filter media, and replace with fresh media.
Damage to components of the filtration system	Repair or replace as applicable.
For offline systems No accumulation of sediment, oil or grease in collection chambers after significant rainfall Damaged or obstructed flow diversion components	Inspect flow diversion devices for damage and obstructions. Remove obstructions. Repair damage.
Mosquito larvae present in designs where permanent pools exist (e.g., Delaware filter & MCTT)	If larvae are present and persistent, contact the San Diego County Vector Control Program at (858) 694-2888. Mosquito larvicides should be applied only when absolutely necessary and then only by a licensed individual or contractor. For MCTT and Vault-based filters, exclude vectors by sealing them out, for example, by using tight-fitting aluminum covers.
Dry designs, such as the Austin sand filter have standing water (longer than 96 hours after rainfall) and/or mosquito larve are present.	Media filters may be clogged. Remove vegetative growth and debris. If clogged with a crust, remove and properly dispose of filter media and replace with fresh media.

Maintenance of filtration BMPs involves handling of potentially hazardous material (oil and/or oil sorbent material), which requires special disposal. Additionally, maintenance may involve entry into the filtration BMP underground. Therefore the maintenance operator must be trained in handling and disposal of hazardous waste, and must also be certified for confined space entry if the maintenance will require entry into the filtration BMP. Therefore it is recommended that private BMP owners obtain a maintenance contract with a qualified contractor to provide inspection and maintenance. There are several storm drain cleaning service providers who are able to inspect and/or maintain filtration BMPs. Contact the manufacturer of the filtration system to find qualified service providers.

**PRIVATE TREATMENT CONTROL BMP
OPERATION AND MAINTENANCE VERIFICATION FORM
INFILTRATION DEVICES – SIDE 2**

The following list of typical maintenance indicators and maintenance activities for infiltration BMPs is provided for your reference. There are many types of infiltration BMPs including basins that store storm water runoff in above-ground ponding areas until it infiltrates into the surrounding soils, and gravel-filled trenches or wells that store storm water runoff in the gravel reservoir until it infiltrates into the surrounding soils. This BMP category also includes permeable paving areas that store storm water runoff in a gravel reservoir under the permeable paving surface. **These are general indicators for maintenance only. Your developer prepared maintenance plans as an appendix to the Stormwater Management Plan specifically for your treatment control BMP. Also, if you have a manufactured structure, please refer to the manufacturer’s maintenance instructions.**

Infiltration BMPs Inspection and Maintenance Checklist	
Typical Maintenance Indicators	Typical Maintenance Actions
Accumulation of sediment, litter, or debris in infiltration basin, pre-treatment device, or on surface of porous pavement, as applicable	Remove and properly dispose of accumulated materials.
Standing water in infiltration basin	Remove and replace clogged surface soils.
Standing water in infiltration trench, dry well, or subsurface reservoir bed longer than 96 hours after a rainfall	Flush fine sediment from gravel storage area. Ensure that sediment is not washed off-site. If this is unsuccessful, remove rock-fill and increase dimensions by 2 inches with new fill.
Standing water in permeable paving area	Flush fine sediment from paving and subsurface gravel. Ensure that sediment is not washed off-site.
Damage to permeable paving surface resulting in reduced storm water intake capacity	Repair or replace damaged surface as appropriate.
Erosion of basin side slopes	Repair/re-seed eroded areas and make appropriate corrective measures such as adding erosion control blankets or mulch, adding stone at flow entry points, or re-grading where necessary. Adjust irrigation system, where applicable.
Vegetation establishment in permeable pavement, rock trenches or other infiltration system that is not designed to have vegetation.	Remove vegetation that prevents proper infiltration.
Poor vegetation establishment where vegetation is part of design.	Examine the vegetation to ensure that it is healthy and dense enough to provide filtering and to protect soils from erosion. Replenish mulch as necessary (if less than 3 inches deep), remove fallen leaves and debris, prune large shrubs or trees, and mow turf areas.
Overgrown/woody vegetation where vegetation is part of the design	Mow or trim at beginning and end of wet season and as appropriate, but not less than the design height of the vegetation. Confirm that irrigation is adequate and not excessive. Remove noxious and invasive vegetation.

When inspection or maintenance indicates sediment is accumulating in an infiltration BMP, try to determine the source of the sediment and take corrective action to minimize the sediment supply.

**PRIVATE TREATMENT CONTROL BMP
OPERATION AND MAINTENANCE VERIFICATION FORM
TRASH RACKS & DRAINAGE INSERTS – SIDE 2**

The following list of typical maintenance indicators and maintenance activities for drainage inserts is provided for your reference. **These are general indicators for maintenance only. These types of treatment control BMPs are proprietary so the best guidance is from the manufacturer’s instructions. Please refer to the manufacturer’s maintenance instructions. If you have not been supplied the manufacturer’s instructions by the developer or previous owner, these can frequently be found on the internet or by contacting the manufacturer. The specific make and model of treatment control BMP can be found on the structure.**

Drainage Insert BMPs Inspection and Maintenance Checklist	
Typical Maintenance Indicators	Typical Maintenance Actions
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials at least once prior to the rainy season and as required to ensure sediment litter and debris is not released to the stormwater conveyance.
Spent or clogged sorbent material or media pack, where applicable	Remove and properly dispose of sorbent material or media pack, and replace with fresh material. These materials/media are potentially hazardous and must be handled by a properly trained contractor.
Damage to components of the drainage insert	Repair or replace as applicable.

Maintenance of trash racks and drainage inserts involves handling of potentially hazardous material (oil sorbent material), which requires special disposal. Additionally, maintenance may involve entry into the storm drain inlet underground. Therefore the maintenance operator must be trained in handling and disposal of hazardous waste, and must also be certified for confined space entry if the maintenance will require entry into the storm drain inlet. Therefore it is recommended that private BMP owners obtain a maintenance contract with a qualified contractor to provide inspection and maintenance. There are several storm drain cleaning service providers who are able to inspect and/or maintain drainage inserts. Contact the manufacturer of the drainage insert to find qualified service providers.

**PRIVATE TREATMENT CONTROL BMP
OPERATION AND MAINTENANCE VERIFICATION FORM
WET PONDS & CONSTRUCTED WETLANDS – SIDE 2**

These larger-scale facilities remove pollutants by detaining runoff in a settling pool long enough for some of the particulates to settle to the bottom. The following list of typical maintenance indicators and maintenance activities for wet ponds and constructed wetlands is provided for your reference. **These are general indicators for maintenance only. Your developer prepared maintenance plans as an Appendix to the Stormwater Management Plan specifically for your treatment control BMP. Additionally, if you have a manufactured structure, please refer to the manufacturer's maintenance instructions.**

Detention BMPs Inspection and Maintenance Checklist	
Typical Maintenance Indicators	Typical Maintenance Actions
Overgrown vegetation and invasive plants	Maintain vegetation at a proper height to facilitate vector surveillance and control; remove invasive plants.
Erosion due to concentrated irrigation flow on terraces and embankments	Repair/re-seed eroded areas and adjust the irrigation system.
Erosion due to concentrated stormwater runoff flow on terraces and embankments	Repair/re-seed eroded areas and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or re-grading where necessary.
Gopher holes on benches and embankments	Repair /re-seed holes and make appropriate corrective measures to prevent rodent activity.
Accumulation of sediment, litter, or debris in forebay, where applicable	Remove and properly dispose of accumulated materials, without damage to the vegetation. Dredge accumulated sediment (may require dredging permit). This may be required every 5 to 15 years, and more frequently if there are excess sources of sediment (as may occur on newly constructed sites where soils are not yet stabilized) and sediment accumulation exceeds 10% of basin volume. Dredging is usually a major project requiring mechanized equipment. The work will include an initial survey of depths and elevations; sediment sampling and testing; removal, transport, and disposal of accumulated sediment, and reestablishment of original design grades and sections.
Mosquito and midge larvae present (If larvae are present and persistent, contact the San Diego County Vector Control Program at (858) 694-2888. Mosquito larvicides should be applied only when absolutely necessary and then only by a licensed individual or contractor.)	Harvest vegetation, optimally in the summer when vegetation is dense, bird breeding is over and there is time for some re-growth for runoff treatment. Ensure appropriate aquatic vegetation coverage if mosquito fish are used.
Obstructed inlet or outlet structure	Clear obstructions.
Damage to structural components such as weirs, inlet, or outlet structures	Remove any debris or sediment that could plug the outlets. Identify and correct any sources of sediment and debris. Check rocks or other armoring and replace as necessary.

