CONTOUR ENGINEERING • LLC

CIVIL ENGINEERING ◊ SURVEYING ◊ LAND PLANNING
Phone: (253) 857-5454 ~ Fax: (253) 509-0044 ~ Email: info@contourpllc.com
Mailing Address: PO Box 949, Gig Harbor, WA 98335
Physical Address: 4706 97th Street NW, Suite 100, Gig Harbor, WA 98332

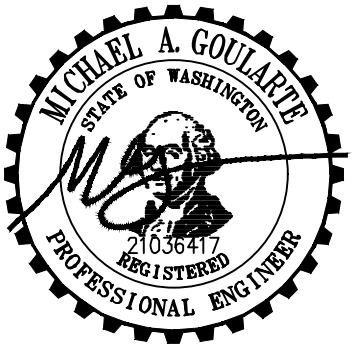
STORMWATER OPERATIONS AND MAINTENANCE MANUAL

FOR

BRADBURY PLACE APARTMENTS

CITY OF PUYALLUP, WASHINGTON

FEBRUARY 2026



17th February 2026

The O&M Manual uses City of Tacoma maintenance tables. Update to the City of Puyallup maintenance tables whcih can be found here: https://www.cityofpuyallup.org/2157/Operations-and-Maintenance

[O&M Manual, pg. 1]

Current Responsible Party:
Bradbury Place LLC
7809 Pacific Ave
Tacoma, WA 98408
(253) 318-5711

Prepared By:
Rex Henretta, E.I.T., Design Engineer

Approved By:
Michael Goularte, P.E., Project Engineer

Project # 20-223

THIS MANUAL SHALL BE RETAINED ON-SITE OR WITHIN REASONABLE ACCESS TO THE SITE, AND SHALL BE TRANSFERRED WITH THE PROPERTY TO THE NEW OWNER.

TABLE OF CONTENTS

PAGE

OPERATIONS AND MAINTENANCE MANUAL FOR STORMWATER CONVEYANCE AND TREATMENT SYSTEMS

Purpose and Scope

This operations and maintenance manual is to assist the owner(s) and/or owner(s) association of some maintenance practices necessary to maintain stormwater conveyance and water quality devices on-site for the Bradbury Place Apartments located in Puyallup, Washington 98374.

The *2019 Stormwater Management Manual for Western Washington* and the requirements of the City of Puyallup will establish the methodology and design criteria used for this project.

This operation and maintenance manual shall be kept on-site, and shall be made available for inspection by the City of Puyallup. The current responsible party is Genestar Properties LLC. The current responsible party shall be in charge of the maintenance of the onsite stormwater system.

Project Description

The site consists of two parcels totaling 2.68 acres, which will consist of 42 multi-family residences. On-site impervious surface area will be infiltrated through the use of an infiltration pond. Access will be provided by extending the existing right-of-way (ROW) of 5th Street SE to the end of the property line. Utilities including sewer, water, storm, and dry utilities will be extended along the proposed aisles. Sewer will service all proposed buildings and extend down 5th Street SE and connect to the existing sewer system located in 27th Ave SE. Additionally, the proposed sewer improvements will require to rip out existing sewer pipe located in 27th Ave SE and be replaced. Water will service all buildings in the site and connect to the existing water line located in 5th Street SE. Storm will collect and convey stormwater throughout the site and be routed to steel catch basins for treatment, then discharging to the proposed infiltration pond.

Parcel #: 0419036002
0419036003
Address: 2525 5th Street SE, Puyallup, WA 98374
Owner: Genestar Properties LLC

`

Maintenance and Inspection

The maintenance and inspections of the various storm systems will be the sole responsibility of the owner(s) or owner(s) association, in addition to maintaining accurate records of inspections and maintenance actions are taken. The checklists and guidelines that follow should be utilized as a minimum guide to the maintenance procedures of the site. The following are all the components of the sites stormwater system that will require maintenance and suggested inspection interval:

- Catchbasin, roof drains, and Manholes
    - Before and after the rainfall seasons (April & November), and after any major storms (>1-inch within 24 hours)
- Grounds (Landscaping), Trees, & Amended Soils
    - Before and after the rainfall seasons (April & November), and after any major storms (>1-inch within 24 hours)
- ADS StreamFilter CBF-5 Catch Basin
    - When a BayFilter system is first installed, it is recommended that it be inspected every six (6) months.
    - When the filter system exhibits flows below design levels the system should be maintained.
    - Filter cartridge replacement should also be considered when sediment levels are at or above the level of the manifold system.
    - Please see the ADS BayFilter Inspection and Maintenance Manual in Appendix B for more information regarding the required maintenance regime.

See Appendix A for a figure illustrating the locations of all items to be maintained onsite. The city of Puyallup does not provide an Operation and Maintenance Checklist with the SWMM. All applicable City of Puyallup Stormwater Management Maintenance Checklists are included in Appendix B and are taken from the 2021 City of Tacoma SWMM. In the event additional checklists are required The City of Tacoma comprehensive list can be found in Volume 1, Appendix B of the City of Tacoma Stormwater Management Manual.

Instructions for Use of Maintenance Checklists

Appendix B contains maintenance checklists for the components that are part of your drainage system, as well as for some components that you may not have. Ignore the requirements that do not apply to your system. You should plan to complete a checklist for all system components based upon the suggested inspection intervals from the previous section. These intervals may be altered as site conditions allow. During inspections, check off the problems that you looked for and add comments discussing problems found and actions taken.

The owner/operator should familiarize themselves with the StormFilter product maintenance guides in Appendix B.

`

Contech Steel Catch Basin Maintenance Requirements

The maintenance process comprises the removal and replacement of Contech Cartridges and the cleaning of the vault or manhole with a vactor truck. The basic maintenance cycle of these filters varies based on the suspended sediment loading, generally a maintenance interval of 6-12 months is expected in the northwest with an approximate cost of $250 per vault. Replacement of filter media and removing sediment from the separation chamber should occur every 12 to 24 months with an approximate cost of $1,250. Please see Appendix B for Contech Maintenance Schedule.

Landscaping and Grounds Requirements

There are many incremental maintenance items to consider when maintaining residential grounds and landscaping. Please refer to the following City of Tacoma Maintenance Checklists for recommended maintenance items and intervals; #21 – Maintenance Checklist for Grounds, #25 – Maintenance Checklist for Compost Amended Soil; #30 Maintenance Checklist for Trees. All Maintenance Checklist can be found in Appendix B of this Document. The cost of landscaping and grounds requirements should be covered under regular landscaping budget, the cost of these services will vary depending on the interval of care requested by property owner as well as the quantity of landscaping to tend to.

Catchbasin, roof drains, and Manhole Requirements

The maintenance process comprises of the removal and collected sediments within a catch basin or manhole. This usually includes the use of a vactor truck to remove any collect debris. This should be done every 1-2 years as expected in the northwest. Approximate cost of cleaning = $50 per catch basin/ manhole.

MAINTENANCE PROGRAM

COVER SHEET

Inspection Period: _____

Number of Sheets Attached: _____

Date Inspected: _____

Name of Inspector: _____

Inspector's Signature: _____

`

MAINTENANCE PROGRAM LOG SHEET

Use copies of this log sheet to keep track of when maintenance checks occur and what items, if any are repaired or replaced. The completed sheets will serve as a record of past maintenance activities and will provide valuable information on how your facilities are operating. Keep all log sheets in a designated area so other can easily access them.

Name of Inspector: _____

Inspector's Signature: _____

Date of Inspection: _____

Facility and Component Checked	Observations (list things that should be done)	Follow-up Actions Taken	Date Action Taken

`

APPENDIX A

Vicinity map and Drainage Plan

`

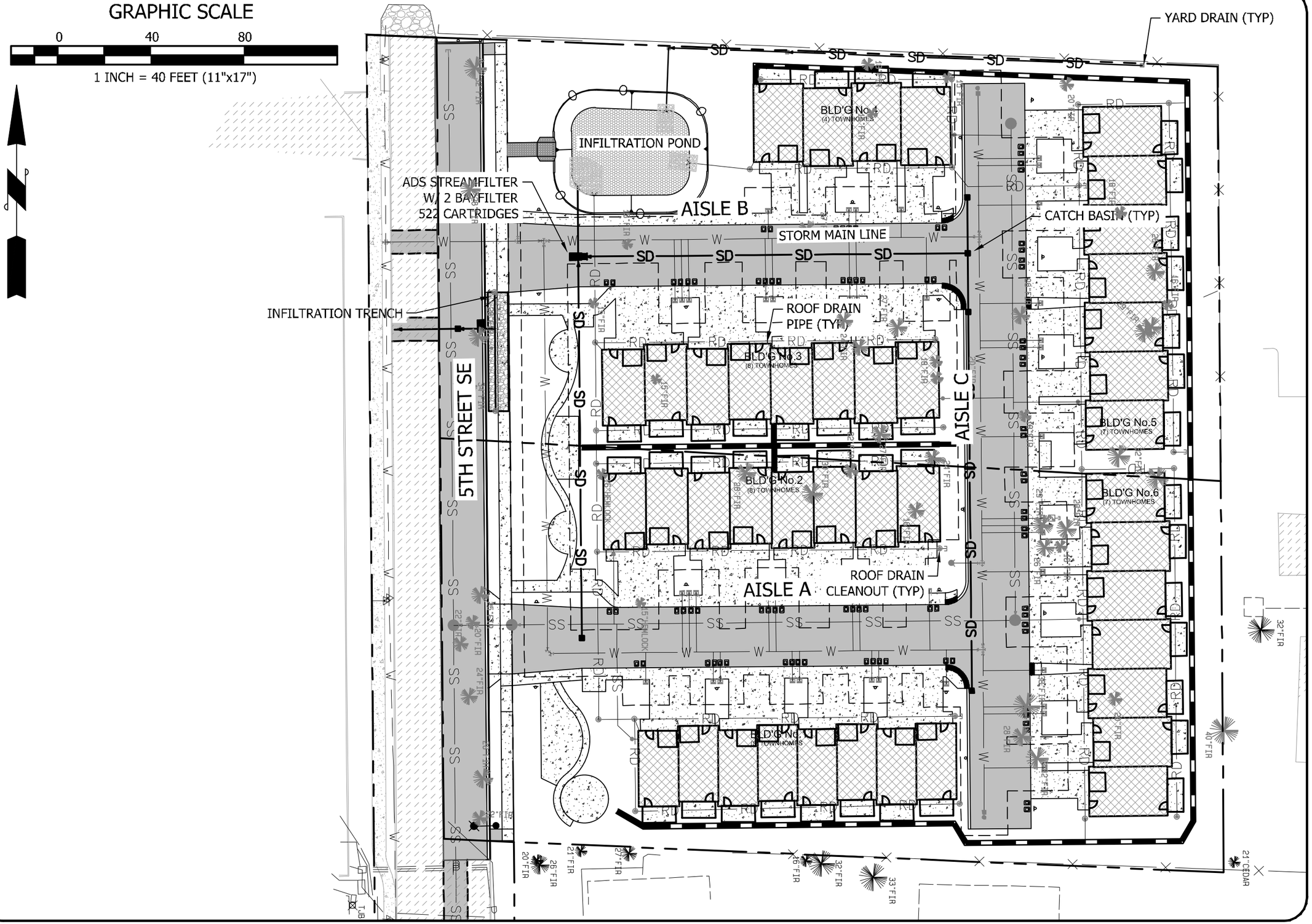
VICINITY MAP

NOT TO SCALE

GRAPHIC SCALE

0 40 80

1 INCH = 40 FEET (11"x17")



CIVIL ENGINEERS~SURVEYORS~LAND PLANNERS
P.O. Box 949, Gig Harbor, WA 98335
Phone: 253-857-5454 ~ Fax: 253-509-0044 ~ info@contourpllc.com

OPERATION AND MAINTENANCE MAP

BRADBURY PLACE APARTMENTS
PUYALLUP, WA

BY:	R. HENRETTA
PROJECT:	20-223
DATE:	2026.02.09
EXHIBIT NO.	1

APPENDIX B

Stormwater Infrastructure Maintenance Checklists

`

Infiltration Basin

Infiltration Basin			
Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Minimum Performance Standard
			Note: table spans multiple pages.
General	Trash and Debris	Any trash and debris which exceed 1 cubic foot per 1,000 square feet. In general, there should be no visual evidence of dumping. If less than threshold all trash and debris will be removed as part of next scheduled maintenance.	Site is free of trash and debris.
	Poisonous Plants and Noxious Weeds	Any poisonous or nuisance vegetation which may constitute a hazard to maintenance personnel or the public. Any evidence of noxious weeds as defined by State or local regulations. (Apply requirements of adopted IPM policies for the use of herbicides.)	No danger of poisonous vegetation where maintenance personnel or the public might normally be. Complete eradication of noxious weeds may not be possible. Compliance with State or local eradication policies required.
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants, or other pollutants. (Coordinate removal/cleanup with local water quality response agency.)	No contaminants or pollutants present.
	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 destroyed and dam or berm repaired.
Storage Area	Sediment Reducing Infiltration Rate	Water ponding in infiltration pond after rainfall ceases and appropriate time allowed for infiltration. Treatment basins should infiltrate Water Quality Design Storm Volume within 48 hours, and empty within 24 hours after cessation of most rain events. (A percolation test pit or test of facility indicates facility is only working at 90% of its designed capabilities. Test every 2 to 5 years. If two inches or more sediment is present, remove.)	Sediment is removed and/or facility is cleaned so that infiltration system works according design standards.
Filter Bags (If Applicable)	Filled with Sediment and Debris	Sediment and debris fill bag more than 1/2 full.	Filter bag has been replaced or system is redesigned.
Rock Filters	Sediment and Debris	By visual inspection, little or no water flows through filter during heavy rain storms.	Gravel in rock filter is replaced.

Infiltration Basin			
Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Minimum Performance Standard
			Note: table spans multiple pages.
Side Slopes of Pond	Erosion	Eroded damage over 2 inches deep where cause of damage is still present or where there is potential for continued erosion. Any erosion observed on a compacted berm embankment.	Slopes have been stabilized using appropriate erosion control measure(s), e.g., rock reinforcement, planting of grass, compaction. If erosion is occurring on compacted berms a licensed civil engineer should be consulted to resolve source of erosion.
Pond Berms (Dikes)	Settlement	Any part of berm which has settled 4 inches lower than the design elevation.	Dike has been built back to 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.	
	Tree Growth	Tree growth on berms over 4 feet in height may lead to piping through the berm which could lead to failure of the berm.	Trees removed. If root system is small (base less than 4 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.
	Piping	Discernible water flow through pond berm. Ongoing erosion with potential for erosion to continue. (Recommend a Geotechnical engineer be called in to inspect and evaluate condition and recommend repair of condition.)	Piping eliminated. Erosion potential resolved.

Infiltration Basin			
Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Minimum Performance Standard
Emergency Overflow/ Spillway	Tree Growth	Tree growth on emergency spillways creates blockage problems and may cause failure of the berm due to uncontrolled overtopping.	Trees removed. If root system is small (base less than 4 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.
	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 flow path of spillway. (Rip-rap on inside slopes need not be replaced.)	Rocks and pad depth are restored to design standards.
	Erosion	Eroded damage over 2 inches deep where cause of damage is still present or where there is potential for continued erosion. Any erosion observed on a compacted berm embankment.	Slopes have been stabilized using appropriate erosion control measure(s), e.g., rock reinforcement, planting of grass, compaction. If erosion is occurring on compacted berms a licensed civil engineer should be consulted to resolve source of erosion.
Presettling Ponds and Vaults	Facility or Sump Filled With Sediment and/or Debris	6" or designed sediment trap depth of sediment.	Sediment is removed.

Infiltration Trench

Infiltration Trench			
Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Minimum Performance Standard
General	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants, or other pollutants. Sheen, obvious oil, or other contaminants present. • Identify and remove source.	No contaminants or pollutants present.
	Sediment Depth (via Surface/ Observation Well Inspection)	Sediment depth greater than one foot above stone aggregate or the surface inlet or 20% of the pipe diameter.	No sediment in infiltration trench.
	Drainage Slow	Decreased capacity that indicates slow drainage. Does not meet facility design infiltration rate. The Water Quality Design Storm Volume does not infiltrate within 48 hours. Water remains in the trench for greater than 24 hours after the end of most moderate rainfall events.	Perforated drain pipe has been cleaned and drainage rates are per design specifications. (Do not allow removed sediment and water to discharge back into the storm sewer.)
	Trash & Debris	Trash or debris which is located immediately in front of the catch basin opening or 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.

Catch Basin

Catch Basin			
Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Minimum Performance Standard
			Note: table spans multiple pages.
General	Trash and Debris	Trash or debris which is located immediately in front of the catch basin opening or 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.
		Trash or debris (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe 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 the lowest pipe.	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.	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).	No dead animals or vegetation present within the catch basin.
	Sediment	Sediment (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe 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.	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.)	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 securely attached.	Frame is sitting flush on the riser rings or top slab and firmly attached.
	Fractures or Cracks in	Maintenance person judges that structure is unsound.	Basin replaced or repaired to design standards.

	Basin Walls/ Bottom	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 of soil particles entering catch basin through cracks.	Pipe is regrouted and secure at basin wall.
	Settlement/ Misalignment	Catch basin has settled more than 1 inch or has rotated more than 2 inches out of alignment.	Basin replaced or repaired to design standards.
	Vegetation Inhibiting System	Vegetation growing across and blocking more than 10% of the basin opening.	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.	No vegetation or root growth present.
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants, or other pollutants. Sheen, obvious oil, or other contaminants present. • Identify and remove source	No contaminants or pollutants present.
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.
	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. One or more bolts are missing.	Mechanism opens with proper tools. All bolts are seated and no bolts are missing. Cover is secure.
	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.
Metal Grates (If Applicable)	Grate Opening Unsafe	Grate with opening wider than 7/8 inch.	Grate opening meets design standards.
	Trash and Debris	Trash and debris that is blocking more than 20% of grate surface inletting capacity.	Grate free of trash and debris.
	Damaged or Missing	Grate missing or broken member(s) of the grate.	Grate is in place and meets design standards.
Oil/Debris Trap (If Applicable)	Dislodged	Oil or debris trap is misaligned with or dislodged from the outlet pipe.	Trap is connected to and aligned with outlet pipe.

Grounds

Grounds (Landscaping)			
Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Minimum Performance Standard
Site	Trash or litter	Any trash and debris which exceed 1 cubic foot per 1,000 square feet (this is about equal to the amount of trash it would take to fill up one standard size office garbage can). In general, there should be no visual evidence of dumping.	Trash and debris cleared from site.
	Noxious weeds	Any noxious or nuisance vegetation which may constitute a hazard to County personnel or the public.	Noxious and nuisance vegetation removed according to applicable regulations. No danger of noxious vegetation where County personnel or the public might normally be.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Grass/groundcover	Grass or groundcover exceeds 18 inches in height.	Grass or groundcover mowed to a height no greater than 6 inches.
Trees and Shrubs	Hazard	Any tree or limb of a tree identified as having a potential to fall and cause property damage or threaten human life. A hazard tree identified by a qualified arborist must be removed as soon as possible.	No hazard trees in facility.
	Damaged	Limbs or parts of trees or shrubs that are split or broken which affect more than 25% of the total foliage of the tree or shrub.	Trees and shrubs with less than 5% of total foliage with split or broken limbs.
		Trees or shrubs that have been blown down or knocked over.	No blown down vegetation or knocked over vegetation. Trees or shrubs free of injury.
		Trees or shrubs which are not adequately supported or are leaning over, causing exposure of the roots.	Tree or shrub in place and adequately supported; dead or diseased trees removed.

Conveyance Pipe

Conveyance Pipe			
Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Minimum Performance Standard
General	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants, or other pollutants. Sheen, obvious oil, or other contaminants present. • Identify and remove source.	No contaminants or pollutants present.
	Obstructions, Including Roots	Root enters or deforms pipe, reducing flow.	Roots have been removed from pipe (using mechanical methods; do not put root-dissolving chemicals in storm sewer pipes). If necessary, vegetation over the line removed.
	Sediment and Debris	Sediment depth is greater than 20% of pipe diameter.	Pipe has been cleaned and is free of sediment/ debris. (Upstream debris traps installed where applicable.)
	Debris Barrier or Trash Rack Missing	Stormwater pipes > than 18 inches need debris barrier.	Debris barrier present on all stormwater pipes 18 inches and greater.
	Damage to protective coating or corrosion	Protective coating is damaged; rust or corrosion is weakening the structural integrity of any part of pipe.	Pipe repaired or replaced.
	Damaged	Any dent that decreases the cross section area of pipe by more than 20% or is determined to have weakened structural integrity of the pipe.	Pipe repaired or replaced.

Media Cartridge Filters			
Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Minimum Performance Standard
			Note: table spans multiple pages.
General	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 vault.)	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 securely attached.	Frame is sitting flush on the riser rings or top slab and firmly attached.
Forebay	Sediment Accumulation	Sediment accumulation exceeds 6 inches or 1/3 of available sump.	All sediment removed from storage area.
Media Filter Vault	Sediment Accumulation on Top Media Filters (Cartridges)	Sediment depth exceeds 0.25-inches (on top of filter cartridges).	No sediment deposits which would impede permeability of the compost media. No sediment deposits on top of cartridges. (Sediment on cartridges likely indicates that cartridges are plugged and require maintenance.)
	Sediment Accumulation in Vault	Sediment depth exceeds 4 inches in chamber. Look for other indicators of clogged cartridges or overflow.	No sediment deposits in vault bottom of first chamber. Cartridges have been checked and replaced or serviced as needed.
	Trash and Debris Accumulation	Trash and debris accumulated in vault.	No trash or debris in vault.
	Sediment in Drain Pipes/Clean-Outs	When drain pipes, clean-outs, become full with sediment and/or debris.	Sediment and debris has been removed.
	Damaged Pipes	Any part of the pipes that are crushed or damaged due to corrosion and/or settlement.	Pipe repaired and/or replaced to design specifications.
	Cover/lid not in place	Cover/lid is missing or only partially in place. Any open manhole requires immediate maintenance.	Manhole access covered.
	Locking mechanism not working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.	Mechanism opens with proper tools.
	Cover/lid difficult to remove	One maintenance person cannot remove cover/lid after applying 80 lbs. of lift.	Cover/lid can be removed and reinstalled by one maintenance person.
	Vault Structure Includes Cracks in Wall, Bottom, Damage to	Cracks wider than 1/2 inch or evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determine that the vault is not structurally sound.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound.

Media Cartridge Filters			
Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Minimum Performance Standard
	Frame and/or Top Slab	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.
	Baffles Damaged	Baffles corroding, cracking, warping, and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to design specifications.
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.	Ladder replaced or repaired and meets design specifications, and is safe to use as determined by inspection personnel.
Below Ground Cartridge Type	Compost Media Clogging	Drawdown of water through the media takes longer than 1 hour, and/or overflow occurs frequently.	Media cartridges have been replaced and drawdown time and overflow frequency are per design standards.
	Short Circuiting	Flows do not properly enter filter cartridges.	Flows are properly entering filter cartridges. Cartridges have been replaced if necessary.
	Filter Cartridges Submerged	Filter vault does not drain within 24 hours following storm. Look for evidence of submergence due to backwater or excessive hydrocarbon loading.	Filter media have been checked and replaced if needed and vault drains down within 24 of a storm event. (If cartridges are plugged with oil, additional treatment or source control BMP may be needed.)

Energy Dissipater / Outfall Protection

Energy Dissipaters			
Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Minimum Performance Standard
External:			
Rock Pad	Missing or Moved Rock	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil.	Rock pad has been replaced to design function.
	Erosion	Soil erosion in or adjacent to rock pad.	Rock pad has been replaced to design function.
	Sediment	Sediment on top of rock pad exceeds 10% of the surface.	Rock pad has been cleared of sediment.
	Poisonous Plants and Noxious Weeds	Any poisonous plants or nuisance vegetation which may constitute a hazard to maintenance personnel or the public. Any evidence of noxious weeds as defined by State or local regulations.	No danger of poisonous vegetation where maintenance personnel or the public might normally be. Eradication of Class A weeds as required by State law. Control of other listed weeds as directed by local policies. Apply requirements of adopted IPM policy for the use of herbicides.
	Other Weeds	Other weeds (not listed on State noxious weed lists) are present on the rock pad.	Weeds have been removed per the routine maintenance schedule, following IPM protocols.
Dispersion Trench	Pipe Plugged with Sediment	Accumulated sediment that exceeds 20% of the design depth.	Pipe is free of sediment and meets design specifications.
	Not Discharging Water Properly	Visual evidence of water discharging at concentrated points along trench (normal condition is a “sheet flow” of water along trench). Intent is to prevent erosion damage.	Trench has been repaired or modified such that it does not discharge at concentrated points and meets design function.
	Perforations Plugged	Over 1/2 of perforations in pipe are plugged with debris and sediment.	Perforated pipe has been cleaned or replaced and <25% of perforations are plugged.
	Water Flows Out Top of “Distributor” Catch Basin	Maintenance person observes or receives credible report of water flowing out during any storm less than the design storm or its causing or appears likely to cause damage.	Facility rebuilt per design specifications or redesigned to meet approved City standards.
	Receiving Area Over-Saturated	Water in receiving area is causing or has potential of causing landslide problems.	No danger of landslides.
Gabions	Damaged Mesh	Mesh of gabion broken, twisted or deformed so structure is weakened or rock may fall out.	Mesh is intact, no rock missing.
	Corrosion	Gabion mesh shows corrosion through more than 1/4 of its gage.	All gabion mesh capable of containing rock and retaining designed form.

Energy Dissipaters			
Drainage System Feature	Potential Defect	Conditions When Maintenance Is Needed	Minimum Performance Standard
	Collapsed or Deformed Baskets	Gabion basket shape deformed due to any cause.	All gabion baskets intact, structure stands as designed.
	Missing Rock	Any rock missing that could cause gabion to lose structural integrity.	No rock missing.
Internal:			
Manhole/ Chamber	Worn or Damaged Post, Baffles, Side of Chamber	Structure dissipating flow deteriorates to 1/2 of original size or any concentrated worn spot exceeding one square foot which would make structure unsound.	Structure replaced to design standards.

BayFilter® Design Manual

ADS™

- Hammer drill
- ¼" (6 mm) concrete drill bit for the trolley
- 7/16" (11 mm) wrench or deep socket ratchet for the trolley rail anchors
- 1/2" (13 mm) concrete drill bit for hold down bars
- ¾" (19 mm) wrench or deep socket ratchet for the hold down bar anchors

Pre-Assembled Manifold

In some areas the vaults can be provided with pre-installed manifold systems. Please contact your local ADS representatives for additional details.

BayFilter System Cleanout

Inspection and Maintenance

The BayFilter system requires periodic maintenance to continue operating at the design efficiency. The maintenance process is comprised of the removal and replacement of each BayFilter cartridge, vertical drain down module; and the cleaning of the vault or manhole with a vacuum truck.

The maintenance cycle of the BayFilter system will be driven mostly by the actual solids load on the filter. The system should be periodically monitored to be certain it is operating correctly. Since stormwater solids loads can be variable, it is possible that the maintenance cycle could be more or less than the projected duration.

BayFilter systems in volume-based applications are designed to treat the WQv in 24 to 48 hours initially. Late in the operational cycle of the BayFilter, the flow rate will diminish as a result of occlusion. When the drain down exceeds the regulated standard, maintenance should be performed.

When a BayFilter system is first installed, it is recommended that it be inspected every six (6) months. When the filter system exhibits flows below design levels the system should be maintained. Filter cartridge replacement should also be considered when sediment levels are at or above the level of the manifold system. Please contact the ADS Engineering Department for maintenance cycle estimations or assistance at **800.229.7283**.

Vactor Truck Maintenance

Jet Vactoring Through Access Hatch

Maintenance Procedures

1. Contact ADS for replacement filter cartridge pricing and availability at 800-821-6710.
2. Remove the manhole covers and open all access hatches.

3. Before entering the system make sure the air is safe per OSHA Standards or use a breathing apparatus. Use low O_2, high CO, or other applicable warning devices per regulatory requirements.
4. Using a vacuum truck remove any liquid and sediments that can be removed prior to entry.
5. Using a small lift or the boom of the vacuum truck, remove the used cartridges by lifting them out.
6. Any cartridges that cannot be readily lifted can be easily slid along the floor to a location they can be lifted via a boom lift.
7. When all the cartridges have been removed, it is not practical to remove the balance of the solids and water. Loosen the stainless clamps on the Fernco couplings for the manifold and remove the drain pipes as well. Carefully cap the manifold and the Ferncos and rinse the floor, washing away the balance of any remaining collected solids.
8. Clean the manifold pipes, inspect, and reinstall.
9. Install the exchange cartridges and close all covers.
10. The used cartridges may be sent back to ADS for recycling.

Manifold Tee View of a Cleaned System

Cartridge Hoist Point

BayFilter Availability and Cost

BayFilter systems are available throughout the United States from ADS. Material, installation, and maintenance costs vary with location. For BayFilter pricing in your area, please contact ADS at 800-821-6710.

BayFilter cartridges and outlet components can be shipped anywhere in the world. Manholes and precast vaults are also supplied by ADS as part of a complete stormwater filtration system.

BayFilter Specifications

Products

A. Internal components: all components including concrete structure(s), PVC manifold piping and filter cartridges, shall be provided by ADS **800-821-6710**.
B. PVC manifold piping: all internal PVC pipe and fittings shall meet ASTM D1785. Manifold piping shall be provided to the contractor pre-cut and/or preassembled. Minor field modifications may be necessary.
C. Filter cartridges: external shell of the filter cartridges shall be substantially constructed of polyethylene or equivalent material acceptable to the manufacturer. Filtration media shall be arranged in a spiral layered fashion to maximize available filtration area.

adspipe.com
800-821-6710