

Fairfax County 2016 MS4 Program Plan and Annual Report

Appendix P5

Post-Construction Stormwater Inspection and Maintenance Policies and Procedures

VSMP Permit Number VA0088587
9-30-2016

Post-Construction Stormwater Inspection and Maintenance - Policies and Procedures -

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Introduction

Section 9VAC25-870-112 of the Virginia Administrative Code, Section 124-2-10 of Fairfax County Code and Part I.B.2 of Fairfax County's Phase I Municipal Separate Storm Sewer System (MS4) Permit (VA0088587 Part I.B.2.h) all include requirements for the long term operation and maintenance of stormwater management facilities (SWM) and Best Management Practices (BMPs). With approximately 5,700 stormwater management facilities located within the unincorporated Fairfax County boundary, this represents both a regulatory mandate as well as a considerable program investment toward protecting the general public's health, safety, and property through the maintenance of properly functioning stormwater management infrastructure.

Virginia code VAC15.2-625 delegates the responsibility of performing inspections and maintenance of public infrastructure to the Director of the Department of Public Works and Environmental Services (DPWES) of Fairfax County. The Maintenance and Stormwater Management Division (MSMD) of the DPWES, hereinafter called "MSMD or County", provides direct maintenance for approximately one-third of the noted stormwater facility inventory, which primarily includes dry ponds serving residential areas. These facilities are referred to as "public facilities." The remaining two-thirds of the stormwater management facility inventory are referred to as "private facilities" and are inspected by MSMD, but maintained by the facility owner or operator. This presents some unique programming challenges to ensure private facility owners are educated and aware of proper maintenance requirements and able to execute the necessary maintenance work.

This document provides an overview of the policies and procedures for the inspection and long term maintenance of both public and private SWM and BMP facilities located in Fairfax County. Public facilities are inspected and maintained per County schedules and guidelines by MSMD. While private facilities must be maintained by the owner, the MSMD also inspects all private facilities at least once every five years to ensure that they are being properly maintained.

The following sections document the County's authorities, guidelines, required records, and procedures for the inspection and maintenance of both public and private stormwater management facilities. County enforcement protocols for private facilities, with attendant timelines and penalties, are also reviewed.

Authority and Regulations

The Code of Fairfax County includes several ordinances that align to facilitate the necessary authority to comply with state code and with the County's MS4 permit. The Stormwater Management Ordinance (Chapter 124), which the County recently amended and updated to comply with Virginia's updated stormwater management law and regulations (VA Code §62.1-44.15:24, et seq. and 9VAC870); Erosion and Sediment Control Ordinance (Chapter 104); Zoning Ordinance (Chapter 112); and Chesapeake Bay Preservation Ordinances (Chapter 118) all provide either direct or tangential County authority to manage stormwater in accordance with the terms of Virginia's Stormwater Management Act, Erosion and Sediment Control Law and Chesapeake Bay Preservation Act, as well as the County's MS4 permit. In addition, the County's Public Facilities Manual (PFM) serves as the primary administrative tool supporting these ordinances, outlining the County's land development and management technical standards, specifications, and accepted practices.

The following is a summary of regulations and requirements which specifically apply to both public and private stormwater management facilities. While these concepts are reflected across all of the authorities and ordinances noted above, the primary authority is referenced in each summary subsection.

Stormwater Management Regulations

It is the responsibility of the owners of stormwater management facilities to maintain the proper functioning of a facility, per its original design. Maintenance should be performed on a regular basis and deficiencies addressed within an advised and reasonable timeline and per facility specific maintenance schedules and guidelines, or the default maintenance requirements noted in the original design specifications or within the Attachment A of the recorded Private Maintenance Agreement (PMA). Where a PMA exists, the PMA and Stormwater Management Ordinance §124-2-10 serve as the primary, regulatory governing authority. If a PMA does not exist, then the County uses the requirements specified on the site plan as the primary governing authority, per Zoning Ordinance §18-901(1) and 17-108(6).

Inspection/Maintenance Records

For facilities constructed after July 1, 2014 under the Stormwater Management Ordinance, the facility owner must have a system in place, in accordance with §124-2-5 and 124-2-10, to accommodate the performance and documentation of inspections and maintenance on an annual basis.

Public and private stormwater management facility records are maintained electronically by the County. Private facility owners may maintain copies of their records in paper or electronic format, provided they are accurate, current, legible, and easily accessible. All private and public stormwater management facilities are noted in MSMDs database, for regulatory and inventory purposes. The database, Infor Enterprise Asset Management (EAM) system (Infor-EAM™), includes information such as the general facility location, acres treated, type of facility, inventory date, bond release date, last inspection date, etc.

Inspection Authority

The County has established an inspection program, in accordance with the County Stormwater Management Ordinance (§124-2-5 and 124-2-10), and may enter establishments for the performance of reasonable inspections or investigations. PMAs provide the County with authority to enter a facility to conduct inspections and related activities to ensure the facility functions per the approved design plan. This program includes routine inspections, random regulatory inspections, or investigations resulting from complaints or indications of potential discharge issues. In addition, many County PMA documents also include the County's right to perform maintenance at the facility owner's expense if necessary to achieve adequate functionality.

Regardless of whether a PMA exists, the County will notify the person responsible for the property that the County intends to conduct a site inspection. In the event there is no PMA, access to the inspection site will be obtained in accordance with applicable laws.

Public Stormwater Facility Inspection and Maintenance

Maintenance Schedule and Guidelines

Public stormwater management facilities should be maintained according to the established maintenance protocols specific to public facilities as well as any facility specific maintenance schedules and guidelines, County ordinances, and any original design specifications that apply to the specific facility.

Routine maintenance for public ponds¹ is performed once or twice per year. Routine maintenance for ponds includes grass mowing, basic channel clearing, trash removal, sign installation and dewatering. Non-pond facility routine maintenance is performed on the following low impact development (LID) facilities: tree filters, bioretention facilities, green roofs, porous/pervious pavement, and vegetated swales. All other non-pond facility types are maintained as needed via non-routine maintenance work orders issued as a result of observed deficiencies during an annual inspection. Out of turn inspections and non-routine maintenance may be initiated by a complaint received by MSMD. LID facility routine maintenance includes trash removal, sediment removal, and removal/trimming of overgrown and unwanted vegetation. Items such as tree and invasive vegetation removal, major sediment removal, concrete repairs, etc. on ponds, for example, are considered non-routine maintenance tasks. Non-routine needs are prioritized in order to address safety, urgent needs and to manage resources efficiently. Please refer to the Work Flow Process Charts (Appendix C) to see an overview of the typical workflow and responsible parties. Table 1, below, reviews maintenance frequencies, by facility type.

Inspections

The purpose of public facility inspections is to assess and record the current, point-in-time condition of the public stormwater management facility compared to its original design on either an annual or biennial (once every two years) basis. MSMD’s biennial inspections reflect an alternative inspection schedule, as allowed in the County’s MS4 Permit [PART I B.2) h) 1) (b)]. The alternative inspection schedule was developed to reflect the County’s assessment of the risk of failure based on facility type and frequency of routine maintenance. Facilities that receive routine maintenance one or more times per year are scheduled for biennial inspections rather than annual. This reduced inspection frequency proves sufficient to maintain proper function because the County’s routine maintenance schedule provides additional visual evaluation of each facility throughout the year. For all other facility types without routine maintenance schedules, MSMD performs an annual inspection of those facilities. Table 1, below, notes scheduled inspection and maintenance frequencies by facility type.

Table 1-Maintenance and Inspection Frequency

Facility Type	Routine Maintenance Frequency	Inspection Frequency
Amended Soil	Not Applicable	Annual
Bioretention	Annual (5x/year)	Biennial
Cistern/Rain Barrel	Not Applicable	Annual
Dry Pond (Non-regional)	Annual (HOA 1x/year, non-HOA 2x/year)	Biennial
Dry Pond (Regional)	Annual (4x/year)	Annual
Green Roof	Annual (4x/year)	Biennial
Manufactured BMP	Not Applicable	Annual
Parking Lot Detention	Not Applicable	Annual
Porous Pavement	Annual (1x/year)	Biennial
Reforestation	Not Applicable	Annual
Rooftop Detention	Not Applicable	Annual
Rooftop Disconnection	Not Applicable	Annual
Sand Filter	Not Applicable	Annual

¹ The County is in the process of revising the routine maintenance program for Enhanced Extended Detention (EED) facilities and Constructed Wetlands (WL).

Facility Type	Routine Maintenance Frequency	Inspection Frequency
Tree Filter (Including Filterra)	Annual (4x/year)	Biennial
Infiltration Trench	Not Applicable	Annual
Underground Storage/Detention	Not Applicable	Annual
Vegetated Filter Strip	Not Applicable	Annual
Vegetated Swale	Annual (5x/year)	Biennial
Wet Pond (Non-regional)	Annual (HOA 1x/year, non-HOA 2x/year)	Biennial
Wet Pond (Regional)	Annual (4x/year)	Annual
Wetland (Constructed Wetland)	Not Applicable	Annual

The inspection protocol identifies any visible deficiencies that prevent the facility from functioning as designed (i.e., non-functional). Further, these protocols are also intended to ensure the safety of inspection personnel and inform the owner and general public as part of the County’s overall education and outreach efforts. This section is a brief process overview; detailed procedures are contained in the County’s Inspections SOP (Inspection SOP – Appendix D).

Inspections on public pond facilities are scheduled within a week of annual routine maintenance, so that the maintenance contractor’s work can be verified and to ensure overgrown vegetation does not hamper the facility’s inspection. Prior to inspection, inspectors prepare an inspection folder with any relevant site maps, forms, and letters. Unlike private facility inspections, a pre-inspection letter to the facility owner is not part of the inspection preparations; however, inspectors do attempt to check-in with the property owner, manager, or tenant to advise of their presence and purpose prior to the inspection. This brief check in with the property owner is done primarily as a courtesy, whenever feasible; however, some public facilities - - such as schools, child care centers, and assisted living communities - - have required check-in and credentialing processes which must be followed for the safety and consideration of the students and/or residents. Unless previously arranged with the owner or if the facility is located in a high traffic area, inspections take place during normal working hours, Monday through Friday, 8:00am to 5:00pm. The County does notify a property owner, and when applicable adjacent property owners, when non-routine maintenance work, as described above, is scheduled. All inspections must also follow proper safety procedures, especially those pertaining to removal of manhole covers and Confined Space Entry (29 CFR 1910), the latter of which is not routinely undertaken under this program.

MSMD has created a unique inspection form for each facility type, with relevant sections and maintenance items. Inspection forms are included in Appendix A of this document, and all forms follow the same general format. Maintenance items are scored on a range of 1-3, with (1) for severe issues with a high priority and (3) for minor items with a lower priority. Maintenance items rated at (3) still have the potential for significant future issues, if not addressed in a reasonable amount of time. The forms also allow for a notation of ☹, which means items do not currently need non-routine maintenance and/or should be addressed through regular routine maintenance, or N/A which means that item is not applicable to the specific facility being inspected.

Photographs, sketches, measurements, and observations are documented, as appropriate to the facility and per inspection procedures. For public facilities, any additional measurements that will be necessary in order to generate a work order are also taken while in the field, per the Field Measurements and Work Order Preparation SOP (Appendix D).

Most public stormwater management facilities are dry ponds serving residential areas. During inspection of all facility types, however, the most common maintenance issues encountered include the following:

- Blockages
- Structural issues
- Joint issues
- Vegetation (or lack thereof)
- Animal holes/burrows
- Erosion/undermining/cave-ins
- Trash/debris
- Sedimentation
- Algal/water quality issues
- Encroachment

Inspectors should also remain alert for signs of potential illicit discharges or public hazards, both of which require immediate reporting from the field. Any indications of possible illicit discharges are reported to the Fairfax County Industrial and High Risk Runoff/Illicit Discharge and Improper Disposal (IHRR/IDID) staff, and conditions that represent a public safety hazard (such as actively failing dam embankments, missing/loose manhole covers, etc.) are immediately reported to MSMD.

After the inspection is complete, the inspector prepares and submits an inspection report that is reviewed internally, and a work order scope and work narrative are generated, if applicable. Work orders and related narratives are submitted per the guidelines of the Field Measurements and Work Order Preparation SOP (Appendix D). All information is entered into the County’s Infor-EAM™, with special attention to noting any changes to safety, access information, or incorrect information that could impact future inspections.

Work orders are then submitted by MSMD to in-house crews or to a contractor, as appropriate to address the deficiency(ies), with a request for proposals. Once the proposal for work has been submitted and authorized, maintenance work is scheduled for completion. Scheduling non-routine maintenance takes approximately two months from the time of conducting the facility’s routine, annual maintenance.

During inspections, MSMD and their contractors identify any necessary non-routine maintenance work. Each inspection form is tailored to the type of facility being inspected and has a standardized prioritization process. Table 2 shows how MSMD prioritizes and schedules this work for all public facilities.

Table 2-Priority and Targeted Response Time

Assessed Condition	Priority	Targeted Response Time
Good / Excellent	No Work Required (NWR)	None
Fair	3	0 to 2 years
Poor / Non-Emergency	2	2 weeks to 1 year
Failed – Emergency (house flooding, structural endangerment, roadway flooding)	1	Immediate to 2 weeks

During the process of maintenance, required work may move to a lower priority. For example, a Priority 1 (P1) issue can be downgraded to Priority 2 (P2) if a short term solution, such as stabilizing a cave-in, can be implemented, allowing time for the design of a longer-term structural solution. In other instances the targeted response time may not be met due to factors outside of the county’s control, such as land ownership affecting easements and access, facilities that need to be re-designed, and weather events. In all instances, the county will initiate measures to ensure public safety and take action to correct critical deficiencies in a timely manner. In some instances, a facility designated as Priority 3 (P3) will not be maintained because the maintenance items are extremely minor in nature and not critical to the safety

and performance of the system. In those cases, the P3 designation will remain and maintenance will be deferred until the benefit of performing the work exceeds the cost to do so.

Follow-up

All County maintenance work is tracked in the Infor-EAM™ database and through a maintenance tracking spreadsheet. Maintenance contractors, for both routine and non-routine tasks, submit photos upon completion of all maintenance work orders. Photos, completion dates, and costs are included and updated on the work order in Infor-EAM™ and also in the maintenance tracking spreadsheets. For public facilities, the tracking spreadsheets are primarily used to track costs, completion dates and any related notes on work completed/not completed. MSMD verifies routine maintenance completion via submitted photographs, and project completion reports are generated for all non-routine maintenance work.

Private Stormwater Facility Inspection and Maintenance

Maintenance Schedule and Guidelines

Private stormwater management facilities must be maintained by the owner according to established maintenance schedules and guidelines as noted in the Private Maintenance Agreement (PMA), County guidelines, and the original design specifications. Maintenance should be performed on a regular basis and deficiencies addressed within an advised and reasonable timeline, as noted in the recorded PMA. Should the facility not have a PMA in place, then County specific maintenance schedules, guidelines, and/or the default maintenance requirements noted in the original design specifications will be the governing directives.

Private facility owners must also maintain accurate records on site and make them available to the County upon request. The County also inspects all private facilities at least once every five years. -

Private stormwater management facilities include a wide variety of types, including: -

- Amended Soils
- Bioretention Facilities
- Cistern/Rain Barrel
- Ponds (Dry or Wet)
- Green Roofs
- Manufactured BMPs
- Parking Lot Detention
- Pervious Pavement
- Rooftop Disconnection
- Reforestation
- Rooftop Detention
- Sand Filters
- Tree Filters
- Infiltration Trenches
- Underground Detention
- Vegetated Filter Strips
- Vegetated Swales
- Constructed Wetlands

Inspections

As previously noted, the purpose of facility inspections is to regularly assess and record the current condition and functionality of the stormwater management facility compared to its original design. Informing owners of their facility's condition in a technically accurate but easily understood manner is particularly important for the private facility inspection process. Facility owners may lack the technical background to fully comprehend the scope of maintenance requirements, the means of correcting noted deficiencies, and/or an understanding of the full risks of failing to properly maintain their facilities. The general inspection procedure for private facilities, with a few notable exceptions, is the

same as that for public facilities. However, the reporting for private facilities is specifically designed to facilitate the private owner's understanding of the maintenance items identified in the inspection, if any, and responsibility to resolve any noted maintenance issues.

The County begins the private facility inspection process by preparing a pre-inspection letter that is mailed to the private facility owner at least two weeks prior to the County's inspection. The County also conducts a thorough pre-inspection research process through which it reviews facility information such as site plans, available "as built" drawings, GIS and Tax Map data, property ownership information, PMA's, etcetera. This pre-inspection research also ascertains any prior noted deficiencies, maintenance completed, known access issues, or other conditions of note prior to the County's inspection. If there are known or previously recorded access issues, such as locked gates, excessive vegetation, etc., the inspectors may also contact the facility owner to ensure appropriate site access is provided for the inspection.

The County then prepares an inspection folder with any maps, forms, letters, and public outreach materials for use on the day of inspection. Inspections are conducted in the same manner as that for public facilities, with the exception that detailed measurements are not required for the purpose of preparing a work order for any noted deficiencies, as any necessary maintenance is the responsibility of the facility owner.

Within approximately thirty (30) days of a completed inspection, the County provides the facility owner with a Notice of Inspection (NOI), which includes several pertinent site and informational materials per the County's Inspection SOP. The primary documents submitted are a cover letter and a Condition Assessment Report (CAR) with photos. A blank Maintenance Activity Report (MAR) is also included, if deficiencies exist and maintenance is required. The CAR is a detailed report explaining the observations and findings resulting from the inspection, with direct reference to attached and captioned photos. An orientation sketch is also typically included as part of the CAR, as an aid to understanding the facility layout. A MAR is provided so the owner may document and verify that the necessary maintenance work has been completed; this form is completed and submitted back to the County, along with photos of the completed work. The receipt of a completed and acceptable MAR is the trigger to close any open inspection files where deficiencies were noted. Examples of a NOI cover letter, a CAR, and a MAR are included in Appendix B. Special care is taken to make certain pictures and text are presented clearly to facilitate owner understanding, noting that the owner may or may not have any experience dealing with facility functionality and maintenance requirements. All documentation must clearly reference the facility design and function, with any necessary maintenance needs placed in clear context.

As with public facility inspections, the basic inspection information is entered into the County's Infor-EAM™, with special attention to noting any changes to safety, access information, or incorrect information that could impact future inspections.

For private inspections, any contracting bids and maintenance are the responsibility of the facility owner. The County tracks the receipt of the NOI and any responses in order to determine whether noted deficiencies are properly addressed or whether further action may be necessary, as noted below.

Tracking Protocols

The NOI is mailed to the private facility owner via certified mail, and returned certified mailing slips are tracked by delivery date. If no MAR is received, reminder letters are sent out 45 days, and again 90 days, after initial NOI delivery. If the owner responds with a fully completed MAR, within either the 45 or 90-day allowable time frames, then the inspection files for that facility are closed out on the County tracking database and no further follow-ups or actions will take place until the next scheduled inspection or receipt of a complaint by the general public. Once the 90-day letter is received by the facility owner, he/she has 45 days to respond (for a total of 135 days from initial NOI submission to owner) or the case is sent to enforcement for further action.

All mailing dates and any MAR received dates are recorded in a tracking spreadsheet for each year's worth of private inspections, along with the Enforcement-submittal date and comments on any non-MAR owner responses. These dates are also saved on the inspection work order in the Infor-EAM™ database.

Private Stormwater Facility Enforcement

Enforcement Authority – Facilities with a Private Maintenance Agreement (PMA)

Should the owner fail to maintain the stormwater management facility in functioning order and in keeping with its approved plan and maintenance guidelines, the terms of the recorded PMA may be enforced or the county may pursue civil penalties or seek injunctive relief.

Enforcement Authority – Facilities without a PMA

Should the owner fail to maintain the stormwater management facility in accordance with its approved plan, and a PMA is not recorded, the County has the following option available:

- Enforcement through the Zoning Ordinance (Chapter 112 of the County Code)
 - §17-108.6: Requires use and structures' continued compliance with all applicable regulations regarding drainage, design criteria/specifications as noted in the Public Facilities Manual (PFM), and other site plan requirements as noted.
 - §18-901-3: Authorizes the County to notify the facility owner, requesting corrective action via a Notice of Violation (NOV) and to pursue the civil and criminal penalties noted below in the "Penalties for Non-Compliance" section.

Enforcement and Compliance Timeframes

The first step of any enforcement action is to verify that the facility ownership has not changed since the initial inspection and an attempt to establish contact with the owner via phone and/or email to provide a response expiration date. If ownership has changed, then the NOI package is mailed to the new owner of record and the response times are re-established for the new owner. Otherwise, the facility will proceed through the enforcement process.

At the end of the response expiration period (135 days), MSMD will provide advance notice to the property owner (Notice of Maintenance Verification (NOMV) letter) of another site inspection to determine if maintenance needs previously specified in the NOI have been fully completed. MSMD will then coordinate with the DPWES Code Development and Compliance Division (CDCD) to perform the inspection. If MSMD determines maintenance needs have been fully completed, the facility will be removed from enforcement. If it is determined maintenance needs have not been fully completed, and the facility is deemed non-functional, MSMD will transfer the enforcement case to CDCD to issue a Notice of Violation (NOV) and provide further enforcement actions.

Notice of Violation (NOV)

The County's DPWES MSMD and CDCD review the enforcement documentation package and, if appropriate, the CDCD sends a Notice of Violation to the facility owner. The owner has 60 days to correct the deficiencies or may choose to appeal the NOV within the timeframes set forth in the regulations. During any necessary enforcement period,

the CDCD works closely with the Office of the County Attorney (OCA) to pursue any civil penalties and/or injunctive relief when additional enforcement actions are deemed necessary.

Penalties for Non-Compliance

Failure to comply with an NOV issued under the Stormwater Ordinance or the Zoning Ordinance may result legal action to obtain compliance in an action for civil penalties or injunctive relief. The severity of civil penalty sought depends on the legal basis for enforcement (Zoning Ordinance or Stormwater Ordinance) and the severity of the violation.

Appendix A-Inspection Forms

There are 17 inspection forms used by the County, representing the increasingly complex and sophisticated range of common SWM and BMP facility types within the County. Some forms are used for more than one facility type. All forms follow the same basic format and scoring protocol. Facility types and forms are as follows:

- A-1: Amended Soils Inspection Form
- A-2: Bioretention Inspection Form
- A-3: Cistern/Rain Barrel Inspection Form
- A-4: Pond/Wetland Inspection Form
- A-5: Green Roof Inspection Form
- A-6: Manufactured BMP Inspection Form
- A-7: Parking Lot Detention Inspection Form
- A-8: Pervious Pavement Inspection Form
- A-9: Rooftop Disconnection Inspection Form
- A-10: Reforestation Inspection Form
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- A-12: Sand Filter Inspection Form
- A-13: Tree Filter Inspection Form
- A-14: Infiltration Trench Inspection Form
- A-15: Underground Detention Inspection Form
- A-16: Vegetated Filter Strip Inspection Form
- A-17: Vegetated Swale Inspection Form

A-1: Amended Soils Inspection Form

Amended Soils Inspection Form				Inspector: _____	
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____	
Site ID: _____	Facility ID: _____	Facility Name: _____			
Address: _____		Coordinates / ParID: _____		Watershed: _____ District: _____	
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	①	High Priority / Non-functional	
			②	Moderate Priority / Approaching Non-functional	
			③	Low Priority / Functional	
			⊖	No Priority / Continue Routine Maintenance	
Score Totals: <input type="text"/> <input type="text"/> <input type="text"/>		⊗	Not Applicable		
Notes / Specifications: _____			Facility Specific Info: _____		
Facility Type / Addl Facility Info: _____					
Signs			Weather Conditions		
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:
③ ⊖ ⊗		Facility Sign	Current weather conditions ?		
③ ⊖ ⊗		Facility Labeling			
Accessibility					
Access Comments			ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)
New Access Comments for EAM: _____			Locked Gate / Fence		Coordinate with Owner
			Other: _____		Return for Re-inspection
SCORE	PHOTO	DESCRIPTION			
① ⊖ ⊗		Overall Facility Access	Request Photos from Owner		
① ② ③ ⊖ ⊗		Component Access: _____	Contact MSMD		
			Other: _____		
Amended Soils Area					
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS		
① ⊖ ⊗		Impervious Area Encroachments <small>Description / Area:</small>			
① ⊖ ⊗		Evidence of Excessive Fertilizer / Chemicals			
① ② ③ ⊖ ⊗		Obstructions to Infiltration <small>Description / Area:</small>			
① ② ③ ⊖ ⊗		Trash / Debris / Sediment <small>Description / Amount:</small>			
① ② ③ ⊖ ⊗		Erosion / Bare Spots <small>Area:</small>			
① ② ③ ⊖ ⊗		Grass / Groundcover Condition			
① ② ③ ⊖ ⊗		Other: _____			
Other					
SCORE	PHOTO	DESCRIPTION	LOCATION		
① ② ③ ⊖ ⊗		Encroachments			
① ② ③ ⊖ ⊗		Modifications			
① ② ③ ⊖ ⊗		Mosquito Habitat			
① ② ③ ⊖ ⊗		Evidence of Possible Illicit Discharge, Call to Report (703-877-2800: Inspection, Maint., & Enforc. Section)			
INSPECTOR COMMENTS					

A-2: Bioretention Inspection Form

Bioretention Inspection Form				Inspector: _____										
Fairfax County Maintenance and Stormwater Management Division														
Site ID: _____		Facility ID: _____		Facility Name: _____										
Address: _____		Coordinates / ParID: _____		Date: _____										
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Watershed: _____		District: _____										
Score Totals: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 30px; text-align: center;">1</td><td style="width: 30px; text-align: center;">2</td><td style="width: 30px; text-align: center;">3</td></tr></table>		1	2	3	<table border="1" style="border-collapse: collapse; width: 100%;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold;">Score Key</td> <td>① High Priority / Non-functional</td> </tr> <tr> <td>② Moderate Priority / Approaching Non-functional</td> </tr> <tr> <td>③ Low Priority / Functional</td> </tr> <tr> <td>④ No Priority / Continue Routine Maintenance</td> </tr> <tr> <td>⑤ Not Applicable</td> </tr> </table>				Score Key	① High Priority / Non-functional	② Moderate Priority / Approaching Non-functional	③ Low Priority / Functional	④ No Priority / Continue Routine Maintenance	⑤ Not Applicable
1	2	3												
Score Key	① High Priority / Non-functional													
② Moderate Priority / Approaching Non-functional														
③ Low Priority / Functional														
④ No Priority / Continue Routine Maintenance														
⑤ Not Applicable														
Notes / Specifications: _____			Facility Specific Info: _____											
Facility Type / Add Facility Info:														
Signs			Weather Conditions											
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:									
① ② ③		Facility Sign	Current weather conditions?											
③ ④ ⑤		Facility Labeling												
Accessibility														
Access Comments			ACCESS PROBLEMS (Circle)	NEXT STEP (Circle One)										
New Access Comments for EAM: _____			Locked Gate / Fence	Coordinate with Owner										
			Heavy Vegetation	Return for Re-inspection										
			Stuck / Broken Cover	Request Photos from Owner										
SCORE	PHOTO	DESCRIPTION	Equipment Needed: _____	Contact MSMD										
① ② ③ ④ ⑤		Overall Facility Access	Other: _____	Other: _____										
① ② ③ ④ ⑤		Component Access: _____												
Ponding Area														
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS											
① ② ③ ④ ⑤		Standing Water in Basin												
① ② ③ ④ ⑤		Basin Area	Observed:	Specified:										
① ② ③ ④ ⑤		Ponding Depth	Observed:	Specified:										
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>												
① ② ③ ④ ⑤		Mulch Cover (2-3" min.)												
① ② ③ ④ ⑤		Erosion / Bare Spots <i>Area:</i>												
① ② ③ ④ ⑤		Repair Filter Fabric												
① ② ③ ④ ⑤		Other: <i>Description:</i>												
Plant Material			Plants in Inventory:											
① ② ③ ④ ⑤		Trees Missing	Observed:	Specified:										
① ② ③ ④ ⑤		Shrubs Missing	Observed:	Specified:										
① ② ③ ④ ⑤		Grass / Groundcover Missing	Observed:	Specified:										
① ② ③ ④ ⑤		Unhealthy / Damaged												
① ② ③ ④ ⑤		Overgrown / Invasive Vegetation												
① ② ③ ④ ⑤		Other: <i>Description:</i>												
Observation Well / Cleanout(s)														
① ② ③ ④ ⑤		Missing / Not Found												
① ② ③ ④ ⑤		Cap Missing / Stuck												
① ② ③ ④ ⑤		Water / Sediment Observed in Well?												
① ② ③ ④ ⑤		Vegetation / External Obstructions												
① ② ③ ④ ⑤		Damaged <i>Description:</i>												
① ② ③ ④ ⑤		Other: <i>Description:</i>												
Inflow(s)														
SCORE	PHOTO	DESCRIPTION	1	2	3	4	5	6						
Material / Size / Type:														
① ② ③ ④ ⑤		Blockage <i>(① < 25% < ② < 75% < ③)</i>												
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>												
① ② ③ ④ ⑤		Erosion / Undermining												
① ② ③ ④ ⑤		Spalling / Deterioration												
① ② ③ ④ ⑤		Separation / Misalignment												
① ② ③ ④ ⑤		Overgrown Vegetation / Tree Removal												
① ② ③ ④ ⑤		Other: <i>Description:</i>												
Pre-Treatment / Energy Dissipators														
Type(s): Flow spreader / Forebay / Gravel diaphragm / Grass filter strip / Grass channel / Leaf screen / Level spreader / Other: _____														
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS											
① ② ③ ④ ⑤		Missing / Non-Functional <i>Description:</i>												
① ② ③ ④ ⑤		Inconsistent with Plans <i>(Area / Vertical Drop / etc.)</i>	Observed:	Specified:										
① ② ③ ④ ⑤		Damage / Deterioration <i>Description:</i>												
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>												
① ② ③ ④ ⑤		Other: <i>Description:</i>												
Dam / Berm and Overflow Spillway														
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS											
① ② ③ ④ ⑤		Missing	Observed:	Specified:										
① ② ③ ④ ⑤		Slope Erosion <i>Area:</i>												
① ② ③ ④ ⑤		Bare Spots <i>Area:</i>												
① ② ③ ④ ⑤		Animal Holes												
① ② ③ ④ ⑤		Overgrown Vegetation / Tree Removal												
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>												
① ② ③ ④ ⑤		Other: <i>Description:</i>												

Bioretention Inspection Form		Page 2
Site ID: _____	Facility ID: _____	Facility Name: _____
Control Structure		
Function:	Orifice Size:	Type (Circle): Riser Structure / Pipe End / Weir / Other: _____
SCORE	PHOTO	DESCRIPTION
COMMENTS / DIMENSIONS		
①②③④⑤		Damage / Deterioration <i>Description:</i>
①②③④⑤		Vegetation / External Obstructions
①②③④⑤		Other: <i>Description:</i>
Low-Flow Orifice and Trash Rack		
①	⊙	Orifice Plate Missing / Non-Functional
①	⊙	Trash Rack Missing / Non-Functional
①②③④⑤		Blockage (<i>⊙ < 25% < ⊙ < 75% < ⊙</i>)
①②③④⑤		Damage / Deterioration <i>Description:</i>
Top Trash Rack and Anti-Vortex Plate		
①	⊙	Pad Lock Missing
①②③④⑤		Blockage (<i>⊙ < 25% < ⊙ < 75% < ⊙</i>)
①②③④⑤		Damage / Deterioration <i>Description:</i>
Riser Interior		
①②③④⑤		Trash / Debris / Sediment <i>Description / Amount:</i>
①②③④⑤		Ladder / Steps Condition
①②③④⑤		Manhole Condition
Underdrain(s) and Principal Spillway Pipe		
SCORE	PHOTO	DESCRIPTION
		UNDERDRAIN(S)
		PRINCIPAL SPILLWAY PIPE
Specified on Approved Plans?		
①	⊙	Missing
①②③④⑤		Blockage (<i>⊙ < 25% < ⊙ < 75% < ⊙</i>)
①②③④⑤		Spalling / Deterioration
①②③④⑤		Separation / Misaligned Joints
①②③④⑤		Other:
Outfall Structure		
Material:	Size:	End Type:
SCORE	PHOTO	DESCRIPTION
COMMENTS / DIMENSIONS		
①②③④⑤		Blockage (<i>⊙ < 25% < ⊙ < 75% < ⊙</i>)
①②③④⑤		Trash / Debris / Sediment
①②③④⑤		Erosion / Undermining <i>Area:</i>
①②③④⑤		Spalling / Deterioration
①②③④⑤		Separation / Misalignment
①②③④⑤		Overgrown Vegetation / Tree Removal
①②③④⑤		Manhole Condition
①②③④⑤		Ladder / Steps Condition
①②③④⑤		Downstream Channel Condition
①②③④⑤		Other:
Other		
SCORE	PHOTO	DESCRIPTION
		LOCATION
①②③④⑤		Encroachments
①②③④⑤		Modifications
①②③④⑤		Mosquito Habitat
①②③④⑤		Evidence of Possible Illicit Discharge, Call to Re (703-877-2800: Inspection, Maint., & Enforc. Section)
INSPECTOR COMMENTS		

A-3: Cistern/Rain Barrel Inspection Form

Cistern / Rain Barrel Inspection Form				Inspector: _____					
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____					
Site ID: _____	Facility ID: _____	Facility Name: _____							
Address: _____		Coordinates / ParID: _____		District: _____					
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	①	High Priority / Non-functional					
Score Totals: <table border="1" style="display: inline-table; width: 100px;"><tr><td style="width: 33%; text-align: center;">1</td><td style="width: 33%; text-align: center;">2</td><td style="width: 33%; text-align: center;">3</td></tr></table>			1	2	3	②	Moderate Priority / Approaching Non-functional		
1	2		3						
			③	Low Priority / Functional					
			④	No Priority / Continue Routine Maintenance					
		⑤	Not Applicable						
Notes / Specifications: _____			Facility Specific Info: _____						
Facility Type / Addl Facility Info: _____									
Signs			Weather Conditions						
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:				
③ ④ ⑤	<input type="checkbox"/>	Facility Sign	Current weather conditions?						
③ ④ ⑤	<input type="checkbox"/>	Facility Labeling							
Accessibility									
Access Comments			ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)				
New Access Comments for EAM:			Locked Gate / Fence		Coordinate with Owner				
			Heavy Vegetation		Return for Re-inspection				
			Stuck / Broken Cover		Request Photos from Owner				
SCORE	PHOTO	DESCRIPTION	Equipment Needed: _____		Contact MSMD				
① ② ③ ④ ⑤	<input type="checkbox"/>	Overall Facility Access	Other: _____		Other: _____				
① ② ③ ④ ⑤	<input type="checkbox"/>	Component Access: _____							
Downspouts									
SCORE	PHOTO	DESCRIPTION	1	2	3				
① ② ③ ④ ⑤	<input type="checkbox"/>	Disconnected							
① ② ③ ④ ⑤	<input type="checkbox"/>	Damaged / Leaking							
① ② ③ ④ ⑤	<input type="checkbox"/>	Blockage (① < 25% < ② < 75% < ③)							
① ② ③ ④ ⑤	<input type="checkbox"/>	Other: _____ <i>Description:</i>							
Rainwater Harvesting System									
Type:	Cistern / Rain Barrel / Other: _____	Size: _____	Location: _____						
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS						
① ② ③ ④ ⑤	<input type="checkbox"/>	Trees over Roof Surface							
① ② ③ ④ ⑤	<input type="checkbox"/>	Debris / Sediment in Gutter							
Pre-Treatment Device <i>Type:</i>									
① ② ③ ④ ⑤	<input type="checkbox"/>	Missing / Non-Functional							
① ② ③ ④ ⑤	<input type="checkbox"/>	Damage / Deterioration							
① ② ③ ④ ⑤	<input type="checkbox"/>	Trash / Debris / Sediment <i>Description / Amount:</i>							
① ② ③ ④ ⑤	<input type="checkbox"/>	Other: _____ <i>Description:</i>							
Storage Tank									
① ② ③ ④ ⑤	<input type="checkbox"/>	Damage / Deterioration							
① ② ③ ④ ⑤	<input type="checkbox"/>	Trash / Debris / Sediment <i>Description / Amount:</i>							
① ② ③ ④ ⑤	<input type="checkbox"/>	Other: _____ <i>Description:</i>							
Overflow / Bypass									
① ② ③ ④ ⑤	<input type="checkbox"/>	Missing / Non-Functional							
① ② ③ ④ ⑤	<input type="checkbox"/>	Blockage (① < 25% < ② < 75% < ③)							
① ② ③ ④ ⑤	<input type="checkbox"/>	Damage / Deterioration							
① ② ③ ④ ⑤	<input type="checkbox"/>	Other: _____ <i>Description:</i>							
Discharge / Water Use									
① ② ③ ④ ⑤	<input type="checkbox"/>	Missing / Non-Functional							
① ② ③ ④ ⑤	<input type="checkbox"/>	Damage / Deterioration							
① ② ③ ④ ⑤	<input type="checkbox"/>	Erosion <i>Area:</i>							
① ② ③ ④ ⑤	<input type="checkbox"/>	Other: _____ <i>Description:</i>							
Other									
SCORE	PHOTO	DESCRIPTION	LOCATION						
① ② ③ ④ ⑤	<input type="checkbox"/>	Encroachments							
① ② ③ ④ ⑤	<input type="checkbox"/>	Modifications							
① ② ③ ④ ⑤	<input type="checkbox"/>	Mosquito Habitat							
① ② ③ ④ ⑤	<input type="checkbox"/>	Evidence of Possible Illicit Discharge, Call to Re (703-877-2800: Inspection, Maint., & Enforc. Section)							
INSPECTOR COMMENTS									

A-4: Pond/Wetland Inspection Form

Pond / Wetland Inspection Form				Inspector: _____				
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____				
Site ID: _____	Facility ID: _____	Facility Name: _____						
Address: _____		Coordinates / ParID: _____		District: _____				
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	Watershed: _____					
Score Totals: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 30px; text-align: center;">1</td><td style="width: 30px; text-align: center;">2</td><td style="width: 30px; text-align: center;">3</td></tr></table>			1	2	3	① High Priority / Non-functional		
1	2		3					
			② Moderate Priority / Approaching Non-functional					
			③ Low Priority / Functional					
		④ No Priority / Continue Routine Maintenance						
		⑤ Not Applicable						
Notes / Specifications: _____		Facility Specific Info: _____						
Facility Type / Addl Facility Info: _____								
Signs			Weather Conditions					
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:			
① ② ③		Facility Sign	Current weather conditions?					
④ ⑤		Facility Labeling						
Accessibility								
Access Comments			ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)			
New Access Comments for EAM:			Locked Gate / Fence		Coordinate with Owner			
			Heavy Vegetation		Return for Re-inspection			
SCORE	PHOTO	DESCRIPTION	Stuck / Broken Cover		Request Photos from Owner			
①	④ ⑤	Overall Facility Access	Equipment Needed: _____		Contact MSMD			
① ② ③ ④ ⑤		Component Access:	Other: _____		Other: _____			
Control Structure								
Function:	Orifice Size:	Type (Circle): Riser Structure / Pipe End / Weir / Other: _____						
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
① ② ③ ④ ⑤		Damage / Deterioration <i>Description:</i>						
① ② ③ ④ ⑤		Vegetation / External Obstructions						
① ② ③ ④ ⑤		Other: <i>Description:</i>						
Low-Flow Orifice and Trash Rack								
①	④ ⑤	Orifice Plate Missing / Non-Functional						
①	④ ⑤	Trash Rack Missing / Non-Functional						
① ② ③ ④ ⑤		Blockage ($\phi < 25\% < \phi < 75\% < \phi$)						
① ② ③ ④ ⑤		Damage / Deterioration <i>Description:</i>						
Top Trash Rack and Anti-Vortex Plate								
①	④ ⑤	Pad Lock Missing						
① ② ③ ④ ⑤		Blockage ($\phi < 25\% < \phi < 75\% < \phi$)						
① ② ③ ④ ⑤		Damage / Deterioration <i>Description:</i>						
Riser Interior								
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>						
① ② ③ ④ ⑤		Ladder / Steps Condition						
① ② ③ ④ ⑤		Manhole Condition						
Principal Spillway Pipe, Upstream End			1	2	3			
① ② ③ ④ ⑤		Blockage ($\phi < 25\% < \phi < 75\% < \phi$)	4	5	6			
① ② ③ ④ ⑤		Spalling / Deterioration						
① ② ③ ④ ⑤		Separation / Misaligned Joints						
Dam / Berm and Emergency Spillway								
Sep Auxillary Spillway:								
SCORE	PHOTO	DESCRIPTION	FACE SLOPE	TOP OF DAM	BACK SLOPE			
			Score	Comments	Score			
			Score	Comments	EMERG. SPILLWAY			
			Material: _____					
① ② ③ ④ ⑤		Toe Soft Spots			Score			
① ② ③ ④ ⑤		Cave-In			Comments			
① ② ③ ④ ⑤		Slope Erosion <i>Area:</i>						
① ② ③ ④ ⑤		Bare Spots <i>Area:</i>						
① ② ③ ④ ⑤		Animal Holes						
① ② ③ ④ ⑤		Tree Removal <i>Num/Size:</i>						
① ② ③ ④ ⑤		Woody Vegetation						
① ② ③ ④ ⑤		Overgrown Non-woody Veg.						
① ② ③ ④ ⑤		Trash / Debris / Sediment						
① ② ③ ④ ⑤		Alterations: <i>Description:</i>						
① ② ③ ④ ⑤		Other: <i>Description:</i>						
① ② ③ ④ ⑤		Blockage at Emergency Spillway ($\phi < 25\% < \phi < 75\% < \phi$)						
① ② ③ ④ ⑤		Damage / Deterioration at Emergency Spillway <i>Description:</i>						
Outfall Structure / PSP Downstream End								
Material:	Size:	End Type:	Pipe Total:					
SCORE	PHOTO	DESCRIPTION	1	2	3			
			4	5	6			
① ② ③ ④ ⑤		Blockage ($\phi < 25\% < \phi < 75\% < \phi$)						
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>						
① ② ③ ④ ⑤		Erosion / Undermining <i>Area:</i>						
① ② ③ ④ ⑤		Spalling / Deterioration						
① ② ③ ④ ⑤		Separation / Misalignment						
① ② ③ ④ ⑤		Overgrown Vegetation / Tree Removal						
① ② ③ ④ ⑤		Handrail Status						
① ② ③ ④ ⑤		Manhole Condition						
① ② ③ ④ ⑤		Ladder / Steps Condition						
① ② ③ ④ ⑤		Downstream Channel Condition						
① ② ③ ④ ⑤		Other:						

Pond / Wetland Inspection Form											Page 2			
Site ID: _____		Facility ID: _____			Facility Name: _____									
Pond Floor / Pool														
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS											
1		Water Level Inconsistent with Plans												
1		Trash / Debris / Sediment <small>Description / Amount:</small>												
1		Overgrown Vegetation												
1		Tree Removal <small>Number / Size:</small>												
1		Erosion / Bare Spots <small>Area:</small>												
1		Other: <small>Description:</small>												
		Trickle Ditch / Low Flow Channel	Shown on Plans: Yes / No	Ditch Material:		Ditch Total								
1		Not Found / Completely Covered												
1		Trash / Debris / Sediment <small>Description / Amount:</small>												
1		Blockage <small>(@ < 25% < @ < 75% < @)</small>												
1		Erosion / Trenching / Roots <small>Description:</small>												
1		Detoured Flow Line <small>Description:</small>												
1		Damage / Deterioration <small>Description:</small>												
1		Other: <small>Description:</small>												
		Sediment Forebay and Micropools	1	2	3	4	5	6						
1		Inconsistent with Plans												
1		Erosion / Bare Spots <small>Area:</small>												
1		Trash / Debris / Sediment <small>Description / Amount:</small>												
1		Overgrown Vegetation												
1		Tree Removal <small>Number / Size:</small>												
1		Displaced Rip Rap												
1		Weir Condition <small>Type:</small>												
1		Other: <small>Description:</small>												
		Wetland Habitat	Signs Posted: Yes / No	Plants in Inventory:										
1		Submergent Vegetation	Observed:	Specified:										
1		Emergent Vegetation	Observed:	Specified:										
1		Undesired Vegetation (Cattails / Phragmites)												
1		Posted Sign Condition												
1		Other: <small>Description:</small>												
Upstream Inflow(s)														
SCORE	PHOTO	DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12
		End Type / Overland:												
		Pipe Material:												
		Pipe Size:												
1		Blockage <small>(@ < 25% < @ < 75% < @)</small>												
1		Trash / Debris / Sediment <small>Description / Amount:</small>												
1		Erosion / Undermining <small>Area:</small>												
1		Spalling / Deterioration												
1		Separation / Misalignment												
1		Overgrown Vegetation / Tree Removal												
1		Handrail Status												
1		Downstream Channel Condition												
1		Other:												
Other														
SCORE	PHOTO	DESCRIPTION	LOCATION											
1		Encroachments												
1		Modifications												
1		Mosquito Habitat												
1		Evidence of Possible Illicit Discharge, Call to Re (703-877-2800: Inspection, Maint., & Enforc. Section)												
INSPECTOR COMMENTS														

A-5: Green Roof Inspection Form

Green Roof Inspection Form				Inspector: _____										
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____										
Site ID: _____	Facility ID: _____	Facility Name: _____												
Address: _____		Coordinates / ParID: _____		District: _____										
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	① High Priority / Non-functional											
Score Totals: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 30px; text-align: center;">1</td><td style="width: 30px; text-align: center;">2</td><td style="width: 30px; text-align: center;">3</td></tr></table>			1	2	3	② Moderate Priority / Approaching Non-functional								
1	2		3											
			③ Low Priority / Functional											
			④ No Priority / Continue Routine Maintenance											
		⑤ Not Applicable												
Notes / Specifications: _____		Facility Specific Info: _____												
Facility Type / Addl Facility Info: _____														
Signs			Weather Conditions											
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:									
③ ④ ⑤		Facility Sign	Current weather conditions?											
③ ④ ⑤		Facility Labeling												
Accessibility														
Access Comments			ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)									
New Access Comments for EAM:			Locked Access Door		Coordinate with Owner									
			Broken / Unsafe Ladder		Return for Re-inspection									
			Too Tall for Standard Ladder		Request Photos from Owner									
SCORE	PHOTO	DESCRIPTION	Equipment Needed: _____		Contact MSMD									
① ② ③ ④ ⑤		Overall Facility Access	Other: _____		Roofing Contractor/ Bucket Truck									
① ② ③ ④ ⑤		Component Access:												
Roof Surface														
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS											
① ② ③ ④ ⑤		Change in Roof Design	Observed:	Specified:										
① ② ③ ④ ⑤		Visible Damage to Surface												
① ② ③ ④ ⑤		Erosion / Bare Spots Area: _____												
① ② ③ ④ ⑤		Trash / Debris / Sediment Description / Amount: _____												
① ② ③ ④ ⑤		Ponding Water (after dry weather) Area: _____												
① ② ③ ④ ⑤		Access Path	Observed:	Specified:										
① ② ③ ④ ⑤		Aluminum Curbing	Observed:	Specified:										
① ② ③ ④ ⑤		Other: Description: _____												
Plant Material			Plants in Inventory:											
① ② ③ ④ ⑤		Trees Missing	Observed:	Specified:										
① ② ③ ④ ⑤		Shrubs Missing	Observed:	Specified:										
① ② ③ ④ ⑤		Grass / Groundcover Missing	Observed:	Specified:										
① ② ③ ④ ⑤		Unhealthy / Damaged												
① ② ③ ④ ⑤		Overgrown / Invasive Vegetation												
① ② ③ ④ ⑤		Other: Description: _____												
For Multi-Level Rooftop Detention Systems, Notes														
Describe Stormwater Flow: _____														
Roof Drains														
SCORE	PHOTO	DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12
① ② ③ ④ ⑤		Debris Cage Missing												
① ② ③ ④ ⑤		Blockage (① < 25% < ② < 75% < ③)												
① ② ③ ④ ⑤		Damage / Deterioration												
① ② ③ ④ ⑤		Vegetation / External Obstructions												
① ② ③ ④ ⑤		Other: Description: _____												
Scupper Ports / Emergency Overflow														
SCORE	PHOTO	DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12
① ② ③ ④ ⑤		Blockage (① < 25% < ② < 75% < ③)												
① ② ③ ④ ⑤		Damage / Deterioration												
① ② ③ ④ ⑤		Vegetation / External Obstructions												
① ② ③ ④ ⑤		Other: Description: _____												
① ② ③ ④ ⑤		Insufficient Emergency Overflow	Observed:	Specified:										
Other														
SCORE	PHOTO	DESCRIPTION	LOCATION											
① ② ③ ④ ⑤		Encroachments												
① ② ③ ④ ⑤		Modifications												
① ② ③ ④ ⑤		Mosquito Habitat												
① ② ③ ④ ⑤		Evidence of Possible Illicit Discharge, Call to Re (703-877-2800: Inspection, Maint., & Enforc. Section)												
INSPECTOR COMMENTS														

A-6: Manufactured BMP Inspection Form

Manufactured BMP Inspection Form				Inspector: _____					
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____					
Site ID: _____	Facility ID: _____	Facility Name: _____							
Address: _____		Coordinates / ParID: _____		Watershed: _____ District: _____					
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	①	High Priority / Non-functional					
Score Totals: <table border="1" style="display: inline-table; width: 100px;"><tr><td>1</td><td>2</td><td>3</td></tr></table>			1	2	3	②	Moderate Priority / Approaching Non-functional		
1	2		3						
			③	Low Priority / Functional					
			④	No Priority / Continue Routine Maintenance					
		⑤	Not Applicable						
Notes / Specifications: _____		Facility Specific Info: _____							
Facility Type / Addl Facility Info: _____									
Signs			Weather Conditions						
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:				
③ ④ ⑤		Facility Sign	Current weather conditions?						
③ ④ ⑤		Facility Labeling							
Accessibility									
Access Comments		ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)					
New Access Comments for EAM: _____		Locked Gate / Fence		Coordinate with Owner					
		Parked Cars		Return for Re-inspection					
		Stuck / Broken Cover		Request Photos from Owner					
SCORE	PHOTO	DESCRIPTION	Equipment Needed: _____		Contact MSMD				
① ② ③ ④ ⑤		Overall Facility Access	Other: _____		Other: _____				
① ② ③ ④ ⑤		Component Access:							
Maintenance Records									
YES / NO	PHOTO	DESCRIPTION	COMMENTS						
YES / NO		Inspection / Maintenance Conducted Recently							
YES / NO		Maintenance Records Available On-Site							
Manufacturer-Specific Items									
<i>Look for these items as you inspect each chamber of the Manufactured BMP facility.</i>									
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS						
Oil/Grit Separator									
① ② ③ ④ ⑤		CMP Elbow Condition							
① ② ③ ④ ⑤		Trash Rack Condition							
StormFilter									
① ② ③ ④ ⑤		StormGate Condition	<i>(Inspect the StormGate structure as it's own 'Chamber' below.)</i>						
① ② ③ ④ ⑤		Flow Spreader / Dissipator Condition	<i>(at Both ends of the Cartridge Bay)</i>						
① ② ③ ④ ⑤		Number of Cartridges Inconsistent with Plans	# Observed:	# Specified:					
① ② ③ ④ ⑤		Cartridge Condition	<i>Description:</i>						
Vortechs Hydrodynamic Separator									
① ② ③ ④ ⑤		Swirl Chamber							
① ② ③ ④ ⑤		Orifice Plates for High and Low Flows							
Stormceptor									
① ② ③ ④ ⑤		Fiberglass Insert							
① ② ③ ④ ⑤		Weir							
① ② ③ ④ ⑤		Inspection Port							
① ② ③ ④ ⑤		Safety Gate (optional)							
BaySaver									
① ② ③ ④ ⑤		Tee Pipes							
① ② ③ ④ ⑤		Bypass Plate							
Downstream Defender									
① ② ③ ④ ⑤		Cylindrical Baffle							
Inspect Chambers from Upstream to Downstream, Providing Identifying Information for Each									
Chamber 1									
Structure # on Plan	Chamber Name on Plan	Label on Sketch							
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS						
① ② ③ ④ ⑤		Inconsistent with Plans	Observed:	Specified:					
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>							
① ② ③ ④ ⑤		Blockage <i>(Full of water after dry weather, no permanent pool on plans.)</i>							
① ② ③ ④ ⑤		Spalling / Deterioration							
① ② ③ ④ ⑤		Connecting Pipes, if any	Pipe Direction:	Problem:					
① ② ③ ④ ⑤		Manhole / Bilco Door Condition							
① ② ③ ④ ⑤		Ladder / Steps Condition							
① ② ③ ④ ⑤		Other:							
Chamber 2									
Structure # on Plan	Chamber Name on Plan	Label on Sketch							
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS						
① ② ③ ④ ⑤		Inconsistent with Plans	Observed:	Specified:					
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>							
① ② ③ ④ ⑤		Blockage <i>(Full of water after dry weather, no permanent pool on plans.)</i>							
① ② ③ ④ ⑤		Spalling / Deterioration							
① ② ③ ④ ⑤		Connecting Pipes, if any	Pipe Direction:	Problem:					
① ② ③ ④ ⑤		Manhole / Bilco Door Condition							
① ② ③ ④ ⑤		Ladder / Steps Condition							
① ② ③ ④ ⑤		Other:							

Manufactured BMP Inspection Form					Page 2
Site ID: _____		Facility ID: _____		Facility Name: _____	
Chamber 3					
Structure # on Plan	Chamber Name on Plan	Label on Sketch			
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS	Observed:	Specified:
①	⊙⊗	Inconsistent with Plans			
①②③④⑤		Trash / Debris / Sediment <i>Description / Amount:</i>			
①②③④⑤		Blockage <i>(Full of water after dry weather, no permanent pool on plans.)</i>			
①②③④⑤		Spalling / Deterioration			
①②③④⑤		Connecting Pipes, if any	Pipe Direction:		Problem:
①②③④⑤		Manhole / Bilco Door Condition			
①②③④⑤		Ladder / Steps Condition			
①②③④⑤		Other:			
Chamber 4					
Structure # on Plan	Chamber Name on Plan	Label on Sketch			
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS	Observed:	Specified:
①	⊙⊗	Inconsistent with Plans			
①②③④⑤		Trash / Debris / Sediment <i>Description / Amount:</i>			
①②③④⑤		Blockage <i>(Full of water after dry weather, no permanent pool on plans.)</i>			
①②③④⑤		Spalling / Deterioration			
①②③④⑤		Connecting Pipes, if any	Pipe Direction:		Problem:
①②③④⑤		Manhole / Bilco Door Condition			
①②③④⑤		Ladder / Steps Condition			
①②③④⑤		Other:			
Chamber 5					
Structure # on Plan	Chamber Name on Plan	Label on Sketch			
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS	Observed:	Specified:
①	⊙⊗	Inconsistent with Plans			
①②③④⑤		Trash / Debris / Sediment <i>Description / Amount:</i>			
①②③④⑤		Blockage <i>(Full of water after dry weather, no permanent pool on plans.)</i>			
①②③④⑤		Spalling / Deterioration			
①②③④⑤		Connecting Pipes, if any	Pipe Direction:		Problem:
①②③④⑤		Manhole / Bilco Door Condition			
①②③④⑤		Ladder / Steps Condition			
①②③④⑤		Other:			
Outfall Structure / Other					
Outfall Structure					
Material:	Size:	End Type:	Structure # on Plans:		
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS		
①②③④⑤		Blockage <i>(⊙ < 25% < ⊙ < 75% < ⊙)</i>			
①②③④⑤		Trash / Debris / Sediment			
①②③④⑤		Erosion / Undermining <i>Area:</i>			
①②③④⑤		Spalling / Deterioration			
①②③④⑤		Separation / Misalignment			
①②③④⑤		Overgrown Vegetation / Tree Removal			
①②③④⑤		Manhole Condition			
①②③④⑤		Ladder / Steps Condition			
①②③④⑤		Downstream Channel Condition			
①②③④⑤		Other:			
Other					
SCORE	PHOTO	DESCRIPTION	LOCATION		
①②③④⑤		Encroachments			
①②③④⑤		Modifications			
①②③④⑤		Mosquito Habitat			
①②③④⑤		Evidence of Possible Illicit Discharge, Call to Report (703-877-2800: Inspection, Maint., & Enforc. Section)			
INSPECTOR COMMENTS					

A-7: Parking Lot Detention Inspection Form

Parking Lot Detention Inspection Form				Inspector: _____													
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____													
Site ID: _____	Facility ID: _____	Facility Name: _____															
Address: _____		Coordinates / ParID: _____															
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Watershed: _____	District: _____														
Score Totals: <table style="display: inline-table; border: 1px solid black; width: 100px;"><tr><td style="width: 33%; text-align: center;">1</td><td style="width: 33%; text-align: center;">2</td><td style="width: 33%; text-align: center;">3</td></tr></table>		1	2	3	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">①</td><td>High Priority / Non-functional</td></tr> <tr><td style="text-align: center;">②</td><td>Moderate Priority / Approaching Non-functional</td></tr> <tr><td style="text-align: center;">③</td><td>Low Priority / Functional</td></tr> <tr><td style="text-align: center;">④</td><td>No Priority / Continue Routine Maintenance</td></tr> <tr><td style="text-align: center;">⑤</td><td>Not Applicable</td></tr> </table>			①	High Priority / Non-functional	②	Moderate Priority / Approaching Non-functional	③	Low Priority / Functional	④	No Priority / Continue Routine Maintenance	⑤	Not Applicable
1	2	3															
①	High Priority / Non-functional																
②	Moderate Priority / Approaching Non-functional																
③	Low Priority / Functional																
④	No Priority / Continue Routine Maintenance																
⑤	Not Applicable																
Notes / Specifications: _____		Facility Specific Info: _____															
Facility Type / Addl Facility Info:																	
Signs			Weather Conditions														
SCORE	PHOTO	DESCRIPTION	Last Rainfall Date: _____	Amount: _____													
③ ④ ⑤		Facility Sign	Current weather conditions? _____														
③ ④ ⑤		Facility Labeling															
Accessibility																	
Access Comments			ACCESS PROBLEMS (Circle)														
New Access Comments for EAM:			NEXT STEP (Circle One)														
			Locked Gate / Fence														
			Parked Cars														
			Stuck / Broken Cover														
			Equipment Needed: _____														
			Other: _____														
			Other: _____														
Control Structure																	
		Orifice Size: _____	Emergency Overflow Provided? Yes / No														
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS														
① ② ③ ④ ⑤		Blockage (① < 25% < ② < 75% < ③)															
① ② ③ ④ ⑤		Damaged															
① ② ③ ④ ⑤		Spalling / Deterioration															
① ② ③ ④ ⑤		Overgrown Vegetation / External Obstruction															
① ② ③ ④ ⑤		Other: _____															
Restrictor Plate / Trash Rack																	
① ② ③ ④ ⑤		Restrictor Plate Missing	Observed: _____	Specified: _____													
① ② ③ ④ ⑤		Trash Rack Missing	Observed: _____	Specified: _____													
① ② ③ ④ ⑤		Damage / Deterioration															
① ② ③ ④ ⑤		Other: _____															
Structure Interior																	
① ② ③ ④ ⑤		Trash / Debris / Sediment (interior)	Description / Amount: _____														
① ② ③ ④ ⑤		Manhole Condition															
① ② ③ ④ ⑤		Ladder / Steps Condition															
Outlet Pipe																	
① ② ③ ④ ⑤		Blockage (① < 25% < ② < 75% < ③)															
① ② ③ ④ ⑤		Spalling / Deterioration															
① ② ③ ④ ⑤		Separation / Misalignment															
① ② ③ ④ ⑤		Other: _____	Description: _____														
Parking Lot Surface																	
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS														
① ② ③ ④ ⑤		Ponding Water (after dry weather)															
① ② ③ ④ ⑤		Trash / Debris / Sediment	Description / Amount: _____														
① ② ③ ④ ⑤		Asphalt / Concrete Condition															
① ② ③ ④ ⑤		Other: _____	Description: _____														
Outfall Structure																	
Material: _____		Size: _____	End Type: _____														
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS														
① ② ③ ④ ⑤		Blockage (① < 25% < ② < 75% < ③)															
① ② ③ ④ ⑤		Trash / Debris / Sediment															
① ② ③ ④ ⑤		Erosion / Undermining	Area: _____														
① ② ③ ④ ⑤		Spalling / Deterioration															
① ② ③ ④ ⑤		Separation / Misalignment															
① ② ③ ④ ⑤		Overgrown Vegetation / Tree Removal															
① ② ③ ④ ⑤		Manhole Condition															
① ② ③ ④ ⑤		Ladder / Steps Condition															
① ② ③ ④ ⑤		Downstream Channel Condition															
① ② ③ ④ ⑤		Other: _____															
Other																	
SCORE	PHOTO	DESCRIPTION	LOCATION														
① ② ③ ④ ⑤		Encroachments															
① ② ③ ④ ⑤		Modifications															
① ② ③ ④ ⑤		Mosquito Habitat															
① ② ③ ④ ⑤		Evidence of Possible Illicit Discharge, Call to Re (703-877-2800: Inspection, Maint., & Enforc. Section)															
INSPECTOR COMMENTS																	

A-8: Pervious Pavement Inspection Form

Pervious Pavement Inspection Form				Inspector: _____				
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____				
Site ID: _____	Facility ID: _____	Facility Name: _____						
Address: _____		Coordinates / ParID: _____		District: _____				
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	① High Priority / Non-functional					
Score Totals: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 30px; text-align: center;">1</td><td style="width: 30px; text-align: center;">2</td><td style="width: 30px; text-align: center;">3</td></tr></table>			1	2	3	② Moderate Priority / Approaching Non-functional		
1	2		3					
			③ Low Priority / Functional					
		④ No Priority / Continue Routine Maintenance						
		⑤ Not Applicable						
Notes / Specifications: _____				Facility Specific Info: _____				
Facility Type / Addl Facility Info:								
Signs			Weather Conditions					
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:			
③ ④ ⑤		Facility Sign	Current weather conditions?					
③ ④ ⑤		Facility Labeling						
Accessibility								
Access Comments			ACCESS PROBLEMS (Circle)	NEXT STEP (Circle One)				
New Access Comments for EAM:			Locked Gate / Fence	Coordinate with Owner				
			Stuck / Broken Cover	Return for Re-inspection				
SCORE	PHOTO	DESCRIPTION	Equipment Needed: _____		Request Photos from Owner			
①	④ ⑤	Overall Facility Access	Other: _____		Contact MSMD			
① ② ③ ④ ⑤		Component Access:	Other: _____					
Parking Lot								
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>						
① ② ③ ④ ⑤		Asphalt / Concrete Condition						
① ② ③ ④ ⑤		Other: <i>Description:</i>						
Permeable Pavement								
Type (Paver/Concrete/Asphalt):		Infiltration:	Underdrain:					
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
①	④ ⑤	Ponding Water (after dry weather)						
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>						
① ② ③ ④ ⑤		Vegetation						
① ② ③ ④ ⑤		Pavement Functionality (Infiltration) <i>Test infiltration of system with 5-gallon bucket of water</i>						
① ② ③ ④ ⑤		Surface Damage (Cracking / Settlement)						
① ② ③ ④ ⑤		Broken or Missing Pavers						
① ② ③ ④ ⑤		Tree Dripline Over Pavement						
① ② ③ ④ ⑤		Evidence of Sand/Salt Application						
① ② ③ ④ ⑤		Other: _____						
		Observation Well / Cleanout (if applicable)						
①	④ ⑤	Missing						
①	④ ⑤	Cap Missing / Stuck						
①	④ ⑤	Water / Sediment Observed in Well						
① ② ③ ④ ⑤		Damaged						
① ② ③ ④ ⑤		Other: _____						
Emergency Overflow / Outfall Structure								
			Emergency Overflow Provided?	Yes / No				
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
① ② ③ ④ ⑤		Blockage <i>($\phi < 25\% < \phi < 75\% < \phi$)</i>						
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>						
① ② ③ ④ ⑤		Damage / Deterioration						
① ② ③ ④ ⑤		Overgrown Vegetation / External Obstruction						
① ② ③ ④ ⑤		Manhole Condition						
① ② ③ ④ ⑤		Ladder / Steps Condition						
① ② ③ ④ ⑤		Downstream Pipe Condition						
① ② ③ ④ ⑤		Other: <i>Description:</i>						
Underdrain Pipe		Required by Plans? Yes / No						
①	④ ⑤	Missing / Not Found						
①	④ ⑤	Flow-Reduction Orifice Missing (if required)						
① ② ③ ④ ⑤		Blockage <i>($\phi < 25\% < \phi < 75\% < \phi$)</i>						
① ② ③ ④ ⑤		Damage / Deterioration						
① ② ③ ④ ⑤		Other: <i>Description:</i>						
Other								
SCORE	PHOTO	DESCRIPTION	LOCATION					
① ② ③ ④ ⑤		Encroachments						
① ② ③ ④ ⑤		Modifications						
① ② ③ ④ ⑤		Mosquito Habitat						
① ② ③ ④ ⑤		Evidence of Possible Illicit Discharge, Call to Report (703-877-2800: Inspection, Maint., & Enforc. Section)						
INSPECTOR COMMENTS								

A-9: Rooftop Disconnection Inspection Form

Rooftop Disconnection Inspection Form			Inspector: _____															
<i>Fairfax County Maintenance and Stormwater Management Division</i>			Date: _____															
Site ID: _____	Facility ID: _____	Facility Name: _____																
Address: _____		Coordinates / ParID: _____		Watershed: _____														
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		District: _____																
Score Totals: <table style="display: inline-table; border: 1px solid black; width: 150px; height: 20px; vertical-align: middle;"><tr><td style="width: 33%; text-align: center;">1</td><td style="width: 33%; text-align: center;">2</td><td style="width: 33%; text-align: center;">3</td></tr></table>			1	2	3	<table border="1" style="border-collapse: collapse; width: 100%;"> <tr><td style="text-align: center;">①</td><td>High Priority / Non-functional</td></tr> <tr><td style="text-align: center;">②</td><td>Moderate Priority / Approaching Non-functional</td></tr> <tr><td style="text-align: center;">③</td><td>Low Priority / Functional</td></tr> <tr><td style="text-align: center;">⊖</td><td>No Priority / Continue Routine Maintenance</td></tr> <tr><td style="text-align: center;">⊗</td><td>Not Applicable</td></tr> </table>			①	High Priority / Non-functional	②	Moderate Priority / Approaching Non-functional	③	Low Priority / Functional	⊖	No Priority / Continue Routine Maintenance	⊗	Not Applicable
1	2	3																
①	High Priority / Non-functional																	
②	Moderate Priority / Approaching Non-functional																	
③	Low Priority / Functional																	
⊖	No Priority / Continue Routine Maintenance																	
⊗	Not Applicable																	
Notes / Specifications:			Facility Specific Info:															
Facility Type / Addl Facility Info:																		
Signs			Weather Conditions															
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:													
③ ⊖ ⊗		Facility Sign	Current weather conditions?															
③ ⊖ ⊗		Facility Labeling																
Accessibility																		
Access Comments			ACCESS PROBLEMS (Circle One)		NEXT STEP (Circle One)													
New Access Comments for EAM:			Locked Gate / Fence		Coordinate with Owner													
			Heavy Vegetation		Return for Re-inspection													
			Other: _____		Request Photos from Owner													
SCORE					Contact MSMD													
① ⊖ ⊗		Overall Facility Access			Other: _____													
① ② ③ ⊖ ⊗		Component Access:																
Rooftop Disconnection																		
SCORE	PHOTO	DESCRIPTION	1	2	3													
Downspouts																		
① ⊖ ⊗		Not Disconnected																
① ② ③ ⊖ ⊗		Trash / Debris / Sediment <i>Description / Amount:</i>																
① ② ③ ⊖ ⊗		Blockage <i>(⊖ < 25% < ⊖ < 75% < ⊖)</i>																
① ② ③ ⊖ ⊗		Damaged <i>Description:</i>																
① ② ③ ⊖ ⊗		Outflow Obstruction <i>Description:</i>																
① ② ③ ⊖ ⊗		Other: <i>Description:</i>																
Downstream Treatment / Receiving Area <i>Type:</i>																		
① ⊖ ⊗		Functioning as Designed																
① ② ③ ⊖ ⊗		Trash / Debris / Sediment <i>Description / Amount:</i>																
① ② ③ ⊖ ⊗		Erosion / Bare Spots <i>Area:</i>																
① ② ③ ⊖ ⊗		Other: <i>Description:</i>																
Total Number of Downspouts			Observed:		Specified:													
Total Number of Disconnected Downspouts			Observed:		Specified:													
Other																		
SCORE	PHOTO	DESCRIPTION	LOCATION															
① ② ③ ⊖ ⊗		Encroachments																
① ② ③ ⊖ ⊗		Modifications																
① ② ③ ⊖ ⊗		Mosquito Habitat																
① ② ③ ⊖ ⊗		Evidence of Possible Illicit Discharge, Call to Re (703-877-2800: Inspection, Maint., & Enforc. Section)																
INSPECTOR COMMENTS																		

A-10: Reforestation Inspection Form

Reforestation Inspection Form				Inspector: _____	
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____	
Site ID: _____	Facility ID: _____	Facility Name: _____			
Address: _____		Coordinates / ParID: _____		Watershed: _____	
				District: _____	
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	① High Priority / Non-functional		
			② Moderate Priority / Approaching Non-functional		
			③ Low Priority / Functional		
			④ No Priority / Continue Routine Maintenance		
			⊗ Not Applicable		
Score Totals: <input type="text"/> <input type="text"/> <input type="text"/>					
		1 2 3			
Notes / Specifications: _____			Facility Specific Info: _____		
Facility Type / Addl Facility Info: _____					
Signs			Weather Conditions		
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:
③ ⊙ ⊗		Facility Sign	Current weather conditions?		
③ ⊙ ⊗		Facility Labeling			
Accessibility					
Access Comments		ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)	
New Access Comments for EAM: _____		Locked Gate / Fence		Coordinate with Owner	
		Other: _____		Return for Re-inspection	
SCORE	PHOTO	DESCRIPTION			
① ⊙ ⊗		Overall Facility Access	Request Photos from Owner		
① ② ③ ⊙ ⊗		Component Access: _____	Contact MSMD		
				Other: _____	
Reforested Area					
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS		
① ⊙ ⊗		Reforestation Area	Observed:	Specified:	
① ② ③ ⊙ ⊗		Trash / Debris / Sediment <i>Description / Amount:</i>			
① ② ③ ⊙ ⊗		Erosion / Bare Spots <i>Area:</i>			
Plant Material			Plants in Inventory:		
① ⊙ ⊗		Trees Missing	Observed:	Specified:	
① ⊙ ⊗		Shrubs Missing	Observed:	Specified:	
① ⊙ ⊗		Grass / Groundcover Missing	Observed:	Specified:	
① ② ③ ⊙ ⊗		Unhealthy / Damaged			
① ② ③ ⊙ ⊗		Undesired / Invasive Vegetation			
① ② ③ ⊙ ⊗		Other: _____ <i>Description:</i>			
Other					
SCORE	PHOTO	DESCRIPTION	LOCATION		
① ② ③ ⊙ ⊗		Encroachments			
① ② ③ ⊙ ⊗		Modifications			
① ② ③ ⊙ ⊗		Mosquito Habitat			
① ② ③ ⊙ ⊗		Evidence of Possible Illicit Discharge, Call to Re (703-877-2800: Inspection, Maint., & Enforc. Section)			
INSPECTOR COMMENTS					

A-11: Rooftop Detention Inspection Form

Rooftop Detention Inspection Form				Inspector: _____										
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____										
Site ID: _____	Facility ID: _____	Facility Name: _____												
Address: _____		Coordinates / ParID: _____		District: _____										
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	①	High Priority / Non-functional										
Score Totals: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 30px; text-align: center;">1</td><td style="width: 30px; text-align: center;">2</td><td style="width: 30px; text-align: center;">3</td></tr></table>			1	2	3	②	Moderate Priority / Approaching Non-functional							
1	2		3											
			③	Low Priority / Functional										
		④	No Priority / Continue Routine Maintenance											
		⑤	Not Applicable											
Notes / Specifications:		Facility Specific Info:												
Facility Type / Addl Facility Info:														
Signs			Weather Conditions											
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:									
① ② ③		Facility Sign	Current weather conditions?											
④ ⑤		Facility Labeling												
Accessibility														
Access Comments			ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)									
New Access Comments for EAM:			Locked Access Door		Coordinate with Owner									
			Broken / Unsafe Ladder		Return for Re-inspection									
			Too Tall for Standard Ladder		Request Photos from Owner									
SCORE	PHOTO	DESCRIPTION	Equipment Needed:		Contact MSMD									
① ② ③ ④		Overall Facility Access	Other:		Roofing Contractor/ Bucket Truck									
⑤ ⑥ ⑦ ⑧		Component Access:												
Roof Surface														
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS											
① ② ③ ④		Change in Roof Design	Observed:	Specified:										
⑤ ⑥ ⑦ ⑧		Visible Damage to Surface												
⑨ ⑩ ⑪ ⑫		Trash / Debris / Sediment <i>Description / Amount:</i>												
⑬ ⑭ ⑮ ⑯		Ponding Water (after dry weather) <i>Area:</i>												
⑰ ⑱ ⑲ ⑳		Other: <i>Description:</i>												
Parapet Wall														
① ② ③		Missing												
④ ⑤ ⑥ ⑦		Damaged <i>Description:</i>												
⑧ ⑨ ⑩ ⑪		Other: <i>Description:</i>												
For Multi-Level Rooftop Detention Systems, Describe Stormwater Flow:			Notes:											
Roof Drains and Detention Devices														
SCORE	PHOTO	DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12
		Detention Device <i>Type:</i>												
		<i>Opening Size:</i>												
		<i>No. of Openings:</i>												
		<i>Adjustable Device Setting:</i>												
① ② ③		Missing												
④ ⑤ ⑥ ⑦		Blockage (<i>@ < 25% < @ < 75% < @</i>)												
⑧ ⑨ ⑩ ⑪		Damage / Deterioration												
⑫ ⑬ ⑭ ⑮		Unapproved Alteration / Setting												
⑯ ⑰ ⑱ ⑲		Other: <i>Description:</i>												
Debris Cage														
① ② ③		Missing												
④ ⑤ ⑥ ⑦		Blockage (<i>@ < 25% < @ < 75% < @</i>)												
⑧ ⑨ ⑩ ⑪		Damage / Deterioration												
⑫ ⑬ ⑭ ⑮		Other: <i>Description:</i>												
Roof Drain Pipe														
① ② ③ ④		Blockage (<i>@ < 25% < @ < 75% < @</i>)												
⑤ ⑥ ⑦ ⑧		Damage / Deterioration												
⑨ ⑩ ⑪ ⑫		Other: <i>Description:</i>												
Detention Summary			Number of Roof Drains:		Observed:	Specified:								
			Number of Detention Devices:		Observed:	Specified:								
<i>(may be completed in office)</i>			Total Area of Openings, < 3" Height:		Observed:	Specified:								
① ② ③		Insufficient Detention												
Scupper Ports / Emergency Overflow														
SCORE	PHOTO	DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12
① ② ③		< 3" Above Roof Surface												
④ ⑤ ⑥ ⑦		Blockage (<i>@ < 25% < @ < 75% < @</i>)												
⑧ ⑨ ⑩ ⑪		Damage / Deterioration												
⑫ ⑬ ⑭ ⑮		Other: <i>Description:</i>												
Detention Devices at Scuppers (When Applicable)														
① ② ③		Missing												
④ ⑤ ⑥ ⑦		Blockage (<i>@ < 25% < @ < 75% < @</i>)												
⑧ ⑨ ⑩ ⑪		Damage / Deterioration												
⑫ ⑬ ⑭ ⑮		Unapproved Alteration												
⑯ ⑰ ⑱ ⑲		Other: <i>Description:</i>												
Emergency Overflow Summary														
			Number of Scuppers:		Observed:	Specified:								
① ② ③		Insufficient Emergency Overflow <i>(Note Plan Date)</i>												

Rooftop Detention Inspection Form		Page 2	
Site ID: _____		Facility ID: _____ Facility Name: _____	
Other			
SCORE	PHOTO	DESCRIPTION	LOCATION
①②③④⑤		Encroachments	
①②③④⑤		Modifications	
①②③④⑤		Mosquito Habitat	
①②③④⑤		Evidence of Possible Illicit Discharge, Call to Re (703-877-2800: Inspection, Maint., & Enforc. Section)	
INSPECTOR COMMENTS			

A-12: Sand Filter Inspection Form

Sand Filter Inspection Form				Inspector: _____	
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____	
Site ID: _____	Facility ID: _____	Facility Name: _____			
Address: _____		Coordinates / ParID: _____		District: _____	
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	①	High Priority / Non-functional	
Score Totals: <input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="3"/>			②	Moderate Priority / Approaching Non-functional	
			③	Low Priority / Functional	
			④	No Priority / Continue Routine Maintenance	
			⑤	Not Applicable	
Notes / Specifications: _____			Facility Specific Info: _____		
Facility Type / Addl Facility Info: _____					
Signs			Weather Conditions		
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:
① ② ③	<input type="checkbox"/>	Facility Sign	Current weather conditions?		
① ② ③	<input type="checkbox"/>	Facility Labeling			
Accessibility					
Access Comments			ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)
New Access Comments for EAM: _____			Locked Gate / Fence		Coordinate with Owner
			Parked Cars		Return for Re-inspection
			Stuck / Broken Cover		Request Photos from Owner
SCORE	PHOTO	DESCRIPTION	Equipment Needed: _____		Contact MSMD
① ② ③ ④ ⑤	<input type="checkbox"/>	Overall Facility Access	Other: _____		Other: _____
① ② ③ ④ ⑤	<input type="checkbox"/>	Component Access:			
Maintenance Records					
YES / NO	PHOTO	DESCRIPTION	COMMENTS		
YES / NO	<input type="checkbox"/>	Inspection / Maintenance Conducted Recently			
YES / NO	<input type="checkbox"/>	Maintenance Records Available On-Site			
D.C. / Delaware Sand Filter					
Sediment Chamber					
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS		
① ② ③ ④ ⑤	<input type="checkbox"/>	Water Level Too Low			
① ② ③ ④ ⑤	<input type="checkbox"/>	Trash / Debris / Sediment <i>Description / Amount:</i>			
① ② ③ ④ ⑤	<input type="checkbox"/>	Spalling / Deterioration			
① ② ③ ④ ⑤	<input type="checkbox"/>	Manhole / Bilco Door Condition			
① ② ③ ④ ⑤	<input type="checkbox"/>	Ladder / Steps Condition			
① ② ③ ④ ⑤	<input type="checkbox"/>	Other: <i>Description:</i>			
Bypass Pipe / Overflow Weir					
① ② ③ ④ ⑤	<input type="checkbox"/>	Missing			
① ② ③ ④ ⑤	<input type="checkbox"/>	Blockage ($\phi < 25\% < \phi < 75\% < \phi$)			
① ② ③ ④ ⑤	<input type="checkbox"/>	Damage / Deterioration			
Inflows					
① ② ③ ④ ⑤	<input type="checkbox"/>	Spalling / Deterioration			
① ② ③ ④ ⑤	<input type="checkbox"/>	Separation / Misalignment			
① ② ③ ④ ⑤	<input type="checkbox"/>	Blockage ($\phi < 25\% < \phi < 75\% < \phi$)			
① ② ③ ④ ⑤	<input type="checkbox"/>	Other: <i>Description:</i>			
Filter Chamber					
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS		
① ② ③ ④ ⑤	<input type="checkbox"/>	Ponding Water (after dry weather) <i>Area:</i>			
① ② ③ ④ ⑤	<input type="checkbox"/>	Spalling / Deterioration			
① ② ③ ④ ⑤	<input type="checkbox"/>	Cleanout(s) Condition			
① ② ③ ④ ⑤	<input type="checkbox"/>	Emergency Overflow <i>Type:</i>			
① ② ③ ④ ⑤	<input type="checkbox"/>	Manhole / Bilco Door Condition			
① ② ③ ④ ⑤	<input type="checkbox"/>	Ladder / Steps Condition			
① ② ③ ④ ⑤	<input type="checkbox"/>	Other: <i>Description:</i>			
Filter Bed					
① ② ③ ④ ⑤	<input type="checkbox"/>	Filter Media Level			
① ② ③ ④ ⑤	<input type="checkbox"/>	Erosion of Filter Media / Exposed Filter Fabric			
① ② ③ ④ ⑤	<input type="checkbox"/>	Trash / Debris / Sediment <i>Description / Amount:</i>			
Observation Well / Cleanout(s)					
① ② ③ ④ ⑤	<input type="checkbox"/>	Missing / Not Found			
① ② ③ ④ ⑤	<input type="checkbox"/>	Damage / Deterioration			
① ② ③ ④ ⑤	<input type="checkbox"/>	Other: <i>Description:</i>			
Clearwell					
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS		
① ② ③ ④ ⑤	<input type="checkbox"/>	Trash / Debris / Sediment <i>Description / Amount:</i>			
① ② ③ ④ ⑤	<input type="checkbox"/>	Spalling / Deterioration			
① ② ③ ④ ⑤	<input type="checkbox"/>	Underdrain(s) Condition			
① ② ③ ④ ⑤	<input type="checkbox"/>	Emergency Overflow <i>Type:</i>			
① ② ③ ④ ⑤	<input type="checkbox"/>	Manhole / Bilco Door Condition			
① ② ③ ④ ⑤	<input type="checkbox"/>	Ladder / Steps Condition			
① ② ③ ④ ⑤	<input type="checkbox"/>	Other: <i>Description:</i>			
Dewatering Drain Valve					
① ② ③ ④ ⑤	<input type="checkbox"/>	Missing			
① ② ③ ④ ⑤	<input type="checkbox"/>	Not Fully Closed			
① ② ③ ④ ⑤	<input type="checkbox"/>	Damage / Deterioration			
① ② ③ ④ ⑤	<input type="checkbox"/>	Other: <i>Description:</i>			

Sand Filter Inspection Form						Page 2				
Site ID: _____		Facility ID: _____		Facility Name: _____						
Austin Sand Filter										
Control Structure										
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS							
1 2 3 4 5		Damage / Deterioration <small>Description:</small>								
1 2 3 4 5		Vegetation / External Obstructions								
1 2 3 4 5		Other: <small>Description:</small>								
Low-Flow Orifice and Trash Rack		Orifice Size:								
1 2 3 4 5		Orifice Plate Missing / Non-Functional								
1 2 3 4 5		Trash Rack Missing / Non-Functional								
1 2 3 4 5		Blockage <small>(@ < 25% < @ < 75% < @)</small>								
1 2 3 4 5		Damage / Deterioration <small>Description:</small>								
Top Trash Rack and Anti-Vortex Plate										
1 2 3 4 5		Pad Lock Missing								
1 2 3 4 5		Blockage <small>(@ < 25% < @ < 75% < @)</small>								
1 2 3 4 5		Damage / Deterioration <small>Description:</small>								
Riser Interior										
1 2 3 4 5		Trash / Debris / Sediment <small>Description / Amount:</small>								
1 2 3 4 5		Ladder / Steps Condition								
Principal Spillway Pipe, Upstream End										
1 2 3 4 5		Blockage <small>(@ < 25% < @ < 75% < @)</small>								
1 2 3 4 5		Spalling / Deterioration								
1 2 3 4 5		Separation / Misaligned Joints								
Dam / Berm and Emergency Spillway										
		Sep Auxillary Spillway:								
SCORE	PHOTO	DESCRIPTION	FACE SLOPE		TOP OF DAM		BACK SLOPE		EMERG. SPILLWAY	
			Score	Comments	Score	Comments	Score	Comments	Material:	
1 2 3 4 5		Toe Soft Spots / Cave-In							Score	Comments
1 2 3 4 5		Slope Erosion / Bare Spots								
1 2 3 4 5		Animal Holes								
1 2 3 4 5		Tree Removal <small>Num/Size:</small>								
1 2 3 4 5		Overgrown Vegetation								
1 2 3 4 5		Other: <small>Description:</small>								
1 2 3 4 5		Blockage at Emergency Spillway <small>(@ < 25% < @ < 75% < @)</small>								
1 2 3 4 5		Damage / Deterioration at Emergency Spillway <small>Description:</small>								
Ponding Area										
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS							
1 2 3 4 5		Erosion / Bare Spots <small>Area:</small>								
1 2 3 4 5		Trash / Debris / Sediment <small>Description / Amount:</small>								
1 2 3 4 5		Overgrown Vegetation								
1 2 3 4 5		Tree Removal <small>Number / Size:</small>								
1 2 3 4 5		Gabion Wall Condition								
1 2 3 4 5		Other: <small>Description:</small>								
Inflow(s)										
SCORE	PHOTO	DESCRIPTION	1	2	3	4	5	6		
		<small>End Type / Material / Size:</small>								
1 2 3 4 5		Blockage <small>(@ < 25% < @ < 75% < @)</small>								
1 2 3 4 5		Trash / Debris / Sediment <small>Description / Amount:</small>								
1 2 3 4 5		Erosion / Undermining <small>Area:</small>								
1 2 3 4 5		Spalling / Deterioration								
1 2 3 4 5		Separation / Misalignment								
1 2 3 4 5		Overgrown Vegetation / Tree Removal								
1 2 3 4 5		Other:								
Outfall Structure / Other										
Outfall Structure										
		<small>Material:</small>	<small>Size:</small>	<small>End Type:</small>						
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS							
1 2 3 4 5		Blockage <small>(@ < 25% < @ < 75% < @)</small>								
1 2 3 4 5		Trash / Debris / Sediment								
1 2 3 4 5		Erosion / Undermining <small>Area:</small>								
1 2 3 4 5		Spalling / Deterioration								
1 2 3 4 5		Separation / Misalignment								
1 2 3 4 5		Overgrown Vegetation / Tree Removal								
1 2 3 4 5		Manhole Condition								
1 2 3 4 5		Ladder / Steps Condition								
1 2 3 4 5		Downstream Channel Condition								
1 2 3 4 5		Other:								
Other										
SCORE	PHOTO	DESCRIPTION	LOCATION							
1 2 3 4 5		Encroachments								
1 2 3 4 5		Modifications								
1 2 3 4 5		Mosquito Habitat								
1 2 3 4 5		Evidence of Possible Illicit Discharge, Call to Re (703-877-2800: Inspection, Maint., & Enforc. Section)								
INSPECTOR COMMENTS										

A-13: Tree Filter Inspection Form

Tree Filter Inspection Form				Inspector: _____				
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____				
Site ID: _____		Facility ID: _____		Facility Name: _____				
Address: _____		Coordinates / ParID: _____		District: _____				
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	<input type="radio"/> ① High Priority / Non-functional <input type="radio"/> ② Moderate Priority / Approaching Non-functional <input type="radio"/> ③ Low Priority / Functional <input type="radio"/> ④ No Priority / Continue Routine Maintenance <input type="radio"/> ⑤ Not Applicable					
Score Totals: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 30px; text-align: center;">1</td><td style="width: 30px; text-align: center;">2</td><td style="width: 30px; text-align: center;">3</td></tr></table>			1	2	3			
1	2		3					
Notes / Specifications: _____			Facility Specific Info: _____					
Facility Type / Addl Facility Info: _____								
Signs			Weather Conditions					
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:			
③ ④ ⑤		Facility Sign	Current weather conditions?					
③ ④ ⑤		Facility Labeling						
Accessibility								
Access Comments			ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)			
New Access Comments for EAM:			Locked Gate / Fence		Coordinate with Owner			
			Parked Cars		Return for Re-inspection			
SCORE	PHOTO	DESCRIPTION	Stuck / Broken Cover		Request Photos from Owner			
① ② ③ ④ ⑤		Overall Facility Access	Equipment Needed: _____		Contact MSMD			
① ② ③ ④ ⑤		Component Access:	Other: _____		Other: _____			
Filter Box / Control Structure								
① ② ③ ④ ⑤		Surge Stone / Energy Dissipator Missing						
① ② ③ ④ ⑤		Blockage at Throat (① < 25% < ② < 75% < ③)						
① ② ③ ④ ⑤		Trash / Debris / Sediment Description / Amount:						
① ② ③ ④ ⑤		Damage / Deterioration of the Grate						
① ② ③ ④ ⑤		Damage / Deterioration of the Structure						
① ② ③ ④ ⑤		Overgrown Vegetation / External Obstruction						
① ② ③ ④ ⑤		Other: _____						
Plant Material			Plants in Inventory:					
① ② ③ ④ ⑤		Missing / Dead	Observed: _____	Specified: _____				
① ② ③ ④ ⑤		Unhealthy / Damaged						
① ② ③ ④ ⑤		Overgrown / Invasive Vegetation						
① ② ③ ④ ⑤		Other: _____ Description: _____						
Mulch								
① ② ③ ④ ⑤		Missing						
① ② ③ ④ ⑤		Not at Design Thickness						
① ② ③ ④ ⑤		Other: _____ Description: _____						
Observation Well / Cleanout(s)								
① ② ③ ④ ⑤		Missing / Not Found						
① ② ③ ④ ⑤		Damage / Deterioration						
① ② ③ ④ ⑤		Other: _____ Description: _____						
Emergency Overflow / Outfall Structure								
SCORE	PHOTO	DESCRIPTION	Emergency Overflow Provided? Yes / No		COMMENTS / DIMENSIONS			
① ② ③ ④ ⑤		Blockage (① < 25% < ② < 75% < ③)						
① ② ③ ④ ⑤		Trash / Debris / Sediment Description / Amount:						
① ② ③ ④ ⑤		Damage / Deterioration						
① ② ③ ④ ⑤		Overgrown Vegetation / External Obstruction						
① ② ③ ④ ⑤		Manhole Condition						
① ② ③ ④ ⑤		Ladder / Steps Condition						
① ② ③ ④ ⑤		Downstream Pipe Condition						
① ② ③ ④ ⑤		Other: _____ Description: _____						
Underdrain Pipe								
① ② ③ ④ ⑤		Missing / Not Found						
① ② ③ ④ ⑤		Blockage (① < 25% < ② < 75% < ③)						
① ② ③ ④ ⑤		Damage / Deterioration						
① ② ③ ④ ⑤		Other: _____ Description: _____						
Other								
SCORE	PHOTO	DESCRIPTION	LOCATION					
① ② ③ ④ ⑤		Encroachments						
① ② ③ ④ ⑤		Modifications						
① ② ③ ④ ⑤		Mosquito Habitat						
① ② ③ ④ ⑤		Evidence of Possible Illicit Discharge, Call to Res (703-877-2800: Inspection, Maint., & Enforc. Section)						
INSPECTOR COMMENTS								

A-14: Infiltration Trench Inspection Form

Infiltration Trench Inspection Form				Inspector: _____				
Fairfax County Maintenance and Stormwater Management Division				Date: _____				
Site ID: _____	Facility ID: _____	Facility Name: _____						
Address: _____		Coordinates / ParID: _____		District: _____				
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	①	High Priority / Non-functional				
Score Totals: <input type="text"/> 1 <input type="text"/> 2 <input type="text"/> 3			②	Moderate Priority / Approaching Non-functional				
			③	Low Priority / Functional				
			④	No Priority / Continue Routine Maintenance				
		⑤	Not Applicable					
Notes / Specifications: _____		Facility Specific Info: _____						
Facility Type / Addl Facility Info: _____								
Signs			Weather Conditions					
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:			
① ② ③ ④ ⑤	<input type="checkbox"/>	Facility Sign	Current weather conditions?					
① ② ③ ④ ⑤	<input type="checkbox"/>	Facility Labeling						
Accessibility								
Access Comments		ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)				
New Access Comments for EAM:		Locked Gate / Fence		Coordinate with Owner				
		Parked Cars		Return for Re-inspection				
		Stuck / Broken Cover		Request Photos from Owner				
SCORE	PHOTO	DESCRIPTION	Equipment Needed:	Contact MSMD				
① ② ③ ④ ⑤	<input type="checkbox"/>	Overall Facility Access	Other:	Other:				
① ② ③ ④ ⑤	<input type="checkbox"/>	Component Access:						
Surface Trench Components								
Gravel Bed Surface								
Surface Cover: Gravel / Grass / Both / Other: _____								
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
①	<input type="checkbox"/>	Trench Eliminated						
①	<input type="checkbox"/>	Gravel Not Found Under Turf	Depth to Gravel (if applicable): _____					
①	<input type="checkbox"/>	Gravel Footprint	Area Observed: _____	Area Specified: _____				
① ② ③ ④ ⑤	<input type="checkbox"/>	Trash / Debris / Sediment	Description / Amount: _____					
① ② ③ ④ ⑤	<input type="checkbox"/>	Unauthorized Planting	Description: _____					
① ② ③ ④ ⑤	<input type="checkbox"/>	Bare Spots / Erosion	Area: _____					
① ② ③ ④ ⑤	<input type="checkbox"/>	Condition of Grass or Gravel						
① ② ③ ④ ⑤	<input type="checkbox"/>	Repair Filter Fabric						
① ② ③ ④ ⑤	<input type="checkbox"/>	Other:	Description: _____					
Observation Well / Cleanout(s)								
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
①	<input type="checkbox"/>	Missing / Not Found	Observed: _____	Specified: _____				
①	<input type="checkbox"/>	Cap Missing / Stuck						
① ② ③ ④ ⑤	<input type="checkbox"/>	Water / Sediment Observed in Well?						
① ② ③ ④ ⑤	<input type="checkbox"/>	Damaged						
① ② ③ ④ ⑤	<input type="checkbox"/>	Other:	Description: _____					
Dam / Berm and Emergency Spillway								
Required by Plans? Yes / No								
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
①	<input type="checkbox"/>	Missing	Observed: _____	Specified: _____				
① ② ③ ④ ⑤	<input type="checkbox"/>	Erosion / Bare Spots	Area: _____					
① ② ③ ④ ⑤	<input type="checkbox"/>	Cave-In						
① ② ③ ④ ⑤	<input type="checkbox"/>	Animal Holes						
① ② ③ ④ ⑤	<input type="checkbox"/>	Overgrown Vegetation / Tree Removal						
① ② ③ ④ ⑤	<input type="checkbox"/>	Trash / Debris / Sediment	Description / Amount: _____					
① ② ③ ④ ⑤	<input type="checkbox"/>	Other:	Description: _____					
Surface Inflows and Roof Drains								
SCORE	PHOTO	DESCRIPTION	1	2	3	4	5	6
Inflow Type (Sheet Flow, Curb Cut, Roof Downspout, Pipe, etc.): _____								
Pipe Material: _____								
Pipe Size: _____								
①	<input type="checkbox"/>	Roof Drain Downspout Disconnected						
① ② ③ ④ ⑤	<input type="checkbox"/>	Blockage (@ < 25% < @ < 75% < @)						
① ② ③ ④ ⑤	<input type="checkbox"/>	Spalling / Deterioration						
① ② ③ ④ ⑤	<input type="checkbox"/>	Erosion / Undermining						
① ② ③ ④ ⑤	<input type="checkbox"/>	Trash / Debris / Sediment Removal						
① ② ③ ④ ⑤	<input type="checkbox"/>	Overgrown Vegetation / Tree Removal						
① ② ③ ④ ⑤	<input type="checkbox"/>	Other:						
Inflow Summary								
①	<input type="checkbox"/>	Curb Cuts Missing / Inconsistent with Plans	Observed: _____	Specified: _____				
①	<input type="checkbox"/>	Inflow Diverted Away From Trench	Observed: _____	Specified: _____				
① ② ③ ④ ⑤	<input type="checkbox"/>	Other:						
Pre-Treatment / Energy Dissipators								
Type(s): Gravel diaphragm / Grass filter strip / Grass channel / Leaf screen / Level spreader / Plunge pool / Sediment trap / Sump pit / Other: _____								
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
①	<input type="checkbox"/>	Missing / Non-Functional	Description: _____					
①	<input type="checkbox"/>	Inconsistent with Plans	Area / Vertical Drop / etc.)	Observed: _____	Specified: _____			
① ② ③ ④ ⑤	<input type="checkbox"/>	Damage / Deterioration	Description: _____					
① ② ③ ④ ⑤	<input type="checkbox"/>	Trash / Debris / Sediment	Description / Amount: _____					
① ② ③ ④ ⑤	<input type="checkbox"/>	Other:						

Infiltration Trench Inspection Form				Page 2						
Site ID: _____		Facility ID: _____		Facility Name: _____						
Underground Trench Components										
Control Structure										
Function:		Orifice Size:		Structure # on Plans:			Label(s) on Sketch:			
SCORE	PHOTO	DESCRIPTION			COMMENTS / DIMENSIONS					
1 2 3 4 5		Standing Water (after dry weather)								
1 2 3 4 5		Trash / Debris / Sediment <i>Description / Amount:</i>								
1 2 3 4 5		Spalling / Deterioration								
1 2 3 4 5		Manhole / Bilco Door Condition								
1 2 3 4 5		Ladder / Steps Condition								
1 2 3 4 5		Other: <i>Description:</i>								
Low-Flow Orifice and Trash Rack										
1	2	Orifice Plate Missing / Non-Functional								
1	2	Trash Rack Missing / Non-Functional								
1 2 3 4 5		Blockage ($\varnothing < 25\% < \varnothing < 75\% < \varnothing$)								
1 2 3 4 5		Damage / Deterioration <i>Description:</i>								
Higher-Flow Orifice / Weir										
1	2	Missing / Not Found			Observed:		Specified:			
1 2 3 4 5		Blockage ($\varnothing < 25\% < \varnothing < 75\% < \varnothing$)								
1 2 3 4 5		Other: <i>Description:</i>								
Outlet Pipe										
1 2 3 4 5		Blockage ($\varnothing < 25\% < \varnothing < 75\% < \varnothing$)								
1 2 3 4 5		Spalling / Deterioration								
1 2 3 4 5		Separation / Misalignment								
Detention Pipe / Vault										
SCORE	PHOTO	DESCRIPTION			1	2	3	4	5	6
		Structure # on Plans:								
		Label on Sketch:								
1 2 3 4 5		Standing Water (after dry weather)								
1 2 3 4 5		Trash / Debris / Sediment <i>Description / Amount:</i>								
1 2 3 4 5		Spalling / Deterioration								
1 2 3 4 5		Separation / Misalignment								
1 2 3 4 5		Inflow Pipes, if any <i>Pipe Direction / Problem:</i>								
1 2 3 4 5		Manhole / Bilco Door Condition								
1 2 3 4 5		Ladder / Steps Condition								
1 2 3 4 5		Blockage ($\varnothing < 25\% < \varnothing < 75\% < \varnothing$)								
1 2 3 4 5		Other: <i>Description:</i>								
Outfall Structure / Other										
Outfall Structure										
Material:		Size:		End Type:						
SCORE	PHOTO	DESCRIPTION			COMMENTS / DIMENSIONS					
1 2 3 4 5		Blockage ($\varnothing < 25\% < \varnothing < 75\% < \varnothing$)								
1 2 3 4 5		Trash / Debris / Sediment								
1 2 3 4 5		Erosion / Undermining <i>Area:</i>								
1 2 3 4 5		Spalling / Deterioration								
1 2 3 4 5		Separation / Misalignment								
1 2 3 4 5		Overgrown Vegetation / Tree Removal								
1 2 3 4 5		Manhole Condition								
1 2 3 4 5		Ladder / Steps Condition								
1 2 3 4 5		Downstream Channel Condition								
1 2 3 4 5		Other:								
Other										
SCORE	PHOTO	DESCRIPTION			LOCATION					
1 2 3 4 5		Encroachments								
1 2 3 4 5		Modifications								
1 2 3 4 5		Mosquito Habitat								
1 2 3 4 5		Evidence of Possible Illicit Discharge, Call to Report (703-877-2800: Inspection, Maint., & Enforc. Section)								
INSPECTOR COMMENTS										

A-15: Underground Detention Inspection Form

Underground Detention Inspection Form				Inspector: _____				
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____				
Site ID: _____	Facility ID: _____	Facility Name: _____						
Coordinates / ParID: _____		Address: _____						
Watershed: _____		District: _____						
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	① High Priority / Non-functional					
Score Totals: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 30px; text-align: center;">1</td><td style="width: 30px; text-align: center;">2</td><td style="width: 30px; text-align: center;">3</td></tr></table>			1	2	3	② Moderate Priority / Approaching Non-functional		
1	2		3					
			③ Low Priority / Functional					
			④ No Priority / Continue Routine Maintenance					
		⑤ Not Applicable						
Notes / Specifications: _____		Facility Specific Info: _____						
Facility Type / Addl Facility Info:								
Signs			Weather Conditions					
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:			
① ② ③ ④ ⑤		Facility Sign	Current weather conditions?					
① ② ③ ④ ⑤		Facility Labeling						
Accessibility								
Access Comments			ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)			
New Access Comments for EAM:			Locked Gate / Fence		Coordinate with Owner			
			Parked Cars		Return for Re-inspection			
SCORE	PHOTO	DESCRIPTION	Stuck / Broken Cover		Request Photos from Owner			
① ② ③ ④ ⑤		Overall Facility Access	Equipment Needed: _____		Contact MSMD			
① ② ③ ④ ⑤		Component Access:	Other: _____		Other: _____			
Control Structure								
Function:	Orifice Size:	DESCRIPTION	Structure # on Plans:	Label(s) on Sketch:				
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
① ② ③ ④ ⑤		Standing Water (after dry weather)						
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>						
① ② ③ ④ ⑤		Spalling / Deterioration						
① ② ③ ④ ⑤		Manhole / Bilco Door Condition						
① ② ③ ④ ⑤		Ladder / Steps Condition						
① ② ③ ④ ⑤		Other: <i>Description:</i>						
Low-Flow Orifice and Trash Rack								
① ② ③ ④ ⑤		Orifice Plate Missing / Non-Functional						
① ② ③ ④ ⑤		Trash Rack Missing / Non-Functional						
① ② ③ ④ ⑤		Blockage ($\varnothing < 25\% < \varnothing < 75\% < \varnothing$)						
① ② ③ ④ ⑤		Damage / Deterioration <i>Description:</i>						
Higher-Flow Orifice / Weir								
① ② ③ ④ ⑤		Missing / Not Found	Observed:	Specified:				
① ② ③ ④ ⑤		Blockage ($\varnothing < 25\% < \varnothing < 75\% < \varnothing$)						
① ② ③ ④ ⑤		Other: <i>Description:</i>						
Outlet Pipe								
① ② ③ ④ ⑤		Blockage ($\varnothing < 25\% < \varnothing < 75\% < \varnothing$)						
① ② ③ ④ ⑤		Spalling / Deterioration						
① ② ③ ④ ⑤		Separation / Misalignment						
Detention Pipe / Vault								
SCORE	PHOTO	DESCRIPTION	1	2	3	4	5	6
		Structure # on Plans:						
		Label on Sketch:						
① ② ③ ④ ⑤		Standing Water (after dry weather)						
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>						
① ② ③ ④ ⑤		Spalling / Deterioration						
① ② ③ ④ ⑤		Separation / Misalignment						
① ② ③ ④ ⑤		Inflow Pipes, if any <i>Pipe Direction / Problem:</i>						
① ② ③ ④ ⑤		Manhole / Bilco Door Condition						
① ② ③ ④ ⑤		Ladder / Steps Condition						
① ② ③ ④ ⑤		Blockage ($\varnothing < 25\% < \varnothing < 75\% < \varnothing$)						
① ② ③ ④ ⑤		Other: <i>Description:</i>						
Outfall Structure								
Material:	Size:	End Type:						
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
① ② ③ ④ ⑤		Blockage ($\varnothing < 25\% < \varnothing < 75\% < \varnothing$)						
① ② ③ ④ ⑤		Trash / Debris / Sediment						
① ② ③ ④ ⑤		Erosion / Undermining <i>Area:</i>						
① ② ③ ④ ⑤		Spalling / Deterioration						
① ② ③ ④ ⑤		Separation / Misalignment						
① ② ③ ④ ⑤		Overgrown Vegetation / Tree Removal						
① ② ③ ④ ⑤		Manhole Condition						
① ② ③ ④ ⑤		Ladder / Steps Condition						
① ② ③ ④ ⑤		Downstream Channel Condition						
① ② ③ ④ ⑤		Other:						

Underground Detention Inspection Form		Page 2
Site ID: _____	Facility ID: _____	Facility Name: _____
Other		
SCORE	PHOTO	DESCRIPTION
①②③④⊗		Encroachments
①②③④⊗		Modifications
①②③④⊗		Mosquito Habitat
①②③④⊗		Evidence of Possible Illicit Discharge, Call to Re (703-877-2800: Inspection, Maint., & Enforc. Section)
INSPECTOR COMMENTS		

A-16: Vegetated Filter Strip Inspection Form

Vegetated Filter Strip Inspection Form				Inspector: _____					
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____					
Site ID: _____	Facility ID: _____	Facility Name: _____							
Address: _____		Coordinates / ParID: _____		District: _____					
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	①	High Priority / Non-functional					
Score Totals: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 30px; text-align: center;">1</td><td style="width: 30px; text-align: center;">2</td><td style="width: 30px; text-align: center;">3</td></tr></table>			1	2	3	②	Moderate Priority / Approaching Non-functional		
1	2		3						
			③	Low Priority / Functional					
			④	No Priority / Continue Routine Maintenance					
		⑤	Not Applicable						
Notes / Specifications: _____		Facility Specific Info: _____							
Facility Type / Addl Facility Info: _____									
Signs			Weather Conditions						
SCORE	PHOTO	DESCRIPTION	Last Rainfall	Date:	Amount:				
③ ④ ⑤		Facility Sign	Current weather conditions?						
③ ④ ⑤		Facility Labeling							
Accessibility									
Access Comments			ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)				
New Access Comments for EAM:			Locked Gate / Fence		Coordinate with Owner				
			Other: _____		Return for Re-inspection				
SCORE	PHOTO	DESCRIPTION	Request Photos from Owner						
① ② ③ ④ ⑤		Overall Facility Access	Contact MSMD						
① ② ③ ④ ⑤		Component Access:	Other: _____						
Energy Dissipator									
Type: Gravel Diaphragm / Engineered Level Spreader / Other: _____			Required by Plans? Yes / No						
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS						
① ② ③ ④ ⑤		Missing / Non-Functional <i>Description:</i>							
① ② ③ ④ ⑤		Inconsistent with Plan <i>Area / Vertical Drop / etc.)</i>	Observed:	Specified:					
① ② ③ ④ ⑤		Damage / Deterioration <i>Description:</i>							
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>							
① ② ③ ④ ⑤		Other: <i>Description:</i>							
Vegetated Filter Strip									
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS						
① ② ③ ④ ⑤		Ponding Water (after dry weather)							
① ② ③ ④ ⑤		Bare Spots / Erosion <i>Area:</i>							
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>							
① ② ③ ④ ⑤		Other: <i>Description:</i>							
Plant Material			Plants in Inventory:						
① ② ③ ④ ⑤		Missing / Dead	Observed:	Specified:					
① ② ③ ④ ⑤		Unhealthy / Damaged							
① ② ③ ④ ⑤		Overgrown / Invasive Vegetation <i>(Mow twice/year or more.)</i>							
① ② ③ ④ ⑤		Unauthorized Planting <i>Description:</i>							
① ② ③ ④ ⑤		Other: <i>Description:</i>							
Permeable Berm									
SCORE	PHOTO	DESCRIPTION	Required by Plans? Yes / No						
① ② ③ ④ ⑤		Missing / Non-Functional <i>Description:</i>	COMMENTS / DIMENSIONS						
① ② ③ ④ ⑤		Bare Spots / Erosion <i>Area:</i>							
① ② ③ ④ ⑤		Damaged <i>Description:</i>							
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>							
① ② ③ ④ ⑤		Overgrown Vegetation							
① ② ③ ④ ⑤		Other: <i>Description:</i>							
Other									
SCORE	PHOTO	DESCRIPTION	LOCATION						
① ② ③ ④ ⑤		Encroachments							
① ② ③ ④ ⑤		Modifications							
① ② ③ ④ ⑤		Mosquito Habitat							
① ② ③ ④ ⑤		Evidence of Possible Illicit Discharge, Call to Report (703-877-2800: Inspection, Maint., & Enforc. Section)							
INSPECTOR COMMENTS									

A-17: Vegetated Swale Inspection Form

Vegetated Swale Inspection Form				Inspector: _____				
<i>Fairfax County Maintenance and Stormwater Management Division</i>				Date: _____				
Site ID: _____	Facility ID: _____	Facility Name: _____						
Address: _____		Coordinates / ParID: _____		District: _____				
Functional? <input type="checkbox"/> Yes <input type="checkbox"/> No		Scoring Key	① High Priority / Non-functional ② Moderate Priority / Approaching Non-functional ③ Low Priority / Functional ④ No Priority / Continue Routine Maintenance ⑤ Not Applicable					
Score Totals: <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 30px; text-align: center;">1</td><td style="width: 30px; text-align: center;">2</td><td style="width: 30px; text-align: center;">3</td></tr></table>			1	2	3			
1	2		3					
Notes / Specifications: _____			Facility Specific Info: _____					
Facility Type / Add Facility Info: _____								
Signs			Weather Conditions					
SCORE	PHOTO	DESCRIPTION	Last Rainfall Date: _____ Amount: _____					
③ ④ ⑤		Facility Sign	Current weather conditions? _____					
③ ④ ⑤		Facility Labeling						
Accessibility								
Access Comments			ACCESS PROBLEMS (Circle)		NEXT STEP (Circle One)			
New Access Comments for EAM: _____			Locked Gate / Fence		Coordinate with Owner			
			Heavy Vegetation		Return for Re-inspection			
SCORE	PHOTO	DESCRIPTION	Equipment Needed: _____		Request Photos from Owner			
① ② ③ ④		Overall Facility Access	Other: _____		Contact MSMD			
① ② ③ ④		Component Access: _____	Other: _____		Other: _____			
Vegetated Swale								
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>						
① ② ③ ④ ⑤		Bare Spots / Erosion <i>Area:</i>						
① ② ③ ④ ⑤		Condition of Vegetated Cover						
① ② ③ ④ ⑤		Unauthorized Planting <i>Description:</i>						
① ② ③ ④ ⑤		Other: _____						
Check Dams								
① ② ③ ④ ⑤		Missing / Inconsistent with Plans	Observed: _____		Specified: _____			
① ② ③ ④ ⑤		Damaged						
① ② ③ ④ ⑤		Other: _____						
Observation Well / Cleanout(s)								
① ② ③ ④ ⑤		Missing / Not Found	# Observed _____		# Specified: _____			
① ② ③ ④ ⑤		Cap Missing / Stuck						
① ② ③ ④ ⑤		Water / Sediment Observed in Well?						
① ② ③ ④ ⑤		Vegetation / External Obstructions						
① ② ③ ④ ⑤		Damaged						
① ② ③ ④ ⑤		Other: _____						
Plant Material								
Plants in Inventory:								
① ② ③ ④ ⑤		Trees Missing	Observed: _____		Specified: _____			
① ② ③ ④ ⑤		Shrubs Missing	Observed: _____		Specified: _____			
① ② ③ ④ ⑤		Grass / Groundcover Missing	Observed: _____		Specified: _____			
① ② ③ ④ ⑤		Unhealthy / Damaged						
① ② ③ ④ ⑤		Overgrown / Invasive Vegetation						
① ② ③ ④ ⑤		Other: _____						
Upstream Inflow(s)								
SCORE	PHOTO	DESCRIPTION	1	2	3	4	5	6
		End Type / Overland:						
		Pipe Material:						
		Pipe Size:						
① ② ③ ④ ⑤		Trash / Debris / Sediment Removal						
① ② ③ ④ ⑤		Blockage ($\text{①} < 25\% < \text{②} < 75\% < \text{③}$)						
① ② ③ ④ ⑤		Spalling / Deterioration						
① ② ③ ④ ⑤		Erosion / Undermining						
① ② ③ ④ ⑤		Overgrown Vegetation / Tree Removal						
① ② ③ ④ ⑤		Other: _____						
Pre-Treatment / Energy Dissipators								
Type(s): Check dams / Flow spreader / Forebay / Gravel diaphragm / Grass filter strip / Grass channel / Leaf screen / Level spreader / Other: _____								
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
① ② ③ ④ ⑤		Missing / Non-Functional <i>Description:</i>						
① ② ③ ④ ⑤		Inconsistent with Plans <i>Area / Vertical Drop / etc.)</i>	Observed: _____		Specified: _____			
① ② ③ ④ ⑤		Damage / Deterioration <i>Description:</i>						
① ② ③ ④ ⑤		Trash / Debris / Sediment <i>Description / Amount:</i>						
① ② ③ ④ ⑤		Other: _____						
Underdrain(s)								
SCORE	PHOTO	DESCRIPTION	COMMENTS / DIMENSIONS					
		Specified on Approved Plans?						
① ② ③ ④ ⑤		Missing						
① ② ③ ④ ⑤		Blockage ($\text{①} < 25\% < \text{②} < 75\% < \text{③}$)						
① ② ③ ④ ⑤		Spalling / Deterioration						
① ② ③ ④ ⑤		Separation / Misaligned Joints						
① ② ③ ④ ⑤		Other: _____						

Vegetated Swale Inspection Form		Page 2
Site ID: _____ Facility ID: _____ Facility Name: _____		
Other		
SCORE	PHOTO	DESCRIPTION LOCATION
① ② ③ ④ ⑤		Encroachments
① ② ③ ④ ⑤		Modifications
① ② ③ ④ ⑤		Mosquito Habitat
① ② ③ ④ ⑤		Evidence of Possible Illicit Discharge, Call to Re (703-877-2800: Inspection, Maint., & Enforc. Section)
INSPECTOR COMMENTS		

Appendix B-Reporting Forms

B-1: Notice of Inspection (NOI)

The NOI is the full inspection report sent to a private facility owner, and it includes a cover letter, CAR, photos with orientation sketch, any applicable site plans, a copy of the PMA (if applicable), a tax map, GIS map, a copy of the County Maintenance guidelines, and a blank MAR (for the owner to complete and return). As most components of the NOI are already described or attached in the Appendices, we will include samples of four cover letters, covering facilities with or without required maintenance and with or without an established PMA.

Cover Letter with PMA (No required maintenance)



County of Fairfax, Virginia

To protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County

The Owner
1234 Everywhere Court
Fairfax, VA 22033

Subject: Notice of Inspection of Privately Maintained Stormwater Management Facility

Reference: Site ID / Facility ID: **S1234 / BR0056**
Project / Plan No.: The Owner / 0102-SD-03-4
Location: **1234 Everywhere Court**
Tax Map No: **023.4 ((56)) 0 7**

Dear Facility Owner:

As part of Fairfax County's stormwater management program, Maintenance and Stormwater Management Division (MSMD) staff inspects stormwater management facilities to ensure proper maintenance is performed and that the facility is functioning according to the approved design. The County performs maintenance inspections of stormwater management facilities to meet regulatory requirements as well as practice good environmental stewardship. As the owner, you are responsible for ensuring proper maintenance and functionality of the stormwater facility that serves your property.

Fairfax County conducted a visual condition assessment of the above-referenced stormwater management facility on 10/16/2013. This letter is sent to inform you of the inspection findings and any required maintenance activities that must be performed. The following are enclosed with this letter:

- Condition Assessment Report (CAR), including photos
- Copy of Approved Facility Plan Sheets
- Copy of Private Maintenance Agreement (Deed Book / Page: **12304 / 5607**)
- Copy of Tax Map
- Copy of GIS Aerial Site Photo
- Maintenance Guidelines
- Maintenance Contractor List

As required by the Virginia Stormwater Management Act and Chesapeake Bay Preservation Act, the Stormwater Management Ordinance of Fairfax County (Chapter 124 of the Code of the County of Fairfax, Virginia) establishes the County's stormwater management program. Section 124-2-10(a) requires all stormwater management facilities to have a recorded Private Maintenance Agreement (PMA) and sets forth the owner's inspection and maintenance requirements and the County's quality assurance inspections. Specifically, the PMA requires all stormwater management facilities be maintained and authorizes the County to inspect facilities to ensure they are being maintained in good working order. Under the provisions of §124-8-1(a), the County is authorized to pursue enforcement against anyone who fails to maintain their stormwater management facility in accordance with the terms of the recorded PMA, including penalties up to \$32,500.00 per incident (§124-8-2).

Department of Public Works and Environmental Services
Maintenance and Stormwater Management Division
10635 West Drive
Fairfax, VA 22030-4229
Phone: 703-877-2800, TTY: 711, FAX: 703-877-2868
www.fairfaxcountv.gov/dowes



Plan No: 0102-SD-03-4

Facility ID: BR0056

Page 2 of 2

Additionally, under the Virginia Stormwater Management Program permit regulations (9VAC25-870), the Virginia Department of Environmental Quality (DEQ) requires the County to control stormwater pollution to the maximum extent practicable and to ensure that facilities are being maintained and function properly.

The recorded PMA states that all stormwater management facilities must be adequately maintained by their owners. The PMA is executed between the site developer/owner and the County to ensure proper functionality and regular maintenance for the life of the facility. This agreement is on file in our office, runs with the land as part of the recorded deed and is thus binding on subsequent landowners.

The following observation was made during the 10/16/2013 inspection: **Other than your normal routine maintenance, no additional maintenance activity appears to be needed at this time (see enclosed Condition Assessment Report).** We thank you for maintaining this facility in good condition and look forward to your continued cooperation in protecting the waters of Fairfax County and the Chesapeake Bay.

Your time and cooperation are greatly appreciated and will help to achieve our goal of protecting our streams, rivers and the Chesapeake Bay. If you have any questions regarding the Condition Assessment Report, please contact Warren O'Hara or myself at (703) 877-2800. For additional information on maintaining stormwater management facilities, please visit our website at: www.fairfaxcounty.gov/dpwes/utilities/swm_facility_maint.htm.

Sincerely,

Karlee Copeland, Chief
Inspections, Maintenance and Enforcement Section

KHC/Company Initials

Encl.: As Stated

cc: Chron Files & Facility Files

Cover Letter with PMA (with required maintenance)



County of Fairfax, Virginia

To protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County

The Owner
 1234 Main Street
 Alexandria, VA 22306

Subject: Notice of Inspection of Privately Maintained Stormwater Management Facility

Reference: Site ID / Facility ID: **S1234 / BR0012**
 Project / Plan No.: **The Owner / 1234-SP-05-6**
 Location: **1234 Main Street**
 Tax Map No: **012.3 ((45)) 0 6**

Dear Facility Owner:

As part of Fairfax County’s stormwater management program, Maintenance and Stormwater Management Division (MSMD) staff inspects stormwater management facilities to ensure proper maintenance is performed and that the facility is functioning according to the approved design. The County performs maintenance inspections of stormwater management facilities to meet regulatory requirements as well as practice good environmental stewardship. As the owner, you are responsible for ensuring proper maintenance and functionality of the stormwater facility that serves your property.

Fairfax County conducted a visual condition assessment of the above-referenced stormwater management facility on 8/19/2014. This letter is sent to inform you of the inspection findings and any required maintenance activities that must be performed. The following are enclosed with this letter:

- Condition Assessment Report (CAR), including photos
- Copy of Approved Facility Plan Sheets
- Copy of Private Maintenance Agreement (Deed Book / Page: **12345 / 6000**)
- Copy of Tax Map
- Copy of GIS Aerial Site Photo
- Maintenance Guidelines
- Maintenance Contractor List
- Maintenance Activity Report (MAR)

As required by the Virginia Stormwater Management Act and Chesapeake Bay Preservation Act, the Stormwater Management Ordinance of Fairfax County (Chapter 124 of the Code of the County of Fairfax, Virginia) establishes the County’s stormwater management program. Section 124-2-10(a) requires all stormwater management facilities to have a recorded Private Maintenance Agreement (PMA) and sets forth the owner’s inspection and maintenance requirements and the County’s quality assurance inspections. Specifically, the PMA requires all stormwater management facilities be maintained and authorizes the County to inspect facilities to ensure they are being maintained in good working order. Under the provisions of §124-8-1(a), the County is authorized to pursue enforcement against anyone who fails to maintain their stormwater management facility in accordance with the terms of the recorded PMA, including penalties up to \$32,500.00 per incident (§124-8-2).

Department of Public Works and Environmental Services
 Maintenance and Stormwater Management Division
 10635 West Drive
 Fairfax, VA 22030-4229
 Phone: 703-877-2800, TTY: 711, FAX: 703-877-2868
www.fairfaxcounty.gov/dpwes



Plan No: 1234-SP-05-6
Facility ID: BR0012
Page 2 of 2

Additionally, under the Virginia Stormwater Management Program permit regulations (9VAC25-870), the Virginia Department of Environmental Quality (DEQ) requires the County to control stormwater pollution to the maximum extent practicable and to ensure that facilities are being maintained and function properly.

The following observation was made during the 8/19/2014 inspection:

- Maintenance is recommended to *ensure continued functionality* of the facility. Failure to perform timely maintenance may lead to greater expense in the future.
- Immediate maintenance is required to *restore proper functionality* of the facility. Failure to comply will result in a Notice of Violation (Article 8 of the Stormwater Management Ordinance).

The recorded PMA states that all stormwater management facilities must be adequately maintained by their owners. The PMA is executed between the site developer/owner and the County to ensure proper functionality and regular maintenance for the life of the facility. This agreement is on file in our office, runs with the land as part of the recorded deed and is thus binding on subsequent landowners.

The enclosed stormwater management guidelines are provided as a courtesy and are based on general knowledge of maintenance required for these types of facilities. The guidelines are not meant to replace or supersede any specific recommendations offered by a qualified professional. In order to complete the Federal and State-required inspection process, MSMD requests that the responsible party(ies) respond in writing (Attn: Private Inspection & Enforcement Program), using the attached Maintenance Activity Report (MAR) form, within 45 days of your receipt of this letter.

To ensure an adequate response, please note the following:

- Reference your Site ID and Facility ID in all verbal and written correspondence
- The MAR must be completed and signed for the facility listed above
- The MAR must address each maintenance issue described in the CAR
- Please include **photos**, invoices, contracts, proposals, and/or work plans with the MAR
- Relaying this information via phone does not substitute completion of the form
- No extensions will be granted and all work must be completed in order to be closed.

Your time and cooperation are greatly appreciated and will help to achieve our goal of protecting our streams, rivers and the Chesapeake Bay. If you have any questions regarding the Condition Assessment Report, please contact Warren O'Hara or myself at (703) 877-2800. For additional information on maintaining stormwater management facilities, please visit our Website at: www.fairfaxcounty.gov/dpwes/utilities/swm_facility_maint.htm.

Sincerely,

Karlee Copeland, Chief
Inspections, Maintenance and Enforcement Section

KHC/ **Company Initials**
Encl.: As Stated
cc: **Chron** Files & Facility Files

Cover Letter without PMA (No required maintenance)



County of Fairfax, Virginia

To protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County

Owner HOA
1230 Beta Court
Chantilly, VA 20151

Subject: Visual Condition Assessment of Privately Maintained Stormwater Management Facilities

Reference: Site ID / Facility ID: S2345 / WP0678
Project / Plan No.: Owner Sec. 1 / 1234-SP-05-6
Location: 1230 Beta Court
Tax Map No: 034.5 ((67)) 0 F1

Dear Facility Owner:

As part of Fairfax County's stormwater management program, Maintenance and Stormwater Management Division (MSMD) staff inspects stormwater management facilities to ensure proper maintenance is performed and that the facility is functioning according to the approved design. The County performs maintenance inspections of stormwater management facilities to meet regulatory requirements as well as practice good environmental stewardship. As the owner, you are responsible for ensuring proper maintenance and functionality of the stormwater facility that serves your property.

Fairfax County conducted a visual condition assessment of the above-referenced stormwater management facility on 6/16/2011. This letter is sent to inform you of the inspection findings and any required maintenance activities that must be performed. The following are enclosed with this letter:

- Condition Assessment Report (CAR), including photos
- Copy of Approved Facility Plan Sheets
- Copy of Tax Map
- Copy of GIS Aerial Site Photo
- Maintenance Guidelines
- Maintenance Contractor List

Under the Virginia Stormwater Management Program permit regulations (9VAC25-870), the Virginia Department of Environmental Quality (DEQ) requires the County to control stormwater pollution to the maximum extent practicable and to ensure that facilities are being maintained and function properly.

The following observation was made during the 6/16/2011 inspection: **Other than your normal routine maintenance, no additional maintenance activity appears to be needed at this time (see enclosed Condition Assessment Report).** We thank you for maintaining this facility in good condition and look forward to your continued cooperation in protecting the waters of Fairfax County and the Chesapeake Bay.

Department of Public Works and Environmental Services
Maintenance and Stormwater Management Division
10635 West Drive
Fairfax, VA 22030-4229
Phone: 703-877-2800, TTY: 711, FAX: 703-877-2868
www.fairfaxcountv.gov/dowes



Plan No: 1234-SP-05-6

Facility ID: WP0678

Page 2 of 2

Your time and cooperation are greatly appreciated and will help to achieve our goal of protecting our streams, rivers and the Chesapeake Bay. If you have any questions regarding the Condition Assessment Report, please contact Warren O'Hara or myself at (703) 877-2800. For additional information on maintaining stormwater management facilities, please visit our website at: www.fairfaxcounty.gov/dpwes/utilities/swm_facility_maint.htm.

Sincerely,

Karlee Copeland, Chief
Inspections, Maintenance and Enforcement Section

KHC/Company Initials

Encl.: As Stated

cc: Chron Files & Facility Files

Cover Letter without PMA (with required maintenance)



County of Fairfax, Virginia

To protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County

Owner HOA
1234 Somewhere Court
Chantilly, VA 20151

Subject: Visual Condition Assessment of Privately Maintained Stormwater Management Facilities

Reference: Site ID / Facility ID: **S2345 / WP0456**
 Project / Plan No.: **The Owner / 1234-SP-05-6**
 Location: **1234 Somewhere Court**
 Tax Map No: **056.7 ((89)) 0 F9**

Dear Facility Owner:

As part of Fairfax County's stormwater management program, Maintenance and Stormwater Management Division (MSMD) staff inspects stormwater management facilities to ensure proper maintenance is performed and that the facility is functioning according to the approved design. The County performs maintenance inspections of stormwater management facilities to meet regulatory requirements as well as practice good environmental stewardship. As the owner, you are responsible for ensuring proper maintenance and functionality of the stormwater facility that serves your property.

Fairfax County conducted a visual condition assessment of the above-referenced stormwater management facility on «Last_Inspection_Date». This letter is sent to inform you of the inspection findings and any required maintenance activities that must be performed. The following are enclosed with this letter:

- Condition Assessment Report (CAR), including photos
- Copy of Approved Facility Plan Sheets
- Copy of Tax Map
- Copy of GIS Aerial Site Photo
- Maintenance Guidelines
- Maintenance Contractor List
- Maintenance Activity Report (MAR)

Under the Virginia Stormwater Management Program permit regulations (9VAC25-870), the Virginia Department of Environmental Quality (DEQ) requires the County to control stormwater pollution to the maximum extent practicable and to ensure that facilities are being maintained and function properly.

The following observation was made during the «Last_Inspection_Date» inspection:

- Maintenance is recommended to *ensure continued functionality* of the facility. Failure to perform timely maintenance may lead to greater expense in the future.
- Immediate maintenance is required to *restore proper functionality* of the facility. Failure to comply will result in a Notice of Violation (17-108(6) and 18-901(1) of the Zoning Ordinance).

Department of Public Works and Environmental Services
 Maintenance and Stormwater Management Division
 10635 West Drive
 Fairfax, VA 22030-4229
 Phone: 703-877-2800, TTY: 711, FAX: 703-877-2868
www.fairfaxcountv.gov/dowes



Plan No: 1234-SP-05-6
Facility ID: WP0456
Page 2 of 2

The enclosed stormwater management guidelines are provided as a courtesy and are based on general knowledge of maintenance required for these types of facilities. The guidelines are not meant to replace or supersede any specific recommendations offered by a qualified professional. In order to complete the Federal and State-required inspection process, MSMD requests that the responsible party(ies) respond in writing (Attn: Private Inspection & Enforcement Program), using the attached Maintenance Activity Report (MAR) form, within 45 days of your receipt of this letter.

To ensure an adequate response, please note the following:

- Reference your Site ID and Facility ID in all verbal and written correspondence
- The MAR must be completed and signed for the facility listed above
- The MAR must address each maintenance issue described in the CAR
- Please include **photos**, invoices, contracts, proposals, and/or work plans with the MAR
- Relaying this information via phone does not substitute completion of the form
- No extensions will be granted and all work must be completed in order to be closed.

Your time and cooperation are greatly appreciated and will help to achieve our goal of protecting our streams, rivers and the Chesapeake Bay. If you have any questions regarding the Condition Assessment Report, please contact Warren O'Hara or myself at (703) 877-2800. For additional information on maintaining stormwater management facilities, please visit our Website at: www.fairfaxcounty.gov/dpwes/utilities/swm_facility_maint.htm.

Sincerely,

Karlee Copeland, Chief
Inspections, Maintenance and Enforcement Section

KHC: **Company Initials**
Encl.: As Stated
cc: Chron Files & Facility Files

B-2: Condition Assessment Report (CAR)-this is an example using a Bioretention BMP




BIORETENTION AREA CONDITION ASSESSMENT REPORT (CAR)

Site ID / Facility ID: S000x / BR-sample

- No deficiencies were noted during the assessment. Thank you for maintaining your stormwater management facility in good working order. Please continue routine maintenance.
- Maintenance is requested to ***ensure continued functionality*** of the facility. Failure to perform timely maintenance may lead to greater expense in the future.
- Immediate maintenance is required to ***restore proper functionality*** of the facility. Failure to comply will result in a Notice of Violation (Article 8 of the Stormwater Management Ordinance).

Summary of Condition Assessment Results

Continue Routine Maintenance	Deficiencies Noted, Action Required	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Facility Overall
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Inflow(s)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Ponding Area
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Control Structure
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Overflow Berm
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Underdrain(s) and Principal Spillway Pipe
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Outfall

This stormwater management Condition Assessment Report (CAR) offers a "point-in-time" representation of observed conditions at the facility and is not intended to provide any information regarding the functional integrity of the structure nor provide warranty as to present or future structure condition or performance. The CAR is not meant to replace or supersede any specific recommendation offered by a qualified professional.

B-3: Maintenance and Activity Report (MAR)



MAINTENANCE ACTIVITY REPORT

(Response requested within 45 days of receipt)



According to County records you are the current owner of a privately maintained stormwater management facility that had deficiencies at the time of an inspection on «Inspection_Date». This standard Maintenance Activity Report is requested as part of the private inspection/enforcement process. Failure to complete this form in a timely manner could result in a non-compliance status which could lead to enforcement activities.

Complete this form legibly in ink and mail or email to the following address within 45 days of receipt.
Please reference your Site ID and Facility ID in all correspondence

<p>Attn: Visual Condition Assessment Program Department of Public Works and Environmental Services Maintenance and Stormwater Management Division 10635 West Drive Fairfax, Virginia 22030 TEL: 703-877-2800 Email: DPWES-MSMD-Inspections@fairfaxcounty.gov</p>	<p>Facility Information (as shown on plan of record): Project: «Plan_Name» Plan No: «Plan_Number» Location: «Facility_Address» Tax Map: «Full_Tax_Map» Site ID / Facility ID: «SITE_ID» / «FACILITY_ID» Watershed: «Watershed»</p>
---	---

Ownership and Contact Information

<p>Current Owner: Name: _____ Company: _____ Address: _____ Phone: _____ Fax: _____ Email: _____</p>	<p>Owner's Agent for Maintenance: Name: _____ Company: _____ Address: _____ Phone: _____ Fax: _____ Email: _____</p>
---	---

Description of Work Completed <small>Attach any invoices, photos or other information relative to maintenance performed or planned</small>	Date Completed	Cost (optional)

See other side for additional space.

I, _____, hereby certify that the statements above are true to the best of my knowledge.
 Printed Name

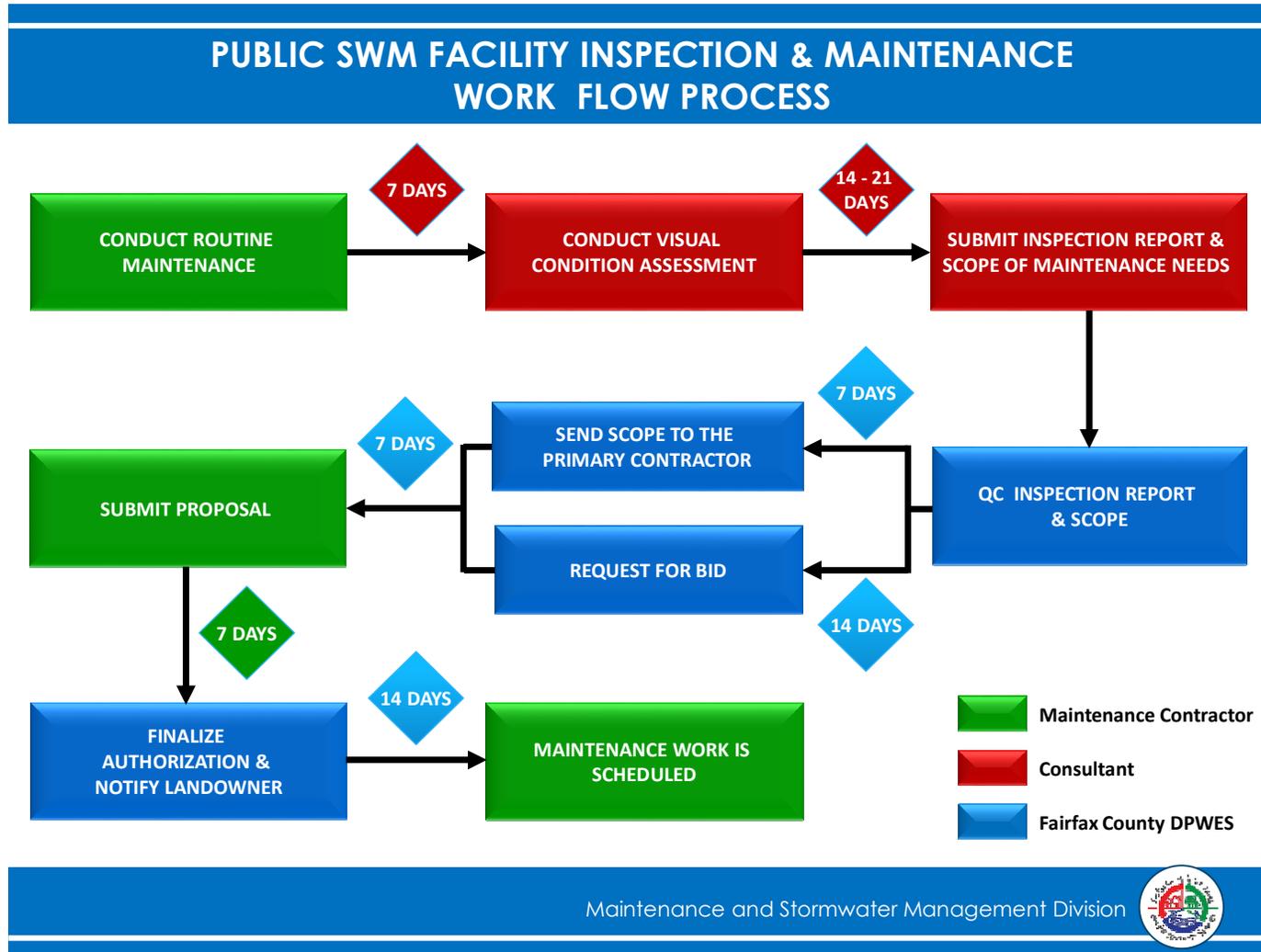
 Signature (Owner or Owner's Agent) Title Date

Legislation/Regulations/Permitting/Guidelines:

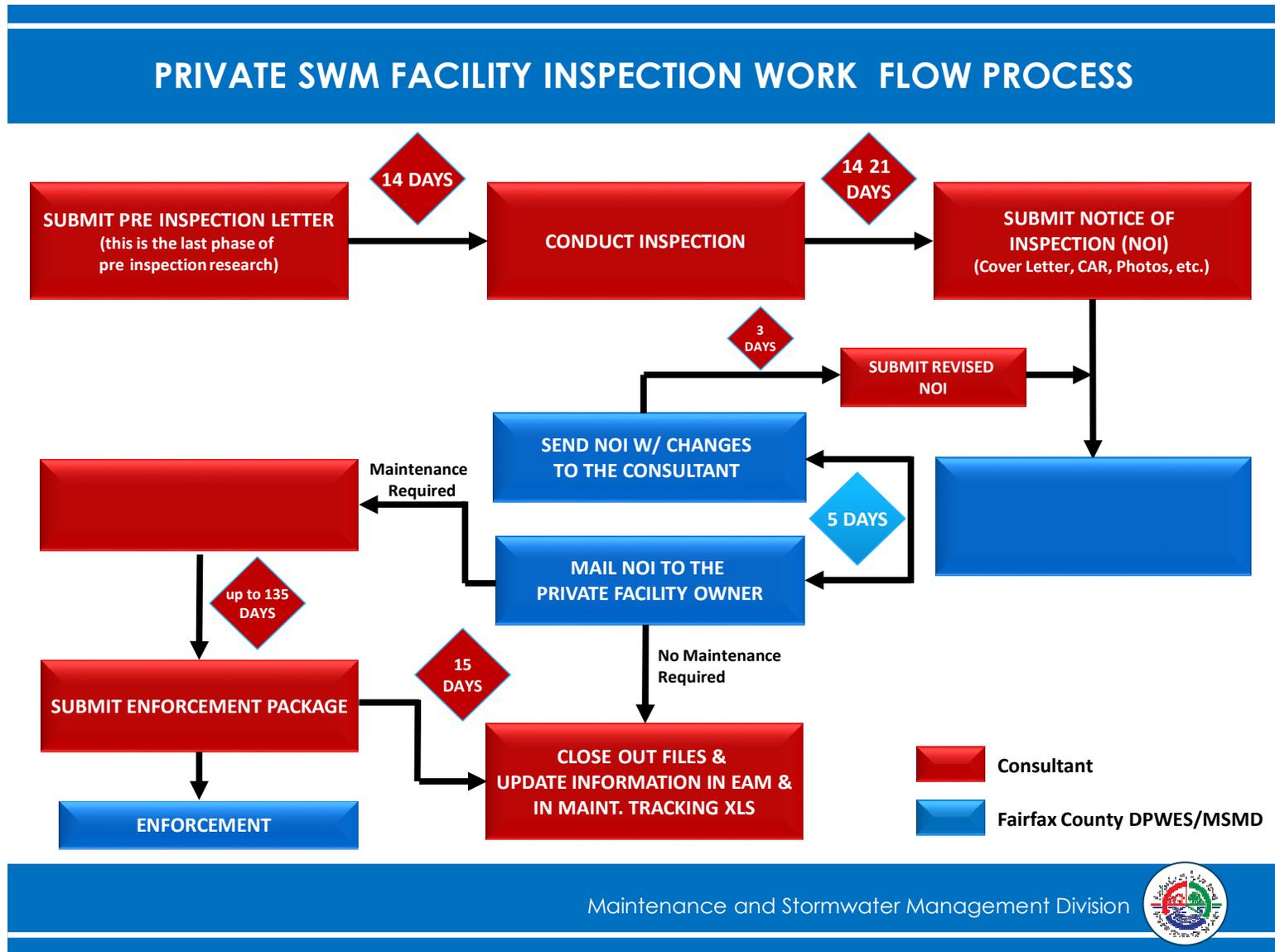
Fairfax County Codes, Article 1, Section 106-1-1, Storm drainage facilities; maintenance and cleanliness
 Fairfax County Codes, Article 1, Section 105-1-1, Pollution of State Waters
 Federal Clean Water Act/Section 402-(P) enabling the National Pollution Discharge Elimination System under which Fairfax County is required to meet Federal mandates as required by the Municipal Separate Storm Sewer System (MS4) Permit #: VA0088587
 Chesapeake Bay Preservation Act
 Virginia Stormwater Management Act

Appendix C-Work Flow Process Charts

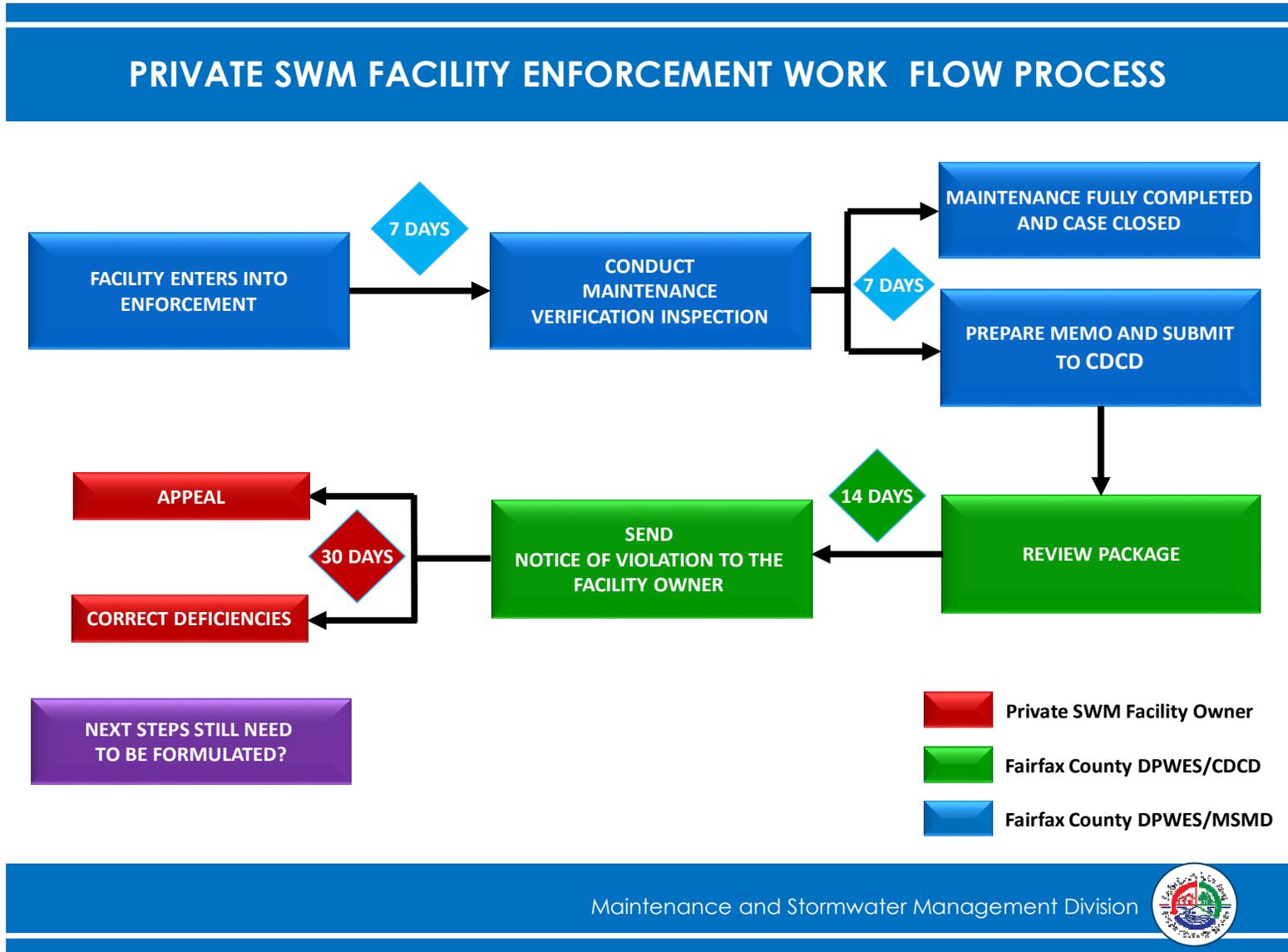
C-1: Public SWM Facilities-Inspection and Maintenance



C-2: Private SWM Facilities-Inspection -



C-3: Private SWM Facilities-Enforcement Work -



Field Inspections and Reporting Policies and Procedures

January 2016

Prepared by:



Fairfax County Department of Public Works and Environmental Services (DPWES)
Maintenance and Stormwater Management Division (MSMD)
10635 West Drive
Fairfax, Virginia 22030

In consultation with:



GKY & Associates, Inc.
4229 Lafayette Center Drive
Suite 1850
Chantilly, VA 20151

Field Inspections and Reporting Policies and Procedures

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Field Inspections and Reporting Policies and Procedures

1 Introduction

Field inspections and reporting compiles information about the operational health and maintenance needs for a stormwater facility. The goal of this document is to provide a standardized approach to conducting field inspections and reporting to ensure consistency amongst all inspectors and contractors.

The field inspection and reporting task has two main purposes:

1. To record the current condition of the stormwater management (SWM) or best management practice (BMP) facility as compared to the design condition, and
2. To report that condition clearly to the facility owner, either public or private.

Please note that public facility inspections may also require taking measurements of specific maintenance items and preparing a scope of work narrative. Those items are discussed in the Field Measurements and Work Order Preparation guide.

1.1 Time Estimates

The following time estimates may be considered as averages for use in generating estimates for field inspection tasks (i.e., preparation time, field time requirements per facility type, and reporting and submittal); individual facilities may take more or less time than what is noted here.

Table 1a-Time estimates for Public Facility Field Inspections and Reporting

In Office Prep Time		
Maintenance Responsibility		Prep Time Estimate (per facility)
Public Facilities		10 min.
Field Time		
Facility Type		Field Time Estimate (person-hours) ¹
BR	Bioretention Area	2.5
DP	Regional Dry Pond	3.0
	Non-Regional Dry Pond	3.0
MB	Manufactured BMP	3.0
PL	Parking Lot	2.5
PP	Porous Pavement	2.5
RT	Rooftop	3.5
SF	Sand Filter	3.0
TF	Tree Filter	2.5
TR	Infiltration Trench	2.5
UG	Underground Detention	3.0
VS	Vegetated Swale	2.5
WL	Constructed Wetland	3.5
WP	Wet Pond	3.5
Reporting and Submittal Time		
Maintenance Responsibility		Reporting and Submittal Time Estimate (per facility)
Public Facilities		45 min.

¹ This time includes time to perform the inspection plus 0.5 hours per facility to QC the actual inspection results.

Field Inspections and Reporting Policies and Procedures

Table 1b-Time estimates for Private Facility Field Inspections and Reporting

In Office Prep Time		
Maintenance Responsibility		Prep Time Estimate (per facility)
Private Facilities		10 min.
Field Time		
Facility Type		Field Time Estimate (person-hours) ¹
BR	Bioretention Area	2.5
DP	Regional Dry Pond	3.0
	Non-Regional Dry Pond	3.0
MB	Manufactured BMP	3.0
PL	Parking Lot	2.5
PP	Porous Pavement	2.5
RT	Rooftop	3.5
SF	Sand Filter	3.0
TF	Tree Filter	2.5
TR	Infiltration Trench	2.5
UG	Underground Detention	3.0
VS	Vegetated Swale	2.5
WL	Constructed Wetland	3.5
WP	Wet Pond	3.5
Reporting and Submittal Time		
Maintenance Responsibility		Reporting and Submittal Time Estimate (per facility) ²
Private Facilities		3 hours

¹ This time includes time to perform the inspection plus 0.5 hours per facility to QC the actual inspection results.

² The three hours includes 2.5 hours to develop the report and 0.5 hour to QC the report. Includes creating the envelope and postal tracking material and submitting the report to the County.

2 Field Equipment and Documentation

The following tables outline recommended field equipment, safety related equipment, and field documentation necessary for conducting inspections of stormwater facilities. Though not intended to be all-inclusive or limiting, these lists may be used as a reference when assembling an inspection 'field kit'.

The following field equipment is recommended for conducting inspections of stormwater facilities:

Table 2-General Field Equipment

Field Equipment	Qty / Team	Purpose
Digital camera (with flash and timer)	1	Document facility conditions, potential maintenance issues and the inspection process
Extra batteries for digital camera	2+ sets	Replacement for depleted batteries
Telescoping monopole (6')	1	Inspect interior of underground facilities, riser structures and other stormwater structures
Painter's pole with camera adapter (16')	1	Inspect interior of deep underground facilities and stormwater structures, as well as large riser structures
Manhole hook and/or magnetic manhole puller	1	Remove manhole covers
Crowbar (prybar)	1	Assist in removing large manhole covers
3 lb. hammer	1	Loosen stuck manhole covers
Bilco door key	1	Open Bilco access doors
Flat Head screwdriver	1	Remove Bilco door screws
Socket set with ratchet	1	Remove non-standard Bilco door screws and bolts on access doors
Channel Locks (Large)	1	Open observation / cleanout wells, and assists in opening Bilco access doors
Fiberglass probing rod	1	Determine the presence (or absence) of subsurface gravel, especially for soil-topped trenches
Tape measure (25')	1	Confirm facility dimensions (overall size, orifice/pipe diameters, etc.) and measure areas of maintenance concern (erosion, bare spots)
Open reel tape measure (100')	1	
Flash light with extra batteries	1	Illuminate interior of underground facilities and stormwater structures
Machete (optional)	1	Clear vegetation to permit facility access
Ladder (for some rooftops)	1	Reaching rooftops externally
Writing utensils (pens suggested)	2-3	Record facility conditions, potential maintenance issues and document inspection process
Clipboard	1	
Flagging tape	2 rolls	Clearly identify maintenance issues and areas of concern (bare spots, erosion, potential hazards, etc.)
Survey flags	50	
Wood survey stakes	20	
GPS navigation device, or GPS-enabled smartphone	1	Assist with navigation and the location of facilities

Field Inspections and Reporting Policies and Procedures

The safety equipment contained in

Table 3- below is recommended for conducting inspections of stormwater facilities. Additional information on safety equipment and procedures can be found in Section 3 of this document.

Table 3-Important Safety Equipment

Safety Equipment	Qty / Team	Purpose
Gas monitor (meter)	1	Detect potentially hazardous atmospheric conditions inside storm structures
Hard hats	1 / person	To be used when inspecting facilities in the vicinity of light construction activity, utility work or tree trimming
Steel toe boots	1 pair / person	Protect feet and toes from manhole lids; also slips, trips and falls
Class 3 high-visibility vests	1 / person	Visibility in high-traffic areas
Work gloves (optional)	1 pair / person	Protect hands from cuts/abrasions when opening manholes and other access doors, as well as insects
Traffic cones	2+	Cordon off areas surrounding facilities where vehicular traffic is a concern (i.e. parking lots, travel ways)
Insect repellent	1	Protect against ticks, mosquitos, flies and other insects encountered during field inspections
Tick-repellent clothing		
Sunscreen	1	Protect against sunburn
First aid kit	1	Emergency situations and addressing minor injuries
Fairfax County emergency services contact info	1	Contact information for use in the event of an emergency
Cellphone	1	Calling contractor office, MSMD, or emergency services

The documentation contained in

Table 4-4 and Table 5 below outline the general and facility specific documents that should also be carried at all times while in the field.

Table 4-General Documentation

General Documentation	Qty / Team	Purpose
Fairfax County identification	1+	Identify inspectors when engaging property owners/managers and other citizens
Fairfax County vehicle, or 'Stormwater Inspection' vehicle magnet	1	Identify vehicles used for field inspections
Fairfax County MSMD business cards	50	Provide MSMD contact information to property owners/managers and other citizens upon request
Contractor 'Field Inspector' business cards (if applicable)	50	Provide contractor contact information to property owners/managers and other citizens upon request (if applicable)
Fairfax County MSMD pamphlets	50	Provide MSMD program information to property owners/managers and other citizens upon request
Generic pre-inspection letter (for privately-maintained facilities)	20	Inform property owners and tenants of our purposes on the site. The facility-specific pre-inspection letter should also be available in the inspection folder.
Blank forms for "Non-Entry Confined Space Photographic Assessment"	50	Document atmospheric testing at confined spaces. Use 1 form for each facility where confined spaces are opened, and remember not to bodily enter the confined space.

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Observations made during field inspections are recorded using standard inspection forms developed for each type of stormwater facility. In order to conduct comprehensive facility inspections and complete these forms, it may be necessary to utilize documentation (including approved plan sets and previous inspection reports) obtained during the pre-inspection phase of the process outlined in the Pre-Inspection Research guide. Hard copy documentation obtained in Pre-Inspection Research should accompany inspection teams on all site visits.

Table 5-Facility-Specific Documentation

Facility Specific Documentation	Qty / team	Purpose
Inspection folder	1 / facility	Prepared during Phase 1 for privately-maintained facilities, or following the steps below for publicly-maintained facilities
Facility inspection route map	1	Provide turn-by-turn directions to facilities scheduled for inspection each day

2.1 Public Facility Inspection Folders

Hard copy inspection folders for public facilities are for short-term use only, holding only the documentation needed by or generated by the inspector. Legal-size manila folders are recommended, in order to fit the legal-size inspection forms, with labels containing both site ID and facility ID. The following documents should be included in the hard copy inspection folders prior to going out for inspection:

- **Inspector-Plans.pdf and GIS.pdf.** These documents may be found in the Fixed_References folder for each site. Both documents are generated as part of the public facility pre-inspection and should be available for every site. If they are not available, a GIS print may be made from ArcGIS for inspection purposes only, and individual plan sheets may be selected for printing from the plan scans that are available.
- **Infor-EAM™ Database Print.** A print of the facility's information from Infor-EAM™, including from the Infor-EAM™ Comments tab.
- **Inspection Form and Photo Log.** Inspection form and photo log templates may be found on the county server, *J:\STWSWM_Branch_Assets\Main\Private\Templates\Inspection Forms*. There is a choice whether to use the linked inspection forms or copy the templates to a different location and process them as a batch. Please note that Infor-EAM™ comments, which can be very helpful, are not automatically shown on the linked inspection form.

For sites with multiple facilities, documents shared by those multiple facilities only need to be printed once and stored in any one of the facility folders taken out to the field that day.

3 Safety, Training, and Public Relations

Safety, proper training and good public relations are vital parts of stormwater fieldwork, including the stormwater facility inspections. Although they may not appear to contribute directly to the final report and submittal, these three items help ensure the safety of the inspectors and the cooperation of the public.

3.1 Safety

Field teams should be conscious of health and safety policies and procedures, and mindful of the potential hazards associated with the inspection of stormwater facilities. Field teams must consist of at least two people, for safety reasons. While this section offers a summary of the principal safety hazards that may be encountered in the field, other hazards do exist that are not listed here. In all cases inspectors should use common sense and strive to keep themselves and their partner(s) out of harm's way.

3.2 Confined Spaces

Confined spaces should not be physically entered for these stormwater facility inspections. The inspectors should not enter any manholes, underground chambers, or pipes as part of this work, nor allow any part of their bodies to enter. Any confined space entry that may be required shall be performed by properly qualified and permitted county staff or contractor. Short training sessions are available online to help inspectors identify and avoid entering confined spaces; one example is at <http://www.hazmatschool.com/product/osha-confined-space-safety-2-hour/>.

Gas meter readings (oxygen (O₂), carbon monoxide (CO), hydrogen sulfide (H₂S) and combustible gases (LEL)) must be taken every time a manhole, Bilco door, or other confined space access port is opened, both before and after opening the port. The gas meter, part of the required safety equipment, must be kept in good working order via regular calibration and "bump tests" as called for by the manufacturer. Each team should understand how to use their gas meter and how to properly report its readings. The current form for recording the gas meter readings, called "Non-entry Confined Space Photographic Assessment," is available at *J:\STWSWM_Branch_Assets\Main\Private\Templates*. A separate form should be used for each facility; the facility ID should be included on the form. Structure ID's from the facility plans may be used in place of the STMN / STML StormNet IDs. **If any gas readings are outside the acceptable range, note the readings and notify your supervisor and MSMD immediately.**

Photographs may be taken in confined spaces by attaching the camera to a standard monopole or longer painter's pole with camera attachment only after normal atmospheric readings have been verified.

3.3 Environmental Factors

During field activities inspectors may encounter the following environmental factors that pose health and safety issues:

Ticks: Ticks can transmit several serious illnesses such as Lyme disease. Tick-repellent spray and/or clothing is strongly recommended. Inspectors should also regularly check themselves for ticks and remove any that are found. Information is available online on tick identification, removal, and related disease symptoms and treatment, see <http://www.fairfaxcounty.gov/hd/westnile/lyme-disease.htm>.

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Spiders: Black widow and other spiders have been found inside several stormwater facilities located throughout Fairfax County, including inside Bilco doors near the handles. Extra care, and the use of gloves and tools, should be used during the opening of manholes and Bilco doors.

Insects: Mosquitos and other insects may be encountered during field activities. Insect repellent is recommended to help prevent West Nile Virus.

Snakes and other Wild Animals: Copperheads and other species of poisonous snakes live in the wild in this area. Inspectors should keep an eye out during field activities and avoid contact with snakes and all other wild animals and seek medical attention in the case of any bites. Some wild mammals may carry rabies; information about rabies may be found at <http://www.fairfaxcounty.gov/hd/hdpdf/rabies2.pdf>.

Unleashed Pets: Always check for dogs and other pets before entering fenced yards. If pets are present, ask the owner to remove or leash the animal and do not enter until pets are secure. Use extra care upon entering and exiting properties to ensure that you do not leave a gate open or allow pets to escape.

Poison Ivy: Some people are highly allergic to poison ivy, which is a common weed found in Fairfax County. Any inspector who is allergic should know how to identify the plant and avoid contact with it.

3.4 Traffic Hazards

All team members must wear high-visibility (Class 3) vests at all times during inspections.

Many stormwater facilities are located in and under parking lots or near roadways. Cones, and the inspection vehicle itself, may be used to keep traffic away from parking lot manholes and Bilco doors. Inspectors must consider parking lot traffic patterns before setting up the cones, and avoid blocking the main drive aisles if traffic has no other way to go. Local shop managers can be helpful in advising on traffic patterns, sometimes suggesting coming in the early morning when the lot is less busy. When inspecting facilities near parking lots and roads, at least one of the team members should be on the lookout and ready to warn the others about traffic hazards. Stormwater facility inspections should not involve crossing multiple lanes of traffic, especially during high-traffic times and main arteries. If a facility is located in a dangerous area, consult with your supervisor and with MSMD staff for special instruction before proceeding with a possibly-hazardous inspection.

3.5 Active Construction Zones

If the stormwater facility is located in an active construction zone, take a couple of overall photos and call your supervisor before proceeding. Most likely the site is under bond and will not be within the jurisdiction of MSMD until the project is completed and the bond is released.

3.6 Slip / Trip / Fall Hazards

Many stormwater facilities require inspectors to do multiple activities at once and traverse difficult terrain. Inspectors must be aware of their surroundings and the terrain. Step carefully, watching out for holes, steep slopes, uneven terrain, and other fall and trip hazards while performing inspections.

3.7 Lifting Technique

Many stormwater facilities require inspectors to remove manhole covers, open Bilco Doors, and lift other heavy items. All lifting of these items must be done with the legs, not the back. In addition, the use of a manhole hook and other tools should be considered to assist in the lifting process. It is important to remember to not place fingers or toes under the manhole lid or other heavy items at any time during the inspection.

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3.8 Heat / Cold Stress

Stormwater inspections occur at all times throughout the year. Inspectors should be aware of the weather conditions and wear the proper work attire for the weather, taking into consideration the potential for sudden changes. Extreme heat or cold is dangerous; inspectors should limit the amount of time exposed to extreme temperatures, be sure to stay hydrated, and monitor their physical condition and that of their teammate(s).

3.9 Training

State regulations require at least one of the inspector on an inspection team to be certified by the Virginia Department of Environmental Quality (DEQ) as a Stormwater Management Inspector. Taking the Virginia DEQ Stormwater Management Basic and Stormwater Management Inspector courses is required to gain the eventual certification. MSMD annually offers its own inspection training geared specifically to this program.

3.10 Public Relations

Although not usually a safety hazard, public relations are extremely important. **Inspectors must remember that while in the field they are representatives of the County; courtesy and politeness are required.**

Upon arrival at each facility, the inspectors should check in with the owner or other on-site personnel whenever feasible and present their County provided credentials. Copies of the facility documents may be left with facility owners or managers if requested. If no one is available, leave business cards and a copy of the generic pre-inspection letter at the door and proceed with the inspection. **Note: For facilities with Private Maintenance Agreements (PMA), the inspectors are simply providing the owner/operator with notification of the inspection, not necessarily asking permission to perform the inspection. For facilities without a PMA or to access areas behind a “No Trespassing” sign, the inspection team shall gain permission to perform an inspection of the stormwater facility from a responsible person.** Take note of the person who gave permission to access. In both cases, if the owner objects or threatens the inspection team, leave the property and report the problem to your supervisor. The County has other ways of gaining access to the site; there is no need for the inspectors to put themselves at risk trying to force the issue. If assistance from a non-threatening owner is needed to access the facility, for example with moving equipment that may be parked over the access doors, be polite and courteous in requesting that assistance.

4 Inspection Procedure

Upon arriving at a given site, the field team should inspect each facility following the procedure outlined below:

1. Read the facility comments included in the Infor-EAM™ printout and provided in the inspection folder. The comments may include special site-specific notes regarding location of the facility on the property, access, ownership and/or maintenance notes.
2. Check in with the property owner, manager, or tenant.
 - a. Introduce yourselves as County representatives, inform them of the inspection and explain the purpose of the visit. Ask for permission to perform the inspection and take note of the person allowing access. If requested, inspectors should provide a copy of the pre-inspection letter and business cards with MSMD contact information, as well as contractor business cards if applicable.
 - b. **Fairfax County Contractor identification should be plainly displayed at all times during the inspection.** All inspection equipment (e.g., manhole hook, crowbar, etc.) should remain in the vehicle until after interaction

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- with property owners, property managers, residents, or security. Inspection teams should be mindful of interaction with the general public and should be polite, courteous and professional at all times.
- c. If there is objection from property owners, property managers, residents or security, inspectors should leave the property, record details of the interaction and report the problem to their supervisor and MSMD.
 - d. Check-in is required for school sites, child care centers, and assisted living communities. Check-out may also be required, depending on the site.
 - i. Fairfax County Public Schools (FCPS) requires **each** inspector to enter through Door #1 and proceed to the main office. There, they should request the "Maintenance Log" and sign in with proper ID. Inspection staff may need the assistance of FCPS staff to unlock gates or other points of entry. If so, they should request their assistance at that time. Prior to leaving the school, inspectors should proceed back to the main office to sign out of the Maintenance Log.
 - e. Always knock on the door or ring the doorbell for private residential lot inspections. If no one is available, inspectors should leave the generic pre-inspection letter and business cards at the door and proceed with the inspection only if a PMA exists and there is not a posted "No Trespassing" sign visible.
 - f. High-security sites may require advance notification and background checks. Those sites may also prohibit photography at the site; in such cases they usually provide their own photographer and send the pictures to the inspectors digitally after the inspection. Special site security arrangements should be noted in the Infor-EAM™ access comments.
 - g. For privately-maintained facilities, attempt to confirm the mailing address with the owner or property manager, either from the Infor-EAM™ printout or the signed pre-inspection letter. Address verification is especially important in cases when the mailing address was not successfully identified during the pre-inspection research.
3. Visually locate the facility, checking for any hazards or conditions that prohibit full access to the facility. Use the plan sheets and aerial imagery in the inspection folder to help identify the facility.
- a. Check for overall facility accessibility.
 - i. If the facility is inaccessible due to overgrown vegetation, locked gates, parked cars, or is otherwise unable to be reached, photograph the obstacles and record them on the inspection form.
 - ii. The owner or other on-site personnel, if available, may be able to help open gates or move parked cars.
 - b. Survey the surrounding area for any potential hazards, including those mentioned in Section 3 - Safety.
 - i. Proceed with the inspection to the extent that it is safe to do so. If conditions exist such that the team is not confident an inspection can be conducted without risk of injury, fully document and photograph those conditions and end the inspection.
 - ii. Any condition that presents an active hazard to the public should be immediately communicated to MSMD so that the hazard may be remedied as soon as practicable. Examples include missing manhole covers and dams that appear to be actively failing. In addition, the inspection team should mark off the area as best as possible using stakes and flagging to discourage entry by the public.
 - iii. If the facility is located in an active construction zone, take a couple of overall photos and then call your supervisor before proceeding. Construction activities usually lead to research as discussed in Anomalies section of the Pre-Inspection Research SOP.
 - iv. Potentially hazardous conditions, even if they do not prevent inspection at this time, should be added either to the Access Comments field or to the Comments tab in Infor-EAM™.
 - c. Fully document any and all conditions that prevent full inspection of the facility.
4. Complete required documentation
- a. Document inspectors' last names, inspection date, and weather information on the form.
 - b. Complete a rough (not-to-scale, but legible) sketch that identifies the pertinent components of the facility.
 - c. Photograph the facility sign (for publicly-maintained facilities) or the inspection form. Write that photo number down as the first photo in the photo log; it serves as an easy way to sort photos by facility later.
5. Continue taking photos of the facility and completing the Photo Log, as discussed further in the Section 4.2.
6. Remember to take and record gas readings each time a manhole or Bilco door is opened.

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7. Note and score any maintenance items on the inspection form.
8. Take any measurements required by the inspection form, such as inflow pipe diameters or the sizes of detention device openings. These required measurements vary by facility type; follow what is required for each particular form.
9. For public facilities, take any additional measurements needed to generate the work order, as specified in the Field Measurements and Work Order Preparation document.
10. Make sure all documents are complete before moving on to the next facility.

4.1 Inspection Form

MSMD has created an inspection form for each facility type, with unique sections and maintenance items. A sample inspection form for bioretention is included in Section 7 of this document. Inspection form templates for each facility type can be found at *J:\STW\SWM_Branch_Assets\Main\Private\Templates\Inspection Forms*.

All inspection forms include the following sections:

Header

The form Header holds the site ID, facility ID, plan name, address, and other identifying information. Inspectors must add their last name, certification information and the inspection date.

Facility Functionality

The Facility Functionality rating scores the facility as a whole as either functional (with or without maintenance required, as indicated by the score totals) or as non-functional.

Score Totals

The Score Total boxes are for counting how many maintenance items were given each score. The Score Totals are filled out last, after quality control of the inspection has been performed in the office.

Notes / Specifications

The Notes / Specifications at the top of the form may be filled out in the office before the inspection to include information from the Infor-EAM™ Comments tab or any other information identified as valuable for the inspection team.

Signs

The Signs sections is intended for publicly-maintained facilities, especially ponds, which should have a warning sign and a facility sign identifying the facility ID, watershed, and phone number for the public to call with questions or complaints. This section may be skipped or marked N/A for privately-maintained facilities.

Weather Conditions

Weather Conditions, listed in a section near the top of the form, are important for judging whether water ponding within the facility is indicative of a blockage or other problem, or is just the temporary result of recent rainfall.

Maintenance Items

Facility-specific Maintenance Items, organized into sections based on location within that type of facility. Maintenance item scores range from 1 (①, severe, high priority) to 3 (③, relatively minor, lower priority) with a ☉ being used for items that do not currently need maintenance, i.e. "Continue Routine Maintenance". Some maintenance items may be only ① or ☉; for example either the well cap is missing (①) or it is not (☉).

Other

Non-Location-Specific "Other" items include problems that may be noted with Encroachments, Facility Modifications, Mosquito Habitat, or any Evidence of a suspect flow that may indicate a Possible Illicit

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Discharge. A phone number is included on the form to remind the inspectors who to **call MSMD if a possible illicit discharge is observed.**

Inspector Comments

Inspector Comments may be added at the bottom of the sheet or for specific maintenance items. **More text is better than not enough.** Anything that may be questioned later should be clarified further on the inspection form. Space for writing is available for all maintenance items, and its use is encouraged.

General Notes Regarding Form Completion:

It should be noted that there will be times that non-standard maintenance problems that don't fit elsewhere, general access notes, information provided by the owner while on-site, and anything else of interest should be written in the generic Inspector Comments box at the bottom of the form.

Not all form sections apply to all facilities of that type; if a section does not apply, then you may write "N/A" in the comments for that section. Otherwise every maintenance item should be marked either with a score number or with the ☺.

Inflows, roof drains, and scuppers have **multiple columns** for their maintenance items. Because each facility is likely to have more than one inflow, or for a rooftop more than one roof drain, these columns allow for the individual components to be scored separately. Space is also provided for each inflow's pipe size and type, to help identify the inflow from just the inspection form without needing an orientation sketch.

4.2 Photo Log

A photo log should be completed in the field for each facility. Photo numbers from the camera and corresponding to the file names for the JPG photos are to be written on the left side of the photo log. In addition, a caption or description of each photo; location of the photo; direction the camera is pointing (North (N), South (S), East (E), West (W), upstream (U/S), downstream (D/S), toward the orifice, etc.); and any maintenance problems visible in that photo should be documented. A sketch of the facility should be drawn in the area at the bottom of the photo log.

Structures in the sketch should be labeled based on the structure numbers shown on the plans, if that can be done conveniently, or given other identifying labels by the inspectors. For example, the inspectors may label Roof Drain 1 (RD1), Manhole 2 (MH2), Bilco 3, and Inflow 4 on the sketch. Structure labeling by function (e.g., control structure, outfall, riser, etc.) is also helpful. Overland inflows should also be included in the sketch, as non-facility-specific maintenance items. These may include an animal hole on the dam embankment or sediment on only part of the pond floor; items whose location is important but not confined to specific structure point.

General guidelines, for all facility types...

- Inspectors should take an 'overall' photo of the facility. This photo should show the extent of the facility in perspective to the residence(s) or building(s) located on the property. For large facilities, taking occasional overall photos between closer photos can help orient the owner when they later read the report. Another "overall" photo may be taken last, looking in the opposite direction as the initial overall photo.
- Inspect all facility components. Following the sections on the inspection form may be helpful to ensure that all components are reviewed.
- Each deficiency noted on the inspection form should be documented by at least one supporting photo.
- Any access problems, even if they are not considered maintenance deficiencies, also need to be documented by one or more photos to adequately show the problem.
- For complex facilities, consider labeling photo numbers and the direction the photo was taken in the facility sketch. Photo log captions should describe any identified issues, any problem(s) with the structure, and the direction/orientation of the photo, where appropriate.

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Following are lists of the items that shall be photographed at each type of facility. The lists should serve as a starting point and are not intended to be all-inclusive as additional photos may be useful in many cases.

BR: Bioretention

- Access.
- Overall view(s), preferably from a multiple vantage points.
- Close-up of mulch condition.
- Count the plants and compare to the landscape plan.
- Check the ponding depth and area; photograph the overflow berm.
- Observation well(s) or cleanout(s): overall and looking inside. (Note if the cap cannot be removed.)
- All inflows.
- Control structure / outfall structure, if specified in the plans.

DP / WP: Ponds

- Access.
- Overall view(s), preferably from a multiple vantage points.
- Riser / Control structure: overall, orifice and lower trash rack close-ups, looking down into the structure, U/S toward the low-flow orifice, and D/S along the PSP, as well as any other problems noted directly around the structure.
- Dam Embankment: overall views of the entire dam, and closer photos of any problems such as erosion or animal holes.
- Emergency Spillway.
- Outfall: as seen from the top of the dam embankment, structure exterior, inside the outfall looking along the PSP, and D/S from the outfall. Get a close-up of any undermining problems.
- Pond trickle ditch and any sediment build-up on the pond floor.
- All inflows, both piped and overland. Take an overall photo of each inflow looking U/S, inside the pipe, and D/S.

MB: Manufactured BMPs

Manufactured BMP inspections will vary depending on the exact facility type. Refer to the plans or to information from the manufacturer for more details about each specific facility.

- Access.
- Overall view(s).
- Open any other available access ports to the underground chamber or detention pipes: photograph overall, down, U/S, D/S.
- Outfall structure: overall, down, U/S, D/S.

PP: Permeable Pavement

- Access.
- Overall view(s).
- Photograph the infiltration test infiltration (5-gallon bucket of water poured over facility).
- Any problems noted.

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PL: Parking Lot Detention

- Access.
- Overall view(s).
- Control structure overall.
- Control structure close-up, emphasizing the control orifice, weir, or other flow control device.
- Looking inside the control structure and along all attached underground pipes.
- Outfall structure: overall, down, U/S, D/S.

RT: Rooftop Detention

- Access.
- Overall view(s).
- Each roof drain. While overall and down-the-pipe photos may occasionally be useful for roof drains, the most important photo for each roof drain is a close-up of the detention device. The picture is clearer if the debris cage can be temporarily removed.
- Each scupper, viewed from near the roof surface to see scupper height off the surface. A tape measure may be included in these photos.

SF: Sand Filters

- Access.
- Overall view(s).
- Open any available access ports: photograph overall, down, U/S, D/S.
 - Note the chamber where each photo is taken: sedimentation chamber, filter chamber, or clearwell.
- Dewatering drain in the clearwell chamber; it should be closed.
- Outfall structure: overall, down, U/S, D/S.

TF: Tree Filters

- Access.
- Overall view(s).
- Inside the throat. Trash and debris should be clearly documented on the inspection form; they do not always show up well in the photos.
- Inside the top grate.
- Overflow structure / outfall: overall, down, U/S, D/S.

TR: Trenches

This list applies to most infiltration trench facilities. A trench facility with larger perforated pipes and no surface gravel may be inspected as an UG (Underground Detention) facility, discussed next. Such underground infiltration trenches are sometimes abbreviated to as “TRUG” facilities in County documentation, as they combine aspects of both underground detention and gravel trench infiltration. For surface trenches and small on-site residential trenches:

- Access.
- Overall view(s).
- Any surface gravel; scratch or bore to check for sediment build-up below the top layer of gravel.
- Test for gravel below grassed surfaces using the probing rod; photograph this and note the depth at which gravel was detected.
- Observation well(s) or cleanout(s): overall and looking inside. (Note if the cap cannot be removed.)

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- For trenches on residential lots; photograph all easily-accessible roof downspouts. Often the trench is designed to receive flow underground through perforated extensions of the roof downspouts; if the downspouts exit on the ground surface then the trench may not be functioning properly. Compare each facility to its individual design plans.
- Control structure and/or outfall structure: photograph fully if specified on plans.

UG: Underground Detention

- Access.
- Overall view(s).
- Control structure, both the U/S and D/S sides. Get photos overall, looking down, upstream, and downstream, from both sides of the weir wall, if one exists. Especially attempt a close-up of the low-flow orifice, usually at the base of the weir wall.
- Open any other available access ports to the underground chamber or detention pipes: photograph overall, down, U/S, D/S.
- Outfall structure: overall, down, U/S, D/S.

VS: Vegetated Swales

- Access.
- Overall view(s).
- Swale, looking U/S and D/S.
- Check dams, as specified on plans.
- Curb cuts or other inflows.
- Plantings.
- Outfall and control structures, if specified.

WL: Constructed Wetlands

- All items listed for ponds.
- Photograph and note wetland vegetation as compared to the facility planting plan and detail enhanced maintenance features (micropools, forebays, etc.) within the pond floor.

4.3 Possible Illicit Discharges / Public Hazards

While in the field inspectors may notice indication of possible illicit discharges. Illicit discharges are flows that look or smell unusual, oil or grease stains, or human activities such as dumping. If the inspectors notice something indicative of an illicit discharge, or something otherwise unusual that they think warrants special investigation, then they should call the Fairfax County High Risk Runoff/Illicit Discharge and Improper Disposal (IHRR/IDID) staff directly at 703-324-5500 from the field to report what they see.

The inspectors may also notice conditions that represent public safety hazards: actively failing dam embankments, fall hazards, or missing/loose manhole covers. **Any condition that presents an active hazard to the public should be immediately phoned in to MSMD.** The area should also be marked off with stakes and flagging, if possible.

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4.4 Field Documentation

The inspector should always plan to spend a few minutes per facility at the end of the day to review documentation for possible omissions.

At the completion of each field day the inspectors should download and process the photos for all facilities:

1. Download the photos from the camera to your computer.
2. Rotate and lighten the photos as needed.
 - a. All photos should appear upright on the computer screen.
 - b. Proper lightening using photo-editing software can bring out a lot of details that may not otherwise be visible in under-lit underground photos.
3. Sort the photos by site and facility ID.

Then the inspectors should check and complete the documentation for each facility as follows:

1. Go through the photos for each facility, comparing them to the photo log.
 - a. Delete blank or duplicate photos, updating the photo log as needed.
 - b. Look for deficiencies that were not visible or missed in the field, such as spalling on the interior of structures or pipe separation on the inside of a pipe, scoring them on the inspection form accordingly.
2. Review all marked inspection items, checking that the photo numbers on the inspection form are correct.
3. Count the number of deficiencies scored "1", "2", and "3" and fill in the appropriate space(s) at the top of the inspection form.
4. Score the facility as a whole as "Functional" or "Non-Functional."

5 Public Report Submittal

The public facility report is intended to provide the MSMD with an understanding of maintenance items for each facility. The following submittal items are required for publicly owned and operated facility inspections:

- Electronic document submittal on the J:\ drive.
- Infor-EAM™ updates.
- Work order scope of work narrative.

Refer to the Field Measurements and Work Order Preparation document for more detailed information on developing and delivering the work order narrative. The other public submittal components are detailed below. No hardcopy submittal is required for regular inspections of publicly-maintained facilities.

5.1 Public Facility Electronic documents

The electronic documents, listed below, should be grouped into a folder named by the facility ID and the date. For example, the inspection for 1492DP from 4/15/2013 would be filed in a folder named 1492DP_2013-04-15_Inspection. The folder will *eventually* be saved under the Photos & Inspections folder for that facility, as shown below in Figure 1, but for submittal should be filed in the photo dropbox, J:\STWSWM_Branch_Assets\Main\PublicInspections_DropBox.

- Scanned inspection form.
- Scanned photo log.
- JPG photo files.

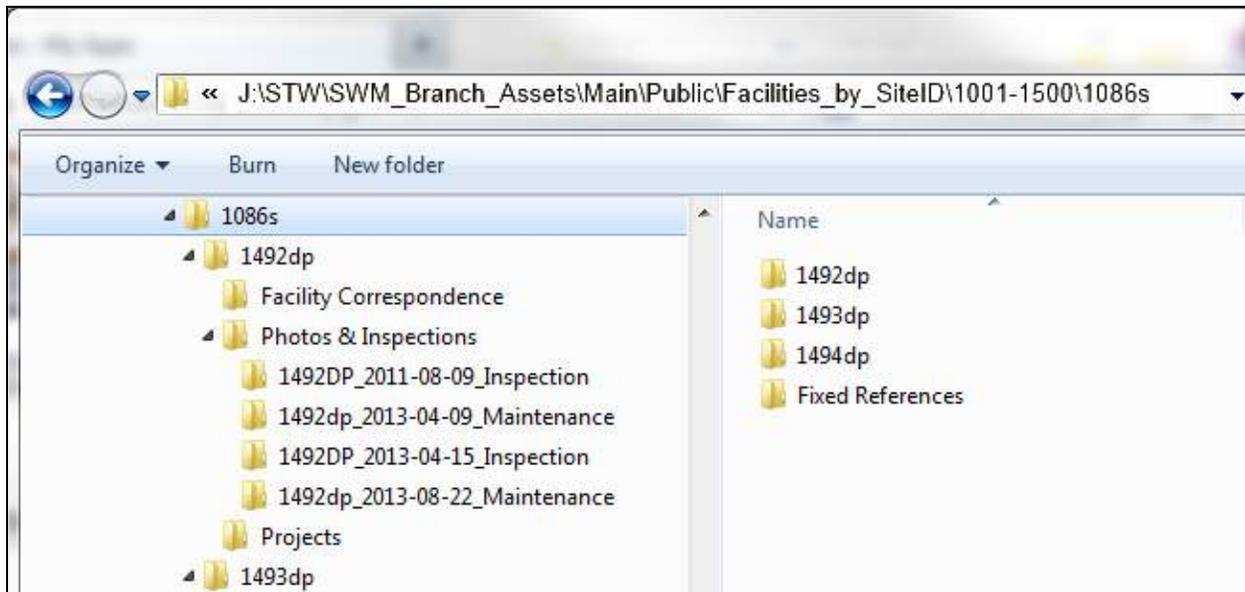


Figure 1-Illustration of folder naming conventions for public inspections, using facility 1086S / 1492DP as an example.

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5.2 EAM updates

Update the following fields in Infor-EAM™ as detailed below for each inspected facility:

- Last Inspection Date: date of the inspection.
- Previous Inspection: cut the value that was in the Last Inspection Date field and paste here.
- Inspection Team: county inspectors enter their initials; contractors enter their company's initials.

Occasionally the Infor-EAM™ Comments tab or the Access Comments field may need to be updated as well, based on special conditions that the inspectors find in the field.

6 Private Inspection Reporting

Report development is a much more lengthy process for the privately owned and operated facilities than for the public facilities. The private facility report is intended to make the maintenance issues clearly understandable to a layperson, the facility owner, and at the same time adequately convey to that person that maintenance of that facility is required. The most important parts of the private inspection report are the condition assessment report (CAR) and the related photos with captions, as these are where the inspection results are directly shown. Other documents will be attached later to fill out the report; the entire completed bundle must be consistent in conveying the facility's maintenance needs to the owner.

6.1 Photos, with Orientation Sketch and Captions

A photo log for each facility inspected must be prepared and submitted with the reports and includes a facility sketch and applicable photos as described above in Section 4.2 - 4.2 Photo **LOG**. This photo log is the same for both public and private inspections. However, the photo log for private inspections is not sent to the private facility owner. Instead, the photos with their captions are presented in a clearly readable format that will help guide the owner to a clear understanding of the facility layout and maintenance items.

A sketch and photos taken of the facility are inserted into a Microsoft PowerPoint template which is found at *J:\STW\SWM_Branch_Assets\Main\Private\Templates\Standard Photos Template with sketch.ppt*. Copy the template from the location above and paste it into the facility specific folder and edit it there; **do not make changes directly to the template**. The final document should be named with the naming convention: SiteID_FacilityID_PHOTOS.ppt.

The template is formatted to allow for a facility sketch on the first page and four (4) photos to fit on each subsequent page with a caption for each photo as depicted below in Figure 0- and Figure 3-. Upon completing this activity the following should be modified for each facility:

- Update the header on each slide to show the correct site ID, facility ID, and inspection date (using Find / Replace All can help with ensuring that all headers throughout the document are updated).
- Create or insert an Orientation Sketch of the facility on the first page of the PowerPoint.
- Add a caption to each photo providing a complete description of each photograph's subject, the general direction in which the photo was taken, and a description of any observed deficiencies. Deficiencies may be circled or otherwise highlighted on the photos if they are not easily visible to a layperson.

As provided above, the first page of the PowerPoint template is reserved for the facility sketch. The sketch must be easily-read, with enough surrounding details (e.g., buildings, roads, parking lots) to orient the reader. All facility components referred to in the later photo captions must be so labeled on the sketch. The facility itself must also be clearly outlined and labeled. The sketch format is flexible; popular options range from using the sketch tools within

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PowerPoint to using GIS points and labels with aerial Pictometry imagery as the background. For some small facilities you may even use one of the inspection overall photos, if it shows the whole facility and the facility components are easily visible.

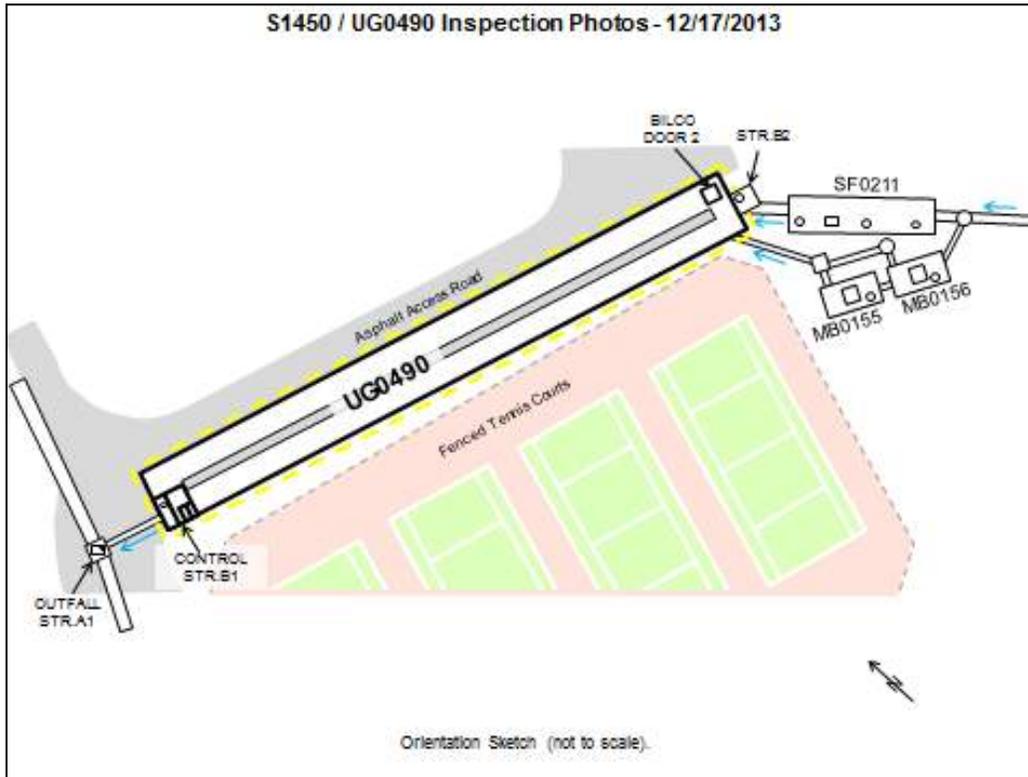


Figure 0-Orientation sketch example generated with the PowerPoint sketch tools.

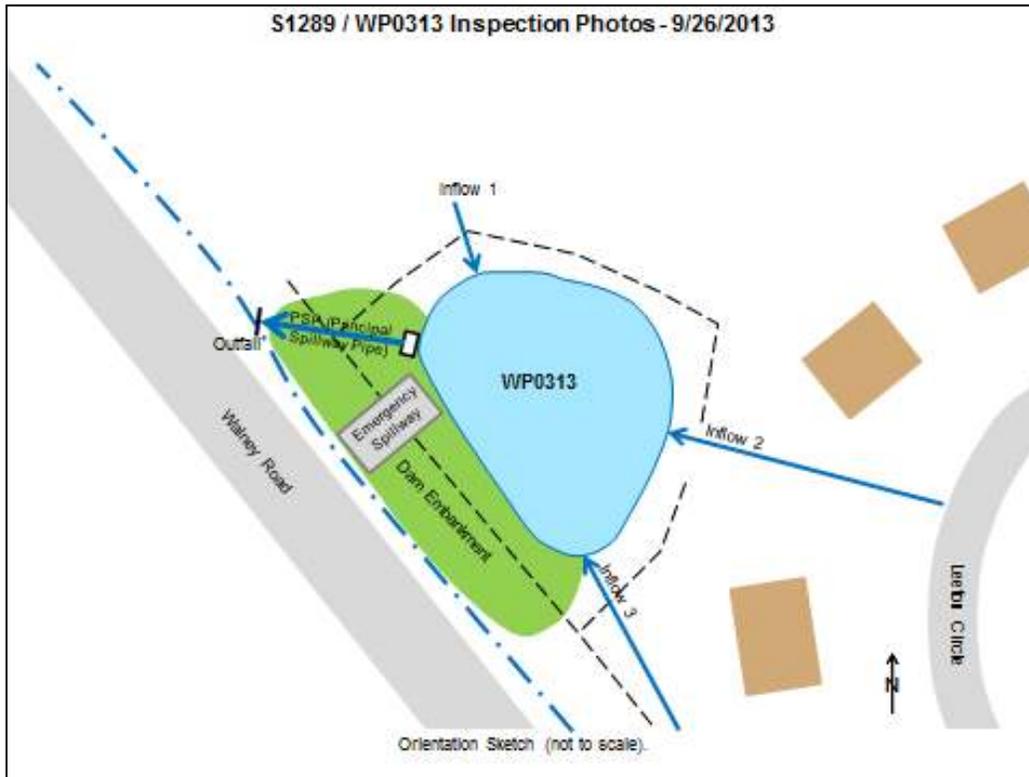


Figure 3-Orientation sketch example generated with the PowerPoint sketch tools.

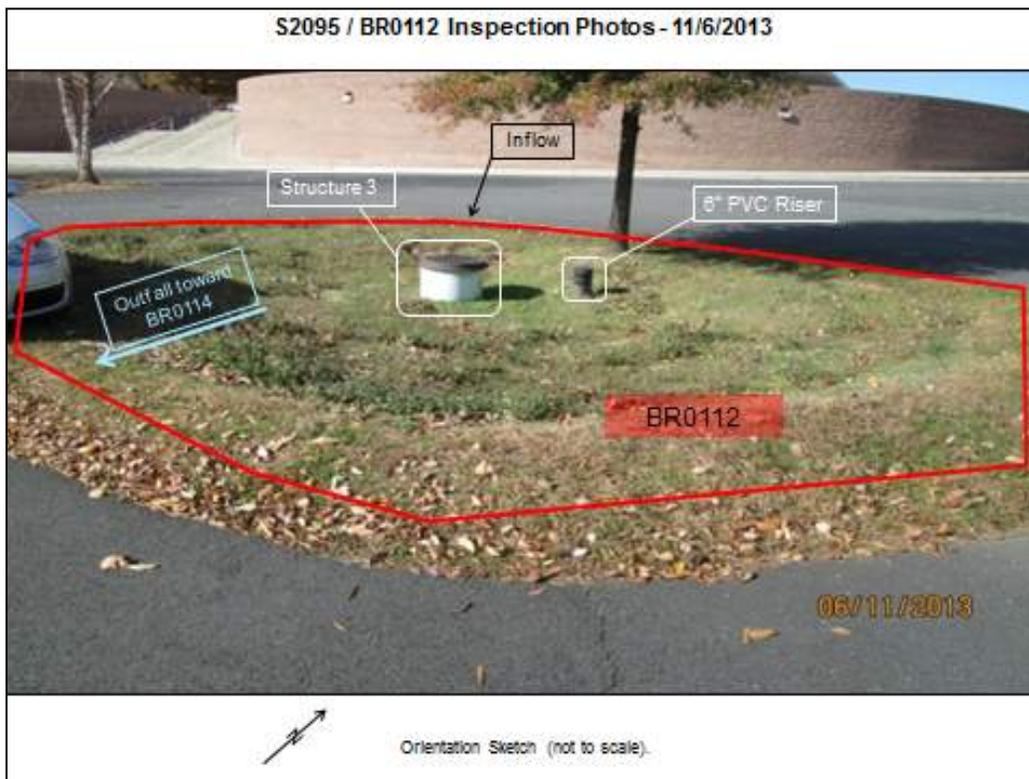


Figure 4-Orientation sketch example using an overall photo of the facility.



Figure 1-Orientation sketch example generated from GIS.

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Here is an example layout showing the standard template of four photos with captions, slide header, and optional highlighting and labeling added.

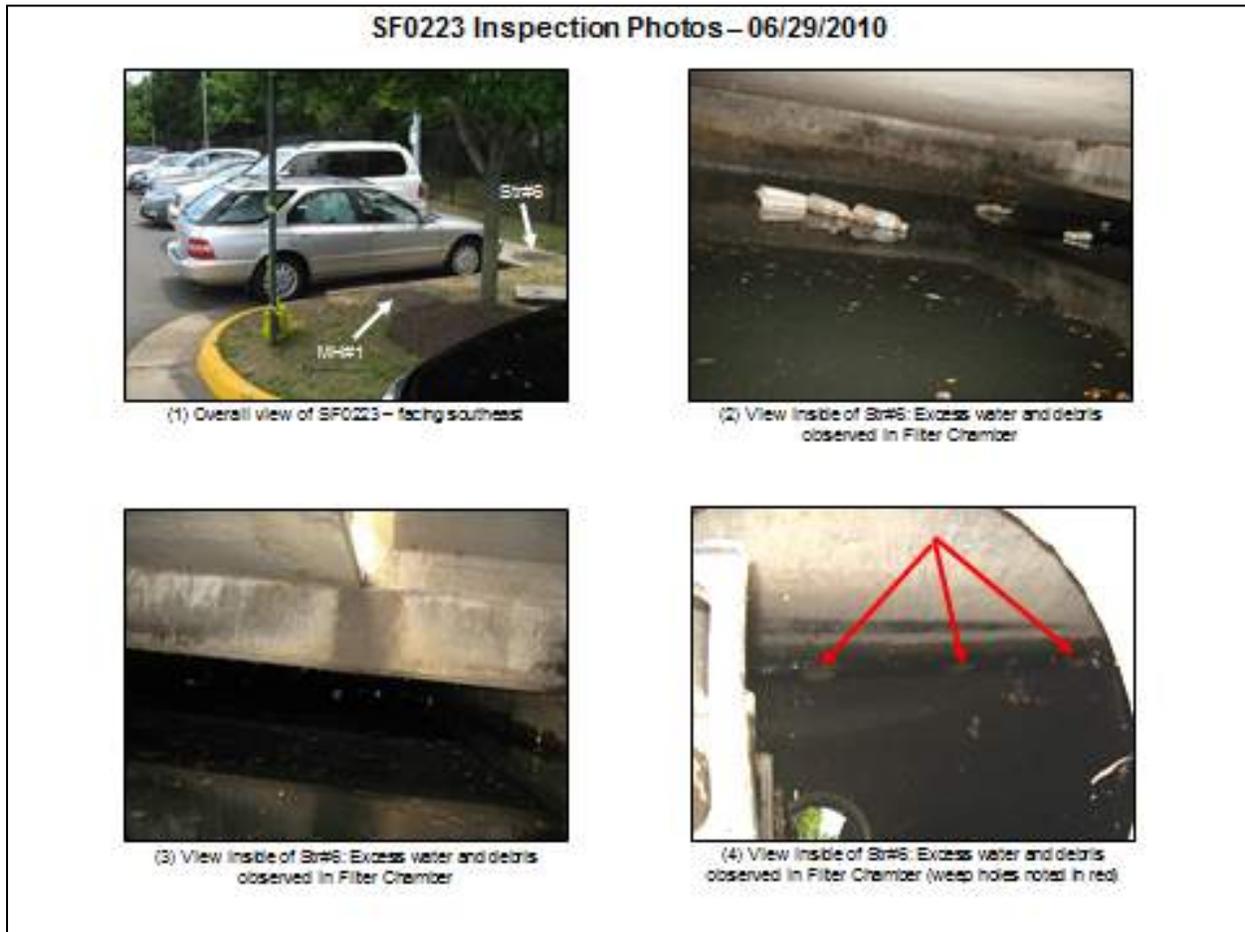


Figure 2-Example PowerPoint PHOTOS slide with captions.

6.2 Condition Assessment Report (CAR)

Standard CAR forms (based on the facility type) can be found at *J:\STWSWM_Branch_Assets\Main\Private\Templates\Condition Assessment Reports*. Each facility type has its own CAR template. Follow the same procedure as for the PHOTOS.ppt template and copy and paste the template to the facility's folder and edit it there. Take care not to make changes to the original template. The final document should be named with the following naming convention: SiteID_FacilityID_CAR.docx. An example completed CAR is shown in Figure 3.

For each facility the following should be completed in the CAR:

1. Fill out the site ID and facility ID at the top each page.
2. For items that require maintenance within each section ...
 - a. Check the box by double-clicking. (NOTE: Hidden text may be viewed using the Show/Hide (¶) button on the toolbar. When Show All is turned on then the hidden text will appear with a dotted underline. Select the bullet-point / paragraph that you want to un-hide, and open the Font dialog box, either from the toolbar or by pressing Control + D. Uncheck the 'Hidden' box to un-hide that text and make it visible for printing.)

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- b. Add the photo number from the PowerPoint presentation (not the JPG number from the photo log), either with italics or with yellow highlighting to make it stand out more. For example: **See photo #2.**
 - c. Add any additional text needed to clarify the problem. Custom text added by the inspectors should be made Italics to differentiate it from standard CAR template text. For example, for missing plants: ***Three (3) trees were specified in the approved facility plan but only one (1) was found on site.***
 - d. Bold the whole item.
3. Some older CAR templates include a “no additional maintenance is needed” item within each section. Check this box if it applies for the section, but do not bold it.
 4. For the first-page summary section, check the boxes summarizing whether maintenance is needed or not for each facility section.
 5. Within the overall facility summary, check the box indicating whether the facility is functional or not and whether maintenance is needed. Bold that entire checked item.

All maintenance items noted on the inspection form should be either included in the CAR or noted as “minor” problems in the photo captions. For example, if some sediment was noted but it was not judged by the inspectors to require cleaning, they may choose to include it in the photo caption: “Minor sediment build-up was noted on some portions of the pond floor.”

The image displays two pages of a 'MANUFACTURED BMP CONDITION ASSESSMENT REPORT (CAR)'. The left page is the front cover, featuring the Fairfax County logo and a 'Summary of Condition Assessment' section. The right page is the back cover, containing a detailed checklist for 'Facility Overall', 'Manufactured BMP Facility', and 'Outfall Structure'. The checklist includes items like 'Not Fully Accessible', 'Signs', 'Maintenance Records', 'Blockage', 'Damage / Deterioration', 'Trash / Debris / Sediment', 'Vegetation', 'Erosion / Bare Spots', and 'Inconsistent with Plans'.

Figure 3-Example Condition Assessment Report.

6.3 Assembling the Report Bundle

Additional items, listed below, need to be attached to the CAR and PHOTOS.ppt to complete the mailing bundle for each site. Note that several of the additional attachments are only needed once per site (rather than for each facility). Those attachments should be included with only the first facility of the site, and then not listed at all on subsequent cover letters. The approved site plan, PMA, tax map, and GIS are usually only needed once per site. One copy of the maintenance guidelines is needed for each type of facility on the site, and should be included with the first facility of that type.

The following are the additional attachments that need to be attached to the report in accordance with the directions provided:

1. *Cover letter*: Standard templates for the cover letter (depending on whether a facility has a PMA or not and whether maintenance is required or not) can be found at *J:\STWSWM_Branch_Assets\Main\Private\Templates\Cover Letter*. Be sure to include the facility ID in both places where it's called for, and check that the header on the second page, and all mail merge fields on the first page are properly updated.
2. *CAR*: discussed in Section 6.2.
3. *Photos with orientation sketch*: discussed in Section 6.1.
4. *Copy of Approved Plans*: found in the electronic Fixed References folder. A discussion of which sheets should be included can be found in the Pre-Inspection Research guide.
5. *Copy of PMA* (if available): found in the electronic Fixed References folder. The PMA and the Maintenance Guidelines are the only documents in the bundle that should be stapled.
6. *Tax Map*: found in the electronic Fixed References folder.
7. *GIS Aerial Photo*: found in the electronic Fixed References folder.
8. *Maintenance Guidelines*: Standard maintenance guidelines for different facility types are saved in *J:\STWSWM_Branch_Assets\Main\Private\Templates\Maintenance Guidelines*. Print these double-sided and staple. Proprietary devices will require manufacturer-provided guidelines which can be found on the manufacturer's website.
9. *Maintenance Activity Report (MAR)*: The MAR should only be included if the facility requires maintenance. A MAR can be found at *J:\STWSWM_Branch_Assets\Main\Private\Templates\Maintenance Activity Report*. The MAR should be printed double-sided; check that the mail merge fields are all updated accurately before printing.
10. *Envelope for Certified Mail*: Each report will require one large mailing envelope, three address labels to the facility owner, two return address labels from MSMD, one certified mail receipt, and one stiff 'green card'. The certified mail receipt and the green card may be obtained from the post office. Figure 8 below shows how to attach the labels to the green card and where to write the site ID and the contractor initials (for contractor reports) so that the card can be properly sorted when it comes back to MSMD. The green card provides proof of delivery. The large envelope should be fully addressed and have both the certified mail receipt and the green card attached prior to submittal.
11. *Brochure*: Include one standard "Owners Guide: Maintaining Your Stormwater Management Facility" brochure in each inspection report envelope.

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Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

Fairfax County, DPWES
Maintenance & Stormwater Mgmt Div
10635 West Drive
Fairfax, VA 22030

(50457-R) Contractor Initials

SENDER: cc

- Complete Item 4 if Registered
- Print your name so that we can identify you
- Attach this card to the front of the envelope

1. Article Address

John D. Owner
12345 Main Street
Anytown, VA 22030

3. Service Type

<input checked="" type="checkbox"/> Certified Mail	<input type="checkbox"/> Express Mail
<input type="checkbox"/> Registered	<input type="checkbox"/> Return Receipt for Merchandise
<input type="checkbox"/> Insured Mail	<input type="checkbox"/> C.O.D.

4. Restricted Delivery? (Extra Fee) Yes

2. Article Number
(Transfer from service label) 7010 1670 0000 8115 9853

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

Figure 4-Filling out the green card for a certified mailing.

All items for each facility should be clipped together in the order stated on the cover letter for that facility, and then the facilities for each site clipped together to the envelope. Clips for the reports should be kept to the top and left of the bundle, allowing for easy flipping through the pages to stamp and sign the cover letters.

6.4 Inaccessible Facilities

In some instances the inspection will not be able to be completed due to access issues or for other reasons that may not be able to be worked out with the owner verbally or through email prior to the inspection. In those cases a special cover letter should be used, following the “COVER LETTER – No Inspection” template. The completed letter should include the reason why the inspection could not be performed and any additional information needed, such as meeting the inspectors on site with a key or removing heavy vegetation that is blocking access to the facility.

Most report attachments are optional for the special no-access reports. A CAR is generally not included, but any available photos should be included. Including the GIS print and/or tax map may also be helpful.

6.5 Report Quality Assurance/Quality Control (QA/QC)

A final check of the report is recommended for quality assurance/quality control (QA/QC) of the entire package including individual report components to help confirm both the maintenance items marked and the report's overall wording and formatting. This final step provides one last opportunity to QA/QC the report before it is mailed to the owner.

Adhere to the following procedure for performing QA/QC on forms and documents completed by the field team as part of their inspection:

- Check that all of the documents are for the correct facility ID and appear to be formatted correctly.
- Read through all checked maintenance items and photo captions, checking for wording mistakes or inconsistencies.

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- All maintenance problems visible in the photos are also noted in the captions and the CAR and are clearly described.

Any corrections should be made and the final package prepared for submittal.

6.6 Private Report Submittal

Once all changes have been made to the inspection package, the package should be submitted to the proper staff at MSMD for review and signature, as detailed below. Simultaneous to the hardcopy submittal should be the electronic updates - submittal of the electronic documents, updating Infor-EAM™ and updating of the inspection tracking spreadsheet.

Electronic Documents

At the time of package submittal, the electronic inspection files for the privately maintained facilities must be filed by site ID and facility ID, in the facility's Inspection folder, by inspection year. For each inspection year, a "Photos" and "Report" folder should be created. The "Photos" folder will store all the photos (JPG files) and the photo log while the "Report" folder will house all other documents and files related to that year's inspection, including the owner's response (MAR) to it. Figure 5 and Table below provide more information on electronic file organization and naming.

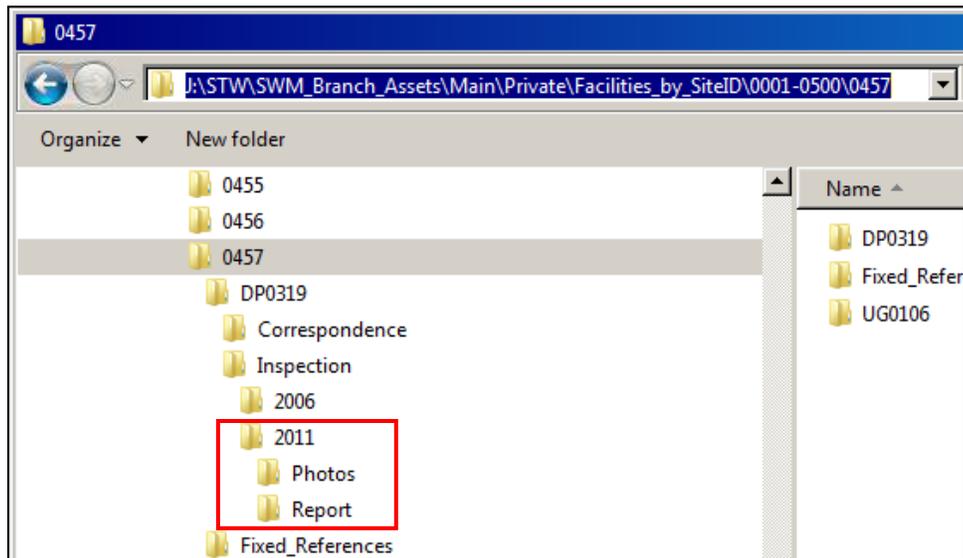


Figure 5-Where to save the inspection files, for example for the 2011 inspection of S0457 / DP0319.

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Table 6- Naming conventions for private inspection files

File	File Name	File Location
Inspection Form	SiteID_FacID_INSPECTION-FORM.pdf	Report
Cover Letter	SiteID_FacID_COVER.doc	Report
	SiteID_FacID_COVER.pdf (signed letter, scanned after submittal and mailing as the start of the Follow-up tracking work)	
CAR	SiteID_FacID_CAR.doc	Report
PowerPoint	SiteID_FacID_PHOTOS.ppt	Report
MAR	SiteID_FacID_MAR.doc	Report
Inspection Photos	SiteID_FacID_PHOTO_###.jpg	Photos
Photo Log	SiteID_FacID_PHOTO-LOG.pdf	Photos

Infor-EAM™ Updates for Private Facilities

At the time of package submittal, the following Infor-EAM™ updates must be completed for the inspected facility. The Maintenance Required field is only required for the private facility inspections, and the Previous Inspection Comments is optional.

- Last Inspection Date: date of the inspection.
- Previous Inspection: cut the value that was in the Last Inspection Date field and paste here.
- Inspection Team: county inspectors enter their initials; contractors enter their company's initials.
- Maintenance Required: yes or no.
- Previous Inspect Comments (optional): up to 40 characters describing the facility's current condition.

Occasionally the Comments tab or the Access Comments field may need to be updated as well, based on special conditions that the inspectors find in the field.

Entering the "CAR Cert Mail Sent" date begins the follow-up tracking process.

Inspection Tracking Spreadsheet

At the time of package submittal the private inspection tracking spreadsheet must be also updated. Private inspection tracking spreadsheets are to be saved in *J:\STW\SWM_Branch_Assets\Main\Private\Maintenance Tracking*. For each year the county has a spreadsheet and each contractor has a spreadsheet.

The tracking spreadsheet must be updated to include the following inspection and follow-up items for each facility:

- Site ID
- Facility ID
- Inspection Task Order (for contractors only)
- Inspection Date
- Comments related to this inspection / follow-up
- Is maintenance required? (Yes / No)
- MAR Received Date
- For the Report, 45-Day-Letter, and 90-Day-Letter...
 - Date Submitted to MSMD (for contractors only)
 - Date Mailed
 - Date Received
 - 45 days after receipt date, when the next letter may be submitted
- Date submitted to Enforcement

The following additional fields are optional:

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- Plan Name and Plan Number
- Tax Map information
- PMA with Deed Book / Page
- Comments by MSMD Staff (for contractors only)
- Maintenance Needs Summary (useful for checking later owner responses)
- Follow-up Closed Date

As part of the private report submittal, the Inspection Date, Maintenance Needed, and Report Submitted Date should be updated in the appropriate inspection tracking spreadsheet. The next step, follow-up work will be detailed in a separate document.

7 Sample Bioretention Facility Inspection Form

Bioretention Inspection Form										Inspector: _____	
Fairfax County Maintenance and Stormwater Management Division										Date: _____	
Site ID: _____		Facility ID: _____		Facility Name: _____		Coordinates / Parcel: _____		District: _____		Date: _____	
Address: _____		Watershed: _____		Non-Functional: _____		Functional: _____		Any Rating: _____		Priority: _____	
Score Total: _____		1		2		3		4		5	
Notes / Specifications: _____											
Bioretention Type: _____											
Signs											
SCORE	PHOTO	DESCRIPTION				Weather Conditions		COMMENTS / DIMENSIONS			
0-5	0	Facility Sign				Last Rainfall Date: _____		Amount: _____			
0-5	0	Facility Labeling				Current weather condition? _____					
Ponding Area											
SCORE	PHOTO	DESCRIPTION				Weather Conditions		COMMENTS / DIMENSIONS			
0-5	0	Access				Observed: _____		Specified: _____			
0-5	0	Basin Area				Observed: _____		Specified: _____			
0-5	0	Ponding Depth				Observed: _____		Specified: _____			
0-5	0	Trash / Debris / Sediment				Description / Volume: _____					
0-5	0	Health Cover (2" min.)				Area: _____					
0-5	0	Bare Spots				Area: _____					
0-5	0	Erosion				Area: _____					
0-5	0	Exposed Filter Fabric				Area: _____					
0-5	0	Standing Water in Basin				Area: _____					
0-5	0	Other: _____									
Plant Material											
0-5	0	Tree Missing				# Observed: _____		# Specified: _____			
0-5	0	Shrub Missing				# Observed: _____		# Specified: _____			
0-5	0	Grass / Groundcover Missing				# Observed: _____		# Specified: _____			
0-5	0	Unhealthy / Damaged				# Observed: _____		# Specified: _____			
0-5	0	Overgrown / Invasive Vegetation				Area: _____					
0-5	0	Other: _____									
Observation Well / Cleanout(s)											
0-5	0	Access									
0-5	0	Missing									
0-5	0	Cap Missing									
0-5	0	Damaged									
0-5	0	Water / Sediment Observed in Well									
0-5	0	Vegetation / External Obstructions									
0-5	0	Other: _____									
Upstream Inflow(s)											
SCORE	PHOTO	DESCRIPTION				Inflow Type: _____		COMMENTS / DIMENSIONS			
0-5	0					Pipe Size: _____					
0-5	0					Structure #: _____					
0-5	0	Access									
0-5	0	Trash / Debris / Sediment Removal									
0-5	0	Blockage				($\text{D} = 25\% + \text{D} = 75\% + \text{D}$)					
0-5	0	Damage / Deterioration: Spalling, Joint Separation									
0-5	0	Erosion / Undermining									
0-5	0	Overgrown Vegetation / Tree Removal									
0-5	0	Other: _____									
Pre-Treatment / Energy Dissipators											
0-5	0	Erosion				Area: _____					
0-5	0	Bare Spots / Exposed Filter Fabric				Area: _____					
0-5	0	Trash and Debris									
0-5	0	Sediment Deposition									
0-5	0	Overgrown / Unauthorized Vegetation									
0-5	0	Dissipator Condition									
0-5	0	Other: _____									
Dam / Berm and Overflow Spillway											
SCORE	PHOTO	DESCRIPTION				COMMENTS / DIMENSIONS					
0-5	0	Top Soil Spots									
0-5	0	Cave-In / Piping									
0-5	0	Erosion				Area: _____					
0-5	0	Bare Spots				Area: _____					
0-5	0	Tree Removal				Number / Size: _____					
0-5	0	Overgrown Vegetation									
0-5	0	Animal Holes									
0-5	0	Other: _____									

Bioretention Inspection Form										Page 2	
Site ID: _____		Facility ID: _____		Facility Name: _____		Coordinates / Parcel: _____		District: _____		Date: _____	
Control Structures											
SCORE	PHOTO	DESCRIPTION				COMMENTS / DIMENSIONS		Str #:			
0-5	0	Access									
0-5	0	Trash / Debris / Sediment									
0-5	0	Damage / Deterioration: Spalling, Joint Separation									
0-5	0	Erosion / Undermining									
0-5	0	Other: _____									
Flow Restrictor											
0-5	0	Missing									
0-5	0	Blockage				($\text{D} = 25\% + \text{D} = 75\% + \text{D}$)					
0-5	0	Damaged									
0-5	0	Other: _____									
Trash Rack											
0-5	0	Missing									
0-5	0	Blockage				($\text{D} = 25\% + \text{D} = 75\% + \text{D}$)					
0-5	0	Damaged									
0-5	0	Other: _____									
PSP and Underdrains											
SCORE	PHOTO	DESCRIPTION				UNDERDRAINS		PRINCIPAL SPILLWAY PIPE			
0-5	0	Specified in Plans									
0-5	0	Access									
0-5	0	Missing									
0-5	0	Trash / Debris / Sediment Removal									
0-5	0	Blockage				($\text{D} = 25\% + \text{D} = 75\% + \text{D}$)					
0-5	0	Damage / Deterioration: Spalling, Joint Separation									
0-5	0	Erosion / Undermining									
0-5	0	Overgrown Vegetation / Tree Removal									
0-5	0	Downstream Channel Condition									
0-5	0	Other: _____									
Outfall											
SCORE	PHOTO	DESCRIPTION				COMMENTS / DIMENSIONS		Str #:			
0-5	0	Access									
0-5	0	Trash / Debris / Sediment Removal									
0-5	0	Blockage				($\text{D} = 25\% + \text{D} = 75\% + \text{D}$)					
0-5	0	Damage / Deterioration: Spalling, Joint Separation									
0-5	0	Erosion / Undermining									
0-5	0	Overgrown Vegetation / Tree Removal									
0-5	0	Downstream Channel Condition									
0-5	0	Other: _____									
Other											
SCORE	PHOTO	DESCRIPTION				LOCATION					
0-5	0	Erosions/Scuffs									
0-5	0	Modifications									
0-5	0	Woodpile Habitat									
0-5	0	Evidence of Possible Illot Discharge									
INSPECTOR COMMENTS											

Field Measurements and Work Order Preparation

November 2015

Prepared by:



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Field Measurements and Work Order Preparation

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1 Introduction

The overall purpose of this effort is to produce a scope of work narrative for distribution to either in-house maintenance crews or the general contractor(s) responsible for performing non-routine maintenance work orders. This scope of work narrative will be attached to the Work Order prepared by MSMD staff and will be distributed to those responsible for completing non-routine maintenance on public ponds. The scope of work narrative will specify the required maintenance items, and will include a brief description of the work to be performed with supporting photographs from the visual inspection. Using the scope of work narrative, the maintenance crew will then prepare and submit a cost proposal to MSMD to complete the necessary maintenance for each pond. A blank work order scope of work narrative may be found in Appendix A.

A visual inspection of each pond will identify the required non-routine maintenance items required for each facility. The role of the engineering contractor in this effort includes the collection of field measurements for each maintenance item identified during the visual inspection, the preparation of the scope of work narrative, and the completion of a cost estimate based upon the measurements gathered in the field. Each component for this effort is discussed further in the subsequent sections of this document. The overall goals of this document include the following:

1. to standardize the methodology for collecting field measurements during public facility visual inspections;
2. to standardize the methods for converting the raw field data to line item descriptions included in the scope of work narratives;
3. to standardize the procedure amongst all engineering contractors involved in the inspection process in order to produce a uniform method of relaying information to MSMD staff and the maintenance team; and,
4. - to develop a standard operating procedure in an effort to streamline the identification, documentation, and completion of non-routine maintenance on public ponds.

2 Collection of Field Measurements

The first goal of this document is to standardize the methodology for collecting field measurements. This section identifies the key measurements for each inspection item and outlines the procedure for collecting such measurements in the field. Items of note beyond basic measurements that may affect the ultimate maintenance costs are also discussed in each sub-section. While the following sub-sections attempt to outline the standard practice for collecting field measurements, inspection crews should adhere to this process to the extent feasible. Inspection crews should use sound judgment while in the field to adjust the procedure as necessary to ensure a complete and accurate estimate may be derived from the field data. **It should be reiterated that all measurements and field practices must conform to Fairfax County's Confined Space Entry procedures; at no time under the Public Inspection Program should inspection crews enter a confined space or 'break the plane' of a confined space.**

In an effort to reduce clutter on the inspection forms, field measurements should not appear on the form. Field measurements should be noted separately for incorporation into the scope of work narrative later. These additional field notes may be scanned and uploaded to the facility asset folder along with the inspection forms if deemed necessary by the engineering contractor. Simple measurements (areas, lengths, etc.) that are self-explanatory need not be uploaded for each facility; however, if measurements include calculations, assumptions were made in deriving the final measurements, or if non-standard items were included in the data, a scanned copy of the field notes should be uploaded for future reference. The scanned document should be uploaded to the facility asset folder and saved under the following naming convention: SITEID_FACILITYID_FIELD-NOTES.pdf.

Field Measurements and Work Order Preparation

Field work should be limited to obtaining the field measurements only. The derivation of areas, volumes, etc. required to prepare the scope of work narrative should not be performed in the field. Refer to Section 4 of this document for further discussion on the conversion of the field measurements to data to be used in the preparation of the scope of work narrative and cost estimate.

2.1 Site Accessibility

The removal of anything impeding access to the facility should be included in the scope of work narrative and measured in the field, as long as it falls under the County's responsibility. The most common examples of this include trash and debris (e.g. fallen trees). Other examples include sediment deposition from nearby erosion, damaged or broken access gates, and failed/deteriorated road surfaces. Based upon field conditions, inspection crews should ensure adequate measurements and descriptions of the item(s) requiring removal on a case-by-case basis. Examples of such measurements may include the following: the approximate size of a fallen tree; the total volume of trash, debris, and/or sediment; the area and depth of a damaged access road; or, the type, length, and height of a fence (or similar obstruction).

Examples of accessibility issues that would be noted on the inspection form but would not be the County's responsibility (i.e. the County's cost) include construction debris from a nearby private project or private vehicles parked in a manner that blocks access. In such cases, the access issues will be documented and the County will be notified, but the item(s) should not be included in the scope of work narrative.

2.2 Structure Accessibility

Specific items pertaining to structure accessibility are discussed in detail in subsequent subsections.

2.3 Facility Sign

Missing facility signs shall be recorded on a per sign basis and the measurement should include whether or not a post exists in the field. Damaged posts and/or signs should be deemed to be replaced as determined by the inspection crew based upon field conditions.

[Note: All public facilities require a minimum of one (1) facility sign with the facility ID and watershed label. The available plans of record should be reviewed to determine whether or not additional signs were shown to be installed in the field. Ponds may include additional facility signs for large ponds, ponds with multiple access points, water quality management area signs, reforestation signs, etc.]

2.4 Facility Labeling

No measurement/estimate is required for this item.

Facility and watershed labeling is included in a separate maintenance process and will not be included in the scope of work narrative.

2.5 Riser Structure – Pad Lock Missing

No measurement/estimate is required for this item.

The replacement/furnishing of missing pad locks and chains is included in a separate maintenance process and will not be included in the scope of work narrative.

Field Measurements and Work Order Preparation

2.6 Riser Structure – Trash Rack Missing

The top trash rack, low-flow trash rack, or both may be missing from a riser structure. When a detail of the missing trash rack is included in the plan of record, these dimensions should be used and included in the preparation of the scope of work narrative. For facilities that lack a specified trash rack design, sufficient information for use in the fabrication of an appropriate trash rack should be obtained.

The following field measurements/observations will apply:

Top Trash Rack: geometry of riser structure (square, circular, etc.); dimensions of riser structure (length by width, diameter, etc.); any irregular shape, design, weir, etc.; is an anti-vortex device to be included; etc.

Low-Flow Trash Rack: orifice size and shape; available surface area to attach trash rack (e.g., width and height of head wall); will trash rack attach to flat surface (headwall, rectangular riser) or curved surface (circular riser); width/length of concrete apron; width/height/geometry of trickle ditch; etc.

2.7 Riser Structure – Spalling

The deterioration of concrete (spalling) is repaired through parging. Field measurements of the total surface area to be parged (length by width) should be taken for minor or superficial deterioration. For major spalling (deep cracking, structural failures, holes, crumbling, etc.) the depth of the area to be parged should also be measured.

2.8 Riser Structure – Joint Failure

Joint failure is similar to spalling and will be repaired through parging for concrete structures and/or pipes. The length of failure and gap width should be measured.

2.9 Riser Structure – Anti-Vortex Condition

This item applies to facilities that are missing an anti-vortex device. Typically, this only applies to dry and/or wet ponds with a circular riser structure, but the plans should be reviewed in all cases to determine whether or not an anti-vortex device is required. In cases where the riser's trash rack is present, but missing the anti-vortex device, the available height, width, and span of the area for the anti-vortex device should be measured. If there is no trash rack present, the dimensions for the trash rack should account for the inclusion of an anti-vortex device.

2.10 Riser Structure – Trash Rack Blockage

The removal and disposal of trash rack blockages will typically be estimated on a per facility basis. For typical blockages, inspections crews need only to note that there is a blockage to be removed. For facilities with an unusually large amount of debris causing the blockage, inspection crews should obtain an approximate volume of the blockage and include a short description of the type and condition of the material to be removed. This will help ensure additional trips to the pond to obtain necessary field measurements are avoided.

2.11 Riser Structure – Orifice Blockage

Orifice blockages should be measured and estimated in the same manner as trash rack blockages. Small blockages may be measured on a per facility basis. For large blockages, field measurements should be taken to obtain the total volume of material to be disposed. Additional items of note to consider include whether or not the facility will require dewatering operations in order to facilitate the removal of the orifice blockage. Additional items of note should be considered on a case-by-case basis as warranted by field conditions.

Field Measurements and Work Order Preparation

2.12 Riser Structure – Top Trash Rack Blockage

Measurements associated with top trash rack blockages should be performed in the same manner as Subsection 2.10.

2.13 Riser Structure – Manhole Condition

Any maintenance issues associated with a riser structure's point of access should be documented. While most commonly a standard manhole, access may also be in the form of Bilco Doors or custom design access doors. Damage may include a loose or damaged collar, a damaged or missing lid, or, in the case of Bilco Doors, a broken or damaged hinge. Measurements for these items should be item appropriate and include sufficient details to fully develop a scope of work. The total number of items should be noted as well as specific measurements as appropriate. For example, the field notes may include quantitative and qualitative descriptions such as: "Replace one (1) 4' diameter manhole lid", "Repair one (1) 5' diameter loose manhole collar", or "Repair four (4) 4"x8" steel hinges".

[Note: Notify MSMD staff immediately in all cases of missing or damaged manhole lids. MSMD staff will determine whether or not the work associated with the repair/replacement should be included in the scope of work narrative or will be performed by MSMD personnel (and, therefore, not included in the scope of work narrative)]

2.14 Riser Structure – Inside Riser Blockage

The total volume of material/debris to be removed from the structure should be measured in the field. However, due to the fact that the Public Inspection Program prohibits confined space entry, obtaining accurate measurements may prove difficult. Every effort should be made to obtain accurate estimates of the material(s) causing the blockage while ensuring inspection crews do not break the plane of the confined space. Tape measures should be used when feasible to determine the amount of material present (length of debris, depth of sediment, etc.). Existing features such as pipe diameters, riser diameters, etc. may be used to approximate the amount of material present, either through field measurements or the available plans of record. Visual observation of the blockage may be used to approximate the amount and/or type of material to obtain an acceptable estimate (for example, inspection crews may be able to visually estimate that eight (8) pieces of VDOT Class I rip-rap are inside the riser). Inspection crews should use their best judgment to obtain the most accurate measurements possible.

2.15 Riser Structure –Vegetation/External Obstructions

Vegetation and external obstructions that impede access to the riser should be estimated in an appropriate manner on a case by case basis. Standard measurements (length, width, height) of structural obstructions (e.g. walls, fences, etc.) should be taken, as well as any related observations that may affect the removal of such items. For example, nearby underground utilities, access issues, or significant footers that require equipment for their removal may affect the cost of a simple fence. In cases of external vegetation causing the obstruction, the condition, type, and amount of vegetation present should all be noted. The number and size of shrubs and trees should be noted and the diameters/heights of each measured. For additional information on the measuring of trees to be removed, please refer to Subsection 2.34.

[Note: It is important to distinguish between routine and non-routine maintenance in this instance. Routine maintenance for pond facilities should include the removal of woody stock, brush, and trees up to 2" in diameter from around all critical structures. Vegetation/external obstructions of the riser structure falling within this threshold should not be included in the scope of work narrative. MSMD staff should be notified through the mowing QC process and the obstructions should be removed under the standard Mow Package work.]

Field Measurements and Work Order Preparation

2.16 Riser Structure – Ladder/Steps Condition

Measurements associated damaged or missing ladders and steps include the following: total number of steps to be repaired and/or replaced; height and type of material of ladder; and, whether or not the ladder/steps are external to the structure or internal to the structure (and, therefore, require a confined space entry).

2.17 Riser Structure – Other

Any other non-routine maintenance items associated with the riser/control structure are included within this section. Field measurements (and the associated units of measurement used) should be appropriately selected based upon similar subsections discussed herein.

2.18 Principal Spillway Pipe – Spalling

Measurements associated with spalling on the Principal Spillway Pipe (PSP) should be performed in the same manner as Subsection 2.7.

2.19 Principal Spillway Pipe – Blockage

Blockages of the PSP should be measured in total volume of material to be removed and disposed. For small blockages at the end of the pipe, the volume may be estimated through direct measurements or visual observation. For example, an inspection crew may be able to measure the amount of sediment by sticking a tape measure within the pipe or estimating the amount of rip-rap observed. Field measurements for the diameter, length, and depth of material should be used when feasible. When field measurements are not feasible or attainable, information from the plans of record should be utilized. Only when no other information is available should pipe measurements be estimated. Similar to other items, field observations should also describe the type and condition of the material causing the blockage.

2.20 Principal Spillway Pipe – Joint Failure

Measurements associated with PSP joint failure should be performed in the same manner as Subsection 2.8.

2.21 Principal Spillway Pipe – Misaligned Joints

Inspection crews must first identify the degree of misalignment in order to determine the appropriate method of repair. Minor misalignment of joints (scored as a 3) may be repaired through parging. When possible, the width of the gap and diameter of the pipe should be measured. For those joints located within a confined space that preclude direct measurement, the total number of misaligned joints should be noted and estimates of the gap width provided to the fullest degree possible. *[Since the misalignment in this case is within the PSP, it is important to note that in order to qualify as minor and be repaired through simple parging, the flow of water must not be impeded by the misaligned joints.]*

Misaligned joints may be categorized as major (scored as a 2 or 1) because they either impeded the flow of water or the gap between the two pipe segments exceeds 3". Repair to correct these misaligned joints require substantial work. Field measurements required in these instances include the diameter of the pipe, the length of the misalignment (size of the gap), depth of the pipe/amount of backfill, and the segment length of the pipe on downstream end of the misalignment. Any other information that could prove useful to determine the cost to correct the misalignment should be included in the field measurements.

Field Measurements and Work Order Preparation

2.22 Principal Spillway Pipe – Separation

Separation within the PSP must first be identified in the field as minor (scored as a 3) or major (scored as a 2 or 1). Separation may be classified as minor if the separation gap is less than 3” and the separation occurred along the longitudinal axis of the pipe (i.e. the pipe has only pulled apart in a longitudinal manner so that both pipes are still at the same slope and there is no vertical drop between the pipes observed). In this case, the diameter of the pipe, the separation distance (gap), and pipe material should be noted when possible. For those joints located within a confined space that preclude direct measurement, the total number of misaligned joints should be noted and estimates of the gap width provided to the fullest degree possible.

Major separation occurs when one or more of the following conditions occur: the separation is greater than or equal to 3”; the pipes have separated vertically as well as longitudinally (i.e. there is a vertical drop across the pipes and the two pipes are now laying at different slopes); failure of the system is imminent; or additional deficiencies are present as a result of the separation (examples of this include a cave-in above the pipe or evidence of undermining beneath the pipe). Field measurements need to provide sufficient information to repair the deficiency based upon field conditions. These measurements include the PSP diameter, pipe material, downstream pipe segment length, separation distance (gap), and amount of backfill over the pipe.

2.23 Principal Spillway Pipe – Other

Any other non-routine maintenance items associated with the PSP are included within this section. Field measurements (and the associated units of measurement used) should be appropriately selected based upon similar subsections discussed herein.

2.24 Outfall Downstream – Spalling

Measurements associated with spalling on the downstream outfall structure should be performed in the same manner as Subsection 2.7.

2.25 Outfall Downstream – Undermining

The main measurements associated with undermining at the outfall structure are those required to determine the volume of material needed to stabilize the undermining. The void area under the structure should be measured directly in the field to determine the width, length, and depth. It is important to note that this area may extend either in front of the structure, underneath the structure, or both. Other information that should be noted by the inspection crews in the field include the condition of the receiving channel, the type of receiving channel (natural soil, rocky earth, concrete ditch), geometry of the receiving channel, and the condition of the structure itself. In the event that the undermining has caused deterioration or failure of the structure, additional measurements will be required. Minor deterioration/spalling/cracking that may be repaired through parging should be measured in accordance with Subsection 2.7. In instances where major repair or replacement of the structure is required, the structure type (end section, end wall, etc.) and size should be noted. If a concrete apron is present, the length, width, and thickness of the concrete should also be measured.

2.26 Outfall Downstream – Separation

Separation between the PSP and downstream outfall structure should be measured in a manner similar to Subsection 2.22. In the case of minor separation (scored as a 3), measurements should be taken to obtain the total surface area to be parged (width of gap and pipe diameter). Major separation (scored as a 2 or 1) must be evaluated in the field to determine the extent of damage and amount of necessary repairs. Instances where parging and/or slip-lining are not viable options to complete the repairs, the structure type, pipe size, and structure dimensions should be noted. Dimensions of the structure include width, height, and thickness.

Field Measurements and Work Order Preparation

The dimensions and geometry (angles) of any wing walls present should also be measured. Additional information gathered in the field should include access issues that exist, downstream outfall conditions (material/geometry of channel, presence of rip-rap, etc.), volume of excavation required, and any structural components present (e.g. handrail).

2.27 Outfall Downstream – Erosion

The area and depth of eroded areas should be measured in the field. Minor downstream erosion will likely be repaired through a combination of standard erosion control netting (e.g. jute mesh) and seeding. Therefore, minor erosion will often be measured only in terms of area to be stabilized (square yards). Measurements for significant areas of erosion include the area to be stabilized (square yards), as well as the depth of erosion, to determine the amount of material in cubic yards required to stabilize the area. The material and condition of the area should be noted in the field and should include pertinent information such as channel type (natural, rip-rap, concrete, etc.) and channel geometry (V-ditch, trapezoidal ditch, etc.). Preparation of the scope of work narrative will include the determination as to whether or not temporary controls are required so the field notes should also provide qualitative descriptions of the erosion. Such descriptions may include whether or not the erosion is ongoing or has stabilized, condition of the downstream channel past the erosion, and descriptions of any potential downstream areas that are sensitive or may be impacted by the erosion (e.g. downstream structures or dwellings, streams, etc.).

2.28 Outfall Downstream – Cave-In

The size, depth, and location of any cave-ins encountered in the field should be noted in order to determine the amount of material required to fill and stabilize the area.

2.29 Outfall Downstream – Blockage

Often times a facility's PSP will outfall to a closed conduit system (e.g. manhole or curb inlet). The outfall pipe from this downstream structure should be evaluated as part of the visual assessment to determine whether or not downstream blockages are present within the system. If blockages are observed within the downstream outfall pipe, measurements should be performed in the same manner as Subsection 2.19.

2.30 Outfall Downstream – Displaced Rip-Rap

Field measurements should include the total area in need of rip-rap. The rip-rap that was displaced shall not be removed unless it obstructs a conveyance or structure. The length of rip-rap should be a minimum of 10' from the end of the structure; the minimum width of the rip-rap should be assumed to be 6'. For the various outfall types, the following measurements should be made in the field:

- Pipe End: A minimum of 10' from the pipe end, unless additional area is needed based upon field conditions. The width of the rip-rap should be 3 times the PSP diameter, but not less than 6' wide.
- End-Section: A minimum of 10' from the end of the structure, unless additional area is needed based upon field conditions. The width of the rip-rap should be 3 times the PSP diameter, but not less than 6' wide.
- End Wall: A minimum of 10' from the end of the structure, unless additional area is needed based upon field conditions. The width of the rip-rap should be equal to the width of the structure, but not less than 6'.
- End Wall w/
Wing Walls: A minimum of 10' from the end of the wing walls, unless additional area is needed based upon field conditions. The width of the rip-rap should be equal to the width of the structure from edge of wing wall to edge of wing wall. If no concrete apron is present, the area 'enclosed' by the structure should also be measured and included in the total area.

Field Measurements and Work Order Preparation

2.31 Outfall Downstream – Overgrown Vegetation

Overgrown vegetation in the vicinity of the outfall structure should be measured in the field in a manner similar to Subsection 2.15.

2.32 Outfall Downstream – Downstream Blockage

A downstream blockage usually refers to blockages in natural or man-made channels for facilities that outfall to daylight. Typical blockages consist of trash and debris, fallen trees, sediment deposition, and/or displaced rip-rap. The removal of downstream blockages should be determined on a case-by-case basis. Most often, the field measurements associated with a downstream blockage will include the length, width, and depth (as appropriate) of the debris causing the blockage, as well as a short description of the condition of the material.

2.33 Outfall Downstream – Handrail Status

Damaged or missing handrail should be documented in the field. The extent of damage should be explicitly listed in the field notes. Typical measurements for damaged handrail may include the following: handrail type (e.g. HR-1, HR-2, etc.), diameter or rail; total linear feet of damaged or missing railing; number of loose or damaged joints, welds, or connections to structure; description of how handrail is attached to structure; and height of handrail. In cases where handrail is missing, the total linear footage and height required for installation is required.

2.34 Outfall Downstream – Tree Removal

The removal of trees greater than two inches (2") in diameter will be included in the non-routine maintenance scope of work narrative. The diameter and total number of trees to be removed should be noted. The diameter of all trees to be removed shall be measured in accordance with Section 12-0507.1A of the Fairfax County PFM, which states: "The diameter of all trees shall be measured at a height of 4.5 feet from the base of the trunk or as otherwise allowed in the latest edition of the Guide for Plant Appraisal, published by the International Society of Arboriculture."

Additional field observations associated with the removal of trees that should be noted include the accessibility to the trees and sensitive or critical items within the vicinity (e.g. power lines, nearby dwellings or structures, proximity of vehicular or pedestrian traffic, etc.) that may affect removal operations.

[Note: It should be noted that the removal of trees does not include the removal of the stump or associated root system. In most cases, the tree will be cut at ground level and the stump/roots left in place.]

2.35 Pond Floor – Silted-In/Debris 75%

This line item will be marked during the visual assessment of a facility only when approximately 75% or more of the total pond volume is silted in or full of debris. Typically, this maintenance item will not be included in the scope of work narrative as the work will be performed under a separate maintenance program involving pre- and post-sediment removal as-built surveys of the pond. Should inclusion of this maintenance item be included in the scope of work narrative, the total sediment to be removed should be estimated in cubic yards of material to be removed.

2.36 Pond Floor – Trash/Debris Removal

Trash and debris removal on the pond floor will vary by type, size, and amount. Trash/debris removal should be evaluated on a case-by-case basis. Most often, the field measurements associated with the removal of trash and debris include the total volume and a short description of the material to be removed.

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2.37 Pond Floor – Tree/Vegetation Removal

Tree and vegetation on the pond floor that is deemed to be removed should be estimated in a similar manner to Subsection 2.34 and Subsection 2.15. It should be noted that trees and vegetation are allowed on the pond floors in most cases, as long as they are not impeding the flow of water or affecting the functionality of the facility.

2.38 Pond Floor – Other

Any other non-routine maintenance items associated with the pond floor are included within this section. Field measurements (and the associated units of measurement used) should be appropriately selected based upon similar subsections discussed herein.

2.39 Wetland Habitat – Trash and Debris

Trash and debris removal within wetland habitats should be estimated in manner similar to Subsection 2.26. Information contained in the plans of record (construction notes, maintenance specifications, etc.) should be reviewed to determine if any maintenance or disposal activities violate the intended design.

2.40 Wetland Habitat – Bare Spots

The location(s) of bare spots observed should be documented and the total area(s) of each measured. If the plans of record document a specific seed mix, this information should also be noted for quick reference during the preparation of the scope of work narrative.

2.41 Wetland Habitat – Sediment Deposition

The location(s) of sediment deposition should be documented and the size and depth of each measured to obtain the total volume of sediment present.

2.42 Wetland Habitat – Condition of Plants

Any plants within the habitat area that are dead, dying, damaged, or showing signs of poor health should be documented. Inspection crews should note the total number of plants in poor condition, as well as the species (may be identified through field observation or planting schedule), size, and extent of damage/deterioration for each.

2.43 Wetland Habitat – Erosion

Areas of erosion within the wetland habitat should be measured in a similar manner to Subsection 2.27.

2.44 Wetland Habitat – Ponding Water

Ponding water is not necessarily an item that will be measured. Instead, inspection crews should investigate the cause of the ponding water and determine the field measurements required in accordance with the appropriate subsection(s) contained herein. Causes of ponding water within a wetland habitat may include blockages, trash and debris, or sediment deposition. The plans of record should also be reviewed in this case to determine whether or not the wetland habitat and ponding water is actually a function of the design (i.e. the ponding water may be a sediment forebay and not an actual maintenance item).

2.45 Wetland Habitat – Undesired Vegetation

Overgrown vegetation, invasive species, and vegetation not included in the design may require removal. In the instance of easily identifiable plants, the total size and number of undesired plants should be noted.

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In the event the undesired vegetation is a ground cover or vines (e.g. poison ivy), the total coverage area should be measured. A certified arborist may be required to prepare a removal plan, if the plantings cannot be confirmed with the plans of record. Further coordination with MSMD staff in these instances should occur.

[Note: Some undesired vegetation requires immediate notification to MSMD staff upon encountering them in the field. Giant Hogweed, for example, is toxic and poses a safety risk to inspection crews and the general public. In the event that Giant Hogweed is encountered, or thought possibly to be encountered, do not touch the plant and notify MSMD staff immediately.]

2.46 Wetland Habitat – Forebay Condition

Similarly to ponding water, forebay condition is not necessarily an item that will be measured. The field conditions of the forebay should be compared against the design information in the plans of record. Maintenance items and/or changes to the design should be documented in the field notes. Any deficiencies observed should be measured in accordance with the appropriate subsection(s) contained herein.

2.47 Wetland Habitat – Marsh Condition

The plans of record should be reviewed to determine the design and maintenance considerations associated with a designed marsh area. Similarly to Subsection 2.44 and Subsection 2.46, field measurements for any maintenance items within the marsh area should be in accordance with the appropriate subsection(s) contained herein.

2.48 Wetland Habitat – Micropool Condition

Similarly to ponding water, forebay condition, and marsh condition, the micropool condition is not necessarily an item that will be measured. The field conditions of the micropool should be compared against the design information in the plans of record. Maintenance items and/or changes to the design should be documented in the field notes. Any deficiencies observed should be measured in accordance with the appropriate subsection(s) contained herein. Plans should be reviewed in particular for any type of drawdown duration for the micropool to ensure the facility is holding water for the intended length of time.

2.49 Wetland Habitat – Posted Sign(s) Condition

Wetland habitat signage should be reviewed and measured in the field in a similar manner to Subsection 2.

2.50 Wetland Habitat – Tree Removal

Tree removal within the wetland habitat should be measured in accordance with Subsection 2.34.

2.51 Wetland Habitat – Other

Any other non-routine maintenance items associated with the wetland habitat are included within this section. Field measurements (and the associated units of measurement used) should be appropriately selected based upon similar subsections discussed herein.

2.52 Dam / Berm – Toe Soft Spots

Soft spots within 10' of the bottom of slope, or toe, of the dam/berm should be measured. The total area and location(s) of the soft spots should be documented. Inspection crews should also include a qualitative description of the area noting the degree of saturation, possible sources of water contributing to the soft spot, and whether or not the situation appears to be worsening.

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2.53 Dam / Berm – Slope Erosion

Areas of erosion found on the dam/berm (or within 10' of the toe of the dam) should be measured in a similar manner to Subsection 2.27. Since the erosion in this case is located on the dam, all areas of erosion should be evaluated and measured in the field as though the erosion could be categorized as major. The area, depth, and a qualitative description (e.g. stabilized, worsening, etc.) of the erosion should be included.

2.54 Dam / Berm – Bare Spots

The location(s) of bare spots observed should be documented and the total area(s) of each measured. Field observations should also include the presence (or lack thereof) and condition of any topsoil in the area.

2.55 Dam / Berm – Cave-In

Cave-ins encountered on the dam/berm should be measured in a similar manner to Subsection 2.28.

2.56 Dam / Berm – Animal Holes

The size and location of all animal holes found on the dam/berm should be accurately depicted. The condition of the hole should also be noted, specifically whether or not it appears as though the hole is actively being used by an animal. Inspection crews should attempt to measure the depth of the animal hole.

2.57 Dam / Berm – Tree Removal

Tree removal on the dam/berm should be measured in the same manner as Subsection 2.34.

2.58 Dam / Berm – Overgrown Vegetation

The location(s) of any overgrown vegetation should be documented and measured in accordance with Subsection 2.15. Attention should be paid to this item to ensure routine maintenance is not included in the scope of work narrative as discussed in Subsection 2.15.

2.59 Dam / Berm – Alterations

Any alterations to the dam/berm not shown on the plans of record should be documented and measured in accordance with the most appropriate subsection(s) discussed herein.

2.60 Dam / Berm – Other

Any other non-routine maintenance items associated with the dam/berm are included within this section. Field measurements (and the associated units of measurement used) should be appropriately selected based upon similar subsections discussed herein.

2.61 Emergency Spillway – Erosion

Areas of erosion within the emergency spillway should be measured in a similar manner to Subsection 2.27. This is not applicable to combined principal/emergency spillway structures.

2.62 Emergency Spillway – Bare Spots

Bare spots observed within the emergency spillway should be measured in a similar manner to Subsection 2.54. This is not applicable to combined principal/emergency spillway structures.

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2.63 Emergency Spillway – Overgrown Vegetation

The location(s) of any overgrown vegetation observed on the emergency spillway should be documented and measured in accordance with Subsection 2.15. Attention should be paid to this item to ensure routine maintenance is not included in the scope of work narrative as discussed in Subsection 2.15.

2.64 Emergency Spillway – Blockage

Depending upon the type of emergency spillway, the measurements associated with blockages differ slightly. Blockages of emergency spillways draining via overland flow should be measured in accordance with Subsection 2.32 and Subsection 2.10. Emergency spillways that are structures and drain via a closed conduit system should be evaluated and measured in accordance with Subsection 2.19.

2.65 Emergency Spillway – Tree Removal

Tree removal in the vicinity of the emergency spillway should be measured in a similar manner to Subsection 2.34.

2.66 Emergency Spillway – Other

Any other non-routine maintenance items associated with the emergency spillway are included within this section. Field measurements (and the associated units of measurement used) should be appropriately selected based upon similar subsections discussed herein.

2.67 Upstream Inflows – Spalling

Spalling on upstream inflows should be measured in a similar manner to Subsection 2.7.

2.68 Upstream Inflows – Undermining

Undermining observed at upstream inflows should be measured in a similar manner to Subsection 2.25.

2.69 Upstream Inflows – Separation

Separation associated with upstream inflows should be measured in a similar manner to Subsection 2.22 (separation observed inside the pipe) and Subsection 2.26 (separation observed between the structure and pipe).

2.70 Upstream Inflows – Erosion

Areas of erosion in the vicinity of any upstream inflows should be measured in a similar manner to Subsection 2.27.

2.71 Upstream Inflows – Cave-In

Cave-ins observed in the vicinity of any upstream inflows should be measured in a similar manner to Subsection 2.28.

2.72 Upstream Inflows – Blockage

Blockages observed within the pipes for any upstream inflow should be measured in a similar manner to Subsection 2.19.

2.73 Upstream Inflows – Displaced Rip-Rap

Displaced rip-rap observed at upstream inflows should be measured in a similar manner to Subsection 2.30.

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2.74 Upstream Inflows – Overgrown Vegetation

Overgrown vegetation observed at any upstream inflow should be measured in a similar manner to Subsection 2.15.

2.75 Upstream Inflows – Outflow Obstruction

Outflow obstructions located at upstream inflows may be treated as downstream blockages and should be measured in a similar manner to Subsection 2.32.

2.76 Upstream Inflows – Handrail Status

The handrail status at upstream inflows should be evaluated in a similar manner to Subsection 2.3

2.77 Upstream Inflows – Misaligned Joints

Misaligned joints observed at upstream inflows should be measured in a similar manner to Subsection 2.21.

2.78 Pond Flow Low Flow – Sedimentation

Sedimentation with the low flow ditch system should be measured in order to determine the total volume of material to be removed. The total length of the sedimentation within the low flow ditch should be measured. Additional field observations/measurements should include the depth of the sediment to be removed, the geometry of the low flow ditch, any applicable measurements (bottom width, top width, height, etc.), and the vertical height difference between the top of the ditch and the top of the sediment.

2.79 Pond Flow Low Flow – Detoured Flow Line

A detoured flow line is not necessarily an item that will be measured. Instead, inspection crews should investigate the cause of the detoured flow line and determine the field measurements required in accordance with the appropriate subsection(s) contained herein. Causes of detoured flow lines may include blockages, trash and debris, sediment deposition, or overgrown vegetation. Once the cause of the detoured flow line is determined, field measurements should proceed in accordance with the appropriate subsection discussed herein.

2.80 Pond Flow Low Flow – Obstructions

Any obstructions impeding the flow of water within the low flow ditch system should be quantified under this section (the only exception being sediment since this will be measured in accordance with Subsection 2.78). Inspection crews should use discretion based upon field conditions to determine the most appropriate means of quantifying the obstruction. Examples of this include a damaged concrete trickle ditch that is causing a blockage or rip-rap that has washed down from an inflow.

2.81 Pond Flow Low Flow – Erosion/Trenching/Roots

Erosion observed along or beside a low flow ditch system should be measured in accordance with Subsection 2.27. Erosion that has progressed and is causing undermining and/or trenching along or underneath the ditch system should be measured in a similar manner to Subsection 2.25. Roots in the vicinity that are causing damage to the low flow ditch system, or impeding the flow of water within the ditch system, and have been deemed to be removed should be measured as well. The removal of the tree will be in accordance with Subsection 2.34. Inspection crews should measure the distance from the root damage back to the tree should account for the excavation required to remove the severed root. Field measurements should account for any other pertinent information including, but not limited to, the amount of backfill required and whether or not the stump requires removal as well.

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2.82 Encroachments / Modifications – Pond

Encroachments and modifications to ponds are typically noted in the visual assessment so that MSMD personnel are aware of the conditions, but usually do not require any actual maintenance to be performed. Items that are causing encroachments are typically privately owned and, therefore, would be adjusted, relocated, or removed at the owner's expense. Encroachments/modifications to the pond should be relayed to MSMD personnel and only included in the scope of work narrative when directed to do so by MSMD staff.

2.83 Encroachments / Modifications – Embankments

Encroachments and modifications to embankments are typically noted in the visual assessment so that MSMD personnel are aware of the conditions, but usually do not require any actual maintenance to be performed. Items that are causing encroachments are typically privately owned and, therefore, would be adjusted, relocated, or removed at the owner's expense. Encroachments/modifications to the embankment should be relayed to MSMD personnel and only included in the scope of work narrative when directed to do so by MSMD staff.

2.84 Encroachments / Modifications – Spillway

Encroachments and modifications to spillways (either principal or emergency) are typically noted in the visual assessment so that MSMD personnel are aware of the conditions, but usually do not require any actual maintenance to be performed. Items that are causing encroachments are typically privately owned and, therefore, would be adjusted, relocated, or removed at the owner's expense. Encroachments/modifications to the spillway should be relayed to MSMD personnel and only included in the scope of work narrative when directed to do so by MSMD staff.

2.85 Encroachments / Modifications – Modifications

Any modifications to a facility (or its associated components) that affect its design and/or functioning should be well documented in the field. Inspection crews should use their discretion when evaluating modifications to determine the method for obtaining field measurements in accordance with the most appropriate subsection discussed herein. In any case, MSMD staff should be notified of any modifications to a facility.

2.86 Mosquito Habitat Location – Pond Floor

Mosquito habitats usually present themselves due to a separate, underlying maintenance issue (e.g. a blockage is preventing the flow of water or a riser structure's floor is below the outfall invert). The area of ponding, however, may require treatment for the time between the visual assessment and the completion of the required maintenance. Therefore, all mosquito habitats should be measured to estimate the total volume of water to be treated. The surface area and average depth should be noted based upon field observations.

2.87 Mosquito Habitat Location – Outfall

Mosquito habitats usually present themselves due to a separate, underlying maintenance issue (e.g. a blockage is preventing the flow of water or a riser structure's floor is below the outfall invert). The area of ponding, however, may require treatment for the time between the visual assessment and the completion of the required maintenance. Therefore, all mosquito habitats should be measured to estimate the total volume of water to be treated. The surface area and average depth should be noted based upon field observations.

2.88 Mosquito Habitat Location – Other

Mosquito habitats usually present themselves due to a separate, underlying maintenance issue (e.g. a blockage is preventing the flow of water or a riser structure's floor is below the outfall invert). The area of ponding, however, may require treatment for the time between the visual assessment and the completion of the required maintenance.

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Therefore, all mosquito habitats should be measured to estimate the total volume of water to be treated. The surface area and average depth should be noted based upon field observations.

Following completion of the visual assessment, the inspection form and field notes should be quickly reviewed to ensure all necessary measurements have been obtained. It is recommended to keep a copy of this section in the field for reference while performing visual assessments. The completed inspection form, photos, and field notes will be used in development of the scope of work narrative and cost estimate, and should be reviewed to ensure accuracy and completeness.

3 Preparation of the Scope of Work Narrative and Cost Estimate

This section discusses the preparation of the scope of work narrative and cost estimate. Using the inspection forms and measurements obtained in the field by the inspection crews, the scope of work narrative outlines the required non-routine maintenance required for a facility. The narrative includes a qualitative description, a quantitative description, supporting photographs from the visual assessment for each maintenance item observed in the field, and will be used by the general contractor(s) to develop a proposals to perform the work. The cost estimate will provide MSMD staff an approximate cost of the maintenance work to compare against the cost proposals received from general contractors.

The preparation of the scope of work narrative begins following the QC review of the inspection form and photos for a facility. This will ensure the scope of work narrative includes all required non-routine maintenance items. The following outlines the steps for completing the scope of work narrative:

1. Copy the blank template (J:\STW\SWM_Branch_Assets\Main\Public\Templates\SOW-NARRATIVE.xlsx) to the facility asset folder and rename it to SITEID_FACILITYID_SOW-NARRATIVE.xlsx.
2. Update the facility ID number and date of inspection at the top of the worksheet.
3. Complete the "Visual Condition Assessment Results" section in the top left of the form. This section shall include a short description (qualitative) of each non-routine maintenance item. A photo from the visual assessment should be included in the narrative for each maintenance item listed. The description for each maintenance item should also include a reference to the corresponding photo showing the field conditions prompting the maintenance. [For example, "1. Spalling observed on riser (see photo 1)"].
4. Using the field measurements, a corresponding quantity for each maintenance item should be developed and included in the "Scope of Work Description" section of the worksheet. The description in this section should be very similar to the description provided under the Visual Condition Assessment Results section, but should also include the corresponding quantity [For example, "1. Parge 16 SF on face of riser].
5. Within the facility's electronic asset folder, save the completed scope of work narrative within the "Inspection" sub-folder.
6. Following completion of the scope of work narrative, the cost estimate should be prepared. A blank copy of the cost estimate should be saved from the public template folder (J:\STW\SWM_Branch_Assets\Main\Public\Templates\SiteID_FacilityID_Non-Routine Cost Estimate.xlsx) and saved to within the same "Inspection" sub-folder as the scope of work narrative.
7. Rename the template to include the Site ID and Facility ID for each pond. The top of the cost estimate worksheet should be updated to include the following information:

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- a. Site ID and Facility ID
 - b. Date of Inspection
 - c. Date of Estimate
 - d. Estimate Prepared by (Company Name/Abbreviation)
8. Complete the cost estimate worksheet to include all maintenance items required for the pond. Each item included in the scope of work narrative should be included in the cost estimate.

[Note: The cost estimate worksheet includes those maintenance line items most often observed in the field. In order to provide MSMD staff with the most accurate estimate possible, additional line items deemed necessary by the engineering contractor may be added to the worksheet. These line items should be included under a "Non-Std" line item at the end of the worksheet on a case-by-case basis.]

The deliverables for each public facility undergoing a visual assessment will include an electronic copy of the following:

- a. inspection form(s)
- b. inspection photos
- c. scope of work narrative
- d. cost estimate
- e. scanned copy of field notes/measurements (if determined necessary on a case-by-case basis by the engineering contractor)

Further discussion of the overall submittal procedure and schedule is included in Section 3.4 of this document.

As with the collection of the field measurements, the preparation of the cost estimate and derivation of the units of measure for each inspection form item varies slightly among the maintenance items. The following subsections discuss each inspection item in greater detail and provide the methodology to convert the field measurements obtained during the visual assessment to the standard units of measure required to complete the cost estimate.

3.1 Site Accessibility

It is difficult to apply a standard methodology to determine an associated cost for the site accessibility inspection item. It is difficult to predict all of the items that may preclude access to a facility. Engineering contractors must use sound engineering judgment while preparing the cost estimate for any non-routine maintenance items falling under this section. A damaged access road, for example, may be included in the cost estimate under line items #43, #44, and #45. Other items included under this section should be evaluated on a case-by-case basis and included in the cost estimate as deemed appropriate by the engineering contractor.

3.2 Structure Accessibility

Specific items pertaining to structure accessibility are discussed in detail in subsequent subsections.

3.3 Facility Sign

The replacement of missing or displaced facility signs will be estimated using cost estimate line items #39 or #40, depending upon whether or not a new sign post is required. This estimate is based on a per sign basis and may be taken directly from the field notes.

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3.4 Facility Labeling

No estimate is required for this item. Facility and watershed labeling is included in a separate maintenance process and will not be included in the cost estimate.

3.5 Riser Structure – Pad Lock Missing

No estimate is required for this item. The replacement/furnishing of missing pad locks and chains is included in a separate maintenance process and will not be included in the cost estimate.

3.6 Riser Structure – Trash Rack Missing

Trash racks must be priced on a case by case basis. Based upon either the detail(s) included in the plans of record, the field measurements, or a combination of the two, the total amount of material (steel) used in the fabrication must be determined. The total amount of material should then be converted to a weight to determine the final pricing on a per pound basis.

Low-Flow Trash Rack Estimates: Most low-flow trash racks will need to be designed on an individual basis based upon the plan details or field constraints. The field measurements or plan detail(s) will be used to determine the total amount of steel used. The total amount of material used may be converted to a weight using a standard value equal to 490 lbs. / ft³. Once the weight is determined, the total price may be estimated using line item #36 from the cost estimate worksheet.

Top Trash Rack Estimates: When available, plan details and/or field measurements should be used to determine the most accurate estimate of the total amount of steel required to fabricate the missing top trash rack. Once the total amount of steel is known, the total cost may be determined in the same manner as above, with the weight of steel estimated to be 490 lbs. / ft³ and the average cost determined by using line item #37 from the cost estimate worksheet. When plan details are not readily available to determine the required trash rack design, an approximate total weight may be determined by using the VDOT Road & Bridge Standards. For a square riser with a 4'-0" interior dimension and a 5'-4" exterior dimension, the VDOT Road & Bridge Standards estimates the total weight of an acceptable steel trash rack to be 188 pounds. For circular riser structures, the VDOT Road & Bridge Standards estimates the following weights (in pounds):

<u>Riser Interior Dia. (feet)</u>	<u>Approx. Weight of Trash Rack (pounds)</u>
2	46
3	82
4	120
5	169
6	227
7	290
8	341

[Note: The assumed weights above do not include the associated weight of any anti-vortex devices that may be required. Required anti-vortex devices should be calculated separately in accordance with Subsection 3.9]

3.7 Riser Structure – Spalling

The cost to repair spalling on or inside the riser structure is estimated on a square footage basis using line item #19 on the cost estimate worksheet. The total area to be parged should be determined directly from the field measurements.

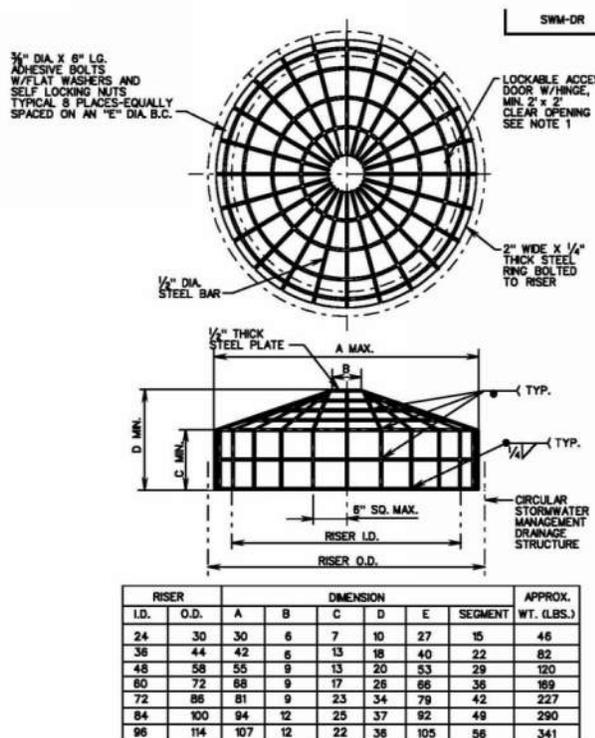
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3.8 Riser Structure – Joint Failure

Similarly to Subsection 3.7, joint failure may be repaired through parging. The associated maintenance cost to perform the repairs is also estimated using line item #19 on the cost estimate worksheet. The total area to be parged should be determined directly from the field measurements.

3.9 Riser Structure – Anti-Vortex Condition

If required by the design but not installed in the field, an anti-vortex device should be included in the cost estimate using line item #37. The total amount of material may be calculated based upon the design of the trash rack, which then may be converted to a total weight to determine the cost on a per pound basis. In the event that the riser structure is also missing the trash rack, the anti-vortex device must be included in addition to the cost of the trash rack. The assumptions made under Subsection 3.6 do not include an anti-vortex device.



Example: A standard 4' circular riser structure is missing its top trash rack. Based upon the design, an anti-vortex device is required. The plan lacks specific design details and only calls out for a "standard trash rack". Since the plans do not specify the trash rack design and there is no trash rack installed in the field to measure, assumptions will be made based upon the VDOT Road & Bridge Standards. The following detail and table is taken from Section 114.07 of the VDOT Road & Bridge Standards:

The total weight may be approximated by determining the total amount of steel:

$$\text{Area} = (48" \times 13") + [2 \times (1/2)(19.5")(7")] + (9" \times 7")$$

$$\text{Area} = 823.5 \text{ sq. in.}$$

Assuming 1/2" thick plate, the volume equals:

$$V = (823.5 \text{ sq. in.}) \times (1/2") = 411.75 \text{ cu. in.}$$

Converting this to cubic feet results in a total volume of steel equal to 0.238 cubic feet.

The total weight may then be approximated at $W = (0.238 \text{ cu. feet}) \times (490 \text{ lbs./ft}^3) = 116.75 \text{ lbs.}$

The total cost is then estimated to be 116.75 lbs. at a unit cost of \$10.50/lbs, or \$1,225.88.

3.10 Riser Structure – Trash Rack Blockage

For typical blockages, inspection crews will simply note in the field that removal of debris is required from the low-flow trash rack. These smaller, routine blockages should be included in the cost estimate on a per facility basis using line item #66. Typical blockages include minor sediment, leaves, grass clippings, trash, and small debris (sticks, branches, etc.).

Non-typical blockages should be included in the cost estimate using line item #17. Field measurements will include the necessary measurements in these instances to determine the total cubic feet of debris to be removed. Non-typical blockages estimated using line item #17 may include large debris (logs, fallen trees, etc.) or an unusually large amount of small debris. In cases where the blockage is a result of a large amount of sediment, the engineering contractor should use sound judgment based upon field conditions to evaluate whether or not the cost should be

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estimated using line item #17 or additional costs should be accounted for through the use of line item #69.

3.11 Riser Structure – Orifice Blockage

Small orifice blockages may be estimated using cost estimate line item #66 in a similar manner to Subsection 3.10. Additional costs should also be evaluated to determine whether or not any non-standard items should be included in the cost estimate (for example, if the orifice blockage is preventing the pond from draining, costs for dewatering services may be warranted).

3.12 Riser Structure – Top Trash Rack Blockage

Estimate preparation associated with top trash rack blockages should be performed in the same general manner as Subsection 3.10. Typical top trash rack blockages should be distinguished from low-flow trash rack blockages by using line item #67 on the cost estimate worksheet in lieu of line item #66.

3.13 Riser Structure – Manhole Condition

Non-routine maintenance work associated with the “Riser Structure – Manhole Condition” inspection item varies in nature to the degree that the engineering contractor should use sound judgment to determine the most appropriate line item(s) on a case by case basis. Non-standard items should be included in the cost estimate as conditions warrant.

3.14 Riser Structure – Inside Riser Blockage

Inside riser blockages should be included in the cost estimate using line item #17. The total volume (cubic feet) of the blockage may be determined directly from the field measurements. When field conditions prevent inspection crews from obtaining direct measurements of the blockage, the engineering contractor should use their best judgment while preparing the scope of work narrative and cost estimate based upon field conditions, photos, and known data.

3.15 Riser Structure –Vegetation/External Obstructions

Removal of vegetation that prohibits or restricts access to the riser should be included in the cost estimate using line items #1 through #8 as applicable. General clearing of overgrown vegetation, woody stock, and/or trees up to 2” in diameter should be estimated using line item #1 on a per tenth-acre basis. The field measurements should include the total area (square feet) of the overgrown vegetation. Unit conversion may then be applied directly to the field measurements for inclusion in the cost estimate. Any trees greater than 2” in diameter should be estimated using line items #2 through #6 as applicable. Typical tree removal involves cutting the tree at ground level and leaving the stump in place; additional costs for stump removal should be included on a case-by-case basis as field conditions warrant.

Other external obstructions (e.g. fences, walls, etc.) should be included in the cost estimate using an appropriate line item. In cases where no line item is applicable, the engineering contractor should include a non-standard line item to account for the cost(s). Examples may include the removal and/or resetting of a fence (non-standard line item) or the removal of sediment or debris that has buried the access (line item #17).

3.16 Riser Structure – Ladder/Steps Condition

The repair to, or replacement of, access ladders and steps for a facility should be included in the scope of work narrative using appropriate units (e.g. total number of steps to install or repair; total height of ladder; etc.). Inclusion in the cost estimate will most likely be through the addition of a non-standard line item.

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3.17 Riser Structure – Other

Engineering contractors should use sound judgment to include any maintenance items scored under this category using the appropriate line item(s) in the cost estimate worksheet. Non-standard line items should be added to the cost estimate as deemed necessary on a case-by-case basis.

3.18 Principal Spillway Pipe – Spalling

Estimate preparation associated with spalling on the Principal Spillway Pipe (PSP) should be performed in the same manner as Subsection 3.7.

3.19 Principal Spillway Pipe – Blockage

Blockages of the PSP should be estimated using cost estimate line item #17 on a per cubic yard basis. Field measurements of the diameter, length, and depth of material should be available when preparing the scope of work narrative and cost estimate. The volume of sediment may be estimated through the volume of a cylinder. Multiplying the total volume of the pipe by the percentage of the pipe blocked results in the volume of material to be removed within an acceptable tolerance.

Example: approximately 33% of a 65'-18" PSP is blocked with sediment. The blockage is observed at both the upstream and downstream end of the PSP indicating the pipe is blocked for its entire length.

Calculate the total volume of the pipe:

$$V = \pi r^2 l$$

$$V = \pi (0.75^2)(65)$$

$$V = 114.86 \text{ ft}^3$$

Multiply the percentage blocked by the total volume: $V_{\text{remove}} = (33\%)(114.86 \text{ ft}^3)$

$$V_{\text{remove}} = 37.90 \text{ ft}^3$$

$$V_{\text{remove}} = \pm 38 \text{ ft}^3$$

$$V_{\text{remove}} = \pm 1.41 \text{ yd}^3$$

This would result in an approximate cost of \$42.30 ($1.41 \text{ yd}^3 \times \$30.00/\text{yd}^3$)

Minor blockages of the PSP by materials such as sediment, leaves, and debris may be estimated using line item #18 (Power flush storm pipe) on a per linear foot basis. In these cases, the total length of the PSP should be used in the estimate.

3.20 Principal Spillway Pipe – Joint Failure

Estimate preparation associated with PSP joint failure should be performed in the same manner as Subsection 3.8.

3.21 Principal Spillway Pipe – Misaligned Joints

Pipes with minor misalignments (scored a 3) may be repaired through parging and the associated cost estimated on a square footage basis using line item #19 on the cost estimate worksheet. The total area to be parged should be determined from the field measurements (field measurements should include diameter of pipe and length of gap). It should be assumed that 1" on each side of the gap will also be parged. Therefore, the area to be parged may be determined by adding 2" to the gap width and multiplying this total width by the interior circumference of the pipe (where the interior circumference is $C = \pi d$).

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Example: A 15" PSP is observed have misaligned joints that have a gap width equal to 1".

$$\begin{aligned} \text{The total area to be parged is: } & A = (1" + 2") \times (\pi \times 15") \\ & A = (3") \times (47.12") \\ & A = 141.36 \text{ sq. in.} \\ & A = 0.98 \text{ sq. ft.} \\ & A = 1 \text{ sq. ft.} \end{aligned}$$

The cost may then be estimated to be approximately \$50.00 (unit cost equal to \$50.00 per sq. ft.)

Direct measurement of the misalignment is preferred; however, due to confined space entry restrictions, field crews are not always able to obtain direct measurements. In instances where the misalignment distance (gap width) is approximated, the cost estimate should still be prepared in the manner described above.

Furthermore, due to field limitations, misaligned joints may not be observed until returning to the office and editing the photos (i.e. a joint may not be readily visible in the field due to poor light, but a minor misalignment is revealed while processing/lightening the photos in the office). In this case, the gap width should still be approximated if feasible and the cost estimated in the manner described above. In those instances where a valid approximation of the total square footage to be parged may not be obtained, the repair should be estimated in accordance with cost estimate line item #20. The total cost will be estimated based upon a per joint cost equal to \$75.00.

Repair to pipes with major misaligned joints varies by the extent of repair necessary. Prior to preparation of the scope of work narrative, it is recommended the engineering contractor discuss the situation with MSMD staff. Major misalignments within the PSP for facilities with short pipe runs, small embankments, etc. will most likely be included in the scope of work narrative. Descriptions under the "Visual Condition Assessment Results" and "Scope of Work Description" should be limited to simple descriptions such as "Repair misaligned joints within PSP" so as to not prescribe means and methods to the contractor(s). The cost estimate portion, however, should include all required line items to complete the work. This may include line items to perform all aspects of the non-routine maintenance such as excavation, the removal and re-setting of the pipe, backfill, topsoil and seeding, restoration of disturbed areas, erosion control measures, etc. Guidance from MSMD staff regarding the approach to the preparation of the scope of work narrative is recommended in order to decrease unnecessary iterations of the estimate. The goal in this case would be to know prior to completion of the scope of work narrative whether a maintenance contractor would perform the work or if the repairs would require design and bidding under a MSMD project.

3.22 Principal Spillway Pipe – Separation

The minor separation of pipes (scored a 3) may be repaired through parging and the associated cost estimated on a square footage basis using line item #19 on the cost estimate worksheet. The total area to be parged should be determined from the field measurements (field measurements should include diameter of pipe and length of gap). It should be assumed that 1" on each side of the gap will also be parged. Therefore, the area to be parged may be determined by adding 2" to the gap width and multiplying this total width by the interior circumference of the pipe (where the interior circumference is $C=\pi d$).

Example: An 18" PSP is observed to be separated from the outfall structure by 2".

$$\begin{aligned} \text{The total area to be parged is: } & A = (2" + 2") \times (\pi \times 18") \\ & A = (4") \times (56.55") \\ & A = 226.19 \text{ sq. in.} \\ & A = 1.57 \text{ sq. ft.} \end{aligned}$$

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The cost may then be estimated to be approximately \$78.50 (unit cost equal to \$50.00 per sq. ft.)

Similarly to Subsection 3.21, this is the preferred method of approximating the cost associated with the repair of minor pipe separation. However, due to confined space entry restrictions, field crews are not always able to obtain direct measurements. In instances where the separation distance (gap width) is approximated, the cost estimate should still be prepared in the manner described above.

Furthermore, due to field limitations, joints with separation may not be observed until returning to the office and editing the photos (i.e. a joint may not be readily visible in the field due to poor light, but a minor separation is revealed while processing/lightening the photos in the office). In this case, the gap width should still be approximated if feasible and the cost estimated in the manner described above. In those instances where a valid approximation of the total square footage to be parged may not be obtained, the repair should be estimated in accordance with cost estimate line item #20. The total cost will be estimated based upon a per joint cost equal to \$75.00.

Repair to major separation varies by the extent of repair necessary and the PSP material type. Prior to preparation of the scope of work narrative, it is recommended the engineering contractor discuss the situation with MSMD staff. Major separation within the PSP for facilities with short pipe runs, small embankments, etc. will most likely be included in the scope of work narrative. Descriptions under the “Visual Condition Assessment Results” and “Scope of Work Description” should be limited to simple descriptions such as “Repair separation within PSP” so as to not prescribe means and methods to the contractor(s). The cost estimate portion, however, should include all required line items to complete the work. This may include line items to perform all aspects of the non-routine maintenance such as excavation, the removal and re-setting of the pipe, the installation of a pipe collar, backfill, topsoil and seeding, restoration of disturbed areas, erosion control measures, etc. Guidance from MSMD staff regarding the approach to the preparation of the scope of work narrative is recommended in order to decrease unnecessary iterations of the estimate. The goal in this case would be to know prior to completion of the scope of work narrative whether a maintenance contractor would perform the work or if the repairs would require design and bidding under a MSMD project.

3.23 Principal Spillway Pipe – Other

Engineering contractors should use sound judgment to include any maintenance items scored under this category using the appropriate line item(s) in the cost estimate worksheet. Non-standard line items should be added to the cost estimate as deemed necessary on a case-by-case basis.

3.24 Outfall Downstream – Spalling

Estimate preparation associated with spalling on the downstream outfall structure should be performed in the same manner as Subsection 3.7.

3.25 Outfall Downstream – Undermining

Minor undermining should be based upon the required volume of material required to stabilize the ground beneath the outfall structure. The total volume may be estimated directly from the field measurements. This volume should then be inflated by 10% to account for soil compaction/shrinking/swelling. The cost to repair the undermining may then be estimated using line item #11 on the cost estimate worksheet.

Severe undermining may require the inclusion of non-standard line items in addition to line item #11. The undermining may be severe enough that there is damage to the outfall structure and/or pipe. Additional items such

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as repair to, or replacement of, the outfall structure or pipe should be included in the cost estimate through a non-standard line item as field conditions warrant.

3.26 Outfall Downstream – Separation

Minor separation between the PSP and downstream outfall structure should be included in the cost estimate using line item #20 (Purge existing joints or junction to structure). Major separation must be evaluated on a case-by-case basis to include all required items (either standard or non-standard line items) in the cost estimate. Items included in addition to line item #20 may include the replacement of the outfall structure and/or pipe, controlled fill to stabilize the area, and erosion control measures.

3.27 Outfall Downstream – Erosion

Downstream erosion will most often be repaired through the installation of rip-rap in accordance with cost estimate line items #32 through #35. The area in need of repair may be obtained directly from the field measurements and estimated using a per square yard unit cost.

Other factors to consider while preparing the scope of work narrative and cost estimate for repair of eroded areas include:

- Minor areas of erosion to be stabilized through re-establishment of ground cover (e.g. minor erosion that may be repaired through seeding or sodding) should be included in the cost estimate using line items #56, #57, #58, and #59 as appropriate.
- The installation of erosion and sediment controls should be included in the cost estimate as warranted by field conditions. If deemed required, these items should be included using line items #51 - #55 as appropriate.
- Areas of significant erosion to be stabilized through the import and compaction of soil (in lieu of rip-rap) should be included using line #11 and estimated on a volume (cubic yards) basis.
- Consideration to the use of grouted rip-rap should be given for locations subject to flow with large volumes or high velocities.
- Areas of erosion located along tributaries or perennial streams may also warrant consideration of gabion baskets using cost estimate line item #38.

3.28 Outfall Downstream – Cave-In

Cave-ins not located on the dam will most often be repaired and stabilized using controlled fill and may be included in the cost estimate using line item #11. The field measurements should be used to obtain the total volume of the cave-in. This volume should then be inflated by 10% to account for soil compaction/shrinking/swelling.

3.29 Outfall Downstream – Blockage

Estimate preparation associated with blockage within the downstream outfall pipe(s) should be performed in the same manner as Subsection 3.19.

3.30 Outfall Downstream – Displaced Rip-Rap

The area of rip-rap to be installed should be taken directly from the field measurements, converted to a total area in square yards, and included in the cost estimate using line item #32, #33, #34, or #35 as applicable.

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3.31 Outfall Downstream – Overgrown Vegetation

Overgrown vegetation in the vicinity of the outfall structure should be measured in the field in a manner similar to Subsection 3.15.

3.32 Outfall Downstream – Downstream Blockage

The removal of downstream blockages should be included in the cost estimate using the most appropriate line item based upon the type of blockage. Blockages caused by trees and debris, for example, may be included in the cost estimate on a cubic yard basis using line item #17. Other cases may involve using line item #69 for blockages caused by excessive amounts of sediment or line item #70 for blockages caused by rip-rap. Sound judgment should be used to apply the most applicable cost estimate item based upon the type of blockage, field measurements, and field observations.

3.33 Outfall Downstream – Handrail Status

Replacement of handrail should be included in the cost estimate using the dimensions obtained in the field. The cost should be included in the estimate using either line item #46 or #47 for HR-1 or HR-2, respectively.

3.34 Outfall Downstream – Tree Removal

The descriptions included in the scope of work narrative for the removal of trees should provide the total number of trees to be removed and their associated diameters. Examples of such descriptions may be similar to “Remove 2-4” diameter trees at outfall” or “Remove 1-8” tree and 3-12” trees at outfall”.

Standard costs for tree removals (based upon diameter size) are included in the cost estimate worksheet in line items #2 through #6. The total number of trees to be removed in each size range should be included based upon the field measurements.

[Note: It should be noted that the removal of trees does not include the removal of the stump or associated root system. In most cases, the tree will be cut at ground level and the stump/roots left in place. Individual cases requiring the removal of a tree’s stump should be included in the cost estimate using line items #7 and/or #8 as applicable.]

3.35 Pond Floor – Silted-In/Debris 75%

Typically, this item will not be included in the scope of work estimate as the removal of sediment from a pond that is 75% silted in is performed under a separate MSMD project. Should MSMD staff determine a facility is in need of sediment removal, the maintenance shall be performed under a separate sediment removal project with pre- and post-removal as-built surveys. In the event that this maintenance item is included in the scope of work narrative and cost estimate, the total sediment to be removed should be estimated in cubic yards and included in the cost estimate using line item #69.

3.36 Pond Floor – Trash/Debris Removal

Trash and debris removal should be estimated using line item #17 on the cost estimate. The total cubic yards of material to be removed should be able to be directly obtained from the field measurements.

3.37 Pond Floor – Tree/Vegetation Removal

Estimate preparation for the removal of trees and vegetation on the pond floor should be performed in a similar manner to Subsection 3.15 and Subsection 3.34.

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3.38 Pond Floor – Other

Engineering contractors should use sound judgment to include any maintenance items scored under this category using the appropriate line item(s) in the cost estimate worksheet. Non-standard line items should be added to the cost estimate as deemed necessary on a case-by-case basis.

3.39 Wetland Habitat – Trash and Debris

Trash/debris removal within a wetland habitat should be performed in a similar manner to Subsection 3.36.

3.40 Wetland Habitat – Bare Spots

The total area of the bare spot within the wetland habitat should be determined in square yards based upon field measurements. The cost estimate may then be prepared using line item #60 and line item #61 if the installation of topsoil is necessary based upon field conditions.

3.41 Wetland Habitat – Sediment Deposition

Estimate preparation for the removal of sediment within a wetland habitat should be performed in a similar manner to Subsection 3.35 and included in the cost estimate using line item #69.

3.42 Wetland Habitat – Condition of Plants

Field measurements should include a total count of dead and/or dying trees and shrubs. The replacement of these dead or dying trees and shrubs should be included in the cost estimate using line items #64 and #65.

3.43 Wetland Habitat – Erosion

Estimate preparation for erosion within a wetland habitat should be performed in a similar manner to Subsection 3.27.

3.44 Wetland Habitat – Ponding Water

Ponding water results from a separate, underlying maintenance item and should be included within the scope of work narrative and cost estimate under the applicable subsection(s) from this document.

3.45 Wetland Habitat – Undesired Vegetation

Undesired vegetation removal should be included in the scope of work narrative based on an area, which may be computed directly from field measurements. The removal of the undesired vegetation should be included in the cost estimate using line item #1 for general removal operations. Further coordination with MSMD staff is recommended for non-typical scenarios that may involve chemical treatment of the area or coordination with a certified arborist. Any additional items needed should be included in the cost estimate as a non-standard item.

3.46 Wetland Habitat – Forebay Condition

Similarly to Subsection 3.44, a facility's forebay condition is not necessarily an item that will be included in the scope of work. Any maintenance items observed should be included in the scope of work narrative using the appropriate subsection(s) contained herein and included in the cost estimate using an appropriate line item.

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3.47 Wetland Habitat – Marsh Condition

The plans of record should be reviewed to determine the design and maintenance considerations associated with a designed marsh area. Similarly to Subsection 3.44 and Subsection 3.46, field measurements for any maintenance items within the marsh area should be in accordance with the appropriate subsection(s) contained herein.

3.48 Wetland Habitat – Micropool Condition

Similarly to ponding water, forebay condition, and marsh condition, the micropool condition is not necessarily an item that will be included in the scope of work. The field conditions of the forebay should be compared against the design information in the plans of record. Maintenance items and/or changes to the design documented in the field notes should be reviewed for inclusion in the scope of work in accordance with the appropriate subsection(s) contained herein.

3.49 Wetland Habitat – Posted Sign(s) Condition

Estimate preparation associated with wetland habitat signage should be performed in a similar manner to Subsection 3.3. The replacement of missing or damaged water quality signs should be included in the cost estimate using line item #41.

3.50 Wetland Habitat – Tree Removal

Estimate preparation for the removal of trees within the wetland habitat should be performed in a similar manner to Subsection 3.34.

3.51 Wetland Habitat – Other

Engineering contractors should use sound judgment to include any maintenance items scored under this category using the appropriate line item(s) in the cost estimate worksheet. Non-standard line items should be added to the cost estimate as deemed necessary on a case-by-case basis.

3.52 Dam / Berm – Toe Soft Spots

Similarly to ponding water, forebay condition, marsh condition, and micropool condition, dam/berm soft spots is not necessarily an item that will be included in the scope of work since it is caused by a failure of something else. Maintenance associated with the repair of soft spots should be included in the scope of work in accordance with the appropriate subsection(s) contained herein. Associated costs included in the cost estimate should capture the necessary repairs to correct the problem(s) causing the toe soft spots and the repair/stabilization of the soft spots (line item #11).

3.53 Dam / Berm – Slope Erosion

Estimate preparation for the repair to slope erosion on the dam/berm should be performed in a similar manner to Subsection 3.27. Special attention should be to the plans of record to determine any geotechnical requirements associated with the fill/compaction associated with the dam.

3.54 Dam / Berm – Bare Spots

Bare spots located on the dam/berm will be repaired through either seeding or sodding. The total area (square yards) may be determined directly from the field measurements. Areas to be repaired through seeding should be included in the scope of work narrative and cost estimate using line item #58 or #59, while areas to be repaired

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through the installation of sod should be included using line item #56 or #57. Consideration should also be given to whether or not conditions warrant erosion control measures (such as straw, jute mesh, etc.).

3.55 Dam / Berm – Cave-In

Estimate preparation for cave-ins encountered on the dam/berm should be performed in a similar manner to Subsection 3.28. Since the cave-in is located on the dam/berm, the establishment of ground cover should be promoted. A minimum 6" of topsoil should be included using cost estimate line item #61 and seeding for the area should be included using line item #58. Since the cave-in is located on the dam embankment, structural integrity is critical. As conditions warrant, significant cave-ins should be repaired through the use of flowable fill (soil-cement slurry) and estimated using line item #12 in the cost estimate.

3.56 Dam / Berm – Animal Holes

The repair and stabilization of animal holes on the dam/berm will be repaired in the same manner as cave-ins. Therefore, this item should be prepared in a similar manner to Subsection 3.28 and Subsection 3.55.

3.57 Dam / Berm – Tree Removal

Estimate preparation for the removal of trees on the dam/berm should be performed in a similar manner to Subsection 3.34.

3.58 Dam / Berm – Overgrown Vegetation

Overgrown vegetation on the dam/berm should be described and estimated in a manner similar to Subsection 3.15.

3.59 Dam / Berm – Alterations

Any alterations to the dam/berm not shown on the plans of record should be documented and estimated in accordance with the most appropriate subsection(s) discussed herein.

3.60 Dam / Berm – Other

Engineering contractors should use sound judgment to include any maintenance items scored under this category using the appropriate line item(s) in the cost estimate worksheet. Non-standard line items should be added to the cost estimate as deemed necessary on a case-by-case basis.

3.61 Emergency Spillway – Erosion

Areas of erosion within the emergency spillway should be measured in a similar manner to Subsection 3.27. This is not applicable to combined principal/emergency spillway structures.

3.62 Emergency Spillway – Bare Spots

Bare spots observed within the emergency spillway should be measured in a similar manner to Subsection 3.54. This is not applicable to combined principal/emergency spillway structures.

3.63 Emergency Spillway – Overgrown Vegetation

The location(s) of any overgrown vegetation observed on the emergency spillway should be described and estimated in a manner similar to Subsection 3.15.

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3.64 Emergency Spillway – Blockage

Depending upon the type of emergency spillway, the scope of work preparation associated with blockages differs slightly. Blockages of emergency spillways draining via overland flow should be prepared in accordance with Subsection 3.32 and Subsection 3.10. Emergency spillways that are structures and drain via a closed conduit system should be evaluated and estimated in accordance with Subsection 3.19.

3.65 Emergency Spillway – Tree Removal

Estimate preparation for the removal of trees on the emergency spillway should be performed in a similar manner to Subsection 3.34.

3.66 Emergency Spillway – Other

Engineering contractors should use sound judgment to include any maintenance items scored under this category using the appropriate line item(s) in the cost estimate worksheet. Non-standard line items should be added to the cost estimate as deemed necessary on a case-by-case basis.

3.67 Upstream Inflows – Spalling

Estimate preparation associated with spalling on upstream inflows should be performed in the same manner as Subsection 3.7.

3.68 Upstream Inflows – Undermining

Undermining observed at upstream inflows should be measured in a similar manner to Subsection 3.25.

3.69 Upstream Inflows – Separation

Separation associated with upstream inflows should be prepared in a similar manner to Subsection 3.22 (separation observed inside the pipe) and Subsection 3.26 (separation observed between the structure and pipe).

3.70 Upstream Inflows – Erosion

Areas of erosion in the vicinity of any upstream inflows should be described and prepared in a similar manner to Subsection 3.27.

3.71 Upstream Inflows – Cave-In

Estimate preparation for cave-ins observed in the vicinity of any upstream inflows should be performed in a similar manner to Subsection 3.28.

3.72 Upstream Inflows – Blockage

Blockages observed within the pipes for any upstream inflow should be described and estimated in a similar manner to Subsection 3.19.

3.73 Upstream Inflows – Displaced Rip-Rap

Displaced rip-rap observed at upstream inflows should be described and estimated in a similar manner to Subsection 3.30.

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3.74 Upstream Inflows – Overgrown Vegetation

Overgrown vegetation observed at any upstream inflow should be described and estimated in a similar manner to Subsection 3.15.

3.75 Upstream Inflows – Outflow Obstruction

Outflow obstructions located at upstream inflows may be treated as downstream blockages and should be described and estimated in a similar manner to Subsection 3.32.

3.76 Upstream Inflows – Handrail Status

The handrail status at upstream inflows should be evaluated in a similar manner to Subsection 3.33.

3.77 Upstream Inflows – Misaligned Joints

Misaligned joints observed at upstream inflows should be described and estimated in a similar manner to Subsection 3.21.

3.78 Pond Flow Low Flow – Sedimentation

The volume of sediment present within the low flow ditch system may be determined directly from the field measurements (measurements should include the depth of sediment, the total distance the sediment is observed, and the ditch geometry). The total amount of sediment should be described in cubic yards in the scope of work narrative and included in the cost estimate using line item #69.

3.79 Pond Flow Low Flow – Detoured Flow Line

Detoured flow lines result from separate, underlying maintenance items and should be included within the scope of work narrative and cost estimate under the applicable subsection(s) from this document.

3.80 Pond Flow Low Flow – Obstructions

Obstructions in the low flow ditch system may be thought of as anything impeding the flow of water (the only exception being sediment since this will be prepared in accordance with Subsection 3.78). Obstructions should be described and estimated on a case-by-case basis. Inspection crews will need to use their discretion based upon field conditions to determine the most appropriate means of quantifying the obstruction. Descriptions and units of measure in the scope of work narrative and inclusion in the cost estimate should be done in accordance with the most appropriate subsection contained herein. Examples include, but are not limited to rip-rap (measured in square yards and estimated using cost estimate line item #70) and trash/debris (measured in cubic feet and estimated using cost estimate line item #17). Engineering contractors should use sound judgment to apply the most applicable line item(s) in the cost estimate based upon the nature of the obstruction.

3.81 Pond Flow Low Flow – Erosion/Trenching/Roots

Erosion observed along or beside a low flow ditch system should be described and estimated in accordance with Subsection 3.27. Erosion that has progressed and is causing undermining and/or trenching along or underneath the ditch system should be described and estimated in a similar manner to Subsection 3.25. Roots in the vicinity that are causing damage to the low flow ditch system, or impeding the flow of water within the ditch system, will require removal. The removal of the tree should be prepared in accordance with Subsection 3.34, but will not include any estimate associated with the removal of the root system. For estimating purposes, it should be assumed the root(s) causing the maintenance item will be cut 10' from the ditch and removed.

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The cost estimate should include any required excavation (line items #9 and #10), backfill (line item #11), and stump removal if warranted by field conditions (line item #7 or #8).

3.82 Encroachments / Modifications – Pond

Items under this category falling under the County's maintenance responsibility should be included in the scope of work narrative and cost estimate under the most applicable line item(s). However, it is important to note that encroachments and modifications to ponds are typically noted in the visual assessment so that MSMD personnel are aware of the conditions, but usually do not require any actual maintenance to be performed. Encroachments are typically privately owned and, therefore, would be adjusted, relocated, or removed at the owner's expense. Encroachments/modifications to the pond should be relayed to MSMD personnel and only included in the scope of work narrative when directed to do so by MSMD staff.

3.83 Encroachments / Modifications – Embankments

Items under this category falling under the County's maintenance responsibility should be included in the scope of work narrative and cost estimate under the most applicable line item(s). However, it is important to note that encroachments and modifications to embankments are typically noted in the visual assessment so that MSMD personnel are aware of the conditions, but usually do not require any actual maintenance to be performed. Encroachments are typically privately owned and, therefore, would be adjusted, relocated, or removed at the owner's expense. Encroachments/modifications to the pond should be relayed to MSMD personnel and only included in the scope of work narrative when directed to do so by MSMD staff.

3.84 Encroachments / Modifications – Spillway

Items under this category falling under the County's maintenance responsibility should be included in the scope of work narrative and cost estimate under the most applicable line item(s). However, it is important to note that encroachments and modifications to spillways are typically noted in the visual assessment so that MSMD personnel are aware of the conditions, but usually do not require any actual maintenance to be performed. Encroachments are typically privately owned and, therefore, would be adjusted, relocated, or removed at the owner's expense. Encroachments/modifications to the pond should be relayed to MSMD personnel and only included in the scope of work narrative when directed to do so by MSMD staff.

3.85 Encroachments / Modifications – Modifications

Engineering contractors should use sound judgment to include any maintenance items scored under this category using the appropriate line item(s) in the cost estimate worksheet. Non-standard line items should be added to the cost estimate as deemed necessary on a case-by-case basis.

3.86 Mosquito Habitat Location – Pond Floor

Engineering contractors should use sound judgment to include any maintenance items scored under this category using the appropriate line item(s) in the cost estimate worksheet. Non-standard line items should be added to the cost estimate as deemed necessary on a case-by-case basis. Conditions should be evaluated to determine whether an area requires treatment/mosquito control or if the situation is being caused by an underlying maintenance item. Areas of mosquito habitat to be treated should be added to the cost estimate using a non-standard line item. Coordination with MSMD staff in these situations is recommended.

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3.87 Mosquito Habitat Location – Outfall

Engineering contractors should use sound judgment to include any maintenance items scored under this category using the appropriate line item(s) in the cost estimate worksheet. Non-standard line items should be added to the cost estimate as deemed necessary on a case-by-case basis. Conditions should be evaluated to determine whether an area requires treatment/mosquito control or if the situation is being caused by an underlying maintenance item. Areas of mosquito habitat to be treated should be added to the cost estimate using a non-standard line item. Coordination with MSMD staff in these situations is recommended.

3.88 Mosquito Habitat Location – Other

Engineering contractors should use sound judgment to include any maintenance items scored under this category using the appropriate line item(s) in the cost estimate worksheet. Non-standard line items should be added to the cost estimate as deemed necessary on a case-by-case basis. Conditions should be evaluated to determine whether an area requires treatment/mosquito control or if the situation is being caused by an underlying maintenance item. Areas of mosquito habitat to be treated should be added to the cost estimate using a non-standard line item. Coordination with MSMD staff in these situations is recommended.

4 Submittal Procedure

The fourth goal of this document is to standardize the procedure for identifying non-routine maintenance needs at County owned and maintained facilities. It is the goal of Fairfax County MSMD to streamline the identification, documentation, scheduling, and completion of non-routine maintenance at these facilities. It is the intent of this standard procedure to reduce the time between the completion of routine maintenance and the scheduling and completion of non-routine maintenance. In order to do so, there are a number of milestones that must be met by those involved (namely the general contractor, engineering contractor, and MSMD staff). The following outlines the steps from the completion of routine maintenance to the scheduling of any required non-routine maintenance, and duration of each, so that the entire process is limited to approximately two (2) months:

1. Routine maintenance is performed by general contractor under the County assigned mow package.
2. Within seven (7) days of the completion of the routine maintenance, the engineering contractor completes the visual assessment for the facility, completes the inspection forms, and obtains all field measurements/data required for the preparation of the scope of work narrative and cost estimate. *[Cumulative time = 7 days or 0.25 month]*
3. Following completion of the visual assessment field work, the engineering contractor prepares the scope of work narrative and cost estimate and submits all deliverables to MSMD staff for review. Electronic submittal of all deliverables should be made within 14 – 21 days from the date of inspection. *[Cumulative time = 28 days or 1.0 month]*
4. MSMD personnel review the inspection form, photos, scope of work narrative, and cost estimate within seven (7) days of receiving the electronic submittals from the engineering contractor. Following review and approval, MSMD personnel distribute the scope of work narrative in accordance with the routing method determined by MSMD staff. *[Cumulative time = 35 days or 1.17 months]*
5. MSMD receives cost proposal from general contractor(s) within seven (7) days of distribution. *[Cumulative time = 42 days or 1.40 months]*
6. Within seven (7) days from receipt, MSMD staff finalizes authorization for completion of the work and notifies the landowner on which the work is to be performed. *[Cumulative time = 49 days or 1.63 months]*
7. Fourteen (14) days from final authorization the non-routine maintenance work is scheduled for completion. *[Cumulative time = 63 days or 2.10 months]*

A graphical representation of this Public Pond Non-Routine Maintenance Work Flow Process may be found in Appendix C.

Appendix A – Scope of Work Narrative



Fairfax County Maintenance and Stormwater Management Division
Non-Routine Maintenance Scope of Work



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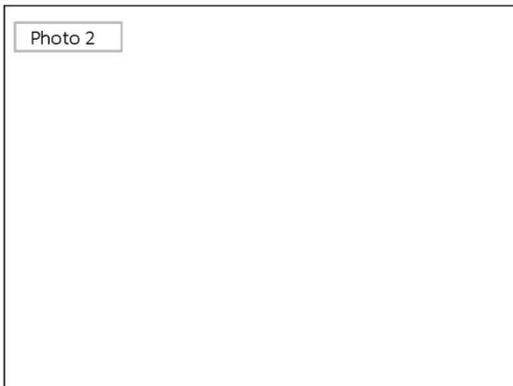
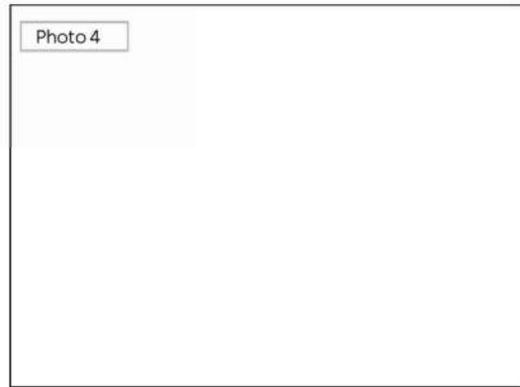
Routing:

VISUAL CONDITION ASSESSMENT RESULTS

1. (See photo -)
2. (See photo -)
3. (See photo -)
4. (See photo -)
5. (See photo -)
6. (See photo -)

SCOPE OF WORK DESCRIPTION

- 1
- 2
- 3
- 4
- 5
- 6



Appendix B – Non-Routine Maintenance Cost Estimate



NON-ROUTINE MAINTENANCE COST ESTIMATE

SiteID / Facility ID
 Date of Inspection: MM/DD/YYYY
 Date of Estimate: MM/DD/YYYY
 Estimate Prepared by: Company



ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
1	General clearing/mowing and removal of woody stock/brush/trees up to 2" in diameter		0.1 acre	\$ 33.16	\$ -
2	Remove trees, 2" - 5" diameter		EA	\$ 374.58	\$ -
3	Remove trees, 6" - 12" diameter		EA	\$ 409.60	\$ -
4	Remove trees, 13" - 24" diameter		EA	\$ 512.00	\$ -
5	Remove trees, 25" - 36" diameter		EA	\$ 768.00	\$ -
6	Remove trees, 37" diameter or greater		EA	\$ 2,150.40	\$ -
7	Grind tree stump (≤24" dia.) below grade		EA	\$ 235.52	\$ -
8	Grind tree stump (>24" dia.) below grade		EA	\$ 307.20	\$ -
9	Excavation		CY	\$ 30.00	\$ -
10	Haul & dispose of excavation/unsuitable material		CY	\$ 16.00	\$ -
11	Install control fill/select borrow material for road, dam/embankment, and/or stream construction		CY	\$ 35.00	\$ -
12	Flowable Fill		CY	\$ 256.00	\$ -
13	Remove & dispose of 4" - 12" diameter pipe		LF	\$ 24.52	\$ -
14	Remove & dispose of 15" - 30" diameter pipe		LF	\$ 35.33	\$ -
15	Remove & dispose of 36" - 54" diameter pipe		LF	\$ 50.18	\$ -
16	Remove & dispose of concrete trickle ditch		SY	\$ 10.00	\$ -
17	Remove & dispose of debris from drainage structures and pipes		CF	\$ 30.00	\$ -
18	Power flush storm pipe (12" - 36")		LF	\$ 12.00	\$ -
19	Purge existing structure		SF	\$ 50.00	\$ -
20	Purge existing joints or junction to structure		EA	\$ 75.00	\$ -
21	9" concrete collar around pipe for joint repair (12" - 33" diameter pipe)		EA	\$ 450.00	\$ -
22	8" concrete collar around pipe for joint repair (34" - 60" diameter pipe)		EA	\$ 750.00	\$ -
23	IS-1 Inlet shaping in existing structure		EA	\$ 460.80	\$ -
24	Install CL-III RCP, 12" diameter, up to 8' depth		LF	\$ 48.00	\$ -
25	Install CL-III RCP, 15" diameter, up to 8' depth		LF	\$ 78.00	\$ -
26	Install CL-III RCP, 18" diameter, up to 8' depth		LF	\$ 94.00	\$ -
27	Install CL-III RCP, 21" diameter, up to 8' depth		LF	\$ 120.00	\$ -
28	Install CL-III RCP, 24" diameter, up to 8' depth		LF	\$ 98.00	\$ -
29	Install CL-III RCP, 27" diameter, up to 8' depth		LF	\$ 140.00	\$ -
30	Install CL-III RCP, 30" diameter, up to 8' depth		LF	\$ 160.00	\$ -
31	Install CL-III RCP, 36" diameter, up to 8' depth		LF	\$ 140.00	\$ -
32	Install Class I Rip-Rap (dry/non-grouted)		SY	\$ 90.00	\$ -
33	Install Class II Rip-Rap (dry/non-grouted)		SY	\$ 141.00	\$ -
34	Install Class III Rip-Rap (dry/non-grouted)		SY	\$ 210.00	\$ -
35	Install Grouted Class I Rip-Rap		SY	\$ 100.00	\$ -
36	Fabricate & Install galvanized low-flow BMP plate and trash rack per PFM		LB	\$ 12.00	\$ -
37	Fabricate & Install galvanized top trash rack		LB	\$ 10.50	\$ -

Last Update: 10/3/2014

Field Measurements and Work Order Preparation



NON-ROUTINE MAINTENANCE COST ESTIMATE

SiteID / Facility ID
 Date of Inspection: MM/DD/YYYY
 Date of Estimate: MM/DD/YYYY
 Estimate Prepared by: Company



ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
38	Install gabion baskets to stabilize stream banks		CY	\$ 180.00	\$ -
39	Repair/replace detention pond signs (existing post)		EA	\$ 51.61	\$ -
40	Repair/replace detention pond signs (new post)		EA	\$ 89.68	\$ -
41	Water quality sign per PFM Plate 81-6		EA	\$ 165.00	\$ -
42	Install concrete cradle, CL-A4 concrete around principal spillway		CY	\$ 338.53	\$ -
43	Remove & dipose of asphalt pavement/trail (2"-4" trail)		SY	\$ 6.00	\$ -
44	Install 2" asphalt pavement/trail		SY	\$ 12.00	\$ -
45	Install 4" asphalt base, BM-25		SY	\$ 23.00	\$ -
46	Install VDOT HR-1 Handrail		LF	\$ 85.00	\$ -
47	Install HR-2 Handrail		LF	\$ 90.00	\$ -
48	Install access road gate		EA	\$ 2,100.00	\$ -
49	Install post and cable barrier		EA	\$ 750.00	\$ -
50	Install removable locking bollard		EA	\$ 950.00	\$ -
51	Temp. construction entrance (no wash rack)		EA	\$ 850.00	\$ -
52	Vehicle wash rack for construction entrance		EA	\$ 850.00	\$ -
53	Silt fence		LF	\$ 4.78	\$ -
54	Super silt fence		LF	\$ 11.96	\$ -
55	Inlet protection		EA	\$ 190.00	\$ -
56	Sodding		SY	\$ 5.50	\$ -
57	Sodding to include 2" topsoil		SY	\$ 10.00	\$ -
58	Seed and mulch (includes lime and fertilizer)		SY	\$ 1.50	\$ -
59	Seed, mulch, and 2" topsoil (includes lime and fertilizer)		SY	\$ 6.00	\$ -
60	Native seeding/wetland mix		SY	\$ 1.25	\$ -
61	2" topsoil		SY	\$ 5.00	\$ -
62	Install coir logs (12"-16" diameter)		LF	\$ 27.90	\$ -
63	Install coir logs (20" - 24" diameter)		LF	\$ 41.37	\$ -
64	Provide and plant tree seedling (12" length caliper/BR)		EA	\$ 155.00	\$ -
65	Provide and plant shrub seedling (container)		EA	\$ 45.00	\$ -
66	Clean debris from pond low-flow trash rack. Remove & dispose all material off-site.		EA	\$ 100.00	\$ -
67	Clean debris from pond top trash rack. Remove & dispose all material off-site.		EA	\$ 100.00	\$ -
68	Slip-Line existing CMP pipe		LF	\$ 110.00	\$ -
69	Pond silt removal and disposal off site		CV	\$ 42.62	\$ -
70	Removal of rip-rap (all classes)		SY	\$ 25.00	\$ -
Non-Std.				\$ -	\$ -
Non-Std.				\$ -	\$ -

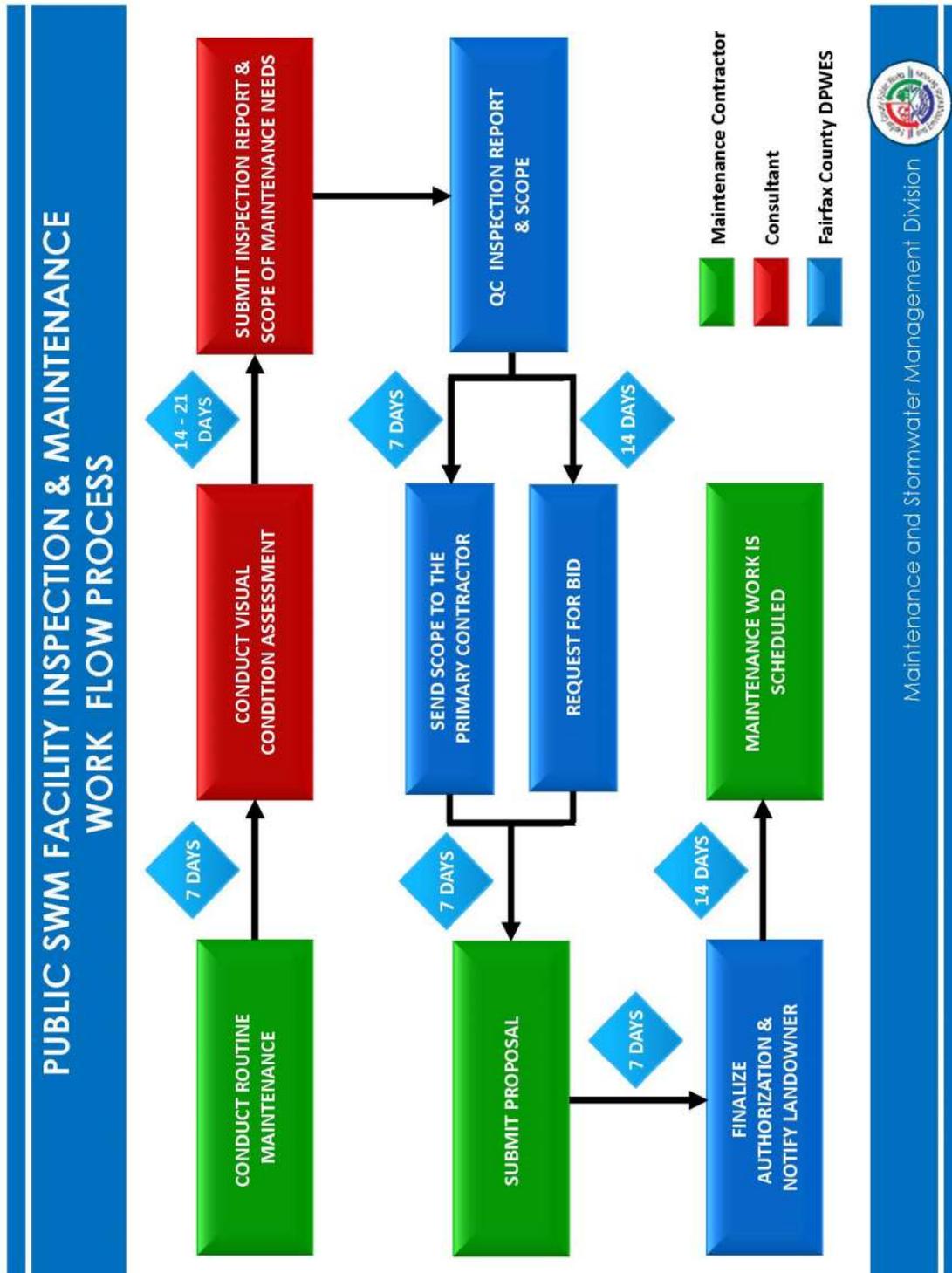
Sub-Total = \$ -

Mobilization (5%) = \$ -

Total Estimated Cost = \$ -

Last Update: 10/3/2014

Appendix C – Public Pond Non-routine Maintenance Work Flow Process





NON-ROUTINE MAINTENANCE COST ESTIMATE

SiteID / Facility ID

Mow Package #

Date of Inspection: MM/DD/YYYY

Date of Estimate: MM/DD/YYYY

Estimate Prepared by:



ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
1	General clearing/mowing and removal of woody stock/brush/trees up to 2" in diameter		0.1 acre	\$ 33.72	\$ -
2	Remove trees, 2" - 5" diameter		EA	\$ 374.58	\$ -
3	Remove trees, 6" - 12" diameter		EA	\$ 409.60	\$ -
4	Remove trees, 13" - 24" diameter		EA	\$ 512.00	\$ -
5	Remove trees, 25" - 36" diameter		EA	\$ 768.00	\$ -
6	Remove trees, 37" diameter or greater		EA	\$ 2,150.40	\$ -
7	Grind tree stump (≤24" dia.) below grade		EA	\$ 235.52	\$ -
8	Grind tree stump (>24" dia.) below grade		EA	\$ 307.20	\$ -
9	Excavation		CY	\$ 30.00	\$ -
10	Haul & dispose of excavation/unsuitable material		CY	\$ 16.00	\$ -
11	Install control fill/select borrow material for road, dam/embankment, and/or stream construction		CY	\$ 35.00	\$ -
12	Flowable Fill		CY	\$ 256.00	\$ -
13	Remove & dispose of 4" - 12" diameter pipe		LF	\$ 24.52	\$ -
14	Remove & dispose of 15" - 30" diameter pipe		LF	\$ 35.33	\$ -
15	Remove & dispose of 36" - 54" diameter pipe		LF	\$ 50.18	\$ -
16	Remove & dispose of concrete trickle ditch		SY	\$ 10.00	\$ -
17	Remove & dispose of debris from drainage structures and pipes		CF	\$ 30.00	\$ -
18	Power flush storm pipe (12" - 36")		LF	\$ 12.00	\$ -
19	Purge existing structure		SF	\$ 50.00	\$ -
20	Purge existing joints or junction to structure		EA	\$ 75.00	\$ -
21	8" concrete collar around pipe for joint repair (12" - 33" diameter pipe)		EA	\$ 450.00	\$ -
22	8" concrete collar around pipe for joint repair (34" - 60" diameter pipe)		EA	\$ 750.00	\$ -
23	IS-1 Inlet shaping in existing structure		EA	\$ 460.80	\$ -
24	Install CL-III RCP, 12" diameter, up to 8' depth		LF	\$ 48.00	\$ -
25	Install CL-III RCP, 15" diameter, up to 8' depth		LF	\$ 78.00	\$ -
26	Install CL-III RCP, 18" diameter, up to 8' depth		LF	\$ 94.00	\$ -
27	Install CL-III RCP, 21" diameter, up to 8' depth		LF	\$ 120.00	\$ -
28	Install CL-III RCP, 24" diameter, up to 8' depth		LF	\$ 98.00	\$ -
29	Install CL-III RCP, 27" diameter, up to 8' depth		LF	\$ 140.00	\$ -
30	Install CL-III RCP, 30" diameter, up to 8' depth		LF	\$ 160.00	\$ -
31	Install CL-III RCP, 36" diameter, up to 8' depth		LF	\$ 140.00	\$ -
32	Install Class I Rip-Rap (dry/non-grouted)		SY	\$ 90.00	\$ -
33	Install Class II Rip-Rap (dry/non-grouted)		SY	\$ 141.00	\$ -
34	Install Class III Rip-Rap (dry/non-grouted)		SY	\$ 210.00	\$ -
35	Install Grouted Class I Rip-Rap		SY	\$ 100.00	\$ -
36	Fabricate & Install galvanized low-flow BMP plate and trash rack per PFM		LB	\$ 12.00	\$ -
37	Fabricate & Install galvanized top trash rack		LB	\$ 10.50	\$ -



NON-ROUTINE MAINTENANCE COST ESTIMATE

SiteID / Facility ID

Mow Package #

Date of Inspection: MM/DD/YYYY

Date of Estimate: MM/DD/YYYY

Estimate Prepared by:



ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
38	Install gabion baskets to stabilize stream banks		CY	\$ 180.00	\$ -
39	Repair/replace detention pond signs (existing post)		EA	\$ 52.49	\$ -
40	Repair/replace detention pond signs (new post)		EA	\$ 91.20	\$ -
41	Water quality sign per PFM Plate 81-6		EA	\$ 165.00	\$ -
42	Install concrete cradle, CL-A4 concrete around principal spillway		CY	\$ 338.53	\$ -
43	Remove & dipose of asphalt pavement/trail (2"-4" trail)		SY	\$ 6.00	\$ -
44	Install 2" asphalt pavement/trail		SY	\$ 12.00	\$ -
45	Install 4" asphalt base, BM-25		SY	\$ 23.00	\$ -
46	Install VDOT HR-1 Handrail		LF	\$ 85.00	\$ -
47	Install HR-2 Handrail		LF	\$ 90.00	\$ -
48	Install access road gate		EA	\$ 2,100.00	\$ -
49	Install post and cable barrier		EA	\$ 750.00	\$ -
50	Install removable locking bollard		EA	\$ 950.00	\$ -
51	Temp. construction entrance (no wash rack)		EA	\$ 850.00	\$ -
52	Vehicle wash rack for construction entrance		EA	\$ 850.00	\$ -
53	Silt fence		LF	\$ 4.78	\$ -
54	Super silt fence		LF	\$ 11.96	\$ -
55	Inlet protection		EA	\$ 190.00	\$ -
56	Sodding		SY	\$ 5.50	\$ -
57	Sodding to include 2" topsoil		SY	\$ 10.00	\$ -
58	Seed and mulch (includes lime and fertilizer)		SY	\$ 1.50	\$ -
59	Seed, mulch, and 2" topsoil (includes lime and fertilizer)		SY	\$ 6.00	\$ -
60	Native seeding/wetland mix		SY	\$ 1.25	\$ -
61	2" topsoil		SY	\$ 5.00	\$ -
62	Install coir logs (12"-16" diameter)		LF	\$ 27.90	\$ -
63	Install coir logs (20" - 24" diameter)		LF	\$ 41.37	\$ -
64	Provide and plant tree seedling (12" length caliper/BR)		EA	\$ 155.00	\$ -
65	Provide and plant shrub seedling (container)		EA	\$ 45.00	\$ -
66	Clean debris from pond low-flow trash rack. Remove & dispose all material off-site.		EA	\$ 105.00	\$ -
67	Clean debris from pond top trash rack. Remove & dispose all material off-site.		EA	\$ 105.00	\$ -
68	Slip-Line existing CMP pipe		LF	\$ 110.00	\$ -
69	Pond silt removal and disposal off-site		CY	\$ 43.35	\$ -
70	Removal of rip-rap (all classes)		SY	\$ 25.00	\$ -
Non-Std.				\$ -	\$ -
Non-Std.				\$ -	\$ -

Sub-Total = \$ -

Mobilization (5%) = \$ -

Total Estimated Cost = \$ -

Fairfax County Maintenance and Stormwater Management Division

Non-Routine Maintenance Scope of Work - Cost Estimate

**S / DP
00/00/1900**



QUANTITY AND COST ESTIMATE (based on Fairfax County Pricing Schedule)

Item No.	Item Description	UOM	Unit Price	Units	Cost
1	ON-SITE Pond and access road mowing/clearing: Grass >24" unfinished height to 4" to 6" finished height. Woody stock, brush and trees up to 2" diameter, remove and dispose all material off-site	0.1 acre	\$ 33.72		\$ -
2	REGIONAL Pond and access road mowing/clearing: Grass < 24" unfinished height to 6" to 8" finished height. Woody stock, brush and trees up to 2" diameter, remove and dispose all material off-site	0.1 acre	\$ 33.72		\$ -
3	Clean out pond control structure riser; remove and dispose all material off-site. Confined Space Entry Permit Required.	cu. yard	\$ 43.35		\$ -
4	Clean debris from pond control structure trash rack. Remove debris/sediment from all drainage channels within 25' radius of pond control structure riser. Remove and dispose all material off-site.	per pond	\$ 103.23		\$ -
5	Repair / replace detention pond signs - Existing Post	sign	\$ 52.49		\$ -
6	Repair - replace detention pond signs - New Post	sign	\$ 91.20		\$ -
7	Certified Arborist	per hour	\$ 92.90		\$ -
8	Chipper (incl. equipment, operator, and disposal)	per hour	\$ 87.75		\$ -
9	Stump Removal / Grinding (incl. equipment and labor)	per hour	\$ 87.75		\$ -
10	Bucket Truck w/operator, one climber, and one groundman (crew)	crew hour	\$ 201.29		\$ -
11	8 ton Crane (incl. equipment and operator)	per hour	\$ 206.45		\$ -
12	Blockage removal / Dewatering Services - Boat/Pump Not Required for Blockage Removable.	per hour	\$ 91.88		\$ -
13	Blockage removal / Dewatering Services - Boat/4" Pump Required for Blockage Removable.	per hour	\$ 174.46		\$ -
14	Pond silt removal and disposal off-site	cu. yard	\$ 43.35		\$ -
15	Seeding and mulching (per VDOT spec. Seed mix 50% K-31/50% Annual Rye)	sq. yard	\$ 1.39		\$ -
16	Application of Seed Mix product 75% K-31 and 25% Rye, to incl. all equipment, labor, and material costs.	per lb.	\$ 22.96		\$ -
17	Application of Wetland Seed Mix product No. 120 by Ernst Seed or approved equal, to incl. all equipment, labor, and material costs.	per lb.	\$ 71.11		\$ -
18	Application of Wetland Seed Mix product No. 131 by Ernst Seed or approved equal, to incl. all equipment, labor, and material costs.	per lb.	\$ 112.03		\$ -
19	Provide topsoil as needed, including all equipment, labor, and material costs.	cu. yard	\$ 49.55		\$ -
20	Restoration of disturbed areas to incl. all equipment, labor, and material costs.	sq. yard	\$ 1.71		\$ -
21	Sediment Removal Equipment Mobilization Fee (one-time fee per job assignment).	each	\$ 516.13		\$ -
22	Installation and removal of VA std. 3.05 silt fence with wooden stakes to include all equipment, labor, and material costs.	per lin. ft.	\$ 2.58		\$ -
23	Installation and removal of PFM plate 7-11 super silt fence with steel posts & wire fence (super silt fence) to incl. all equipment, labor, and material costs.	per lin. ft.	\$ 9.82		\$ -
24	Installation of straw mulch at 2 tons/acre to incl. all equipment, labor, and material costs.	sq. yard	\$ 0.37		\$ -
25	Installation of EM-400 Jute Mat (or approved equal) to incl. all equipment, labor, and material costs.	sq. yard	\$ 3.07		\$ -
26	Installation of EM-700 Jute Mat (or approved equal) to incl. all equipment, labor, and material costs.	sq. yard	\$ 3.80		\$ -
27	Installation of EM-900 Jute Mat (or approved equal) to incl. all equipment, labor, and material costs.	sq. yard	\$ 3.88		\$ -
28	Installation of Curlex "NetFree" (or approved equal) to incl. all equipment, labor, and material costs.	sq. yard	\$ 2.06		\$ -
29	Installation of VDOT No. 1 course aggregate stone (surge stone) to incl. all equipment, labor, and material costs.	per ton	\$ 41.29		\$ -
30	Installation of Class 1 rip-rap stone to incl. all equipment, labor, and material costs.	per ton	\$ 67.10		\$ -
31	Installation of Geotex 104F (or approved equal) filter fabric to incl. all equipment, labor, and material costs.	sq. yard	\$ 2.66		\$ -
32	Dewatering of sediment on-site to incl. all equipment, labor, and material costs.	cu. yard	\$ 28.90		\$ -
33	Installation of sod to incl. all equipment, labor, and material costs.	sq. yard	\$ 4.61		\$ -
34	Installation of Fairfax County Code Ch. 104 amendment 75' long construction entrance to incl. all equipment, labor, and material costs.	sq. ft.	\$ 2.07		\$ -
35	Rubber-tracked skid steer loader (small) including operator.	per hour	\$ 67.10		\$ -
36	Rubber-tracked compact/mini excavator including operator.	per hour	\$ 67.10		\$ -
37	Rubber-tired front-end loader/backhoe including operator.	per hour	\$ 87.75		\$ -
38	Disposal of misc. debris generated at County-owned stormwater management facilities to incl. all equipment, labor, and material costs.	per ton	\$ 90.84		\$ -
39	General labor to perform miscellaneous tasks.	per hour	\$ 36.13		\$ -
40	Water of plantings.	per hour	\$ 56.78		\$ -
41	Removal of tree and brush greater than 2" in diameter (Crew incl. equipment w/operator, 1 climber, and 1 laborer)	crew hour	\$ 232.26		\$ -
Non-Standard			\$ -		\$ -
Non-Standard			\$ -		\$ -

Total Cost = \$ -



Fairfax County Maintenance and Stormwater Management Division
Non-Routine Maintenance Scope of Work



S / DP
Mow Package #
00/00/1900

Routing:

Access and Site Considerations:

VISUAL CONDITION ASSESSMENT RESULTS

1. (See photo -)
2. (See photo -)
3. (See photo -)
4. (See photo -)
5. (See photo -)
6. (See photo -)
7. (See photo -)
8. (See photo -)

SCOPE OF WORK DESCRIPTION

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

