

CIVIL ENGINEERING  
ENVIRONMENTAL  
SURVEYING  
LANDSCAPE ARCHITECTURE  
GEOTECHNICAL

## STORMWATER MANAGEMENT MAINTENANCE MANUAL

13 Moebus Place  
Block 18, Lot 5  
Town of Clinton,  
Hunterdon County, NJ

Prepared For:  
Puleo International, Inc.  
3614 Kennedy Rd  
South Plainfield, NJ 07080

October 20, 2020  
Revised January 20, 2021



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## PART II - FIELD MANUALS AND MAINTENANCE RECORDS

Field Manual for BMP-1

Maintenance Logs and Inspection Records

## PARTY RESPONSIBLE FOR MAINTENANCE:

Puleo International, Inc.  
Address: 3614 Kennedy Road, South Plainfield, NJ 07080  
Contact Person(s): Mr. Chris Puleo, Owner  
Phone: 732-667-3800

This plan is recorded in

Deed Book # \_\_\_\_\_ Page # \_\_\_\_\_ with \_\_\_\_\_ County Clerk on Date \_\_\_\_\_

Last Revised on 1 / 20 / 2021



# PART I - MAINTENANCE PLAN

## 1. LIST OF STORMWATER MANAGEMENT MEASURES

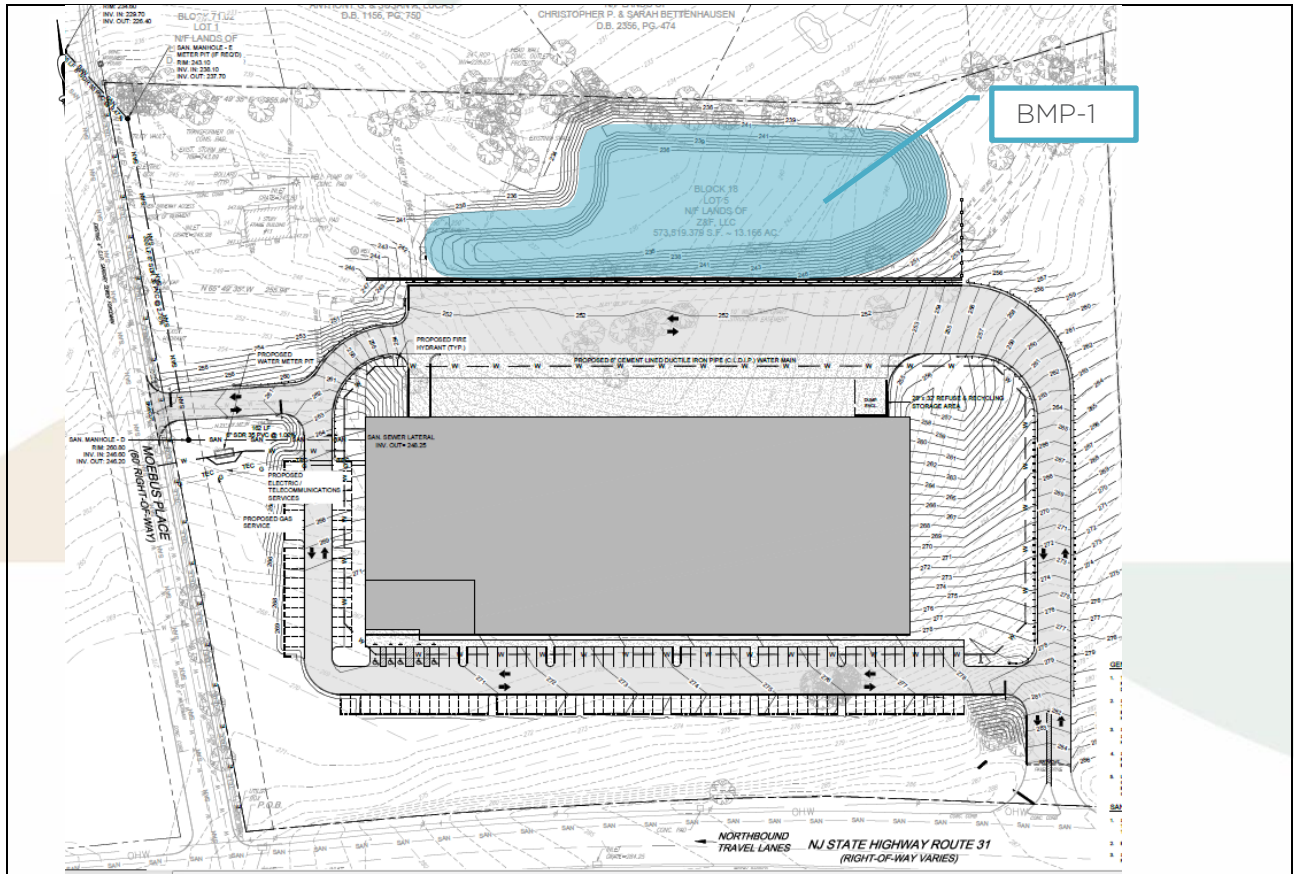
The stormwater management measures incorporated into this development are listed below. The corresponding Field Manuals for the stormwater management measures are located in Part II of the Maintenance Plan.

Type of Stormwater Management Measure	BMP No.	Location Description	State Plan Coordinates / Lat., Long.
Bioretention Basin	1	Rear of property, Behind warehouse	N(Y): 659,845 E(X): 380,380



## 2. LOCATION MAP

The map below shows the proposed site improvements and stormwater management measures for the subject property.



BMP No.	Type of Stormwater Management Measure
1	Bioretention Basin-1

### 3. DESCRIPTION OF STORMWATER MANAGEMENT MEASURES

#### Bioretention Basin (BMP #1)

Design storm:

- Design Purposes:
  - o Water Quality, Quantity, and Recharge
  - o 1.25 inches in 2 hours;  
Max WSE: 236.97'  
Drain Time: 1.8 hours
  - o 2-year storm in 24 hours (3.29 inches)  
Max WSE: 238.46'  
Drain Time: 25 hours
  - o 10-year storm in 24 hours (4.99 inches)  
Max WSE: 239.45'  
Drain Time: 25 hours
  - o 100-year storm in 24 hours (8.31 inches)  
Max WSE: 240.36'  
Drain Time: 25 hours
- Dimensions: 300' (Length) x 100' (Width) x 5' (Depth)



## 4. PREVENTATIVE AND CORRECTIVE MAINTENANCE ACTION PLAN

### Preventative Maintenance Actions


Frequency	Preventative Maintenance Actions	Stormwater Measures/ No.
Quarterly	Inspect inflow points, manholes, cleanouts, structure interior, and structural integrity. Trash and debris should be removed immediately as required. Also applies after major storms in excess of 1 inch of rainfall.	BMP #1
Quarterly	Remove weeds and other unwanted vegetation growth in accordance with the landscape plan included with the development drainage for the project site.	BMP #1
Annually	Inspect outflow for evidence of scour and erosion, repair as necessary. Inspect for unwanted vegetative growth. Inspect all structural components for cracking, subsidence, spalling, erosion, and deterioration. Make necessary repairs or corrective action. Inspect discharge location (overflow) and ensure stability of grate and remove trash/debris.	BMP #1
All Times	No heavy equipment all be permitted on the basin surface.	BMP #1

### Corrective Maintenance Actions

Potential Corrective Maintenance Actions	Stormwater Management Measures/No.
<b>Repair/ Replacement of outlet structure:</b> The maximum 'allotted time' for a detention system to drain is 72 hours. If at any time the systems fail to drain within the 'allotted time', immediate corrective measures shall be employed.	BMP #1

- The roof leader drain collection system should be inspected semi-annually to confirm proper operation during storm conditions; check for clogging.
- Vegetation health should be inspected biweekly during the first growing season or until vegetation is established. Once, established, these





inspections should be continued at least twice annually. Vegetative cover should be maintained at 85%, and if the area vegetation has greater than 50% damage, the area should be reestablished in accordance with the original specifications. All vegetation deficiencies should be addressed without the use of fertilizers and pesticides whenever possible. At least one full growing season should have elapsed prior to strip functioning as part of the stormwater management system.

## 5. INSPECTION AND LOGS OF ALL PREVENTATIVE AND CORRECTIVE MAINTENANCE

Inspection Checklists in the Field Manual for the stormwater management measures on this site include:

- Bioretention Basin Field Manual

The logs of all inspections, and both preventative and corrective maintenance performed should be attached in the “Maintenance Logs and Inspection Records” section. See Part II of the Maintenance Plan

## 6. MAINTENANCE PERSONNEL, EQUIPMENT, TOOLS, AND SUPPLIES

Maintenance Personnel/Equipment/Tools/Supplies

Personnel/Equipment/Tools Name	Quantity
Access cover lifting tool	2
Gloves and safety shoes	2 per employee
Flashlight	2
Safety Cones and/or caution tape	10
Hard Hats and Safety Glasses	1 per employee
Proper Safety Equipment for confined space entry	As needed

Specialized, proprietary or nonstandard equipment, tools and supplies, if applicable

Name of the specialized, proprietary or nonstandard equipment, tools and supplies	Source
Not applicable	n/a





## 7. COST ESTIMATE

General cost for routine maintenance (e.g., quarterly maintenance)

Cost Type	Cost Per Task	No. Time/Year	No. of Components	Total Yearly Cost Estimate
Trim and Mow Grass and Vegetation in stormwater management areas	\$400	8	1	\$3,200
Inspect basin outlets control structures, inlets, manufactured treatment device, and cleanouts for trash, debris, and sediment (clean/remove as necessary)	\$250	4	6	\$6,000
Inspect roof leaders and gutters for trash, debris, and sediment (clean/remove as necessary)	\$150	Approx. 12	1	\$1,800

General cost - unscheduled maintenance in a year (e.g., inspection after 1 inch of rain)

The frequency of large storm events that require routine maintenance varies from year to year. Therefore, it is possible that the estimated quantities of tasks shown above will vary. In these cases, the 'Cost per Task' column may be used to estimate single unscheduled tasks.

## 8. SAFETY MEASURES AND PROCEDURES

As per NJDEP BMP Manual, procedures and equipment are required to protect the safety of inspection and maintenance personnel.

### Qualification for Performing Maintenance in Special Circumstances

Maintenance tasks that require the entry of inlet/outlet structures, manholes, or MTDs are required to be performed by qualified personnel that have the necessary Occupational Safety and Health Administration (OSHA) Confined-Space Entry training and certification.



## Safety Procedures

Observational monitoring maintenance of the underground chamber system and Pervious asphalt sections shall be carried out with the following safety precautions:

- Check for hazardous odors or gasses
- Check for sharp or dangerous debris or trash
- Wear all recommended safety equipment
- Establish traffic cones/signs/caution tape around work area

Maintenance personnel shall follow all other procedures required by local, state, and federal laws and regulations, and the safety instructions provided by the equipment or device manufacturers.

## Training Plan and Records

As per NJDEP BMP Manual Ch. 8 (February 2004), maintenance training begins with a basic description of the purpose and function of the overall stormwater management measure and its major components. Such understanding will enable maintenance personnel to provide more effective component maintenance and more readily detect maintenance-related problems. Depending on the size, character, location, and components of each stormwater management measure, maintenance personnel may also require training in specialized inspection and maintenance tasks and/or the operation and care of specialized maintenance equipment. Training should also be provided in the need for and use of all required safety equipment and procedures.

## Safety Training

Types of Training:

- Mandatory Stormwater Management Basic Training and Field Manual Usage Training for new maintenance crews
- Occupational Safety Training
- Subcontractor training, if applicable

Content of Training:

- Stormwater Management Basic Training - Purposes and Functions of BMPs. Example Training Material:
  - NJDEP Stormwater BMP Manual, Chapter Nine: Structural Stormwater Management Measures
    - Chapter 9.1 Detention Systems
    - Chapter 9.2 Constructed Wetlands
    - Chapter 9.3 Dry Wells
    - Chapter 9.4 Extended Detention Basins
    - Chapter 9.5 Infiltration Basins
    - Chapter 9.6 Manufactured Treatment Devices
    - Chapter 9.7 Pervious Paving Systems
    - Chapter 9.8 Rooftop Vegetated Cover
    - Chapter 9.9 Sand Filters
    - Chapter 9.10 Vegetative Filter Strips



- Chapter 9.11 Wet Ponds
- Chapter 9.12 Grass Swales
- Chapter 9.13 Subsurface Gravel Wetlands

More training information is available at NJ Stormwater.org  
(<http://www.nj.gov/dep/stormwater/training.htm>)

- Vegetation Care. Example Training Material:
  - NJDEP Stormwater BMP Manual, Chapter Seven: Landscaping (provides information on vegetation and landscaping for stormwater management measures)
  - Other
- Field Manual Usage Training. Example Training Material:
  - Field Manuals attached to this Maintenance Plan
  - Other
- Equipment and Tools Operation Training. Example Training Material:
  - Equipment or tool manufacturer's Operation & Maintenance Manual
  - Other
- Occupational Safety Training. Example Training Material:
  - OSHA Training
  - Equipment or tool manufacturer's Operation & Maintenance Manual
  - Other

## 9. TRAINING PLAN AND RECORDS

### I. Training Plan

#### Types of Training

- Mandatory Stormwater Management Basic Training and Field Manual Usage Training for new maintenance crews
- Occupational Safety Training
- Subcontractor training, if applicable

#### Content of Training

- **Stormwater Management Basic Training**
  - Purposes and Functions of BMPs

#### Example Training Material

- NJDEP Stormwater BMP Manual, Chapter Nine: Structural Stormwater Management Measures
  - Chapter 9.4 Extended Detention Basins
  - Chapter 9.7 Pervious Paving Systems
  - Chapter 9.10 Vegetative Filter Strips
  - Chapter 9.12 Grass Swales

More training information is available at NJ Stormwater.org  
(<http://www.nj.gov/dep/stormwater/training.htm>)

- Vegetation Care



Example Training Material

- NJDEP Stormwater BMP Manual, Chapter Seven: Landscaping

*(provides information on vegetation and landscaping for stormwater management measures)*

- Other
- Field Manual Usage Training

Example Training Material

- Field Manuals attached to this Maintenance Plan
- Other

- Equipment and Tools Operation Training

Example Training Material

- Equipment or tool manufacturer's Operation & Maintenance Manual

- Other

- Occupational Safety Training

Example Training Material

- OSHA Training
- Equipment or tool manufacturer's Operation & Maintenance Manual

- Other

**II. Training Records**

Training attendance sheets should be attached by the responsible party after each training.



## 10. ANNUAL EVALUATION OF THE EFFECTIVENESS OF THE PLAN

Per N.J.A.C. 7:8-5.8(g), the Responsible Party designated at the beginning of this report shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan as needed.

The Responsible Party shall evaluate the effectiveness of the maintenance plan by comparing the maintenance plan with the actual performance of the maintenance. The following items shall be evaluated at a minimum:

- Whether inspections have been performed as scheduled;
- Whether preventive maintenance has been performed as scheduled;
- Whether the frequency of preventative maintenance needs to increase or decrease;
- Whether the planned resources were enough to perform the maintenance;
- Whether repairs were completed on time;
- Whether the actual cost was consistent with the estimated cost;
- Whether inspection, maintenance, and repair records have been kept.

If actual performance of these items has deviated from the maintenance plan, the Responsible Party should find the causes and implement solutions in a revised maintenance plan.

The following shall be provided to the township engineer prior to April 1st of each year:

- All inspection reports of prior years,
- Description of all maintenance performed on all components of SWM system during prior year.

### Annual Evaluation Records

Evaluator(s)	Date of Evaluation	Decision



## 11. DOCUMENTS

The following documents shall be attached prior to issuance of Certificate of Occupancy:

### **Transfer Agreement**

As per N.J.A.C. 7:8-5.8(b), if the maintenance plan identifies a person other than the developer as having the responsibility for maintenance, the plan shall include documentation of such person's agreement to assume this responsibility, or the developer's obligation to dedicate a stormwater management facility to such person under an applicable ordinance or regulation.

### **Deed**

As per N.J.A.C. 7:8-5.8(d), if the person responsible for maintenance is not a public agency, the maintenance plan and any future revisions shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken.

### **As-Built Drawings with Drainage Plans**

As per NJDEP BMP Manual Ch. 8 (Feb., 2004), as-built construction plans of the stormwater management measure and copies of pertinent construction documents, such as laboratory test results, permits, and completion certificates should be included in this Maintenance Plan.

### **Landscaping Plan for the Stormwater Management Measures**

As per NJDEP BMP Manual Ch. 8 (Feb., 2004), if there is a Landscaping Plan for the stormwater management measures, it should be included in this Maintenance Plan.

### **Permeability Test/Infiltration Test Report**

As per NJDEP BMP Manual Ch. 8 (Feb., 2004), if a permeability test or infiltration test is required and available, the reports for pre-construction and post-construction testing should be included in this Maintenance Plan.

### **Groundwater Mounding Analysis**

As per NJDEP BMP Manual Ch. 8 (Feb., 2004), if a groundwater mounding analysis is required and the groundwater mounding analysis was performed, a copy of the analysis should be included in this Maintenance Plan.

### **Soil Boring Logs**

As per NJDEP BMP Manual Ch.8 (Feb., 2004), if any soil borings were taken prior to construction, a copy of the soil boring logs should be included in this Maintenance Plan.

### **Local, State, Federal Permits**

As per NJDEP BMP Manual Ch. 8 (Feb., 2004), local, state, or federal permits related to the stormwater management measures for this development should



be included in this Maintenance Plan. See Cost Estimate Section of This Maintenance Plan for more information.

The requirement to obtain State permits depends on specific circumstances, such as, but not limited to, the specific design of the stormwater management measures, the maintenance actions, the access and disturbance, the disposal methods, the location of disposal, the method to empty a basin, the method to dredge the basin, the pollutants in the basin, the damages to the basin, and the method to repair the basin.

Check Maintenance Guidance in NJDEP Stormwater Management Website for details and links to the relevant permits and program areas (<http://www.njstormwater.org>).

#### **Safety Regulations and Requirements**

As per NJDEP BMP Manual Ch. 8 (Feb., 2004), all local ordinances and state and federal regulations regarding occupational safety should be included in this Maintenance Plan.

#### **Devices/Tools/Equipment Operation and Maintenance Manual and Warranties**

As per NJDEP BMP Manual Ch. 8 (Feb., 2004), maintenance, repair, and replacement instructions for specialized, proprietary, and nonstandard equipment, tools, supplies, manufacturers' product instructions, and user manuals should be included in this Maintenance Plan.



## PART II - FIELD MANUALS

### Attachment of Field Manuals for Stormwater Management Measures on this Site

As per N.J.A.C. 7:8-5.8(b)&(e), preventative and corrective maintenance shall be performed to maintain the function of stormwater management measures, including repair or replacement of the structure; removal of sediment, debris or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; repair or replacement of non-vegetated linings, and removal of rodent/wildlife and repair/restoration to damaged affected areas caused by them.

Each Field Manual attached to this Maintenance Plan is a separate document pertaining to one specific stormwater management measure, and should be used by inspections and maintenance crews in order to carry out the maintenance work required by N.J.A.C. 7:8-5.8(e). Design engineers should prepare the field manuals in accordance with the design of each measure and the specific requirements of the site. See the sample field manuals for further guidance.

Field Manual for Bioretention Basin (BMP #1)

### Maintenance Logs and Inspection Records

As per N.J.A.C. 7:8-5.8(e), preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure(s), including repairs or replacement to the structure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of non-vegetated linings.

As per N.J.A.C. 7:8-5.8(f), the person responsible for maintenance shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders.

The responsible party shall maintain a record of all maintenance actions performed, including:

- Inspection checklists from each performed inspection
- Preventative maintenance logs
- Corrective maintenance logs, including work orders
- Other maintenance records





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## BIORETENTION BASIN FIELD MANUAL

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Prepared For:  
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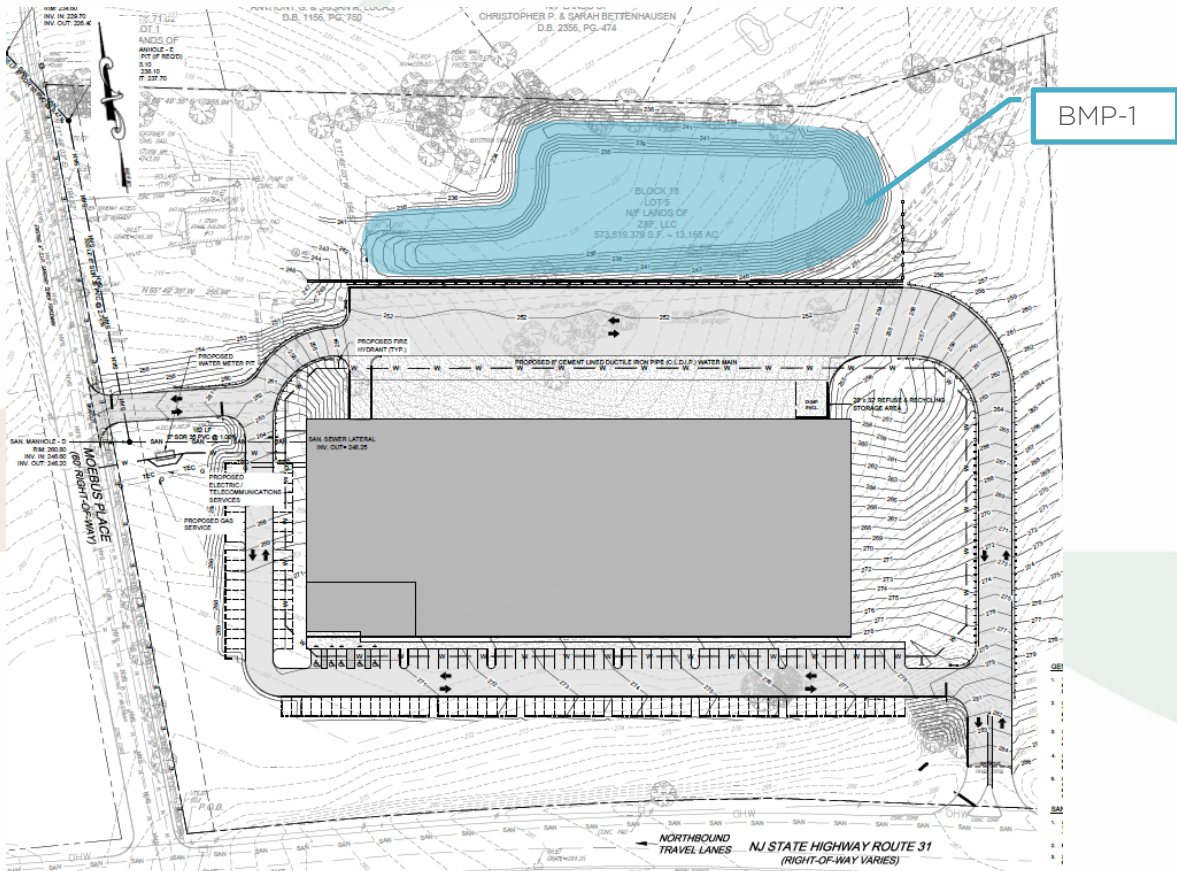
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# 1. LOCATION MAP



## 2. BIORETENTION BASIN OVERVIEW

### Functionality

Bioretention systems are used to remove a wide range of pollutants, such as suspended solids, nutrients, metals, hydrocarbons, and bacteria from stormwater runoff. They can also be used to reduce peak runoff rates and increase stormwater infiltration when designed as a multi-stage, multi-function facility.

A bioretention system can be configured as either a bioretention basin or a longer, narrower bioretention swale. In general, a bioretention basin has a flat bottom while a bioretention swale may have sloping bottom. Runoff storage depths above the soil bed surface are typically shallow. The TSS removal rate for bioretention systems is 80 or 90 percent, depending upon the thickness of the soil planting bed and the type of vegetation grown in the bed.

Proper care and attention in the long-term maintenance of the stormwater management measure is critically important to the safety and health of the public.

### Type of BMP – Dry Basin / Infiltration Only

A bioretention system is a type of dry basin. Dry basins must fully drain within 72 hours of the most recent rainfall. Standing water in excess of 72 hours is a sign of basin failure. It may also contribute to mosquito breeding and other health and safety issues. The design drain time shall be closely monitored to ensure that potential failure is recognized early.



### 3. BASIN DESIGN INFORMATION

Hydrology Design Targets:

1. This basin is designed as an online system.
2. The **design drain time** is 24 hours.
3. The elevation of the seasonal high-water table of this basin was observed on 12/22/2020 by E&LP test pits that were excavated to depths of up to 14' below grade.
4. This basin will be discharged to grade onsite.

Hydraulic Design Targets:

1. This basin is designed to infiltrate the runoff from the Water Quality Design Storm, which generates 25,436 cf of runoff.
2. Design Parameters

	Water Quality Design Storm	2-year storm	10-year storm	100-year storm
Rainfall Depth (inches)	1.25" in 2 hours	3.29" in 24 hours	4.99" in 24 hours	8.31" in 24 hours
Runoff Volume (cubic feet)	0	69,810	102,791	135,583
Peak Flow Rate (cfs)	0	0.495	0.1858	18.41
Water Surface Elevation (feet)	236.97'	238.46	239.45	240.36

Outlet Information:

Outlet Description	Outlet Type	Orifice Size / Weir Length	Invert Elevation
Outlet #1	Riser	5' x 5'	240.25
Outlet #2	Rectangular Weir	4'	239.25
Outlet #3	Orifice	4"	236.90

3. The emergency spillway is at EL. 240.50 feet.



### Basin Configuration Targets:

1. Pretreatment is not provided. A perforated riser is not used.
2. This basin bottom is covered by a bioretention soil media, the soil media is underlain by a network of perforated 4" PVC underdrains.
  - The depth of the soil media layer shall be 24 inches.
  - The bottom elevation of the soil media layer is 234.00 ft.
3. The top of sand bed is designated to have no vegetation.

### Critical Maintenance Features:

1. No heavy equipment on the basin surface or sand layer.
2. Trash racks and discharge outlet shall be cleaned frequently.
3. Grass clippings shall be collected from the basin and properly disposed.

### Visual Aid for Dry Type Stormwater Basin Inspection:



Issue:	The inlet is not properly drained, assuming it has not rained within 72 hours.
Corrective Action:	Clear and remove sediment. Check whether the water table is at or above the bottom of the forebay. Also check the permeability of the underlying soil, if necessary.
Preventative Action:	Routine inspections and removal of sediment from the forebay.



Courtesy of NJDOT

- Issue: The Inflow pipe is clogged by sediment and vegetation.
- Corrective Action: Clear and remove sediment and unwanted vegetation.
- Preventative Action: Routine inspection and removal of sediment and unwanted vegetation.



Courtesy of NJDOT

- Issue: The Inflow pipe is entirely clogged by sediment and trees.
- Corrective Action: Clear and remove sediment and trees.
- Preventative Action: Routine inspection & removal of sediment and unwanted vegetation.



Issue:	The excessive sediment in inflow pipe (shown above) might be caused by a blockage of flow to the basin due to excessive vegetation and overgrown trees.
Corrective Action:	Clear and remove trees and vegetation. If necessary, re-grade the bottom slope to ensure the flow properly spreads over the basin bottom.
Preventative Action:	Routine inspection and removal of sediment and unwanted vegetation.





Issue: Eroded inflow apron.  
Corrective Action: Repair apron.  
Preventative Action: Routine inspection and rehabilitation, if necessary.



Issue: The vegetation loss and the blackish soil may indicate frequent inundation.

Corrective Action: Check the permeability rate of the soil and the water table elevation. Replace the soil if necessary.

Preventative Action: Routine inspection and tilling/aeration, if necessary.



Issue: The low flow channel has excessive accumulation of sediment and debris. The outflow orifice is clogged by a trash bag and debris. Note that there is no trash rack installed.

Corrective Action: Check the permeability rate of the soil and the water table elevation. Replace the soil if necessary.

Preventative Action: Routine inspection and cleaning.



Issue:	Trash rack is damaged.
Corrective Action:	Repair the trash rack.
Preventative Action:	Routine inspection, especially after large storm events. Tighten any loose bolts and repair structural flaws.



A well-maintained detention basin

## 4. REFERENCE DOCUMENTS

Documents to be placed in this field manual should include the following:

- As-built Drawings with Drainage Plans
- Soil Boring Logs
- Permeability Test (Pre-construction)
- Permeability Test (Post-construction)
- Landscaping Plan

## 5. INSPECTION CHECKLIST / MAINTENANCE ACTIONS

### Infiltration Basin

Checklist (circle one): Quarterly / Annual / Monthly / Special Event Inspection

Checklist No. \_\_\_\_\_ Inspection Date: \_\_\_\_\_

Date of most recent rain event: \_\_\_\_\_

Rain Condition (circle one):  
Drizzle / Shower / Downpour / Other \_\_\_\_\_

Ground Condition (circle one):  
Dry / Moist / Ponding / Submerged / Snow accumulation

The inspection items and preventative/corrective maintenance actions listed below represent general requirements. The design engineer and/or responsible party shall adjust the items and actions to better meet the conditions of the site, the specific design targets, and the requirements of regulatory authorities.



		For Inspector		For Maintenance Crew
B Infiltration Bed	1	Standing water is present after the design drain time  The observed drain time is approximately _____ hours.	Y__  N__	Recheck to determine if there is standing water after 72 hours.  If standing water is present longer than 5 days, report to mosquito commission.  Remove any sediment buildup.  Replace the sand layer.  Work Order # _____
	2	Excessive sediment, silt, or trash accumulation on basin bed	Y__  N__	Clean pretreatment system.  Remove silt, sediment, and trash.  Work Order # _____
	3	Erosion or channelization is present	Y__  N__	Check whether the flow bypass or diversion device is clogged.  Re-grade the infiltration bed.  Work Order # _____
	4	Animal burrows/rodents are present	Y__  N__	Pest control.  Work Order # _____
	5	Uneven bed	Y__  N__	Use light equipment to resurface the bed.  Work Order # _____
	6	Evidence of sinkholes or subsidence	Y__  N__	Monitor for sinkhole development

Note:

		For Inspector		For Maintenance Crew
C Vegetation	1	Large spot(s) showing bare soil	Y__ N__	<p>Vegetative cover must be maintained at 85%. Revegetate the entire basin if 50% or more vegetation has been lost</p> <p>Check Landscaping plan for guidance (if available)</p> <p>Work Order # _____</p>
	2	Overgrown vegetation	Y__ N__	<p>Mow/trim the vegetation</p> <p>Work Order # _____</p>
	3	Tree growth in the basin	Y__ N__	<p>Clear, trim, or prune the trees according to the original Landscaping Plan</p> <p>Inspect to determine if the tree roots caused any structural damage</p> <p>Work Order # _____</p>

Note:

		For Inspector		For Maintenance Crew
D Basin Embankment and Side Slopes	1	Signs of erosion, soil slide or bulges, seeps and wet spots, loss of vegetation, or erosion on the basin slope	Y__ N__	<p>Check for excessive overland runoff flow through the embankment.</p> <p>Check for any sink hole development</p> <p>Direct the overland runoff to the forebay or pretreatment area</p> <p>Re-stabilize the bank</p> <p>Work Order # _____</p>
	E Outlet	1	Trash or debris accumulation more than 20%	Y__ N__
	2	Trash rack is damaged or rusted greater than 50%	Y__ N__	<p>Repair or replace trash rack</p> <p>Work Order # _____</p>
	3	Outlet components (e.g., orifice plates or weir plate) skewed, misaligned, or missing	Y__ N__	<p>Repair or replace component</p> <p>Work Order # _____</p>
	4	Discharge pipe apron is eroded or scoured	Y__ N__	<p>Re-stabilize the discharge riprap apron</p> <p>Work Order # _____</p>
	5	Standing water is present in the outlet structure longer than 72 hours	Y__ N__	<p>Pump out the standing water</p> <p>Work Order # _____</p>
Note:				



	For Inspector			For Maintenance Crew
F Emergency Spillway	1	Trees or excessive vegetation present	Y__ N__	Remove trees and roots, and restore berms if necessary Work Order #_____
	2	Damaged structure	Y__ N__	Repair Work Order #_____
G Miscellaneous	1	Fence: broken or eroded parts	Y__ N__	Repair or replace Work Order #_____
	2	Gate: missing gate or lock	Y__ N__	Repair or replace Work Order #_____
	3	Sign/plate: tiled, missing, or faded	Y__ N__	Repair or replace Work Order #_____
	4	Excessive or overgrown vegetation blocking access to the basin	Y__ N__	Clear, trim, or prune the vegetation to allow access for inspection and maintenance Work Order #_____

Note:



# Preventative Maintenance Record

Corresponding Checklist No. \_\_\_\_\_  
 Component No. \_\_\_\_\_, Inspection Item No. \_\_\_\_\_

## Work Logs

Activities	Components	Date Completed
Sediment/debris removal <b>Sediment removal should be taken place when the basin is thoroughly dry</b>	B - Basin Bed	
	D - Basin Embankment and Side Slopes	
	E - Outlet	
Vegetation removal	B - Basin Bed	
	D - Basin Embankment and Side Slopes	
	E - Outlet	
	F - Emergency Spillway	

Vegetation is removed by \_\_\_\_\_ with minimum disruption to the remaining vegetation.

All use of fertilizers, pesticides, mechanical treatments, and other means to ensure optimum vegetation health must not compromise the intended purpose of the stormwater management measure. The fertilizer applied is \_\_\_\_\_, and \_\_\_\_\_ is applied \_\_\_\_\_.

Debris, sediment, and trash are handled (onsite / by \_\_\_\_\_ (contractor name) to disposal site \_\_\_\_\_). (See Part I: Maintenance Plan - Disposal Plan Section)

Crew member: \_\_\_\_\_/\_\_\_\_\_ Date: \_\_\_\_\_  
 (name/ signature)

Supervisor: \_\_\_\_\_/\_\_\_\_\_ Date: \_\_\_\_\_  
 (name/ signature)

File this Preventative Maintenance Record in the Maintenance Log after performing maintenance.

# Corrective Maintenance Record

1. Work Order # \_\_\_\_\_  
Date Issued \_\_\_\_\_
2. Issue to be resolved:
3. The issue was from Corresponding Checklist \_\_\_\_, Component No. \_\_\_\_, Inspection Item No. \_\_\_\_.

4. Required Actions

Actions	Planned Date	Date Completed

5. Responsible person(s):

\_\_\_\_\_

6. Special requirements

- o Time of the season or weather condition \_\_\_\_\_
- o Tools/equipment:  
\_\_\_\_\_
- o Subcontractor (name or specific type): \_\_\_\_\_

Approved by \_\_\_\_\_ / \_\_\_\_\_ Date \_\_\_\_\_  
(name/signature)

Verification of completion by \_\_\_\_\_ / \_\_\_\_\_ Date \_\_\_\_\_  
(name/signature)

File this Corrective Maintenance Record in the Maintenance Log after performing maintenance.