 November 30, 2020

# **STORMWATER MANAGEMENT MEASURES OPERATION & MAINTENANCE MANUAL**

Lidl Grocery Store – MONROE TOWNSHIP,  
GLOUCESTER COUNTY, NEW JERSEY

1020 NJ State Highway Route 42  
Block 1101: Lot 11.01

Prepared for:  
LIDL US OPERATIONS, LLC

Prepared by:

A. A. Caponigro  
NJ LICENSE NO. 24GE05151900

**Kimley»»Horn**

# Stormwater Management Measures Maintenance Plan & Field Manuals

Development Name: **Lidl Grocery Store**

Address: 1020 NJ State Highway Route 42

Block(s) / Lot(s): 1101 / 11.01

Township, County: Monroe, Gloucester

Monroe Township  
125 Virginia Avenue  
Williamstown, New Jersey 08094  
(856) 728-9800

## Party Responsible for Maintenance:

Lidl US Operations, LLC  
3 Executive Campus, Suite 390  
Cherry Hill, NJ 08002  
Contact Person(s): Paul Mascola  
(703) 402-1193

Prepared by: Kimley-Horn Date: November 30, 2020

This plan is recorded in

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

Last Revised on \_\_/\_\_/\_\_\_\_

# Table of Contents

## Part I- Maintenance

Introduction and Description of Stormwater Management Strategy.....	3
List of Stormwater Management Measures.....	5
Location Map.....	6
Description of Stormwater Management Measures.....	7
Preventative and Corrective Maintenance Action Plan .....	8
Maintenance Personnel, Equipment, Tools, and Supplies .....	10
Disposal Plan .....	11
Cost Estimate.....	12
Safety Measures and Procedures.....	16
Training Plan and Records .....	18
Annual Evaluation of the Effectiveness of the Plan.....	21
Documents.....	22

## Part II- Maintenance Logs and Inspection Records

## Introduction and Description of Stormwater Management Strategy

This manual consists of two parts. The first part provides the operation and maintenance instructions for the facilities and equipment. The second part provides information regarding the inspection and maintenance activities.

The Lidl Grocery Store is located on Route 42 in Hamilton Township in Gloucester County, New Jersey. The ± 6-acre development includes a grocery store and associated parking lot. The stormwater system consists of a storm conveyance system that ultimately outfall to the system of stormwater basins along the southern portion of the site. The stormwater basins have outlet control structures to control flow out of the basins to the existing storm conveyance system in the public right-of-way in Lake Avenue. The eastern basin is a detention basin and the western basin is an infiltration basin. Both basins receive offsite flow from the adjacent properties to the north.

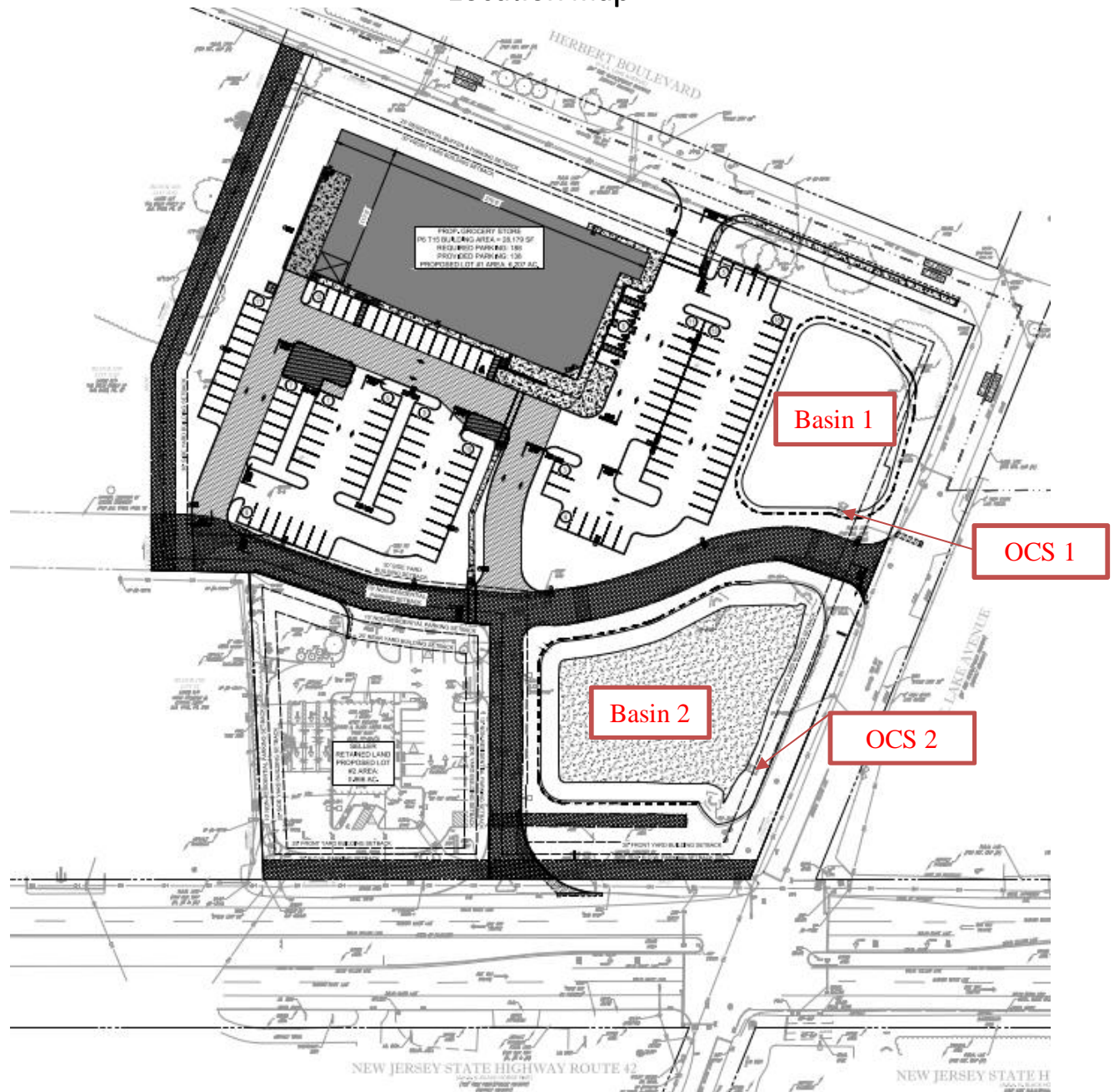
# Part I- Maintenance Plan

## 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 Plane Coordinates
Detention Basin	Basin 1	Southeasterly corner along Lake Avenue	Y: 10156 X: 9162
Outlet Control Structure	OCS 1	Westerly side of the detention basin, adjacent to site access road	Y: 10105 X: 9109
Infiltration Basin	Basin 2	Southwesterly corner along Lake Avenue	Y: 10114 X: 8892
Outlet Control Structure	OCS 2	Southerly side of infiltration basin, adjacent to Lake Avenue	Y: 10034 X: 8898
Conveyance System	N/A	Throughout site	N/A

## Location Map



No.	Type of Stormwater Management Measure
Basin 1	Detention Basin
OCS 1	Outlet Control Structure for Detention Basin
Basin 2	Infiltration Basin
OCS 2	Outlet Control Structure for Infiltration Basin

## Description of Stormwater Management Measures

### Detention Basin (Basin 1)

Design storm:

- Design Purposes:
  - o water quantity
  - o 2-year storm (3.31 inches);
  - o 10-year storm (5.11 inches);
  - o 100-year storm (8.69 inches)
- Drain Time
  - o Water Quality: 72 hours
  - o 100-year storm: 144 hours

### Outflow Control Structure for Detention Basin (OCS 1)

Design storm:

- Design Purposes:
  - o Di Water quality, water quantity
- Approximate Dimensions: 5' (Length) x 5' (Width) Concrete structure

### Infiltration Basin (Basin 2)

Design storm:

- Design Purposes:
  - o water quantity
  - o water quality
  - o 2-year storm (3.31 inches);
  - o 10-year storm (5.11 inches);
  - o 100-year storm (8.69 inches)
- Drain Time
  - o Water Quality: 72 hours
  - o 100-year storm: 144 hours

### Outflow Control Structure for Detention Basin (OCS 2)

Design storm:

- Design Purposes:
  - o Water quality, water quantity
- Approximate Dimensions: 7' (Length) x 5' (Width) Concrete structure

### Conveyance System (includes catch basins, manholes, pipes)

Design storm:

- Design Purposes:
  - o Convey stormwater runoff underground to stormwater basins



## Preventative and Corrective Maintenance Action Plan

As per N.J.A.C. 7:8-5.8(b) & (e), preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure, including, but not limited to, 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.

### Preventative Maintenance Actions

Frequency	Preventative Maintenance Actions	Stormwater Measures/ No.
Biweekly	<ul style="list-style-type: none"> <li>- Vegetated Area Inspection during establishing or restoring vegetation</li> </ul>	<p style="text-align: center;">Basin 1 Basin 2</p>
Monthly	<ul style="list-style-type: none"> <li>- Mowing/Trimming of Vegetation during growing season</li> <li>- Vegetated Area Inspection for Erosion, Scour &amp; Unwanted Growth</li> </ul>	<p style="text-align: center;">Basin 1 Basin 2</p>
Quarterly	<ul style="list-style-type: none"> <li>- Sediment/ Debris Inspection</li> </ul>	<p style="text-align: center;">Basin 1, OCS 1 Basin 2, OCS 2</p>
Semiannual	<ul style="list-style-type: none"> <li>- Trapped sediment or debris removal</li> <li>- Vegetated Area Inspection for Health &amp; Density</li> </ul>	<p style="text-align: center;">Basin 1, OCS 1 Basin 2, OCS 2</p>
Annual	<ul style="list-style-type: none"> <li>- Structural Inspection</li> <li>- Vegetated Area Inspection for Erosion, Scour &amp; Unwanted Growth</li> <li>- Tilling/Aeration of Sand Layer</li> </ul>	<p style="text-align: center;">Basin 1, OCS 1 Basin 2, OCS 2</p>
Unscheduled	<ul style="list-style-type: none"> <li>- Sediment/Debris Inspection after every 1" rain</li> <li>- Sediment removal to take place when all runoff has drained the conveyance network and the system is reasonably dry</li> <li>- If necessary, remove and replace sand layer and accumulated sediment to restore original infiltration rate</li> </ul>	<p style="text-align: center;">Basin 1, OCS 1 Basin 2, OCS 2 Conveyance System</p>
Routine	<ul style="list-style-type: none"> <li>- Mowing/Trimming of Vegetation Based on Site Conditions</li> </ul>	<p style="text-align: center;">Basin 1 Basin 2</p>

### Corrective Maintenance Actions

Potential Corrective Maintenance Actions	Stormwater Management Measures/No.
<ul style="list-style-type: none"> <li>- Dispose of all debris/trash/sediment and other waste material at a suitable disposal/recycling site</li> <li>- Fertilizers, pesticides, and mechanical treatments are to be used to ensure optimum vegetation health</li> <li>- Till sand layer</li> <li>- Repair/ Replacement of missing or damaged trash racks</li> <li>- Repair/ Replacement of outlet pipes or orifices</li> <li>- Repair erosion at inflow structures</li> <li>- Repair eroded areas</li> <li>- Vegetative cover to be maintained at 85%; if vegetation has greater than 50% damage, area must be reestablished</li> </ul>	<p>Basin 1, OCS 1 Basin 2, OCS 2</p>
<ul style="list-style-type: none"> <li>- Dispose of all debris/trash/sediment and other waste material at a suitable disposal/recycling site</li> </ul>	<p>Conveyance System</p>

## Inspection and Logs of All Preventative and Corrective Maintenance

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.

As per NJDEP BMP Manual Ch. 8 (Feb, 2004), a maintenance plan shall include a schedule of regular inspections and tasks, and detailed logs of all preventative and corrective maintenance performed on the stormwater management measure, including all maintenance-related work orders. The person with maintenance responsibility must retain and, upon request, make available the maintenance plan and associated logs and other records for review by a public entity with administrative, health, environmental, or safety authority over the site.

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

- Detention Basin (Basin 1)
- Outlet Control Structure for Detention Basin (OCS 1)
- Infiltration Basin (Basin 2)
- Outlet Control Structure for Detention Basin (OCS 2)
- Conveyance System

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

## Maintenance Personnel, Equipment, Tools, and Supplies

### Maintenance Personnel/Equipment/Tools/Supplies

Personnel/Equipment/Tools Name	Quantity
Maintenance crew	1
Qualified inspection crew	1
Lightweight backhoe	1

## Disposal Plan

This section includes disposal and recycling sites and procedures for sediment, trash, debris and other material removed from stormwater management measures during maintenance operations.

Sediment Removal and Disposal: Disposal of sediment must comply with all local, county, state and federal regulations. Only suitable disposal sites should be utilized. These tasks should be performed as needed. The wet pond should be evaluated for excessive deposition of sediment. Accumulated sediment should be removed before it threatens the storage volume of the basin. If stabilized soil conditions exist around the basin, sediment deposition should not be a problem. Should a recurrent problem develop, the inspector should identify the upstream sources of sediment and recommend required stabilization measures.

Removal and Disposal of Trash and Debris: A regularly scheduled program of debris and trash removal will reduce the chance of the outlet structures, the basins, and other components becoming clogged and inoperable during storm events. Additionally, removal of trash and debris will eliminate potential mosquito breeding habitats. Debris and trash must be properly hauled off the site and transferred to an approved disposal site. These tasks should be performed on a quarterly basis and after any major storm event.

### Disposal/Recycling Procedures

#### Dewatering procedures and requirements

Any dewatering procedures shall comply with Standards for Dewatering as outlined in Seventh Edition, NJ Standards for Soil Erosion and Sediment Control, January 2014, Revised Aug. 2017

#### Covering procedures and requirements

Vegetative cover or other protective measures are necessary to prevent the loss of soil due to the forces of wind and water. Where a re-seeding program has not been effective in maintaining a non-erosive vegetative cover, or other factors have exposed soils to erosion, corrective steps should be initiated to prevent further loss of soil that may result in danger to the stability of the facility. Soil loss can be controlled by a variety of materials and methods, including rip-rap, gabion lining, geotextile fabrics, sod, seeding, concrete lining and re-grading. All procedures shall comply with vegetative Standards as outlined in Seventh Edition, NJ Standards for Soil Erosion and Sediment Control, January 2014, Revised Aug. 2017

### Disposal Field – Offsite

#### Description of the Offsite Disposal:

By a private operator, to be determined. A copy of the contract will be included in the Documents section of the Maintenance Plan when available.

Only suitable disposal sites should be utilized. Debris and trash must be properly hauled off the site and transferred to an approved disposal site

## Cost Estimate

### COST ESTIMATES

#### Cost Overview - TBD

Cost Type	Cost	Details
Cost of sediment, trash, and debris removal		
General cost for routine maintenance (e.g., quarterly maintenance)		Table A
General cost – unscheduled maintenance		Table B
Cost associated with special tasks for specific stormwater measures (e.g., biennial sand replacement for sand filter)		Table C
Cost associated with regulatory requirements (e.g., local permit(s), state permit(s), federal permit(s), license(s), liability insurance, equipment operation license(s), certificate(s), etc.)		Table D
Total cost		

**Table A:** General cost for routine maintenance (e.g., quarterly maintenance)

Cost Type	Required Quantity	Unit Price	Cost
<b>Personnel</b>			
Crew	(e.g. persons per day)		
Supervisor			
<b>Equipment</b>			
Truck	(e.g. required hours of operation of the equipment)		
Mower			
<b>Supplies</b>			
Seed	(e.g. bags required)		
Topsoil	(e.g. cubic yards required)		
Working garments/ gloves/protective measures			
<b>Services</b>			
Subcontractor for disposal			
<b>Subtotal</b>			
<b>Overhead</b>			
<b>Total Cost</b>			

**Table B:** General cost – unscheduled maintenance in a year (e.g., inspection after 1 inch of rain)

Cost Type	Required Quantity	Unit Price	Cost
<b>Personnel</b>			
Crew			
Supervisor			
<b>Subtotal</b>			
<b>Overhead</b>			
<b>Total Cost</b>			

## Cost Estimate of Unscheduled Inspections

**Table C:** Cost associated with special tasks for specific stormwater measures (e.g., biennial sand replacement)

Cost Type	Required Quantity	Unit Price	Cost
<b>Personnel</b>			
Crew			
Supervisor			
<b>Equipment</b>			
Truck			
Lightweight backhoe rental			
<b>Supplies</b>			
Sand			
Working garments/gloves/ protective measures			
<b>Services</b>			
Subcontractor for disposal			
<b>Subtotal</b>			
<b>Overhead</b>			
<b>Total Cost</b>			

**Table D:** Cost associated with regulatory requirements (e.g., local permit(s), state permit(s), federal permit(s), license(s), liability insurance, equipment operation license(s), certificate(s), etc.

Cost Type	Period		Fee for each application/renewal	Additional cost for permit preparation
	Effective Date	Expiration Date		
Local permit(s) (specify the permit title)	TBD	TBD	TBD	TBD
State permit(s) (specify the permit title)	TBD	TBD	TBD	TBD
Federal permit(s) (specify the permit title)	TBD	TBD	TBD	TBD
Liability insurance	TBD	TBD	TBD	TBD
Equipment operation license(s)	TBD	TBD	TBD	TBD
Certificate(s)	TBD	TBD	TBD	TBD
Other	TBD	TBD	TBD	TBD
<b>Subtotal</b>				<b>TBD</b>
<b>Overhead</b>				<b>TBD</b>
<b>Total Cost</b>				<b>TBD</b>

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 Measures and Procedures

As per NJDEP BMP Manual Ch. 8 (Feb. 2004), maintenance plans should include procedures and equipment required to protect the safety of inspection and maintenance personnel.

### Safety Regulations and Requirements

All inspections, maintenance and repair work shall be performed by a qualified contractor or private operator in accordance with OSHA Standards and all local, state and federal safety regulations and requirements.

### Safety Tools, Equipment and Garments

List required safety tools and equipment, their location, the responsible person and the contact number. List first aid tools to be carried to field.

Safety Tools and Equipment	Location	Responsible Person/Contact #

### Qualification for Performing the Task in Special Circumstances

List of the measures requiring Occupational Safety and Health Administration (OSHA) Confined-Space Entry Permit (e.g., MTDs or underground tanks)

Stormwater Measures	Location	(OSHA) Confined-Space Entry Permit

### Safety Training

List required safety training in the Training Plan and Records section of this Maintenance Plan.

### Safety Procedures

List all precautions required before entering the BMPs, such as wearing safety ropes, checking whether hazardous gases are present, or checking whether poisonous plants are present. List all standard safety procedures for operating equipment (e.g., signs around operation zones or slope stability when operating a backhoe). List other information required by the applicable local, state, and federal laws and regulations, and the safety instructions provided by the equipment or device manufacturers.

### Emergency Procedures

List all first aid and emergency contacts and contact numbers.

**Attach local ordinance(s) and state and federal regulations regarding occupational safety, if applicable.**

# 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

#### Training Material

- NJDEP Stormwater BMP Manual, Chapter Nine: Structural Stormwater Management Measures
  - Chapter 9.1 Bioretention 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

Training Material

- NJDEP Stormwater BMP Manual, Chapter Seven: Landscaping  
*(provides information on vegetation and landscaping for stormwater management measures)*

- Field Manual Usage Training

Training Material

- Field Manuals attached to this Maintenance Plan

- Equipment and Tools Operation Training

Training Material

- Equipment or tool manufacturer's Operation & Maintenance Manual

- Occupational Safety Training

Training Material

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

## II. Training Records

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

**Attach training attendance sheets from each training**

## Annual Evaluation of the Effectiveness of the Plan

As per N.J.A.C. 7:8-5.8(g), the person responsible for maintenance shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.

The responsible party should evaluate the effectiveness of the maintenance plan by comparing the maintenance plan with the actual performance of the maintenance. The items to evaluate may include, but not limited to,

- Whether the inspections have been performed as scheduled;
- Whether the 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 the repairs were completed on time;
- Whether the actual cost was consistent with the estimated cost;
- Whether the inspection, maintenance, and repair records have been kept.

If actual performance of those items has been deviated from the maintenance plan, the responsible party should find the causes and implement solutions in a revised maintenance plan.

### Annual Evaluation Records

Evaluator(s)	Date of Evaluation	Decision
		<input type="checkbox"/> Maintain current version OR  <input type="checkbox"/> Revise current version Revision date _____ (also update the last revision date on the cover page)  <input type="checkbox"/> Requires a new deed recording (also update the last recording information on the cover page)
		<input type="checkbox"/> Maintain current version OR  <input type="checkbox"/> Revise current version Revision date _____ (also update the last revision date on the cover page)  <input type="checkbox"/> Requires a new deed recording (also update the last recording information on the cover page)
		<input type="checkbox"/> Maintain current version OR  <input type="checkbox"/> Revise current version Revision date _____ (also update the last revision date on the cover page)  <input type="checkbox"/> Requires a new deed recording (also update the last recording information on the cover page)

## Documents

### **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. Not applicable at this time.

### **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. To be provided.

### **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. To be provided upon proposed work completion.

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

Attached with this Manual.

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

Geotechnical report findings included with this manual to provide pre-construction available information.

Permeability test or infiltration test for post-construction condition to be included in this Maintenance Plan upon completion.

### **Soil Boring Logs**

Geotechnical report findings included with this manual to provide pre-construction available information.

### **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. To be included in this manual as obtained.

### **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**

Infiltration and bioretention basin field manuals are included in this Maintenance Plan.



**Attach Documents Here**

## Part II- Maintenance Logs and Inspection Records

## 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





**Attach the Inspection Checklist after each inspection**

## Preventative Maintenance Log

Maintenance Schedule	Stormwater Management Measure No.	Preventative Maintenance Record No.	Date(s) of Maintenance

**Attach the Preventative Maintenance Record after each maintenance task performed**



## Corrective Maintenance Log

Maintenance Schedule	Stormwater Management Measure No.	Corrective Maintenance Record No.	Date(s) of Maintenance

**Attach the Corrective Maintenance Record after each  
maintenance task performed**