

# STORMWATER MANAGEMENT FACILITIES OPERATIONS & MAINTENANCE MANUAL

*for*

*Prepared for:*

## **IV3 Liberty Commerce, LLC**

Block 30306, Lot(s) 11,12,13  
145 Industrial Drive & 56-58 Harbor Drive

City of Jersey City  
Hudson County, New Jersey

*Prepared by:*

# **BOHLER //**

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August 2022

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1. "Maintenance Work Order and Checklist" – a comprehensive form outlining both required and completed maintenance work.
2. "Maintenance Log" – a summary table for recording of all maintenance work at the site.
3. "Inspection Log" – a summary table for recording the results of all inspections of the basins.

## **1.0 PROJECT DETAILS**

### **1.1 Introduction and Description of Facilities:**

The project site is located at 145 Industrial Drive and 56-58 Harbor Drive within Jersey City, New Jersey. The site is bordered to the north by the railroad tracks and industrial zone and use beyond; to the east by Industrial Drive and a neighboring industrial zone and use beyond; to the south by Harbor Drive and a neighboring industrial zone and use beyond; and to the west by Summit Place and State Highway exist roadways beyond. The subject site is more specifically defined as Block 30306, Lots 11, 12, and 13;

The various design parameters established by the NJDEP and the City of Jersey City require the construction of a storm conveyance system that will collect the runoff from the proposed building and associated impervious areas via inlets, manholes, water quality treatment devices, and stormwater piping.

Under post-development conditions, the stormwater management facilities will include water quality units, inlets and piping.

This manual consists of three parts. The first part includes the introduction, project description and a list of project contacts. The second part provides the operation and maintenance instructions for the facilities and equipment. The third part (Appendix) provides information regarding the inspection and maintenance activities.

### **1.2 Project Contacts:**

#### Jersey City Division of Engineering:

Address: 13-15 Linden Ave, East, Jersey City, NJ 07305  
Tel. 201-547-5000  
Attn: Paul Russo, Director

#### Site Design Engineer:

Bohler Engineering  
Address: 35 Technology Drive, Warren, NJ 07059  
Tel. (908) 668-8300  
Attn: James Thaon, PE

#### Party Responsible for Maintaining Stormwater Management Facility:

IV3 Liberty Commerce, LLC  
1 Meadowlands Plaza, Suite 802  
East Rutherford, NJ 07073

## **2.0 INSPECTION AND MAINTENANCE:**

### **2.1 Routine Inspection and Maintenance of the Stormwater Management Facilities:**

Regularly scheduled maintenance inspections of the stormwater facilities should be performed at least four (4) times each year. The primary purpose of these inspections is to ascertain the operational condition and safety of the facilities, particularly the condition and other safety-related aspects. Inspections will also provide information on the effectiveness of regularly scheduled Preventative and Aesthetic Maintenance Procedures and will help to identify where changes in the extent and scheduling of the procedures are warranted. Finally, the facility inspections should also be used to determine the need for and timing of Corrective Maintenance procedures.

Routine maintenance of these facilities should be separated into two (2) basic types: Functional Maintenance and Aesthetic Maintenance. Functional Maintenance is further broken down into two (2) categories: Preventative and Corrective. Aesthetic Maintenance, which is necessary to maintain the visual appeal and aesthetic quality of these facilities, should be incorporated on the same schedule as the preventative maintenance efforts. Listed below are the Preventative, Corrective and Aesthetic Maintenance Procedures to be performed on a routine basis:

#### **2.1.1 Preventative Maintenance Procedures:**

The purpose of Preventative Maintenance is to maximize the effectiveness of the stormwater management aspects, so they remain operational and safe and to minimize the need for potential emergency or extensive corrective maintenance. These procedures are as follows:

##### *a) Maintenance of Grass Areas:*

Lawn areas should be mowed at least once a month during the growing season. Vegetated areas must be inspected at least annually for erosion and scour as well as unwanted growth, which should be removed with minimum disruption to the remaining vegetation.

Note: All use of fertilizers, mechanical treatments, pesticides and other means to ensure optimum vegetation health must not compromise the intended purpose of the stormwater management facility. All vegetation deficiencies should be addressed without the use of fertilizers and pesticides whenever possible and if necessary, the minimum amount practical.

##### *b) Removal and Disposal of Trash/Debris and Sediment:*

All stormwater management components expected to receive and/or trap debris and sediment must be inspected for clogging and excessive debris and sediment accumulation at least four times annually as well as after every storm exceeding one inch of rainfall in 24 hours. Such components should include basin and swale bottoms and low flow channels, trash racks and inflow (headwall) points.

Removal of trash and debris will prevent possible damage to vegetated areas and minimize potential mosquito breeding habitats. Debris and trash must be properly hauled off the site and transferred to an approved disposal site.

c) *Elimination of Potential Mosquito Breeding Habitats:*

The most effective mosquito control program is one that eliminates potential breeding habitats. Almost any stagnant pool of water can be attractive to mosquitoes, and may become the source of a large mosquito population. A maintenance program dedicated to eliminating potential breeding areas is preferable to chemical means of controlling mosquitoes. The most important maintenance functions, is removal of all obstructions to natural flow patterns before stagnant water conditions can develop.

d) *Parking lot maintenance:*

This management measure involves employing pavement cleaning practices, such as parking lot sweeping on a regular basis, to minimize pollutant export to the stormwater conveyance system/ detention basins and eventually the receiving waters. These cleaning practices are designed to remove sediment, debris, and other pollutants from access drive and parking lot surfaces that are a potential source of pollution impacting urban waterways. Mechanical machines that use vacuum assisted dry sweeping to remove particulate matter shall be utilized as these have the ability to remove finer sediment particles. Parking lots and access drives shall be swept/ vacuumed at least semi-annually or more often as conditions warrant. The disposal of the swept material must be properly hauled off the site and transferred to an approved disposal site. Other parking lot maintenance features include the use of on-site trash receptacle. These receptacles should be located in strategic areas where the majority of the pedestrian traffic occurs. These receptacles should be emptied weekly. The disposal of the solid waste must be properly hauled off the site and transferred to an approved disposal site.

**2.1.2 Corrective Maintenance Procedures:**

a) *Removal of Debris and Sediment:*

Sediment, debris and trash which threaten the discharge capacity of the basins should be removed immediately and properly disposed of. As noted previously, it is recommended that all water be evacuated from the basins before any significant amount of sediment, settled debris or trash is removed from the basins.

b) *Structural Repairs:*

Structural damage to inlet structures and roadways as a result of vandalism, flood events, settlement or other causes must be repaired promptly. The urgency of the repairs will depend upon the nature of the damage and its effects on the safety and operation of the facility. The analysis of structural damage if it occurs and the design and performance of structural repairs should only be undertaken by a Professional Engineer.

c) *Embankment and Slope Repairs:*

Damage to embankments, and side slopes must be repaired promptly. This damage can be the result of unusual rain or flood events, vandalism, animals, vehicles or neglect. Typical problems can include settlement, scouring, cracking, sloughing, seepage and rutting. The urgency of the repairs will depend upon the nature of the damage and its effect on safety and operational efficiency of the facility. The analysis of the damage and the design and performance of geotechnical repairs should only be undertaken by qualified personnel and under the direction of a consulting Professional Engineer. All basin embankments should be inspected quarterly and after each significant storm greater than one (1) inch of rainfall in 24 hours. Any damage or indication of erosion shall be immediately inspected by a Professional Engineer.

d) *Weed Harvesting:*

It may be necessary to remove congested weeds from the basin. Companies specializing in manual removal of weeds should be contacted to perform these operations. Note that such work does not usually, but may in some cases require the approval of various regulatory agencies.

e) *Extermination of Mosquitoes:*

If neglected, basins can become a potential mosquito breeding area. The extermination of mosquitoes will usually require the services of the County Mosquito Commission. If mosquito control in the facility becomes necessary, the preventative maintenance program should be re-evaluated, and more emphasis should be placed on control of mosquito breeding habitats.

f) *Erosion Repair:*

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.

g) *Elimination of Trees, Brush, Roots and Animal Burrows:*

The stability of embankments can be impaired by large roots and animal burrows. Additionally, burrows can present a safety hazard for maintenance personnel. Trees and brush with extensive, woody root systems should be completely removed to prevent destabilization and the creation of seepage routes. Regular mowing will prevent vegetation that can cause root problems. Roots should also be completely removed to prevent decomposition within the embankment. Root voids and burrows should be filled with material similar to the existing material, and capped just below grade with stone, concrete or other material. If the filling of the burrows does not discourage the animals from returning, further measures should be taken to either move the animal population or to make critical areas of the facility unattractive to them.

*h) Snow and Ice Removal:*

Accumulations of snow and ice can threaten the functioning of the inlets, outlets and emergency spillways. Provision of the equipment, material and personnel to monitor and remove snow and ice from critical areas will assure the function of the facility during the winter months.

### **2.1.3 Aesthetic Maintenance Procedures:**

*a) Graffiti Removal:*

The timely removal of graffiti will restore the aesthetic quality of the basins. Removal can be accomplished by paint or other cover, or removal with scrapers, solvents or cleansers. Timely removal is important to discourage further graffiti and other acts of vandalism.

*b) Grass Trimming/Landscape Maintenance:*

The lawn areas around the basins shall be mowed on a regular basis as necessary to maintain the lawn at a height of 2 to 3-inches. These areas shall also be fertilized twice a year, once in the spring and once in the fall. Fertilizer for lawn areas shall be 10-20-10 applied at a rate of 11 lbs. per 1,000 sf. or as determined by a soil test. Any bare, dead or damaged lawn areas shall be re-seeded in accordance with the original procedures as outlined in the Soil Erosion and Sediment Control Plans using the same mix and seeding rates. Stabilization of bare or damaged areas shall be done in a timely fashion so as to avoid exposing the soil to erosion.

If season prevents the re-establishment of turf cover, exposed areas should be stabilized with straw or salt hay mulch as described in the Soil Erosion and Sediment Control Plans until permanent seeding can be done. Seeding can be

done between March 15<sup>th</sup> and June 15<sup>th</sup> and between September 15<sup>th</sup> and December 1<sup>st</sup>, only if adequate water is provided.

The shrubs around the basins should also be maintained in order to promote a neat appearance and healthy, vigorous growth. All shrubs should be allowed to grow together in masses as shown on the plans and not pruned into individual plants. The planting beds should be mulched with hardwood mulch every two (2) years in order to provide a suitable growing medium for the shrubbery and to retain moisture around the root zones.

Pruning of shrubs should also be done on a regular basis to maintain the shape and appearance of the shrub masses. The height of the shrubs may vary according to the plants natural growth habits, but should not exceed 6-feet. Pruning should be done as necessary throughout the year to remove dead branches and to control new growth. Any pruning, other than the removal of dead branches, should be done in either late winter/early spring or after the shrub has flowered in the spring.

In the event that a shrub should experience more than 2/3 die back, it should be replaced in kind as soon as possible in either the spring or fall planting season. The replacement shrub should be the same species as the original and installed at the size and condition as specified on the original landscape plans. If, for any reason, a substitution of species or size must be made, it shall be subject to the approval of the project Landscape Architect.

The trees surrounding the basin areas shall be maintained regularly to ensure good health and exhibit an attractive appearance. Their maintenance should include fertilization twice annually, with one application in the spring and another in early fall. The trees shall be pruned in the late winter or early spring. However, dead branches should be removed as soon as they are noticed. Care should be taken to avoid cutting off the central leader of a tree if one is present.

If a tree is severely damaged or experiences more than 2/3 die back, it should be replaced in either the spring or fall planting season, whichever comes first. The only exception to this is if the replacement tree has a fall transplanting hazard. Replacement trees should be planted at the same size and condition as specified on the landscape plans. Any tree or shrub maintenance, tree pruning or plant material substitution of species or size shall be subject to the approval of the project Landscape Architect.

c) *Control of Weeds:*

Although a regular grass maintenance program will minimize weed intrusion, some weeds will appear. Periodic weeding, either chemically or mechanically, will help to maintain a healthy turf, and keep grassed areas looking attractive. Application of chemicals should be minimized and monitored closely so as not to affect the ecosystems within the detention basin. Excessive growth of weeds



within the basin can be controlled mechanically as discussed in the previous section.

The recording of all maintenance work and inspections provide valuable data on the facility's condition. Review of this information will also help to establish more efficient and beneficial maintenance procedures and practices. As the owner is ultimately responsible for site maintenance, all recorded information should be directed to the owners of the basins for review and subsequent follow-up on recommendations. Data obtained from informal inspections should be retained; however, under current regulations, this data does not have to be submitted to NJDEP.

#### **2.1.4 Summary of Maintenance Procedures:**

##### **Preventative Maintenance**

- a) Weed Growth
- b) Maintenance of Adjacent Areas
- c) Removal and Disposal of Trash/Debris and Sediment
- d) Elimination of Potential Mosquito Breeding Habitats
- e) Specific Maintenance of Underground Detention Basin Pipes & Chambers
- f) Maintenance of Woodland Swales
- g) Parking Lot Maintenance

##### **Corrective Maintenance**

- a) Removal of Debris and Sediment
- b) Structural Repairs
- c) Embankment and Slope Repairs
- d) Weed Harvesting
- e) Extermination of Mosquitoes
- f) Erosion Repair
- g) Elimination of Trees, Brush, Roots and Animal Burrows
- h) Snow and Ice Removal

##### **Aesthetic Maintenance**

- a) Graffiti Removal
- b) Grass Trimming/Landscape Maintenance
- c) Control of Weeds

#### **2.1.5 Maintenance Equipment and Materials**

Note: Only light equipment is allowed to be used within open basins to prevent compaction.

Grass Maintenance Equipment

- a) Riding Mowers
- b) Hand Mowers
- c) Gas Powered Trimmers
- d) Gas Powered Edgers
- e) Seed Spreaders
- f) Fertilizer Spreaders
- g) De-Thatching Equipment
- h) Pesticide and Herbicide Application Equipment
- i) Grass Clipping and Leaf Collection Equipment

Vegetative Maintenance Equipment

- a) Saws
- b) Pruning Shears
- c) Hedge Trimmers
- d) Aquatic Weed Harvester (owned/operated by subcontractor)

Transportation Equipment

Debris, Trash and Sediment Removal Equipment

- a) Loader (not to be used in the bottom of basins)
- b) Backhoe (not to be used in the bottom of the basins)
- c) Grader (not to be used in the bottom of the basins)
- d) Dredging Equipment (not to be used in the bottom of the basins)
- e) Portable Pump for Dewatering
- f) Jet Vac Equipment for removal of sediment in underground pipe & chamber basins

Miscellaneous Equipment

- a) Shovels
- b) Wheel Barrows
- c) Gloves
- d) Hand Pushed Tilling Machine
- e) Brooms

Standard Mechanics Tools

Tools for Maintenance of Equipment

Materials

- a) Topsoil
- b) Fill
- c) Seed
- d) Soil Amenities (Fertilizer, Lime, etc.)
- e) Chemicals (Pesticides, Herbicides, etc.)
- f) Mulch
- g) Paint Removers

- h) Spare Parts for Equipment

**Parking Maintenance Equipment**

- a) Sweeping/Vacuuming Equipment
- b) Trash Receptacles
- c) Snow Plowing Equipment
- d) Snow Shovels

**2.1.6 Checklists and Logs**

Appendix of this report contains sample checklists and logs regarding various aspects of the basin maintenance and inspection. A brief description of the use of each form is listed below:

1. "Maintenance Work Order and Checklist" – a comprehensive form outlining both required and completed maintenance work.
2. "Maintenance Log" – a summary table for recording of all maintenance work at the site.
3. "Inspection Log" – a summary table for recording the results of all inspections of the basins.

# ***A P P E N D I X***

**MAINTENANCE WORK ORDER AND CHECKLIST  
FOR STORMWATER MANAGEMENT FACILITIES**

NAME OF FACILITY \_\_\_\_\_  
 LOCATION \_\_\_\_\_ DATE \_\_\_\_\_  
 CREW \_\_\_\_\_ WORK STARTED \_\_\_\_\_  
 EQUIPMENT \_\_\_\_\_ WORK COMPLETED \_\_\_\_\_  
 WEATHER \_\_\_\_\_ TOTAL MANPOWER OF WORK \_\_\_\_\_

**A. PREVENTATIVE MAINTENANCE**

| WORK ITEMS                                                        | ITEMS<br>REQUIRED | ITEMS<br>DONE | COMMENTS AND SPECIAL INSTRUCTIONS |
|-------------------------------------------------------------------|-------------------|---------------|-----------------------------------|
| <b>1. GRASS CUTTING</b>                                           |                   |               |                                   |
| A. BOTTOMS                                                        |                   |               |                                   |
| B. EMBANKMENTS AND SIDE SLOPES                                    |                   |               |                                   |
| C. PERIMETER AREAS                                                |                   |               |                                   |
| D. ACCESS AREAS AND ROADS                                         |                   |               |                                   |
| E. OTHERS                                                         |                   |               |                                   |
| <b>2. GRASS MAINTENANCE</b>                                       |                   |               |                                   |
| A. FERTILIZING                                                    |                   |               |                                   |
| B. RE-SEEDING                                                     |                   |               |                                   |
| C. DE-THATCHING                                                   |                   |               |                                   |
| D. PEST CONTROL                                                   |                   |               |                                   |
| E. OTHERS                                                         |                   |               |                                   |
| <b>3. VEGETATIVE COVER</b>                                        |                   |               |                                   |
| A. FERTILIZING                                                    |                   |               |                                   |
| B. PRUNING                                                        |                   |               |                                   |
| C. PEST CONTROL                                                   |                   |               |                                   |
| D. OTHERS                                                         |                   |               |                                   |
| <b>4. TRASH AND DEBRIS REMOVAL</b>                                |                   |               |                                   |
| A. BOTTOMS                                                        |                   |               |                                   |
| B. EMBANKMENTS AND SIDE SLOPES                                    |                   |               |                                   |
| C. PERIMETER AREAS                                                |                   |               |                                   |
| D. ACCESS AREAS AND ROADS                                         |                   |               |                                   |
| E. INLETS                                                         |                   |               |                                   |
| F. OUTLETS AND TRASH RACKS                                        |                   |               |                                   |
| G. OTHERS                                                         |                   |               |                                   |
| <b>5. SEDIMENT REMOVAL</b>                                        |                   |               |                                   |
| A. INLETS                                                         |                   |               |                                   |
| B. OUTLETS AND TRASH RACKS                                        |                   |               |                                   |
| C. BOTTOM                                                         |                   |               |                                   |
| D. OTHERS                                                         |                   |               |                                   |
| <b>6. ELIMINATION OF POTENTIAL MOSQUITO<br/>BREEDING HABITATS</b> |                   |               |                                   |
| <b>7. UNDERGROUND BASIN MAINTENANCE</b>                           |                   |               |                                   |
| A. BOTTOMS                                                        |                   |               |                                   |
| B. OUTLETS AND TRASH RACKS                                        |                   |               |                                   |
| C. ACCESS HATCHES                                                 |                   |               |                                   |
| D. OTHERS                                                         |                   |               |                                   |
| <b>8. INFILTRATION BASIN - TILING BOTTOM<br/>SAND LAYER</b>       |                   |               |                                   |
| <b>9. OTHER PREVENTIVE MAINTENANCE</b>                            |                   |               |                                   |
| A. PARKING LOT SWEEPING                                           |                   |               |                                   |
| B. EMPTYING TRASH RECEPTACLES                                     |                   |               |                                   |

**MAINTENANCE WORK ORDER AND CHECKLIST  
FOR STORMWATER MANAGEMENT FACILITIES**

NAME OF FACILITY \_\_\_\_\_  
 LOCATION \_\_\_\_\_ DATE \_\_\_\_\_  
 CREW \_\_\_\_\_ WORK STARTED \_\_\_\_\_  
 EQUIPMENT \_\_\_\_\_ WORK COMPLETED \_\_\_\_\_  
 WEATHER \_\_\_\_\_ TOTAL MANPOWER OF WORK \_\_\_\_\_

**B. CORRECTIVE MAINTENANCE**

| WORK ITEMS                        | ITEMS<br>REQUIRED | ITEMS<br>DONE | COMMENTS AND SPECIAL INSTRUCTIONS |
|-----------------------------------|-------------------|---------------|-----------------------------------|
| 1. REMOVAL OF DEBRIS AND SEDIMENT |                   |               |                                   |
| 2. STRUCTURAL REPAIRS             |                   |               |                                   |
| 3. EMBANKMENTS AND SIDE SLOPES    |                   |               |                                   |
| 4. DEWATERING                     |                   |               |                                   |
| 5. BASIN MAINTENANCE              |                   |               |                                   |
| 6. CONTROL OF MOSQUITOES          |                   |               |                                   |
| 7. EROSION REPAIR                 |                   |               |                                   |
| 8. FENCE REPAIR                   |                   |               |                                   |
| 9. SNOW AND ICE REMOVAL           |                   |               |                                   |
| 10. OTHER                         |                   |               |                                   |

**C. AESTHETIC MAINTENANCE**

| WORK ITEMS          | ITEMS<br>REQUIRED<br>( X ) | ITEMS<br>DONE<br>( X ) | LOCATION AND COMMENTS |
|---------------------|----------------------------|------------------------|-----------------------|
| 1. GRAFFITI REMOVAL |                            |                        |                       |
| 2. GRASS TRIMMING   |                            |                        |                       |
| 3. WEEDING          |                            |                        |                       |
| 4. OTHERS           |                            |                        |                       |

REMARKS (REFER TO ITEM NO. IF APPLICABLE) \_\_\_\_\_

WORK ORDER PREPARED BY: \_\_\_\_\_

**MAINTENANCE LOG  
FOR STORMWATER MANAGEMENT FACILITIES**

NAME OF FACILITY \_\_\_\_\_  
 LOCATION \_\_\_\_\_ DATE \_\_\_\_\_  
 CREW \_\_\_\_\_ WORK STARTED \_\_\_\_\_  
 EQUIPMENT \_\_\_\_\_ WORK COMPLETED \_\_\_\_\_  
 WEATHER \_\_\_\_\_ TOTAL MANPOWER OF WORK \_\_\_\_\_

**A. PREVENTATIVE MAINTENANCE**

| WORK ITEMS                                                | ITEMS<br>REQUIRED | DATE<br>REQUIRED | ITEMS<br>DONE | DATE<br>DONE | COMMENTS AND SPECIAL<br>INSTRUCTIONS |
|-----------------------------------------------------------|-------------------|------------------|---------------|--------------|--------------------------------------|
| 1. GRASS CUTTING                                          |                   |                  |               |              |                                      |
| A. BOTTOMS                                                |                   |                  |               |              |                                      |
| B. EMBANKMENTS AND SIDE SLOPES                            |                   |                  |               |              |                                      |
| C. PERIMETER AREAS                                        |                   |                  |               |              |                                      |
| D. ACCESS AREAS AND ROADS                                 |                   |                  |               |              |                                      |
| E. OTHERS                                                 |                   |                  |               |              |                                      |
| 2. GRASS MAINTENANCE                                      |                   |                  |               |              |                                      |
| A. FERTILIZING                                            |                   |                  |               |              |                                      |
| B. RE-SEEDING                                             |                   |                  |               |              |                                      |
| C. DE-THATCHING                                           |                   |                  |               |              |                                      |
| D. PEST CONTROL                                           |                   |                  |               |              |                                      |
| E. OTHERS                                                 |                   |                  |               |              |                                      |
| 3. VEGETATIVE COVER                                       |                   |                  |               |              |                                      |
| A. FERTILIZING                                            |                   |                  |               |              |                                      |
| B. PRUNING                                                |                   |                  |               |              |                                      |
| C. PEST CONTROL                                           |                   |                  |               |              |                                      |
| D. OTHERS                                                 |                   |                  |               |              |                                      |
| 4. TRASH AND DEBRIS REMOVAL                               |                   |                  |               |              |                                      |
| A. BOTTOMS                                                |                   |                  |               |              |                                      |
| B. EMBANKMENTS AND SIDE SLOPES                            |                   |                  |               |              |                                      |
| C. PERIMETER AREAS                                        |                   |                  |               |              |                                      |
| D. ACCESS AREAS AND ROADS                                 |                   |                  |               |              |                                      |
| E. INLETS                                                 |                   |                  |               |              |                                      |
| F. OUTLETS AND TRASH RACKS                                |                   |                  |               |              |                                      |
| G. OTHERS                                                 |                   |                  |               |              |                                      |
| 5. SEDIMENT REMOVAL                                       |                   |                  |               |              |                                      |
| A. INLETS                                                 |                   |                  |               |              |                                      |
| B. OUTLETS AND TRASH RACKS                                |                   |                  |               |              |                                      |
| C. BOTTOM                                                 |                   |                  |               |              |                                      |
| D. OTHERS                                                 |                   |                  |               |              |                                      |
| 6. ELIMINATION OF POTENTIAL MOSQUITO<br>BREEDING HABITATS |                   |                  |               |              |                                      |
| 7. UNDERGROUND BASIN MAINTENANCE                          |                   |                  |               |              |                                      |
| A. BOTTOMS                                                |                   |                  |               |              |                                      |
| B. OUTLETS AND TRASH RACKS                                |                   |                  |               |              |                                      |
| C. ACCESS HATCHES                                         |                   |                  |               |              |                                      |
| D. OTHERS                                                 |                   |                  |               |              |                                      |
| 8. OTHER PREVENTIVE MAINTENANCE                           |                   |                  |               |              |                                      |
| A. PARKING LOT SWEEPING                                   |                   |                  |               |              |                                      |
| B. EMPTYING TRASH RECEPTACLES                             |                   |                  |               |              |                                      |

**MAINTENANCE LOG  
FOR STORMWATER MANAGEMENT FACILITIES**

NAME OF FACILITY \_\_\_\_\_  
 LOCATION \_\_\_\_\_ DATE \_\_\_\_\_  
 CREW \_\_\_\_\_ WORK STARTED \_\_\_\_\_  
 EQUIPMENT \_\_\_\_\_ WORK COMPLETED \_\_\_\_\_  
 WEATHER \_\_\_\_\_ TOTAL MANPOWER OF WORK \_\_\_\_\_

**B. CORRECTIVE MAINTENANCE**

| WORK ITEMS                        | ITEMS<br>REQUIRED | DATE<br>REQUIRED | ITEMS<br>DONE | DATE<br>DONE | COMMENTS AND SPECIAL<br>INSTRUCTIONS |
|-----------------------------------|-------------------|------------------|---------------|--------------|--------------------------------------|
| 1. REMOVAL OF DEBRIS AND SEDIMENT |                   |                  |               |              |                                      |
| 2. STRUCTURAL REPAIRS             |                   |                  |               |              |                                      |
| 3. EMBANKMENTS AND SIDE SLOPES    |                   |                  |               |              |                                      |
| 4. DEWATERING                     |                   |                  |               |              |                                      |
| 5. BASIN MAINTENANCE              |                   |                  |               |              |                                      |
| 6. CONTROL OF MOSQUITOES          |                   |                  |               |              |                                      |
| 7. EROSION REPAIR                 |                   |                  |               |              |                                      |
| 8. FENCE REPAIR                   |                   |                  |               |              |                                      |
| 9. SNOW AND ICE REMOVAL           |                   |                  |               |              |                                      |
| 10. SAND LAYER REPLACEMENT        |                   |                  |               |              |                                      |
| 11. OTHER                         |                   |                  |               |              |                                      |

**C. AESTHETIC MAINTENANCE**

| WORK ITEMS          | ITEMS<br>REQUIRED | DATE<br>REQUIRED | ITEMS<br>DONE | DATE<br>DONE | COMMENTS AND SPECIAL<br>INSTRUCTIONS |
|---------------------|-------------------|------------------|---------------|--------------|--------------------------------------|
| 1. GRAFFITI REMOVAL |                   |                  |               |              |                                      |
| 2. GRASS TRIMMING   |                   |                  |               |              |                                      |
| 3. WEEDING          |                   |                  |               |              |                                      |
| 4. OTHERS           |                   |                  |               |              |                                      |

REMARKS (REFER TO ITEM NO. IF APPLICABLE) \_\_\_\_\_

WORK PERFORMED BY: \_\_\_\_\_



**INSPECTION LOG  
FOR STORMWATER MANAGEMENT FACILITIES**

NAME OF FACILITY \_\_\_\_\_  
 LOCATION \_\_\_\_\_  
 DATE \_\_\_\_\_  
 WEATHER \_\_\_\_\_

**A. PREVENTIVE MAINTENANCE**

| FACILITY ITEM                               | ITEMS<br>REQUIRED | ITEMS<br>DONE | COMMENTS AND SPECIAL INSTRUCTION |
|---------------------------------------------|-------------------|---------------|----------------------------------|
| <b>1. GRASS CUTTING</b>                     |                   |               |                                  |
| A. BOTTOMS                                  |                   |               |                                  |
| B. EMBANKMENTS AND SIDE SLOPES              |                   |               |                                  |
| C. PERIMETER AREAS                          |                   |               |                                  |
| D. ACCESS AREAS AND ROADS                   |                   |               |                                  |
| E. OTHERS                                   |                   |               |                                  |
| <b>2. GRASS MAINTENANCE</b>                 |                   |               |                                  |
| A. FERTILIZING                              |                   |               |                                  |
| B. RE-SEEDING                               |                   |               |                                  |
| C. DE-THATCHING                             |                   |               |                                  |
| D. PEST CONTROL                             |                   |               |                                  |
| E. OTHERS                                   |                   |               |                                  |
| <b>3. VEGETATIVE COVER</b>                  |                   |               |                                  |
| A. FERTILIZING                              |                   |               |                                  |
| B. PRUNING                                  |                   |               |                                  |
| C. PEST CONTROL                             |                   |               |                                  |
| D. OTHERS                                   |                   |               |                                  |
| <b>4. TRASH AND DEBRIS REMOVAL</b>          |                   |               |                                  |
| A. BOTTOMS                                  |                   |               |                                  |
| B. EMBANKMENTS AND SIDE SLOPES              |                   |               |                                  |
| C. PERIMETER AREAS                          |                   |               |                                  |
| D. ACCESS AREAS AND ROADS                   |                   |               |                                  |
| E. INLETS                                   |                   |               |                                  |
| F. OUTLETS AND TRASH RACKS                  |                   |               |                                  |
| G. OTHERS                                   |                   |               |                                  |
| <b>5. SEDIMENT REMOVAL</b>                  |                   |               |                                  |
| A. INLETS                                   |                   |               |                                  |
| B. OUTLETS AND TRASH RACKS                  |                   |               |                                  |
| C. BOTTOM                                   |                   |               |                                  |
| D. VORTECHNIC UNITS                         |                   |               |                                  |
| E. OTHERS                                   |                   |               |                                  |
| <b>6. ELIMINATION OF POTENTIAL MOSQUITO</b> |                   |               |                                  |
| <b>7. OTHER PREVENTIVE MAINTENANCE</b>      |                   |               |                                  |
| A. PARKING LOT SWEEPING                     |                   |               |                                  |
| B. EMPTYING TRASH RECEPTACLES               |                   |               |                                  |

**INSPECTION LOG  
FOR STORMWATER MANAGEMENT FACILITIES**

NAME OF FACILITY \_\_\_\_\_  
 LOCATION \_\_\_\_\_  
 DATE \_\_\_\_\_  
 WEATHER \_\_\_\_\_

**B. CORRECTIVE MAINTENANCE**

| FACILITY ITEM                     | ITEMS<br>REQUIRED | ITEMS<br>DONE | COMMENTS AND SPECIAL INSTRUCTION |
|-----------------------------------|-------------------|---------------|----------------------------------|
| 1. REMOVAL OF DEBRIS AND SEDIMENT |                   |               |                                  |
| 2. STRUCTURAL REPAIRS             |                   |               |                                  |
| 3. EMBANKMENTS AND SIDE SLOPES    |                   |               |                                  |
| 4. BASIN MAINTENANCE              |                   |               |                                  |
| 5. CONTROL OF MOSQUITOES          |                   |               |                                  |
| 6. EROSION REPAIR                 |                   |               |                                  |
| 7. FENCE REPAIR                   |                   |               |                                  |
| 8. SNOW AND ICE REMOVAL           |                   |               |                                  |
| 9. BASIN DRAIN TIME               |                   |               |                                  |
| 10. OTHER                         |                   |               |                                  |

**C. AESTHETIC MAINTENANCE**

| FACILITY ITEM     | ITEMS<br>REQUIRED | ITEMS<br>DONE | COMMENTS AND SPECIAL INSTRUCTION |
|-------------------|-------------------|---------------|----------------------------------|
| 1. GRASS TRIMMING |                   |               |                                  |
| 2. WEEDING        |                   |               |                                  |
| 3. OTHERS         |                   |               |                                  |

REMARKS (REFER TO ITEM NO. IF APPLICABLE) \_\_\_\_\_

(1) ITEMS CHECKED ARE IN GOOD CONDITION, AND THE MAINTENANCE PROGRAM IS ADEQUATE.  
 (2) ITEMS CHECKED REQUIRE ATTENTION, BUT DOES NOT PRESENT AN IMMEDIATE THREAT TO THE FACILITY FUNCTION OR OTHER FACILITY COMPONENTS.  
 (3) THE ITEMS CHECKED REQUIRES IMMEDIATE ATTENTION TO KEEP THE FACILITY OPERATIONAL OR TO PREVENT DAMAGE TO OTHER FACILITY COMPONENTS.  
 (4) PROVIDE EXPLANATION AND DETAILS IF COLUMNS 2 OR 3 ARE CHECKED.  
 REMARKS (REFER TO ITEM NO. IF APPLICABLE)

INSPECTOR: \_\_\_\_\_