December 23, 2022 RPM-211

STORMWATER MANAGEMENT
OPERATION AND MAINTENANCE MANUAL

FOR

RPM DEVELOPMENT GROUP
MONTGOMERY SENIOR AFFORDABLE HOUSING
BLOCK 20001, LOT 10.05
MONTGOMERY TOWNSHIP, SOMERSET COUNTY NEW JERSEY

PREPARED BY:

SHORE POINT ENGINEERING, LLC
1985 HIGHWAY 34, SUITE A7
WALL, NJ 07719

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I. PROJECT DETAILS

A. INTRODUCTION

This Operations and Maintenance Manual has been prepared in support of the proposed Stormwater Management Plan for the Montgomery Senior Affordable Housing project in Montgomery Township. The overall parcel is being subdivided creating a 4.21-acre lot for the senior affordable housing building containing 71 units.

B. DESCRIPTION OF STORMWATER MANAGEMENT FACILITIES

The stormwater management system for the proposed development includes the construction of one (1) underground detention basin and one (1) bioretention basin to handle the runoff from the proposed development.

An existing detention basin in the rear of the property is also proposed to be modified into a bioretention basin as well. The existing basin will be maintained by the Township of Montgomery. Appendix A includes a Site Map identifying each component of the stormwater management system.

C. PROJECT CONTACTS AND RESPONSIBLE PARTIES

The responsible party for the execution of preventative and corrective maintenance, including replacement of all stormwater management systems to ensure proper functionality, shall be the owner of the new parcel created from Block 20001, Lot 10.05. The property owner is responsible to maintain a detailed log of all preventative and corrective maintenance actions for the constructed stormwater facilities, including record of all inspections and copies of all maintenance-related work orders. The maintenance plan and any future revisions shall be recorded upon deed of record for each property on which the maintenance described in this maintenance plan must be undertaken by the current property owner. The property owner is also responsible to evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and deed as necessary. The property owner shall always maintain a copy of this manual onsite.

Contract Purchaser / Ultimate Property Owner:
RPM Development
77 Park Street
Montclair, NJ 07042

D. STORMWATER BEST MANAGEMENT PRACTICES

Underground Detention Basin

The proposed underground detention basin has been designed in accordance with the applicable standards of N.J.A.C. 7:8 Stormwater Management, the New Jersey Soil Erosion and Sediment Control Standards and the Montgomery Township Stormwater Control Ordinance. The basin is a series of 48" HDPE pipes, with a total pipe length of 700 LF. Stormwater runoff generated by the proposed building only will be collected and conveyed to the underground detention basin located behind the building.

A summary of the basins' peak flows, storage and basin elevations are outlined below:

Storm Event (YR)	Basin Inflow (cfs)	Basin Outflow (cfs)	Max. Basin Storage (ac-ft)	Water Surface Elevation
WQ	1.40	0.15	0.038	84.98
2	1.90	0.19	0.067	85.46
10	2.54	0.23	0.109	86.12
100	3.33	0.30	0.187	87.49

Roof runoff entering the underground detention basin is considered clean and does not need to be treated for TSS removal. As such, the proposed systems have been designed in accordance with Water Quality requirements of N.J.A.C. 7-8-5.5.

Bio-Retention Basin

The proposed bioretention basin have been designed in accordance with the applicable standards of N.J.A.C. 7:8 Stormwater Management, the New Jersey Soil Erosion and Sediment Control Standards and the Montgomery Township Stormwater Control Ordinance. Stormwater runoff from the proposed development, with majority of the new pavement and sidewalk included in this area, will be collected and conveyed to the basin by the proposed stormwater drainage network. Runoff from the 2-year storm will be entirely infiltrated through the bio-soil within the basin and into a 3" perforated underdrain below. Larger storm events flow over top of the outlet structure and out towards the existing rear basin. The basin is designed to store and release all storm events up to the 100-year storm.

Bioretention basins are approved as having an 80% total suspended solids (TSS) removal rate. As such, the proposed systems have been designed in accordance with Water Quality requirements of N.J.A.C. 7-8-5.5.

A summary of the basins' peak flows, storage and basin elevations are outlined below:

Storm Event (YR)	Basin Inflow (cfs)	Basin Outflow (cfs)	Max. Basin Storage (cf)	Water Surface Elevation
WQ	0.76	0.00	1,300	86.56
2	1.84	0.06	5,393	87.95
10	3.13	1.06	5,821	88.07
100	5.03	4.53	6,625	88.30

II. MAINTENANCE AND INSPECTIONS

A. REGULAR MAINTENANCE AND INSPECTIONS

The proposed stormwater management system has been designed to control the runoff generated by the proposed development to ensure that the runoff leaving the site once constructed, is less than the runoff currently leaving the site. Without proper maintenance and inspections, the stormwater management system may lose some of it's capability to function as designed.

Regularly scheduled maintenance inspections should be performed of the stormwater management facilities at least once every 6 months or following any storm event exceeding 1 inch of rainfall within 1 hour. The primary purpose of the inspections is to observe and determine the operations condition and safety of the facilities. These inspections will provide information on the effectiveness of the regularly scheduled Preventative Maintenance procedures and will help identify areas where changes to the maintenance program are necessary. These inspections are also used to identify when Corrective Maintenance procedures are necessary.

Preventative Maintenance

Preventative Maintenance is done to maximize the effectiveness of the stormwater management facilities so that the system functions as designed. Preventative Maintenance is broken down into the following tasks:

1. Parking Lot Maintenance

   Since the stormwater management facilities are located beneath the parking lot surface, maintaining a clean parking lot is essential to minimizing potential pollutants into the facilities. Regular parking lot sweeping is strongly encouraged to remove sediment, debris and other pollutants from the paving area before they can enter the stormwater management system.

2. Trash, Debris and Sediment

   Stormwater features such as the underground basin, drainage conveyance network (pipes and structures), trash racks and the outlet control structure should be inspected for clogging, excessive debris and sediment accumulation at least once every 3 months or following any storm event exceeding 1 inch of rainfall within 1 hour.

3. Potential Mosquito Control
   Stagnant water presents an inviting habitat for mosquitos to breed. The stormwater basin has been designed to full drain within 72 hours. The basin should be inspected 3-4 days after a storm event to ensure that it is fully drained. If stagnant water is noticed, corrective measures shall be implemented to manually drain the basin.

4. Vegetated Areas
   Bi-weekly inspections are required when establishing/restoring vegetation and al vegetated areas much be inspected at least once annually for erosion, scour and unwanted growth. A minimum of one inspection during the growing season and

one inspection during the non-growing season is required to ensure the health, density and diversity of the vegetation. Mowing/trimming of vegetation must be performed on a regular schedule, including perimeter grass being mowed at least once per month during the growing season. Grasses within the bioretention system must be carefully maintained with lightweight equipment, such as hand-held trimmers, in order to maintain permeability of the basin bottom. Vegetative cover must be maintained at 85% and any damaged areas must be addressed through replanting in accordance with the original specifications. All use of fertilizers, pesticides, mechanical treatments and other means to ensure optimum vegetation health must not compromise the intended purpose of the bioretention system.

Corrective Maintenance

Corrective Maintenance should be performed as soon as possible after a situation that requires attention is reported. Corrective Maintenance is broken down into the following tasks:

1. Removal and Disposal of Trash, Debris and Sediment

   If clogging, excessive debris and/or sediment accumulation is observed in any of the stormwater management facilities, they should be removed and disposed of immediately.

2. Structural Repairs

   If structural damage is observed in the drainage conveyance network (pipes and structures), trash racks and/or outlet control structure, a Professional Engineer should be consulted with regarding the appropriate repairs necessary.

3. Mosquito Control

   If mosquito breeding is observed, a licensed pest/mosquito control professional should be contacted immediately. If mosquito control becomes necessary, the preventative maintenance program may need to be re-evaluated to help prevent future occurrences.

4. Snow and Ice Removal

   Accumulation of snow and ice possesses a threat to drainage inlets and should be removed of immediately.

5. Vegetated Areas

   Unwanted growth should be removed with minimum disruption to the remaining vegetation. Only lightweight equipment, such as hand-held trimmers, may be used for maintenance of the basin bottom plantings in order to maintain permeability of the basin bottom.

B. MAINTENANCE EQUIPMENT AND MATERIALS

Below is a list of equipment and materials that should be onsite or readily available for maintenance responsibilities:

- Shovels, Rakes, Brooms
- Hand-held trimmers
- Gloves
- Wheel Barrows
- Portable Pump with sediment bag for dewatering

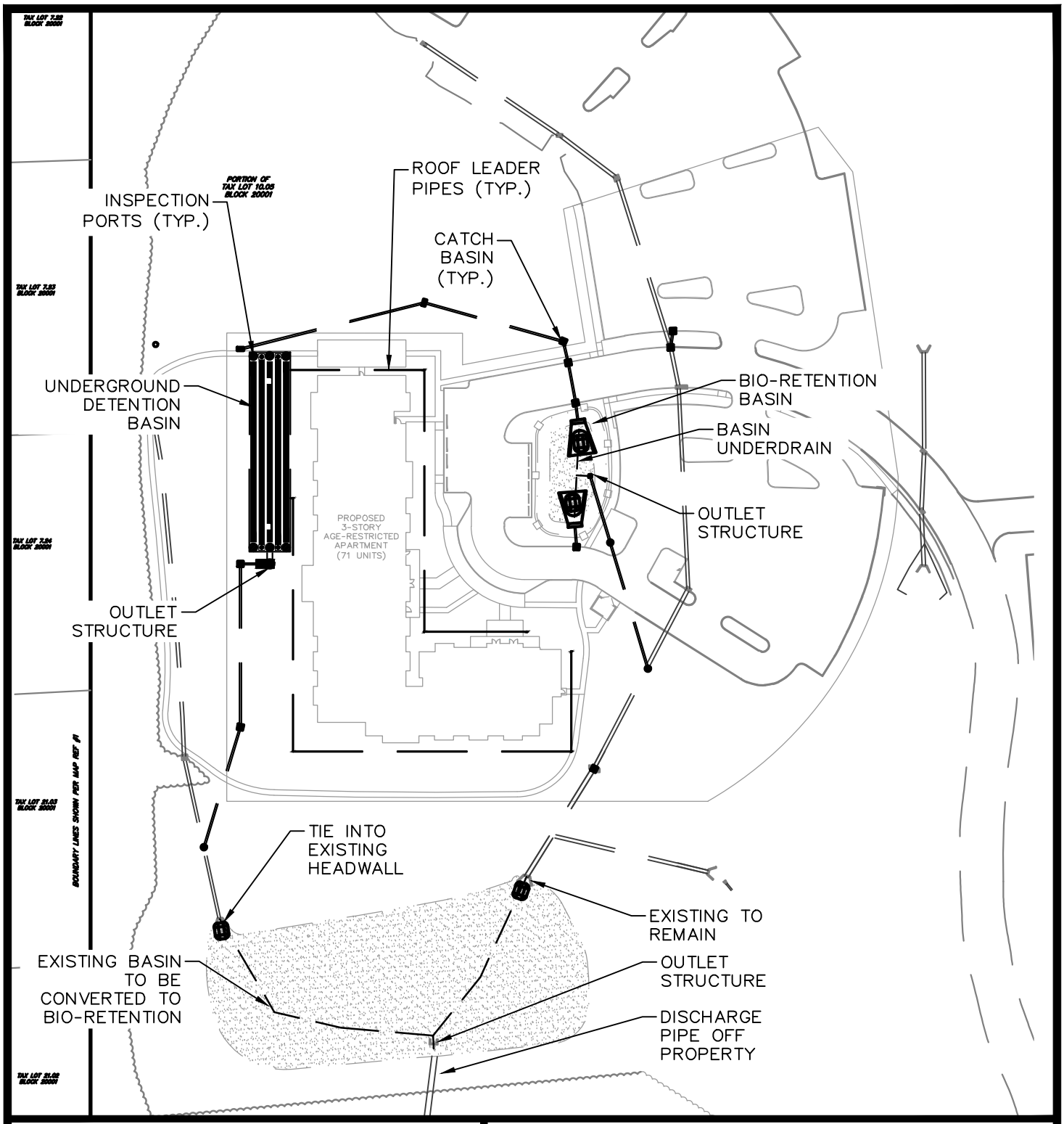
C. INSPECTION CHECKLISTS AND LOGS

Appendix B of this manual contains sample checklists and logs for various aspects of inspections and maintenance.

APPENDIX A

SITE MAP

FIle Name: C:\Users\keshe\OneDrive - Shore Point Engineering\Shore Point Engineering\Clients\RPM Development\
Plot time: Jan 06, 2023 - 9:07am



SHORE POINT ENGINEERING

Date

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www.shorepointengineering.com
Certificate of Authorization No. 24GA28317800

SITE MAP
MONTGOMERY SENIOR AFFORDABLE HOUSING
BLOCK 20001, LOT 10.05
SITUATED IN
MONTGOMERY TOWNSHIP, SOMERSET COUNTY, NEW JERSEY

PROJECT No.:	SCALE:	DATE:
RPM-211	N/A	12/23/22
DRAWN BY:	CHECKED BY:	RELEASED BY:
RZH	KES	KES

APPENDIX B

MAINTENANCE CHECKLISTS AND LOGS

Basin Inspection Log

Name of Facility:	
Location:	

DATE										

FACILITY NAME	INSPECTION FINDINGS (1, 2 OR 3 - SEE BELOW)									
A. TRASH AND DEBRIS REMOVAL										
1. PERIMETER AREAS										
2. BASIN										
3. INLETS										
4. OUTLETS										
5. TRASH RACKS										
6. OTHERS										
B. SEDIMENT REMOVAL										
1. INLETS										
2. OUTLETS										
3. TRASH RACKS										
4. BASIN BOTTOM										
5. OTHERS										
E. STRUCTURAL REPAIRS										
1. PIPES										
2. INLETS										
3. MANHOLES										
4. OUTLET STRUCTURE										
5. TRASH RACKS										
6. ASPHALT										
7. OTHERS										
F. UNDERGROUND BASIN MAINTENANCE										
1. BASIN BOTTOM										
2. OUTLETS										
3. TRASH RACKS										
4. ACCESS MANHOLES										
5. OTHERS										

(1) ITEM INSPECTED IS IN GOOD OR SATISFACTORY CONDITION AND NO FURTHER ACTION IS REQUIRED

(2) ITEM INSPECTED REQUIRES MAINTENANCE BUT PRESENT CONDITION DOES NOT POSE AN IMMEDIATE THREAT TO BASIN FUNCTIONS OR OPERATIONS

(3) ITEM INSPECTED REQUIRES IMMEDIATE ATTENTION TO PREVENT DAMAGE TO OTHER BASIN COMPONENTS

NOTES AND REMARKS

Basin Inspection Log

Name of Facility:	
Location:	

DATE										

FACILITY NAME	INSPECTION FINDINGS (1, 2 OR 3 - SEE BELOW)									
A. TRASH AND DEBRIS REMOVAL										
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NOTES AND REMARKS