

OPERATION AND MAINTENANCE PLAN

for:

Single Family Residential Dwelling
220 Summer Street
Hingham, MA 02043

Operator:

Ryan P. Sillery
CPC 156 East LLC
300 A street
Boston, MA 02210

O&M Contact:

Ryan P. Sillery
City Point Capital
300 A Street
Boston, MA 02210
617-2991-8658

O&M Plan Preparation Date:

January 24, 2019
Rev;07/10/21
08/23/21

OPERATION AND MAINTENANCE PLAN

NARRATIVE:

The proposed drainage improvements for this lot are all centered on a shallow basin at the right rear corner of the lot. Runoff from the driveway will be collected by a catch basin that is located near the entrance from Kilby Street. Flows collected in the basin will be split and be directed either to a manhole at the easterly edge of the driveway or a 2,000 gallon 3-compartment sediment trap. Low flows will be directed primarily to the sediment trap while excess flows will be directed directly to a manhole at the westerly edge of the driveway. Discharge from the sediment trap will flow to the same manhole as the overflow from the catch basin.

The roof runoff from the house will be collected by an 8" ADS pipe system that goes around the entire dwelling. All the roof leaders are connected to this piping system and terminate in a small manhole at the corner of the house. This manhole is connected with the same manhole the catch basin in the driveway is connected to. Flow from this manhole flows into a sediment forebay at the start of the basin.

The basin is only 28" deep and will primarily be dry except during significant rainfall events. An 8" culvert will direct excess flows from the basin. A 10' wide grass lined emergency spillway is also provided. A gated 4" dewater drain is also located in the floor of the basin. A monitoring port is also provided on the slope of the basin to observe groundwater levels.

The area around the front of the house is graded to flow primarily towards Kilby Street. A tree well is provided in the front of the house. A 6" pipe will convey any excess runoff from this well around the house. All of the flow from both the basin and the 6" pipe from the front of the lot will connect into a manhole at the northerly edge of the lot. An 8" pipe from this manhole will discharge into the existing channel.

STORMWATER MANAGEMENT SYSTEM OWNERS:

The current owner of all of the Stormwater management systems is;

Ryan P. Sillery
CPC 156 East LLC
300 A street
Boston, MA 02210

SCHEDULE FOR IMPLEMENTATION OF ROUTINE AND NON-ROUTINE MAINTENANCE TASKS

Driveway Pavement- The driveway pavement is important in that it collects and directs runoff from the driveway pavement into the catch basin. A 12" wide Cape Cod berm is located along the right edge of the driveway to ensure that runoff remains on the pavement and flows into the catch basin grate. This surface should be inspected at the same time as the catch basin. Any damage to the surface and/or the berm should be immediately repaired.

Catch Basin- The driveway runoff will be collected by a catch basin on the right side of the driveway. The basin is a precast concrete structure with 2 outlets. The primary lower outlet is a 4" PVC Tee that will flow into a 2,000-gallon 3 compartment sediment trap. The second outlet is an 8" outlet that flows directly into a manhole at the westerly edge of the driveway. The basin has a 4' deep sump that will settle out heavy solids and any floating debris that flows through the grate. The basin should be inspected 4 times per year. If the sediment in the sump exceeds 12" in depth, the sump should be cleaned. The tees should also be inspected to make sure that they are solid and functioning as designed. Any debris or sand built up at the grate should also be removed immediately.

Drain Manhole- There are 2 precast concrete drain manholes on site. The first collects all of the runoff from the roof and the driveway system and discharges into the forebay. The second manhole is located at the northerly edge of the lot and is connected to the outlets from the basin and the cross culvert through the lot. The manholes should be inspected 4 times per year with the catch basin. Any sediment visible should be immediately removed. Any damage to the frame, grate and or structure identified during the inspection should also be repaired as soon as possible.

2,000-gallon Sediment Trap- The primary lower outlet from the catch basin is a 4" PVC outlet that will flow into a 2,000-gallon 3 compartment sediment trap. The trap is a precast concrete chamber that has 3-compartments separated by a 6" masonry wall. This trap should be inspected monthly and after any significant rainfall event. The inlet and outlet tees to each compartment shall be inspected and repaired immediately if found in disrepair. The initial chamber shall be inspected to determine the depth of sediment stored in the bay. If the depth exceeds 12" the chamber shall be cleaned.

Infiltration Basin- The basin is a shallow depression in the lawn area that will store and infiltrate 0.7" of runoff from the roof and driveway area prior to infiltrating through a 3-4' thick layer of sand beneath the grass. Runoff enters the reservoir from the manhole at the westerly edge of the driveway into a sediment forebay. Runoff volumes that exceed the infiltrative capacity of the underlying sand will flow through the 8" culvert. The basin has been sized so that at the

peak of the 100-year storm only 16" of water will be standing in the basin. The emergency spillway is a 10' wide gap in the embankment that will be just above the 100-year maximum water surface. Thus, it will take the runoff from a very significant rainfall event to reach this level. The basin should be inspected after every significant rainfall during the first 3 months of operation and twice a year thereafter to ensure that it is functioning properly. It should also be inspected if there is flow over the emergency spillway. Overall, this area should be maintained the same as the remainder of the lawn area, including the slopes and crest. The grass should be maintained as necessary at a height of 2-3". No trees or brush should be allowed to grow in or around the basin and the side slopes. Keep the inlet and outlet of the 8" culvert clean and free flowing. Any sediment, grass clippings, leaves or other debris in the bottom of the basin should be removed. The rip rap at the inlet should be inspected to ensure that it has not been displaced and reset if necessary. Any erosion or bare earth should be revegetated as quickly as possible.

Drain pipe – There is a 6" HDPE culvert that traverses the site from south to north from Summer Street. The culvert flows from the low point along the wall at summer street and ultimately makes it to the drain manhole at the infiltration basin outlet. As it proceeds around the dwelling, it goes through 3 manholes that are 18" HDPE culverts set vertical with plastic covers to grade. These manholes act as inspection ports to allow the inspector access to the run. The inlet should be inspected 4x a year and after every significant rainfall event. Any leaves or debris around the inlet should be immediately cleaned and removed. In addition to this inlet, the foundation drain is also connected with this pipe as it flows across the site.

Gutters and Downspouts- The runoff from the roof will be collected and directed into the drain manhole. It is important that this system remain clear of debris and sediment. Gutters should be cleaned in the spring and fall. A cleanout manhole consisting of a 18" diameter HDPE pipe set vertical is located at the back left corner of the house prior to discharge to the concrete manhole. This manhole should be inspected for debris and litter and cleaned if necessary.

Rip-rap outlet protection- At each of the pipe outfalls, there is a small stone pad that prevents scour and erosion. These pads should each be inspected each time the basin is inspected. Any debris or sediment present should be immediately removed. Any stones displaced or missing should also be either reset or replaced.

In addition to the maintenance tasks listed above, all paved areas shall be swept once annually, salt will be limited in use and only utilized if necessary, all sediments and hydrocarbons shall be properly handled and disposed of in accordance with all State, Federal and Local regulations.

PLAN SHOWING THE LOCATION OF ALL STORMWATER BMP'S MAINTENANCE ACCESS AREAS:

The access areas to, and the BMP'S referred to in this Operation and Maintenance Plan are delineated on the "Site Plan".

EMERGENCY PROCEDURES FOR OIL & GAS SPILLS:

Any spills of less than 5 gallons, will be maintained on the surface and on the surface of the basin. All contaminated soils should be removed immediately. If a large spill does occur, a hazardous waste company should be contacted immediately to clean up the waste and all of the surfaces contacted. A clean up safety kit is available to help deal with these small spills.

If a large spill occurs, dial 911 and cleanup should be left to professional services.

ESTIMATED OPERATION AND MAINTENANCE BUDGET:

Estimated Annual Inspection Budget:

Inspections after events (by Homeowner)	
Total For Feature	\$ 100.00
Gutters & downspouts 2x/year \$150.00	
Inspect outlet manhole (by homeowner)	
Total For Feature	\$ 150.00

OPERATION AND MAINTENANCE LOG FORM:

Project Name: 220 Summer Street

Inspector Name: _____

Date; _____

Weather Conditions: _____

Inspection prompted by Rainfall Event [yes or no] _____ Amount ____inches

BMP	Inspection Date	Inspector Name	Status	Is Corrective Action necessary? By whom?
Catch Basin				
Outlet tees				
Drain Manhole 1				
Drain manhole 2				
Outfall				
Rip rap				
Sediment Trap				
Tees				
Structure				
Infiltration Basin				
Forebay				
Outlet				
Rip-rap pad				
Embankment				
Pavement				
Drain pipe				
Inlet				
Inspection MH				
Gutters & downspouts				

Appendix A

Plan of Drainage Features

