Drainage Operations and Maintenance Plan

University Station
University Avenue
Westwood, MA

This long-term Drainage Operations and Maintenance (O&M) Plan shall be implemented at University Station to ensure that the stormwater management system functions as designed and in accordance with DEP Stormwater Management Standard No. 9. This Operations and Maintenance Plan is intended to cover all on-site drainage structures. The Property Owner, Westwood Marketplace Holdings LLC, possesses the primary responsibility for overseeing and implementing the O&M Plan and designating a person who will be responsible for the proper operation and maintenance of the stormwater structures. In case of transfer of property ownership, future property owners shall be notified of the presence of the stormwater management system and the requirements for proper implementation of the O&M Plan.

O&M Plan Implementation Manager Contact Information:

TBD, Property Manager
Westwood Marketplace Holdings LLC
1 Wells Avenue
Newton, MA 02459

Components of the Operations and Maintenance Plan include:

- Removal of all trash and litter debris from entire site, particularly parking areas, service areas, landscaped areas, wooded areas, drainage basin areas;
- Pavement sweeping of driveways, parking areas and service areas;
- Removal of sediment and pollutants trapped in swales, catch basins, water quality treatment units, sediment forebays and basins;
- Prohibition on high-phosphorous content fertilizers.
- Prohibition on the use of road salt for winter deicing purposes.
- Continuation of the groundwater monitoring well program established as part of the Westwood Station Groundwater Resource Area District Special Permit.

Stormwater Runoff Quality

The stormwater management system protects and enhances the stormwater runoff water quality through the removal of sediment and pollutants, and source control significantly reduces the amount of pollutants entering the system. Preventive

maintenance of the system will include a comprehensive source reduction program of regular sweeping and litter removal, prohibitions on the use of pesticides, and maintenance of trash areas. These measures are described below.

Drainage System

Stormwater runoff is collected in hooded catch basins with sumps and conveyed via closed drain pipe network to water quality units. The units provide water quality treatment by removing large sediment particulate, absorbed pollutants and floating contaminants from runoff prior to discharge to the sediment forebays for further settling of sediment and onto constructed stormwater wetlands or subsurface infiltration basins. Maintenance and cleaning of catch basins, drain manholes, water quality units, forebays and constructed stormwater wetlands and subsurface infiltration basins will assure adequate performance.

Maintenance Program

The Property Manager and maintenance staff will conduct the operation and maintenance program set forth in this document. The Manager will ensure that inspections and record keeping are timely and accurate and that cleaning and maintenance are performed at least on a bi-annual basis. Inspection & Maintenance Log Forms (attached) shall include the date and the amount of the last significant storm event in excess of 1" of rain in a 24-hour period, physical conditions of the structures, depth of sediment in structures, evidence of overtopping or debris blockage and maintenance required of each structure. *Records of maintenance will be kept on file at the Property Manager's office and copies of Inspection & Maintenance Log sheets indicating all work and inspections will be available to the Town upon request.*

All stormwater management structures will be inspected two times per year, with cleaning typically occurring in April and October and possibly more often, as site conditions warrant. Concurrent with inspection and cleaning, all litter shall be picked up and removed from the parking areas, service areas, grass, landscaped and wooded areas.

Quarterly Inspections

1. Inspect catch basin inlet grates and remove any debris monthly or as determined to be reasonable based on experience with the installed systems to ensure that the catch basins are working in their intended fashion and that they are free of debris; quarterly, inspect catch basin sumps and bottom of drain manholes; if depth of sediment in sumps exceeds 50% capacity, sediment must be removed. Excessive sediment shall be removed and properly disposed by a licensed drainage cleaning company;

Bi-Annual Inspections (performed in April and October)

1. Inspect sediment depth near discharge pipes in basin forebays once per year or more frequently if depth of sediment exceeds ¼ of pipe diameter. Accumulated sediment must be removed if the depth of sediment exceeds ¼ of pipe diameter during inspection. Excessive sediment shall be removed and properly disposed by a licensed drainage cleaning company;
2. Inspect water quality units. Accumulated sediment must be removed if depth of sediment exceeds 15% of the unit's storage capacity during either of the bi-annual inspections and at least once per year;
3. Inspect constructed stormwater wetlands and remove wind-blown trash and debris. Inspect vegetation twice per year during both the growing and non-growing seasons. Remove accumulated sediment once every ten years or more often as necessary;
4. Inspect subsurface infiltration systems for standing water. If standing water is observed for longer than 72 hours, a pump should be placed in the basin and discharged through the outlet pipe. After a system is dewatered, it should be observed by a Professional Engineer. A Professional Engineer should provide an opinion as to why the infiltration system is not draining and provide recommendations to restore infiltration capacity to the system. **Note: When the subsurface infiltration systems are first constructed, this inspection should occur after every major storm for the first 3 months. A major storm shall be any storm that produces 1" or more of rain.** Thereafter, inspect based on manufacturer's recommendations and as necessary to ensure that the filter is draining properly. Clean and flush as required and remove accumulated sediment if it exceeds a depth of 4 inches;
5. Inspect Flared End Sections and remove any litter, sediment or debris;
7. Inspect all vegetated areas and remove litter and debris as necessary. Inspect slopes and embankments early in the growing season to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows;
8. Inspection of trash and recycling enclosures for spillage and scattered litter must be performed on a regular basis to prevent the spread of pollutants into the stormwater management system.

Pavement Sweeping Program

Long-term management practices include monthly sweeping of driveways and parking areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilized during rain events and transported to the drainage system. Pavement sweeping is a highly effective source control measure for reducing pollutant loading in stormwater. A regenerative air type street sweeper will be utilized to sweep site drives and parking areas. Parking garage roof tops will be swept at least four times a year or as necessary. All sweepings will be disposed of in a legal manner.

Winter Maintenance Program

Ensure that drainage structures are not blocked by ice, snow, debris or trash during winter months. Sand shall be the primary agent used for driveway and parking lot safety during ice and snow conditions. The use of road salt is prohibited by the Order of Conditions and shall not be used on-site. No deicing materials shall be stored on site.

Fertilizer Use

Only slow-release organic low-phosphorous fertilizers will be used in any landscaped areas in order to limit the amount of nutrients that could enter the stormwater system.

Maintenance Schedule

The following is a general maintenance schedule that can be used as a reference by the Property Manager. This schedule includes the maintenance action to be taken and when the action is to occur.

Site Component	Action to be Taken	Timeline for Completion
Catch Basins/Manholes	Monthly inspections with Quarterly cleaning, removal of sediments, oils, and floatables	Monthly Inspection, Quarterly Cleaning
Water Quality Units	Cleaning, removal of sediments, oils, and floatables	April October
Pavement Areas	Sweeping of paved areas, disposal of sweepings in a legal manner; removal of trash and litter from pavement	Monthly
Swales, Forebays, Constructed Stormwater Wetlands & Landscape Areas	Removal of wind-blown trash and litter from entire property	April October
Subsurface Infiltration Basins	Inspect for accumulated sediment	April October
Subsurface Infiltration Basins	Inspect for standing water for periods in excess of 72 hours and for accumulated sediment	After each storm greater than 1" for 3 months after construction. Then biannually in April and October
Drainage Flared End Outlets	Removal of trash and sediment from drainage outlets	April October

Illicit Discharge Compliance Statement

Per Standard No. 10 of the MassDEP Stormwater Management Standards, there shall be no illicit discharges to the stormwater management system. The Property Manager is responsible for implementing the Operation and Maintenance Plan and overseeing activities at the facility to prevent illicit discharges to the drainage system from occurring.

It is strictly prohibited to discharge any products or substances onto the ground surface or into any drainage structures, such as catch basin inlets, manholes, water quality units, forebays, basin or drainage outlets.

Should a spill occur, immediate action steps must be implemented to contain the spill, cordon off the area, clean it up immediately and dispose of it properly to prevent an illicit discharge to the stormwater management system.

Drainage Operation and Maintenance Log

Site Maintenance Supervisor:_____ Date:_____

□ Routine □ Response to Rainfall Event _____in □ Other _____

BMP	Frequency	Date Performed	Comments
Catch Basins and Drain Manholes	Monthly Inspections		
	Maintenance Quarterly and as necessary		
Water Quality Units	Bi-Annual Inspections		
	Maintenance when 15% storage capacity is reached (min. once/year)		
	Immediate Oil/Hazardous Material Removal		
Pavement Areas (parking, driveways, service areas)	Monthly Sweeping		
	Trash & Litter Removal as necessary		
Landscaped & Vegetated Areas	Maintenance as necessary		
Sediment Forebays	Inspect Annually. Clean when sediment depth reaches ¼ of inlet pipe diameter.		
	Maintenance as necessary		
	Bi-Annual Mowing		
Constructed Stormwater Wetlands	Bi-Annual Inspections		
	Maintenance as necessary		
Subsurface Infiltration Systems*	Bi-Annual Inspections		

Inspection Form

***Inspect detention basins and subsurface infiltration systems after each 1" rainfall for the first 3 months after construction.**