Operation & Maintenance Plan

The Gutierrez Company

Taylor Street Littleton

225 Taylor Street
Littleton, MA

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Prepared by,

SMMA

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OPERATION AND MAINTENANCE PLAN

This Operation and Maintenance (O&M) Plan has been developed in accordance with the Massachusetts DEP Stormwater Management Standard No. 9 to ensure that the stormwater management system functions as designed.

Owner and Responsible Party

As the owner, the Gutierrez Company (200 Summit Drive, Suite 400, Burlington MA) shall be the party responsible for adherence to the DEP Stormwater Management Policy after to completion of construction and until a Certificate of Compliance is issued by the Conservation Commission. The Gutierrez Company shall designate a Site Supervisor who shall assume responsibility for this maintenance plan, post construction, after a Certificate of Compliance has been issued. The Gutierrez Company shall be responsible for financing maintenance and emergency repairs of the system.

If the property owner changes, it shall be the responsibility of the Gutierrez Company to notify the future owner of the stormwater management system and its components, as well as the requirements for operation and maintenance.

The Town of Littleton Conservation Commission shall be allowed to enter property at reasonable times and in a reasonable manner for the purpose of inspection of the systems.

Maintenance Activities

The following site maintenance activities are required to maintain optimal pollutant attenuation by the drainage system. A maintenance schedule follows in the next section.

Catch Basins and Manholes

Proper maintenance includes inspection of all grates, sumps, and outlets. Any debris or obstructions should be removed. Structural damage should be recorded and reported. The amount of sediment in each structure should be recorded. The sumps shall be cleaned when they are half full of sediment or debris (approximately 2 feet below outlet pipe.)

Pavement and Grass Areas

The pavement areas should be swept to remove solids and reduce the amount of suspended solids in the runoff. All accumulated trash and litter throughout the site should be collected and discarded.

Maintain the walking trail to reduce erosion and remove any material accumulated within the wetland within one week of rainfall event.

Subsurface Recharge Structures

The inlet and outlet of each system should be inspected and cleared of any debris that might clog the system. The system should be checked to ensure functionality after installation. The area above and immediately adjacent to the infiltration system should be checked for depressions. The area above and adjacent to the system should also be inspected to ensure that no unauthorized modifications have been made.

Detention Basin

Inspect detention basins to ensure they are operating as designed. Inspect the outlet structure for evidence of clogging or excessive outflow releases. Potential problems to check include: subsidence, erosion, cracking or tree growth on the embankment, damage to the emergency spillway, sediment accumulation around the outlet, inadequacy of the inlet/outlet channel erosion control measures, changes in the condition of the pilot channel, erosion within the basin and banks, and the emergence of invasive species. Make any necessary repairs immediately. During inspections, note any changes to the detention basin or the contributing watershed area because these may affect basin performance.

Mow the upper-stage, side slopes, embankment and emergency spillway. Remove sediment from the basin. Mow the outer slopes of the detention basins and grading not more than once a year. Providing an on on-site sediment disposal area will reduce the overall sediment removal costs.

Water Quality Unit

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument.

The water quality system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine whether the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning of the systems should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole cover and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

Snow Removal

Maintenance activities during the winter months are primarily limited to snow removal activities and removal of debris and trash throughout the site.

Snow removal operations will adhere to the Massachusetts Department of Environmental Protection – Bureau of Resource Protection Guidelines (dated March 8, 2001). Snow will be stockpiled as far away from resource areas as possible and removed as necessary under larger snow events. Stockpiling snow in this manner will allow meltwater to enter the drainage system and thereby receive

pretreatment prior to discharging to receiving resource areas. Snow and ice that has accumulated around catch basin grates will be removed.

Winter Salt & Sand Use

For concrete walkways and plaza areas, no binary chloride compounds shall be applied, i.e. sodium chloride, calcium chloride or magnesium chloride, for a minimum of 6 months after concrete installation is complete. This allows the concrete to cure to its optimal strength. For the first year, an aggressive snow removal process through mechanical means or hand shoveling followed by the use of sand or fine gravel mixtures optimal for the life of the sidewalks and plaza systems.

No sodium chloride is to be used within the 100 foot Buffer Zone.

MAINTENANCE SCHEDULE

Site Component	Required Action	Frequency
Subsurface Infiltration Structures	Inspect inlets & outlets and remove any debris that might clog system	Quarterly in first year, at least twice per year after
	Inspect system for functionality	After first major rainfall event after installation
	Check for depressions in areas above & surrounding the infiltration system	Quarterly in first year, at least twice per year after
	Confirm that no unauthorized modifications have been performed to site over & surrounding the infiltration system	Yearly
	Inspect interior of infiltration system	Clean annually if needed
Pavement and Grass Areas	Sweep pavement areas	Minimum twice per year, first after final snow melt then after final leaf fall. As necessary in Summer months.
	Remove accumulated trash, litter, and discarded materials throughout the site	Weekly
	Remove accumulated material from walking trail within wetland	Within one week of rainfall event.
Catch Basins and Manholes	Inspect for depth of sediment, obstructions, structural damage, or other malfunction	Quarterly in first year, at least twice per year after
	Clean sumps of accumulated sediment	Clean sumps when they are 1/2 full of sediment/ debris (approx. 2-feet below outlet pipe) or once a year minimum. Document amount of sediment observed (inches below outlet pipe.)
Detention Basin	Inspect basin to ensure that it is operating as designed.	Once per year
	Mow the upper stage, side slopes embankment, and emergency spillway. Remove grass clippings.	Twice per year
	Mow the outer slopes of the detention basin and grading areas.	Not more than once per year.
	Check sediment forebay for accumulated sediment, trash, and debris and remove it.	Twice per year
	Remove accumulated sediment from basin.	As necessary, at a minimum of Once every 10 years

Water Quality Treatment Unit	Invasive species management	Inspect yearly Treat As necessary
	Inspect for depth of sediment, obstructions, structural damage, or other malfunction.	Twice per year, spring and fall
	Remove sediments and associated pollutants.	The system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated, at a minimum of once a year.

REPORTING & DOCUMENTATION

The Site Supervisor for The Gutierrez Company shall be responsible for maintaining an accurate Site Maintenance Log. The Site Maintenance Log shall be located on-site and made available to the Littleton Conservation Commission upon request.

The Site Maintenance Log shall:

- Document the completion of planned maintenance tasks.
- Identify the person responsible for the completion of tasks.
- Identify any outstanding problems, malfunctions or inconsistencies identified during the course of routine maintenance.

The Site Supervisor shall be responsible for ensuring that the scheduled tasks are appropriately completed as described in this plan and the Site Maintenance Log accurately represents activities carried out as described in this plan.

Site Maintenance Log

A Site Maintenance Log shall be completed as described above, and shall, at a minimum include the following items:

- Completed Inspection Checklist.
- Date of activity performed.
- Specific maintenance task.
- Structural components maintained, as identified on the O & M Plan.
- Staff person or contractor performing activity on behalf of The Gutierrez Company.
- Supervisor verification of maintenance activity.
- Recommended additional maintenance task.
- Means to document identified areas of concern, erosion or systems discrepancies requiring attention.

Public Safety Features

On-site public safety features include the following:

- Heavy-duty covers and grates on all manholes and catch-basins designed to withstand H20 loading.
- Maintain or reduce peak runoff rates from pre-development to post-development.
- Creation and implementation of Operations & Maintenance Plan to ensure the ability of the stormwater management system to continue to operate as designed.

INSPECTION CHECKLIST

Date of Inspection _____ Checklist Completed By _____

Reviewed by Supervisor _____

Site Component	Required Action	Frequency	Comments
Subsurface Recharge Structures	Inspect inlets and outlets and remove any debris	Quarterly First Year, Semi-Annually After	
	Check for depressions in areas above and surrounding the recharge systems	Quarterly First Year, Semi-Annually After	
	Inspect Interior for sediment and clean as needed	Annually	
Catch Basins & Manholes	Inspect for depth of sediment, obstructions, structural damage, or other malfunctions	Quarterly First Year, Semi-Annually After	
	Clean out oils and sediment	When accumulation reaches two feet, or once a year minimum	
Pavement Areas	Sweet Pavement	Minimum twice yearly. First after snow melt and after final leaf fall. As necessary in summer months.	
	Remove trash, litter, and discarded materials	Weekly	
Grass Areas	Remove trash, litter, and discarded materials	Weekly	
Detention Basin	Inspect basin to ensure that it is operating as designed.	Once per year	

Detention Basin (continued)	Mow the upper stage, side slopes, embankment, and emergency spillway. Remove trash and debris.	Twice per year	
	Check sediment forebay for accumulated sediment, trash, and debris and remove it.	Twice per year	
	Remove accumulated sediment.	As necessary, at a minimum of once every 10 years.	
	Inspect for Invasive species management	Inspect yearly Treat as necessary	
Water Quality Treatment Unit	Inspect for depth of sediment, obstructions, structural damage, or other malfunction.	Twice per year, spring and fall.	
	Remove sediments and associated pollutants.	The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated, at a minimum of once a year.	