

**Inspection and Maintenance Plan  
For Stormwater Management Facilities**

**Old Barn Estates  
Ice Pond Drive  
Falmouth, Maine**

**January 2013  
Rev 1 – February 8, 2013  
Rev. 2 – February 19, 2013**

Stormwater management facilities include paved surfaces, ditches/swales, catch basins, culverts, storm drain pipe, level spreaders, buffers, and grassed underdrain soil filters. During construction activities, the maintenance of all stormwater measures will be the direct responsibility of the Developer. After transfer to the Old Barn Estates, Home Owners Association (“Home Owners Association”), the maintenance of all stormwater management facilities, the establishment of any contract services required to implement the program, and the keeping of records and maintenance log book will be the responsibility of the Home Owners Association.

The Home Owners Association shall comply with the following standards to meet the City of Portland’s Post Construction Stormwater Management Plan requirements in accordance with Chapter 32 of the City Zoning Ordinance:

Any person owning, operating, or otherwise having control over a best management practice (BMP) required by a post construction stormwater management plan shall maintain the BMPs in accordance with the approved plan and shall demonstrate compliance with that plan as follows:

- (a) *Inspections.* The Home Owners Association or operator of a BMP shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.
- (b) *Maintenance and repair.* If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the Home Owners Association or operator of the BMP shall take corrective action(s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action(s) to the City of Portland Department of Public Services (DPS) and the Town of Falmouth Department of Parks and Public Works (DPPW) in the annual report.

- (c) *Annual report.* The Home Owners Association or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, on or by June 30 of each year, provide a completed and signed certification to DPS and DPPW in a form provided by DPS, certifying that the person has inspected the BMP(s) and that they are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they require maintenance or repair, including the record of the deficiency and corrective action(s) taken.
- (d) *Filing fee.* Any persons required to file an annual certification under this section shall include with the annual certification a filing fee established by DPS to pay the administrative and technical costs of review of the annual certification.
- (e) *Right of entry.* In order to determine compliance with this article and with the post-construction stormwater management plan, DPS and/or DPPW may enter upon property at reasonable hours with the consent of the owner, occupant or agent to inspect the BMPs.

At a minimum, the following maintenance activities for each stormwater management system shall be performed on a prescribed schedule.

#### Paved Surfaces

Accumulations of winter sand along paved surfaces shall be cleared at least once a year, preferably in the spring, and periodically during the year on an as-needed basis, to minimize transportation of sediment during rainfall events. Accumulations on pavement may be removed by pavement sweeping or vacuuming. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.

#### Ditches and Swales

Open swales and ditches shall be inspected twice per year (in spring and fall) to assure that debris and/or sediments do not reduce the effectiveness of the system. Debris and sediments shall be removed at that time. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation for the stability of the ditches and slopes proper function. Maintenance shall include, but not be limited to, mowing, trimming and removal vegetation in the ditches and slopes as required in order to prevent vegetation from blocking or diverting storm flows, replacement of riprap channel lining to prevent scour of the channel invert, removing vegetation and debris from the culverts.

Vegetated ditches should be mowed at least monthly during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any areas

where the vegetation fails will be subject to erosion and should be reseeded and mulched immediately.

Riprap ditches and aprons where stone is displaced should be replaced and chinked to assure stability. With time, additional riprap may be added. Vegetation growing through riprap should be removed on an annual basis.

### Catch Basins

All catch basins, and any other field inlets throughout the collection system, shall be inspected twice per year (in spring and fall) to assure that the inlet entry and grates are clear of debris and will accept the intended flows. Any debris and sediments shall be cleared.

Sediment should be removed from these structures when it accumulates within 12 inches of the lowest pipe invert. If the basin outlet is designed with a hood to trap floatable materials (i.e. Snout or Casco Bay trap), check to ensure watertight seal is working. At a minimum, remove floating debris and hydrocarbons at the time of the inspection. The removed material must be disposed of in accordance with the Maine Solid Waste Disposal Rules. Confined space entry safety procedures shall be practiced should entry into these structures be required.

### Culverts and Storm Drainage Pipes

Culverts and piped drainage systems shall be inspected on an annual basis to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the pipe inlet and outlet. Sediment should be removed when its level exceeds 20% of the pipe diameter. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken to contain the sediment at the pipe outlet, and not flush the sediments into the detention/infiltration pond areas as this will reduce the ponds capacity and ability to infiltrate runoff, and will hasten the time when the pond must be cleaned or rehabilitated.

### Underdrained Soil Filters

Mowing and removal of woody growth – underdrained soil filters are designed to grow water tolerant plantings and mowing is not required in the interior of the structure. However, the external and top slopes of earthen embankments will be mowed up to three times per growing season to control over growth.

Outlet inspection and cleaning – The soil filter outlet consists of a layer of planting loam and sand with a stone and perforated pipe underdrain. Influx of sediments will be limited by sumps on all upstream catch basin structures and vegetated swales. Outlet inspections shall include flushing of the underdrain through the cleanout at the end of the pipe. Trash, sediment and debris shall be removed from the vicinity of the outlet and disposed

of at a licensed off-site facility. The basin shall be inspected bi-annually for evidence of excessive retention or rapid release of flow.

If the filter fails to drain within 72 hours, the surface of the pond shall be rototilled to promote aeration of the filter media and vegetation shall be re-established. If aeration of the surface soil fails to promote filtration of impounded water within 72 hours, then the filter media shall be replaced as necessary. The stone underdrain shall also be replaced at this time, along with the perforated pipe.

Underdrained soil filters shall not be used for snow storage area.

Vehicular equipment used to maintain or rehabilitate underdrained soil filters should work from the basin perimeter and not enter the basin area, as this will compact the soil surface and reduce the design infiltration rate.

### Dripline Filters

Dripline filters shall be inspected semi-annually and after heavy rains. The filter shall be cleaned of debris and sediment at the surface of the filter. Stone within the reservoir shall be repaired and replaced as necessary when stones have been dislodged.

Filter material shall be replaced if it fails to drain within 72 hours after a one-inch rainfall event.

Dripline filters are part of the Stormwater management plan for the project. They shall not be paved over or altered in any way. They shall not be used for snow storage area. Gutters may not be installed on the roofline draining to the dripline filters.

### Level Spreaders

Level spreaders shall be inspected twice per year (in spring and fall) to assure that debris and/or sediments do not reduce the effectiveness of the system. Debris and sediments shall be removed at that time. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation and stability of stone berms for the stability of the level spreader for proper function. Maintenance shall include, but not be limited to, mowing, trimming and removal vegetation in the level spreaders as required in order to prevent vegetation from blocking or diverting storm flows, replacement of riprap as necessary to prevent scour of the level lip, removing vegetation and debris from the level spreaders.

Riprap ditches and aprons where stone is displaced should be replaced and chinked to assure stability. With time, additional riprap may be added. Vegetation growing through riprap should be removed on an annual basis.

### Vegetated Buffers

Buffers for this project are primarily undisturbed forested buffers. Buffers shall be marked with permanent markers. No trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown, or damaged trees and for pruning of tree branches below 12' provided two-thirds of the tree's canopy is maintained. No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except as noted in the "Declaration of Restrictions."

Buffers shall be inspected yearly. If erosion is observed within the buffer it shall be restabilized and the upgradient distribution structure (i.e. level spreader) shall be inspected for proper functionality.

### Disposal

Any sediment or debris removed during maintenance of the stormwater system must be disposed of in accordance with the Maine Solid Waste Disposal Rules.

### Recordkeeping

The Home Owners Association will keep a written maintenance log that summarizes inspections, maintenance, and any corrective actions taken. The log shall include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediment or debris, the location where the sediment or debris was disposed after removal will be indicated. This log shall be made available to the Maine Department of Environmental Protection upon request.

**Sample Inspection Report:**

OLD BARN ESTATES  
ICE POND ROAD, FALMOUTH, MAINE  
STORMWATER FACILITIES INSPECTION REPORT

NAME: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

TITLE: \_\_\_\_\_ COMPANY: \_\_\_\_\_

DATE: \_\_\_\_\_

OBSERVATIONS:

<u>BMP</u>	<u>Defects</u>	<u>Location(s)</u>	<u>Repair/Action Needed</u>	<u>Date/Action taken</u>
Ditches/ Swales	Yes/no			
Roads, Sidewalks and Parking Areas	Yes/no			
Catch Basins	Yes/no			
Pipes and Culverts	Yes/no			
Riprap Aprons	Yes/no			
Grassed Underdrained Soil Filters	Yes/no			
Dripline Filters	Yes/no			
Level Spreaders	Yes/no			
Vegetated Buffers	Yes/no			