

Eden Estates

Bancroft Road, Andover, MA

OPERATION & MAINTENANCE PLAN

Infiltration Basin

The infiltration basin shall be inspected at least once per year to ensure that the basin is operating as intended. Inspections conducted at intervals during and after the storm will help to determine if the basin is meeting the expected detention times. The outlet structure shall be inspected for evidence of clogging or outflow release velocities that are greater than design flow. Potential problems that shall be checked 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; and erosion within the basin and banks. Any necessary repairs shall be made immediately. During inspections, changes to the Infiltration basin or the contributing watershed shall be noted, as these may affect basin performance.

The upper-stage, side slopes, embankment, and emergency spillway shall be mowed at least twice per year. Trash and debris shall also be removed at this time.

Sediment shall be removed from the basin as necessary, and at least once every ten (10) years. Providing an on-site sediment disposal area will reduce the overall sediment removal costs.

Maintenance Criteria

- Infiltration basin shall be inspected at least once per year to ensure that the basin is operating as intended. Inspections shall be conducted during wet weather to determine if the basin is meeting the targeted detention times.
- At least twice during the growing season the upper-stage, side slopes, embankment, and emergency spillway shall be mowed, and accumulated trash and debris removed.
- Remove sediment from the infiltration basin as necessary, but at least once every ten (10) years.

Deep Sump Catch Basins

The actual removal of sediments and associated pollutants and trash occurs only when inlets or sumps are cleaned out; therefore, regular maintenance is required. Most studies have linked the failure of inlets to the lack of regular maintenance. The more frequent the cleaning, the less likely sediments will be re-suspended and subsequently discharged. In addition, frequent cleaning also results in more volume available for future storms and enhances the overall performance. Ideally, in areas of high sediment loading, inlets shall be inspected, and cleaned, after every major storm event. At a minimum, water quality inlets and deep sumps shall be cleaned four times per year and inspected monthly. Disposal of the accumulated

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sediment and hydrocarbons must be in accordance with applicable local, state, and federal guidelines and regulations.

Maintenance Criteria

- Inlets shall be cleaned a minimum of four (4) times per year and inspected monthly.
- All sediments and hydrocarbons shall be properly handled and disposed of, in accordance with local, state, and federal guidelines and regulations.

Sediment Forebays

The actual removal of sediments and associated pollutants occurs only when sediment traps and forebays are cleaned; therefore, regular maintenance is required. Frequently the removal of accumulated sediments will make it less likely that sediments will be re-suspended. At a minimum, sediment traps shall be cleaned four (4) times per year and inspected monthly.

Maintenance Criteria

- Traps shall be cleaned four (4) times per year and inspected monthly.
- All sediments and hydrocarbons shall be handled properly and disposed in accordance with local, state, and federal guidelines and regulations.

Drainage Swale

A maintenance and inspection schedule shall be incorporated into the design to ensure the effectiveness of water quality swales. Swales shall be inspected on a semi-annual basis; additional inspections shall be scheduled during the first few months to make sure that the vegetation in the swales becomes adequately established. The water quality swales shall be inspected for slope integrity, soil moisture, vegetative health, soil stability, soil compaction, soil erosion, ponding, and sedimentation.

Regular maintenance tasks include mowing, fertilizing, liming, watering, pruning, and weed and pest control. Swales shall be mowed at least once per year. The grass must not be cut shorter than four (4) inches because the effectiveness of the vegetation in reducing flow velocity and pollutant removal may be reduced.

Sediment and debris shall be removed manually, at least once per year, and periodic reseeding may be required to maintain the dense growth of vegetation. Care shall be taken to protect water quality swales from snow removal and disposal practices and off street parking. Since swales may be located on private residential property, it is important for developers to clearly outline the maintenance requirements to property purchasers.

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Maintenance Criteria

- Maintenance is required for the proper operation of water quality swales. Plans for water quality swales shall identify owners, parties responsible for maintenance, and an inspection and maintenance schedule.
- Water quality swales shall be inspected at least semi-annually, and maintenance and repairs made as necessary. Additional inspections shall be scheduled during the first few months to make sure the vegetation becomes adequately established. Repairs and reseeding shall be done as required.
- Swales shall be mowed at least once per year. Grass clippings shall be removed. The grass must not be cut too often or shorter than four (4) inches, in order to maintain the effectiveness of the swale.
- Sediment and debris shall be removed manually, at least once per year, before the vegetation is adversely impacted.
- Care shall be taken to protect water quality swales from snow removal and disposal practices and off street parking.

Grass Channels

Grassed Channels (formerly known as Biofilter swales) are treatment systems with a longer hydraulic residence time than drainage channels. The removal mechanisms are sedimentation and gravity separation, rather than filtration. To receive TSS credit, a sediment forebay or equivalent must be provided for pretreatment.

Maintenance

- Mowing: Set the mower blades no lower than three (3) to four (4) inches above the ground. Mow on an as-needed basis during the growing season so that the grass height does not exceed six (6) inches.
- Inspection: Inspect semi-annually the first year, and at least once a year thereafter. Inspect the grass for growth and the side slopes for signs of erosion and formation of rills and gullies. Plant an alternative grass species if the original grass cover is not successfully established.
- Trash/Debris Removal: Remove accumulated trash and debris prior to mowing.
- Sediment Removal: Check on a yearly basis and clean as needed. Use hand methods (i.e., a person with a shovel) when cleaning to minimize disturbance to vegetation and underlying soils. Sediment build-up in the grass channel reduces its capacity to treat and convey the water quality event, 2-year, and 10-year 24-hour storm.