**OPERATION AND MAINTENANCE PLAN**
**PUBLIC STORM FACILITIES**

**BES Job #:** _____
**Project Name/Location:** _____

**Owner:** _____
**Contact:** _____
**Phone No:** _____
**Mailing Address:** _____

**Purpose:**

**Planters are designed to allow runoff to filter through layers of topsoil (thus capturing pollutants) and then either infiltrate into the native soils (infiltration planter) or be collected in a pipe to be discharged off-site (flow-through planter).**

**Intent of this agreement:**
City of Portland has required through ordinance or similar documents that property Owners maintain the storm water treatment systems in a condition that allows the system to perform as designed. That all financial costs of implementation of this plan to be burdened by the property owner. This maintenance plan is not intended to limit the maintenance to less than what is required by the City nor is it a commitment to exceed those minimum standards. It is provided so that the City of Portland and the property owner understand the extent of the storm water treatment system that needs to be maintained.

**Description of Storm water treatment Facilities**
The planter is sized to accept runoff and temporarily store the water in a reservoir on top of the soil. The flow-through planter is designed with an impervious bottom or is placed on an impervious surface. Water should drain through the planter within 3-4 hours after a storm event.
See attached site plan.

**Inspection Program**

1) Conduct inspections on a quarterly basis for two years. Additional inspections will be necessary after long dry periods, large storms or spills. Immediately remove accumulated spill material, taking the appropriate safety and disposal precautions.
2) Keep inspection records to track the progressive development of the system over time. The inspection records shall include:
   a) Sediment condition and depth.
   b) Water observations (sheen, smell, etc.)
   c) Unscheduled maintenance needs.
   d) Components that do not meet performance criteria and require immediate maintenance.
   e) Common problem areas, solutions and general observations.
   f) Aesthetic conditions.

**Maintenance Program**

1) Follow the recommended maintenance guidelines from the City of Portland "Stormwater Management Manual" Infiltration and Flow-Through Planters operations and maintenance plan requirements. See attached.

**Watering Schedule**
To establish seeding a light watering several times a day may be needed, as grass begins to grow decrease frequency while increasing amount. At the end of 6 weeks after seeding water on a weekly basis with 1"of water per application.

**Accepting and agreeing to the term and conditions contain in this operation and maintenance plan**

Name: _____ Date:_____

Infiltration and Flow-Through Planters

**Operations & Maintenance Plan**

**Planters** are designed to allow runoff to filter through layers of topsoil (thus capturing pollutants) and then either infiltrate into the native soils (infiltration planter) or be collected in a pipe to be discharged off-site (flow-through planter). The planter is sized to accept runoff and temporarily store the water in a reservoir on top of the soil. The flow-through planter is designed with an impervious bottom or is placed on an impervious surface. Water should drain through the planter within 3-4 hours after a storm event. All facility components and vegetation shall be inspected for proper operations and structural stability. These inspections shall occur, at a minimum, quarterly for the first 2 years from the date of installation, 2 times per year thereafter, and within 48 hours after each major storm event. The facility owner must keep a log, recording all inspection dates, observations, and maintenance activities. The following items shall be inspected and maintained as stated:

**Downspout** from rooftop or sheet flow from paving allows unimpeded stormwater flow to the planter.

- Debris shall be removed routinely (e.g., no less than every 6 months) and upon discovery.
- Damaged pipe shall be repaired upon discovery.

**Splash Blocks** prevent splashing against adjacent structures and convey water without disrupting media.

- Any deficiencies in structure such as cracking, rotting, and failure shall be repaired.

**Planter Reservoir** receives and detains storm water prior to infiltration. Water should drain from reservoir within 3-4 hours of storm event.

- Sources of clogging shall be identified and corrected.
- Topsoil may need to be amended with sand or replaced all together.

**Filter Media** consisting of sand, gravel, and topsoil shall allow stormwater to percolate uniformly through the planter. The planter shall be excavated and cleaned, and gravel or soil shall be replaced to correct low infiltration rates.

- Holes that are not consistent with the design and allow water to flow directly through the planter to the ground shall be plugged.
- Sediment accumulation shall be hand removed with minimum damage to vegetation using proper erosion control measures. Sediment shall be removed if it is more than 4 inches thick or so thick as to damage or kill vegetation.
- Litter and debris shall be removed routinely (e.g., no less than quarterly) and upon discovery.

**Planter** shall contain filter media and vegetation.

- Structural deficiencies in the planter including rot, cracks, and failure shall be repaired.

**Overflow Pipe** safely conveys flow exceeding reservoir capacity to an approved stormwater receiving system.

- Overflow pipe shall be cleared of sediment and debris when 50% of the conveyance capacity is plugged.
- Damaged pipe shall be repaired or replaced upon discovery.

**Vegetation** shall be healthy and dense enough to provide filtering while protecting underlying soils from erosion.

- Mulch shall be replenished at least annually.
- Vegetation, large shrubs or trees that limit access or interfere with planter operation shall be pruned or removed.
- Fallen leaves and debris from deciduous plant foliage shall be raked and removed.
- Nuisance or prohibited vegetation from the Portland Plant List shall be removed when discovered. Invasive vegetation contributing up to 25% of vegetation of all species shall be removed and replaced.
- Dead vegetation shall be removed to maintain less than 10% of area coverage or when planter function is impaired. Vegetation shall be replaced within a specific timeframe, e.g., 3 months, or immediately if required to maintain cover density and control erosion where soils are exposed.

**Spill Prevention** measures shall be exercised when handling substances that contaminate stormwater. Releases of pollutants shall be corrected as soon as identified.

**Training and/or written guidance information** for operating and maintaining stormwater planters shall be provided to all property owners and tenants. A copy of the O&M Plan shall be provided to all property owners and tenants.

**Access** to the stormwater planter shall be safe and efficient. Egress and ingress routes shall be maintained to design standards. Roadways shall be maintained to accommodate size and weight of vehicles, if applicable.

- Obstacles preventing maintenance personnel and/or equipment access to the stormwater planter shall be removed.
- Gravel or ground cover shall be added if erosion occurs, e.g., due to vehicular or pedestrian traffic.

**Insects & Rodents** shall not be harbored in the stormwater planter.
Pest control measures shall be taken when insects/rodents are found to be present.
If sprays are considered, then a mosquito larvicide, such as Bacillus thurendensis or Altoside formulations can be applied only if absolutely necessary, and only by a licensed individual or contractor.
Holes in the ground located in and around the stormwater planter shall be filled and compacted.