OPERATION AND MAINTENANCE PLAN
PUBLIC STORM FACILITIES

BES Job #: _____
Project Name/Location: _____

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

Purpose:

Swales are planted or grassed open channels that trap pollutants by filtering and slowing flows, allowing particles to settle out. The swale should drain within 48 hours of a storm event.

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
Vegetated swales are long narrow landscaped depressions used to collect and convey stormwater runoff, allowing pollutants to settle and filter out as the water infiltrates into the ground or flows from one bay to the next through the facility. 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" Vegetated, Grassy, and Street Swales 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: _____

Vegetated, Grassy, and Street Swales
Operations & Maintenance Plan

Swales are planted or grassed open channels that trap pollutants by filtering and slowing flows, allowing particles to settle out. The swale should drain within 48 hours of a storm event. All facility components, vegetation, and source controls shall be inspected for proper operations and structural stability, 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 facility owner must keep a log, recording all inspection dates, observations, and maintenance activities. The following items shall be inspected and maintained as stated:

Swale Inlet (such as curb cuts or pipes) shall maintain a calm flow of water entering the swale.

- Source of erosion shall be identified and controlled when native soil is exposed or erosion channels are forming.
- 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" thick or so thick as to damage or kill vegetation.

Inlet shall be cleared when conveyance capacity is plugged. Sources of sediment and debris shall be identified and corrected.

Rock splash pads shall be replenished to prevent erosion.

Side Slopes shall be maintained to prevent erosion that introduces sediment into the swale.

- Slopes shall be stabilized and planted using appropriate erosion control measures when native soil is exposed or erosion channels are forming.

Swale Media shall allow stormwater to percolate uniformly through the landscape swale. If the swale does not drain within 48 hours, it shall be tilled and replanted according to design specifications.

Annual or semi-annual tilling shall be implemented if compaction or clogging continues.

- Debris in quantities that inhibit operation shall be removed routinely (e.g., no less than quarterly), or upon discovery.

Swale Outlet shall maintain sheet flow of water exiting swale unless a collection drain is used. Source of erosion damage shall be identified and controlled when native soil is exposed or erosion channels are forming.

- Outlets such as drains and overland flow paths shall be cleared when 50% of the conveyance capacity is plugged.
- Sources of sediment and debris shall be identified and corrected.

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

- Mulch shall be replenished as needed to ensure survival of vegetation.
- Vegetation, large shrubs or trees that interfere with landscape swale operation shall be pruned.
- Fallen leaves and debris from deciduous plant foliage shall be removed.
- Grassy swales shall be mowed to keep grass 4” to 9” in height.
- Nuisance and prohibited vegetation from the Portland Plant List (such as blackberries and English Ivy) shall be removed when discovered. Invasive vegetation contributing up to 25% of vegetation of all species shall be removed and replaced.
- Dead vegetation and woody material shall be removed to maintain less than 10% of area coverage or when swale function is impaired. Vegetation shall be replaced within 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 swales 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 swale 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 swale 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 swale. 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 swale shall be filled.

If used at this site, the following will be applicable:

Check Dams shall control and distribute flow.

- Causes for altered water flow shall be identified, and obstructions cleared upon discovery.
- Causes for channelization shall be identified and repaired.