

**CITY OF SALEM
DEPARTMENT OF PUBLIC WORKS
ADMINISTRATIVE RULES
CHAPTER 109
DIVISION 011
OPERATIONS AND MAINTENANCE OF STORMWATER FACILITIES**

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11.1 – INTRODUCTION

Stormwater quality and flow control facilities remove pollutants from stormwater and control the flow rate, flow volume, and flow duration of drainage water. *Salem Revised Code* Chapter 71 contains criteria for when these facilities are required. The City of Salem *Public Works Design Standards* provides methods, criteria, and requirements for designing and constructing stormwater facilities. Chapters 70 and 71 of the *Salem Revised Code* require stormwater facilities to be properly operated and maintained. Stormwater facilities shall be operated and maintained in accordance with this rule.

(a) Purpose

This rule describes requirements for operating and maintaining stormwater facilities. These requirements, which include inspections, routine maintenance activities, corrective actions, and recordkeeping, are designed to help ensure stormwater facilities operate as designed to provide stormwater pollutant removal and/or flow control.

(b) Applicability

The provisions of this rule apply pursuant to *Salem Revised Code* Chapter 70 (Utilities, General), Chapter 71 (Stormwater), and the City of Salem *Public Works Design Standards*.

(c) Authority to Adopt

This rule is authorized by *Salem Revised Code* Chapters 20J, 70, and 71. The requirements contained in this rule shall be consistent with the *Salem Revised Code*. In those cases where a conflict may exist, the *Salem Revised Code* will take precedence.

11.2 – DEFINITIONS

Terms in this rule defined in the *Salem Revised Code* and the City of Salem *Public Works Design Standards* have the same meaning, except as otherwise provided in this rule or as context requires. Other terms in this rule are defined herein. Terms specifically defined in this rule apply only to the application and enforcement of these rules. Unless otherwise expressly provided in the *Salem Revised Code*, and except as the context specifically requires, the following terms shall mean:

(1) Manufactured Treatment Technology and Manufactured Chamber Technology. A manufactured device, often proprietary, in which stormwater receives treatment before being discharged to another best management practice or to the receiving water. This is a broad category of best management practices with a variety of pollutant removal mechanisms and varying pollutant removal efficiencies.

(2) Pretreatment. The reduction of contaminants in drainage water before it is discharged into a treatment facility or receiving water body. Pretreatment facilities are primarily used to reduce sediments, floating solids, or oil and grease.

(3) Treatment. The significant reduction of contaminants in stormwater before it is discharged to the stormwater receiving system or receiving surface waters.

(4) Flow Control. The reduction in discharge and velocity of stormwater, ensuring treatment in a stormwater quality facility and/or reducing flow to the overall stormwater conveyance system in large storm events.

(5) Stormwater Facility. A facility designed to control the flow rate, flow volume, or flow duration of drainage water, or a facility designed to remove pollutants from drainage water.

(i). **Flow Control Facility.** A stormwater facility designed to control the flow rate, flow volume, or flow duration of drainage water.

(ii). **Green Stormwater Infrastructure (GSI).** A stormwater facility that uses vegetation, soils, or natural processes to promote natural surface hydrologic functions through infiltration or evapotranspiration. Stormwater facilities are designed for full infiltration (no underdrain) or partial infiltration (with underdrain) of stormwater runoff are considered GSI.

(iii). **Filtration Facility.** A stormwater facility designed to exclusively treat stormwater runoff by filtration through media. A filtration facility does not promote infiltration and may be lined.

(iv). **Infiltration Facility.** A stormwater facility that is designed without a liner or underdrain to treat and fully infiltration a design storm event.

(v). **Partial Infiltration Facility.** A stormwater facility designed without a liner but with an underdrain to treat and promote infiltration of a design storm event.

(6) Inlet. The point of entry to a stormwater facility or the stormwater receiving system. Many stormwater quality and flow control facilities are designed and constructed with multiple pipe inlets and/or curbcut inlets. See Chapter 109 Division 001 definitions for additional definition.

(7) Curbcut. A form of stormwater facility inlet which involves removing small sections of curbs to allow stormwater runoff to enter a GSI facility through gravity. Curbcuts are placed in low-elevation locations and can be more susceptible to sediment and debris clogging than pipe inlets.

(8) Outlet. The point at which stormwater exits a facility. Most stormwater quality and flow control facilities are designed and constructed with both an outlet and an overflow structure or an emergency spillway.

(9) Underdrain. A perforated pipe which collects infiltrated and treated stormwater from GSI facilities such as rain gardens, planters, and swales, and conveys the treated water to the stormwater receiving system or receiving surface waters.

(10) Overflow Structure. Any number of structural controls installed on a stormwater quality or flow control facility which are engineered to safely convey excess stormwater in high flow weather events. Often in GSI facilities, the overflow structure takes the form of an overflow grate which is installed at a higher elevation than the facility outlet. In larger detention facilities, the overflow mechanism is often an emergency spillway, which provides a point of discharge at the top of the facility's earthen embankments when capacity has been reached and outlet pipes can not discharge the flow fast enough.

(11) Sump. The vertical distance between the lowest point of an outlet pipe and the lowest point of a catch basin, manhole, or vault structure. Sumps provide a storage area for accumulated sediment and debris and must be cleaned when approximately 50% of capacity has been taken by accumulated sediment or debris.

(12) Splash Pad. Small concrete pads which are often placed below roof downspouts to minimize erosive damage to surrounding exposed soil and vegetation.

(13) Rock Splash Blocks. Large, angular rocks which are placed around inlets and other areas of stormwater facilities in order to minimize soil erosion that results from pipes discharging on exposed soils. Also known as rip rap.

(14) Forebay. A concrete or earthen depression designed to trap sediment and debris at the inlets of a stormwater structure or facility, which prolongs the life of the facility by reducing sedimentation. Forebays can be mechanical or earthen, or take the form of concrete pads which are built into the inlet of a GSI facility.

(15) Orifice. Also known as a restrictor plate, orifices regulate and slow the flow of stormwater through a mechanical facility by narrowing the diameter of an outlet pipe, ensuring stormwater treatment and minimizing negative impacts to surface waters.

(16) Weir. A wall installed in a structure or facility which is engineered to slow the flow of stormwater through a facility by requiring the flow to temporarily pond behind the barrier before overtopping it. Weirs often have notch built on the top of the wall in order to slowly discharge water which has reached ponding capacity behind the wall.

(17) Shear Gate. A structural plate installed in flow control downturn pipes which opens under pressure during high flow events, allowing stormwater to discharge more quickly from a mechanical structure which is experiencing stormwater inundation.

(18) Standpipe. A vertical pipe through which stormwater is designed to enter from below. In many flow control structures, standpipes are installed with an orifice on the bottom and an open top, which serves as an overflow in large storm events.

(19) Baffle. A form of weir wall which slows and/or redirects stormwater to different discharge points in high or low flow storm events. Baffles are sometimes installed with holes or gaps to direct water to different locations, depending on flow rates.

(20) Check Dam. A small wall or barrier built across the flow channel of a stormwater facility. Check dams can be constructed of rocks, wood, concrete, or compacted soils, and slow and spread flows across channel treatment zones.

(21) Dike. A large earthen or rock barrier designed to slow, spread out, and/or direct stormwater flows in large detention facilities.

(22) Berm. A large artificial embankment used to slow, spread out, contain, and/or direct stormwater flows in large detention and stormwater quality facilities. Berms are most often constructed from compacted soils but can also take the form of compacted rip rap.

(23) Side Slopes. Sloped, earthen stormwater facility walls which provide containment and are designed with specific engineered dimensions.

(24) Growing Medium. Engineered media which is used for plant growth and to attain increased infiltration rates. Growing medium is a mix of sand, sediment, and compost, and helps to increase infiltration rates in GSI facilities. See Division 004 Appendix 4G for specifications of mix.

(25) Impermeable Liner. A synthetic, flexible, waterproof sheet which is installed to prevent or reduce stormwater infiltration to groundwater or particular areas such as building foundations.

(26) Impermeable Membrane. Impermeable liners which contain textured, engineered surfaces in order to enhance friction characteristics.

(27) Subsidence. The slow, gradual settling and sinking of soils due to subsurface earth movement, often involving groundwater.

(28) Erosion. The gradual breakdown of soil due to water, wind, or ground subsidence.

(29) Sedimentation. The deposition and accumulation of sediment which has been eroded.

(30) Confined Space. Any structure or area which is not designed for human occupation, but which is large enough for humans to enter. Permits, certifications, personal protective equipment, and mechanical equipment are all required to perform sediment removal, other types of cleaning, and repairs to subsurface stormwater facilities (i.e., pipes, manholes, vaults, and catch basins which are greater than 3 feet in depth).

(31) Herbicide. Any chemical substance which is toxic to vegetation. Use of herbicide is strongly discouraged in stormwater quality and flow control facilities, as it introduces pollutants to stormwater which is then discharged to surface receiving waters. If herbicide use is necessary in a stormwater facility, it must be approved for aquatic use and applied by a licensed applicator.

(32) Pesticides. Any chemical substance which is toxic to animals. Use of pesticides is strongly discouraged in stormwater quality and flow control facilities, as it introduces pollutants to stormwater which is then discharged to surface receiving waters. If pesticide use is necessary in a stormwater facility, it must be approved for aquatic use and applied by a licensed applicator.

11.3 – OTHER REGULATORY REQUIREMENTS

Conforming to requirements of this rule does not relieve persons of other local, state, or federal regulatory requirements. In the event of a conflict between regulatory requirements, the most stringent requirement will apply.

11.4 – RESPONSIBILITY FOR OPERATION AND MAINTENANCE

Operation and maintenance of public stormwater facilities is the responsibility of the City of Salem. Operation and maintenance of private stormwater facilities is the responsibility of persons owning, operating, or occupying the property. Under certain conditions, the City of Salem will assume responsibility for operating and maintaining a stormwater facility; however, until the transfer of these responsibilities to the City is completed and acknowledged by all parties, operation and maintenance remains the responsibility of the person owning, operating, or occupying the property.

Public improvement projects and private development that propose to construct facilities that will ultimately be operated and maintained by the City shall be designed, constructed, operated, and maintained in compliance with *Salem Revised Code* Chapter 71, the *Public Works Design*

Standards, and this rule. The City will assume responsibility for operating and maintaining stormwater facilities only after the design and construction requirements have been fully met as determined by the City through submitted documentation and on-site inspection. The City may require remedies to unsatisfactory design, construction, or maintenance activities as a condition of the City's assuming responsibility for the facility. After final approval and acceptance of a facility, the City shall assume maintenance activities.

11.5 – MAINTENANCE OF PRIVATE STORMWATER FACILITIES

(a) Operating and Maintaining Private Stormwater Facilities.

Persons responsible for operating and maintaining a private stormwater facility are required to:

- (1) Periodically inspect the stormwater facility to ensure the facility is in proper operation for effective pollutant removal, infiltration, and/or flow control;
- (2) Maintain a record of the construction of, and all inspection, maintenance, and repair activities to, the stormwater facility; and

- (3) Make plans, records, procedures, and schedules of maintenance available to the Director during inspection of the stormwater facility, and at other reasonable times upon request of the Director; and
- (4) If a change of ownership occurs, transfer all records of installation, inspection, repair, and maintenance of the stormwater facility to the new property owner; and
- (5) Inform future purchasers and other successors and assignees of:
 - (i). The existence of the stormwater facility; and
 - (ii). The requirements for continued inspection and maintenance of the stormwater facility.

(b) Private Stormwater Facility Agreement.

A Private Stormwater Facility Agreement (PSFA) is required for any development that includes the construction of a stormwater quality or flow control facility that will be privately operated and maintained. The agreement will be submitted as part of the development permit application process. At a minimum, the agreement will:

- (1) Provide the property address and contact information for the property owner;
- (2) Document the number, types, and locations of facilities;
- (3) Establish the responsibility of the owner to inspect, operate, and maintain facilities in accordance with approved standards;
- (4) Identify the maintenance and operating standards and activities that will be implemented to ensure long-term functioning of the stormwater facilities;
- (5) Grant the City access for the purpose of inspecting facilities and, in the event any deficiencies are not corrected in a timely manner by the owner, for the purpose of correcting deficiencies; and
- (6) Grant the City access if the City has reasonably determined that emergency measures are necessary to remedy a threat to public health, safety, or welfare caused by facilities.

The PSFA is a form approved by the City Attorney and will be provided as part of the development permit application process for new stormwater facilities. A copy of the signed and notarized agreement will be recorded with the County against the subject property.

11.6 – MINIMUM REQUIREMENTS FOR O&M

Facility Maintenance Forms provided in this rule contain minimum requirements for inspection, maintenance, and repair activities for stormwater quality and flow control facilities. These forms provide a means to document required activities. For any stormwater quality or flow control facility not addressed by this rule, a maintenance form or similar documentation shall be provided to the Public Works Director describing operating standards, maintenance activities, condition criteria, and schedules that will be implemented to ensure long-term functioning of the facility.

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Division 011 – Operation and Maintenance of Stormwater Facilities
APPENDIX A to 109-011

APPENDIX A: FACILITY MAINTENANCE FORMS

Chapter 109
Division 011 – Operation and Maintenance of Stormwater Facilities
APPENDIX A to 109-011

FACILITY MAINTENANCE FORMS

This appendix contains Facility Maintenance Forms that provide minimum requirements for inspection, maintenance, and repair activities for the following types of stormwater facilities:

1. Planters
2. Rain Gardens
3. Vegetated Filter Strips
4. Vegetated Swales
5. Basins
6. Subsurface Gravel Wetlands
7. Treatment Wetlands
8. Manufactured Treatment Technology
9. Manufactured Chamber Technology
10. Green Roofs
11. Sand Filters
12. Pervious Pavement
13. Underground Detention Tanks, Vaults, and Pipes
14. Conveyance Pipes
15. Open Channels
16. Soakage Trenches
17. Drywells
18. Flow Control Structures
19. Pollution Control Manholes
20. API Oil/Water Separators
21. Parking Lot Detention Basins

<p>Outlet pipes and overflow structures safely convey treated flow and excess flow to the stormwater receiving system.</p> <ul style="list-style-type: none"> <input type="checkbox"/> All outlet pipes and overflow structures shall be kept clear at all times. <input type="checkbox"/> Damaged outlet pipes and overflow structures shall be repaired or replaced upon discovery. <input type="checkbox"/> If installed, beehive overflows and Type 3 catch basin overflow grates shall be secured, and casings shall be intact and grout-sealed. <input type="checkbox"/> Outlet pipes shall be secured and grout-sealed. <input type="checkbox"/> Standpipe overflows shall be intact, undamaged, and clear of debris. <p>Inspection comments:</p>
<p>Underdrains shall ensure unrestricted movement of water through the growing medium and off-site in filtration and partial infiltration planters.</p> <ul style="list-style-type: none"> <input type="checkbox"/> If cracks exist, underdrain pipes shall be repaired or replaced. <input type="checkbox"/> If clogged with sediment or debris, underdrain pipes shall be cleaned or replaced as necessary to ensure free movement of stormwater. <p>Inspection comments:</p>
<p>Growing medium shall allow stormwater to infiltrate uniformly through the planter. If water remains ponded on the surface of the planter 48 hours after a storm event, sources of possible clogging shall be identified and corrected. Planter soil shall be raked and, if necessary, growing medium shall be excavated and replaced.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sources of clogging shall be identified and corrected. <input type="checkbox"/> Sources of erosion shall be identified and controlled when native soil is exposed or erosive channels have formed. <input type="checkbox"/> Growing medium shall be used to fill and compact any erosive channels in the planter, including channels which form between plants. <input type="checkbox"/> Soil shall be replaced when surface of planter is observed ponding water more than 48 hours after a storm event. <input type="checkbox"/> Holes caused by pests shall be refilled and compacted. <input type="checkbox"/> Sediment and debris accumulation shall be removed carefully by hand if it is more than 2 inches in depth, interfering with vegetation health, or obstructing inlets, outlets, or overflows. Use proper erosion control measures and minimize damage to surrounding vegetation. <input type="checkbox"/> Litter and debris shall be removed. <p>Inspection comments:</p>

<p>Vegetation shall be healthy and dense enough to promote filtration and/or infiltration while protecting underlying soils from erosion. Proper horticultural practices shall be employed to ensure plants are healthy.</p> <ul style="list-style-type: none"><input type="checkbox"/> Rock mulch around plants shall be replenished as needed but shall not inhibit water flow.<input type="checkbox"/> Vegetation, large shrubs, or trees that limit access or interfere with planter function shall be pruned or removed.<input type="checkbox"/> Fallen leaves and debris shall be raked and removed.<input type="checkbox"/> Nuisance, noxious, and invasive plants as defined by Oregon Department of Agriculture and the City of Salem’s Non-Native Invasive Plant list shall be removed when discovered.<ul style="list-style-type: none">• <i>The use of herbicides and fertilizers is strongly discouraged because of the negative impacts to receiving waters. If herbicides or fertilizers are required, products approved for aquatic use shall be used by a licensed applicator.</i><input type="checkbox"/> Dead vegetation shall be removed and replaced upon discovery to promote filtration and/or infiltration and to minimize erosion.<input type="checkbox"/> Vegetation shall be replaced per original planting plan, or per City of Salem Stormwater Design Standards if no planting plan exists.
<p>Debris and litter shall be removed to ensure stormwater infiltration, to prevent interference with plant growth, and to prevent clogging of inlets, outlets, and overflows.</p> <ul style="list-style-type: none"><input type="checkbox"/> Restricted sources of sediment and debris, such as discarded lawn clippings, shall be identified and prevented. <p>Inspection comments:</p>
<p>Spill prevention measures shall be exercised when handling substances that contaminate stormwater.</p> <ul style="list-style-type: none"><input type="checkbox"/> Releases of pollutants shall be corrected and reported to the City as soon as identified. <p>Inspection comments:</p>
<p>Training and/or written guidance information for operation, maintenance, and inspection of planters shall be provided to all property owners and property managers as outlined in the Private Stormwater Facility Agreement (PSFA). This Facility Maintenance Form can be used to meet this requirement.</p> <p>Inspection comments:</p>
<p>Access to the planter shall be safe, efficient, and available. Egress and ingress routes shall be maintained to design standards. Roadways shall be maintained to accommodate size and weight of vehicles, if applicable.</p> <ul style="list-style-type: none"><input type="checkbox"/> Obstacles preventing maintenance personnel and/or equipment access to the planter shall be removed.<input type="checkbox"/> Gravel or ground cover shall be added if erosion has occurred.<input type="checkbox"/> Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request. <p>Inspection comments:</p>
<p>Nuisance insects and rodents shall not be harbored in the planter. Pest control measures shall be taken when nuisance insects/rodents are found to be present.</p> <ul style="list-style-type: none"><input type="checkbox"/> Holes in the soil located in and around the planter shall be filled and compacted upon discovery.<input type="checkbox"/> Manual pest control measures shall be used in the planter.<ul style="list-style-type: none">• <i>The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.</i> <p>Inspection comments:</p>

Flow control structures (e.g., weirs, orifices, baffles, etc.), if applicable, shall direct stormwater and reduce flow velocity. Structural deficiencies shall be corrected upon discovery:

- Flow control structures shall remain unobstructed to allow water to drain from the planter.
- Sediment and debris shall be removed from flow control structures when 50% of sump capacity is reached, or when the flow of stormwater is impeded in either direction for structures without sumps.
- Standpipes shall be repaired if cracked or broken.

Inspection comments:

Impermeable liners, if applicable, shall be intact and prevent stormwater infiltration to groundwater. Structural deficiencies shall be corrected upon discovery:

- Damaged or torn impermeable liners shall be replaced upon discovery. If liner is exposed but otherwise in good shape, replenish growing medium to proper depth.

Inspection comments:

- Standpipe overflows shall be intact, undamaged, and clear of debris.

Inspection comments:

Underdrains shall ensure unrestricted movement of water through the growing medium and off-site in infiltration and partial infiltration rain gardens.

- If cracks exist, underdrain pipes shall be repaired or replaced.
- If clogged with sediment or debris, underdrain pipes shall be cleaned or replaced as necessary to ensure free movement of stormwater.

Inspection comments:

Side slopes retain water in the rain garden.

- Structural deficiencies shall be corrected upon discovery.
- Side slopes shall be stabilized using appropriate erosion control measures when soil is exposed or erosive channels have formed.
- Sources of erosion damage shall be identified and controlled.

Inspection comments:

Emergency spillway conveys flow exceeding rain garden capacity to the approved stormwater receiving system.

- Emergency spillways shall be kept clear at all times.
- Sources of erosion damage shall be identified and controlled when soil is exposed.
- Rocks or other armament shall be replaced when only one layer of rock exists.

Inspection comments:

Growing medium shall allow stormwater to infiltrate uniformly through the rain garden. If water remains ponded 48 hours after a storm event, sources of possible clogging shall be identified and corrected. Rain garden shall be raked and, if necessary, growing medium shall be excavated and replaced.

- Sources of clogging shall be identified and corrected.
- Soil shall be replaced when rain garden is observed ponding water more than 48 hours after a storm event.
- Holes caused by erosion or pests shall be refilled and compacted.
- Sediment and debris accumulation shall be removed carefully by hand if it is more than 2 inches in depth, interfering with vegetation health, or obstructing inlets, outlets, or overflows. Use proper erosion control measures and minimize damage to surrounding vegetation.
- Growing medium shall be used to fill and compact any erosive channels in the rain garden, including channels which form between plants.
- Litter and debris shall be removed.

Inspection comments:

<p>Vegetation shall be healthy and dense enough to promote filtration and infiltration while protecting underlying soils from erosion. Proper horticultural practices shall be employed to ensure plants are healthy.</p> <ul style="list-style-type: none"><input type="checkbox"/> Mulch shall be replenished as needed but shall not inhibit water flow.<input type="checkbox"/> Vegetation, large shrubs, or trees that limit access or interfere with rain garden function shall be pruned or removed.<input type="checkbox"/> Fallen leaves and debris shall be raked and removed.<input type="checkbox"/> Nuisance, noxious, and invasive plants as defined by Oregon Department of Agriculture and the City of Salem’s Non-Native Invasive Plant list shall be removed when discovered.<ul style="list-style-type: none">• <i>The use of herbicides and fertilizers is strongly discouraged because of the negative impacts to receiving waters. If herbicides or fertilizers are required, products approved for aquatic use shall be used by a licensed applicator.</i><input type="checkbox"/> Dead vegetation shall be removed and replaced upon discovery to promote filtration and infiltration and to minimize erosion.<input type="checkbox"/> Vegetation shall be replaced per original planting plan, or per City of Salem Stormwater Design Standards if no planting plan exists. <p>Inspection comments:</p>
<p>Debris and litter shall be removed to ensure stormwater infiltration, to prevent interference with plant growth, and to prevent clogging of inlets, outlets, and overflows.</p> <ul style="list-style-type: none"><input type="checkbox"/> Restricted sources of sediment and debris, such as discarded lawn clippings, shall be identified and prevented. <p>Inspection comments:</p>
<p>Spill prevention measures shall be exercised when handling substances that contaminate stormwater.</p> <ul style="list-style-type: none"><input type="checkbox"/> Releases of pollutants shall be corrected as soon as identified. <p>Inspection comments:</p>
<p>Training and/or written guidance information for operating and maintaining rain gardens shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.</p> <p>Inspection comments:</p>
<p>Access to the rain garden 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.</p> <ul style="list-style-type: none"><input type="checkbox"/> Obstacles preventing maintenance personnel and/or equipment access to the rain garden shall be removed.<input type="checkbox"/> Gravel or ground cover shall be added if erosion has occurred.<input type="checkbox"/> Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request. <p>Inspection comments:</p>

Nuisance insects and rodents shall not be harbored in the rain garden. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- Holes in the soil located in and around the rain garden shall be filled and compacted upon discovery.
- Manual pest control measures shall be used in the rain garden.
 - *The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.*

Inspection comments:

Fences, if applicable, shall be maintained to preserve their functionality and appearance.

- Collapsed fences shall be restored to an upright position.
- Jagged edges and damaged fences shall be repaired or replaced.
- Structures or fences that impede the flow of water in the rain garden shall be removed.

Inspection comments:

Flow control structures (e.g., weirs, orifices, baffles, etc.), if applicable, shall direct stormwater and reduce flow velocity. Structural deficiencies shall be corrected upon discovery:

- Flow control structures shall remain unobstructed to allow water to drain from the rain garden.
- Sediment and debris shall be removed from flow control structures when 50% of sump capacity is reached, or when the flow of stormwater is impeded in either direction for structures without sumps.
- Standpipes shall be repaired if cracked or broken.

Inspection comments:

Impermeable liners, if applicable, shall be intact and prevent stormwater infiltration to groundwater. Structural deficiencies shall be corrected upon discovery:

- Damaged or torn impermeable liners shall be replaced upon discovery. If liner is exposed but otherwise in good shape, replenish growing medium to proper depth.

Inspection comments:

<p>Growing medium shall allow stormwater to infiltrate uniformly through the vegetated filter strip. If ponding water is observed in vegetated filter strip 48 hours after a storm event, sources of possible clogging shall be identified and corrected. Vegetated filter strip shall be raked and, if necessary, growing medium shall be excavated and replaced.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sources of clogging shall be identified and corrected. <input type="checkbox"/> Soil shall be replaced when vegetated filter strip is observed ponding water more than 48 hours after a storm event. <input type="checkbox"/> Holes caused by erosion or pests shall be refilled and compacted. <input type="checkbox"/> Sediment and debris accumulation shall be removed carefully by hand if it is more than 2 inches in depth, interfering with vegetation health, or obstructing inlets, outlets, or overflows. Use proper erosion control measures and minimize damage to surrounding vegetation. <input type="checkbox"/> Growing medium shall be used to fill and compact any erosive channels in the vegetated filter strip, including channels which form between plants. <input type="checkbox"/> Litter and debris shall be removed. <p>Inspection comments:</p>
<p>Check dams shall direct and control flow.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Causes for altered water flow and channelization shall be identified, and obstructions shall be cleared upon discovery. <input type="checkbox"/> Cracks, rot, or structural damage in check dams shall be repaired or replaced. <p>Inspection comments:</p>
<p>Vegetation shall be healthy and dense enough to promote filtration and infiltration while protecting underlying soils from erosion. Proper horticultural practices shall be employed to ensure plants are healthy.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Mulch shall be replenished as needed but shall not inhibit water flow. <input type="checkbox"/> Vegetation, large shrubs, or trees that limit access or interfere with vegetated filter strip function shall be pruned or removed. <input type="checkbox"/> Fallen leaves and debris shall be raked and removed. <input type="checkbox"/> Nuisance, noxious, and invasive plants as defined by Oregon Department of Agriculture and the City of Salem's Non-Native Invasive Plant list shall be removed when discovered. <ul style="list-style-type: none"> • <i>The use of herbicides and fertilizers is strongly discouraged because of the negative impacts to receiving waters. If herbicides or fertilizers are required, products approved for aquatic use shall be used by a licensed applicator.</i> <input type="checkbox"/> Dead vegetation shall be removed and replaced upon discovery to promote filtration and infiltration and to minimize erosion. <input type="checkbox"/> Vegetation shall be replaced per original planting plan, or per City of Salem Stormwater Design Standards if no planting plan exists. <p>Inspection comments:</p>
<p>Debris and litter shall be removed to ensure stormwater infiltration, to prevent interference with plant growth, and to prevent clogging of inlets, outlets, and overflows.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Restricted sources of sediment and debris, such as discarded lawn clippings, shall be identified and prevented. <p>Inspection comments:</p>

<p>Spill prevention measures shall be exercised when handling substances that contaminate stormwater.</p> <ul style="list-style-type: none"><input type="checkbox"/> Releases of pollutants shall be corrected as soon as identified. <p>Inspection comments:</p>
<p>Training and/or written guidance information for operating and maintaining vegetated filter strips shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.</p> <p>Inspection comments:</p>
<p>Access to the vegetated filter strip shall be safe and efficient. Egress and ingress routes shall be maintained to design standards.</p> <ul style="list-style-type: none"><input type="checkbox"/> Obstacles preventing maintenance personnel and/or equipment access to the vegetated filter strip shall be removed.<input type="checkbox"/> Gravel or ground cover shall be added if erosion has occurred.<input type="checkbox"/> Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request. <p>Inspection comments:</p>
<p>Nuisance insects and rodents shall not be harbored in the vegetated filter strip. Pest control measures shall be taken when nuisance insects/rodents are found to be present.</p> <ul style="list-style-type: none"><input type="checkbox"/> Holes in the ground located in and around the vegetated filter strip shall be filled.<input type="checkbox"/> Manual pest control measures shall be used in the vegetated filter strip.<ul style="list-style-type: none">• <i>The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.</i> <p>Inspection comments:</p>

Underdrains, if applicable, shall ensure unrestricted movement of water through the growing medium and off-site in infiltration or partial infiltration vegetated swales.

- If cracks exist, underdrain pipes shall be repaired or replaced.
- If clogged with sediment or debris, underdrain pipes shall be cleaned or replaced as necessary to ensure free movement of stormwater.

Inspection comments:

Growing medium, if applicable, shall allow stormwater to infiltrate uniformly through vegetated swales. If water remains 48 hours after a storm event, sources of possible clogging shall be identified and corrected. Vegetated swales shall be raked and, if necessary, growing medium shall be excavated and replaced.

- Sources of clogging shall be identified and corrected.
- Soil shall be replaced when the vegetated swale is observed ponding water more than 48 hours after a storm event.
- Holes caused by erosion or pests shall be refilled and compacted.
- Sediment and debris accumulation shall be removed carefully by hand if it is more than 2 inches in depth, interfering with vegetation health, or obstructing inlets, outlets, or overflows. Use proper erosion control measures and minimize damage to surrounding vegetation. Growing medium shall be used to fill and compact any erosive channels in the vegetated swale, including channels which form between plants.
- Litter and debris shall be removed.

Inspection comments:

Side slopes retain water in the vegetated swale.

- Structural deficiencies shall be corrected upon discovery.
- Side slopes shall be stabilized using appropriate erosion control measures when soil is exposed or erosive channels have formed.
- Sources of erosion damage shall be identified and controlled.

Inspection comments:

Check dams, if applicable, 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.
- Damaged or displaced check dams shall be repaired or replaced.

Inspection comments:

Vegetation shall be healthy and dense enough to promote filtration and infiltration while protecting underlying soils from erosion. Proper horticultural practices shall be employed to ensure plants are healthy.

- Mulch shall be replenished as needed but shall not inhibit water flow.
- Vegetation, large shrubs, or trees that limit access or interfere with vegetated swale function shall be pruned or removed.
- Fallen leaves and debris shall be raked and removed.
- Nuisance, noxious, and invasive plants as defined by Oregon Department of Agriculture and the City of Salem’s Non-Native Invasive Plant list shall be removed when discovered.
 - *The use of herbicides and fertilizers is strongly discouraged because of the negative impacts to receiving waters. If herbicides or fertilizers are required, products approved for aquatic use shall be used by a licensed applicator.*
- Dead vegetation shall be removed and replaced upon discovery to promote filtration and infiltration and to minimize erosion.
- Vegetation shall be replaced per original planting plan, or per City of Salem Stormwater Design Standards if no planting plan exists.

Inspection comments:

Debris and litter shall be removed to ensure stormwater infiltration, to prevent interference with plant growth, and to prevent clogging of inlets, outlets, and overflows.

- Restricted sources of sediment and debris, such as discarded lawn clippings, shall be identified and prevented.

Inspection comments:

Spill prevention measures shall be exercised when handling substances that contaminate stormwater.

- Releases of pollutants shall be corrected as soon as identified.

Inspection comments:

Training and/or written guidance information for operating and maintaining swales shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.

Inspection comments:

Access to the vegetated 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 has occurred.
- Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request.

Inspection comments:

Nuisance insects and rodents shall not be harbored in the vegetated swale. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- Holes in the soil located in and around the vegetated swale shall be filled and compacted upon discovery.
- Manual pest control measures shall be used in the vegetated swale.
 - *The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.*

Inspection comments:

Flow control structures (e.g., weirs, orifices, baffles, etc.) shall direct stormwater and reduce flow velocity. Structural deficiencies shall be corrected upon discovery:

- Flow control structures shall remain unobstructed to allow water to drain from the vegetated swale.
- Sediment and debris shall be removed from flow control structures when 50% of sump capacity is reached, or when the flow of stormwater is impeded in either direction for structures without sumps.
- Standpipes shall be repaired if cracked or broken.

Inspection comments:

Impermeable liners, if applicable, shall be intact and prevent stormwater infiltration to groundwater. Structural deficiencies shall be corrected upon discovery:

- Damaged or torn impermeable liners shall be replaced upon discovery. If liner is exposed but otherwise in good shape, replenish growing medium to proper depth.

Inspection comments:

<p>Emergency spillways convey flow exceeding basin capacity to the approved stormwater receiving system.</p> <ul style="list-style-type: none"><input type="checkbox"/> Emergency spillways shall be kept clear at all times.<input type="checkbox"/> Sources of erosion damage shall be identified and controlled when soil is exposed.<input type="checkbox"/> Rocks or other armament shall be replaced when only one layer of rock exists. <p>Inspection comments:</p>
<p>Underdrains ensure unrestricted movement of water through growing medium and off-site in some filtration and partial infiltration basins.</p> <ul style="list-style-type: none"><input type="checkbox"/> If cracks exist, underdrain pipes shall be repaired or replaced.<input type="checkbox"/> If clogged with sediment or debris, underdrain pipes shall be cleaned or replaced as necessary to ensure free movement of stormwater. <p>Inspection comments:</p>
<p>Growing medium, if applicable, shall allow stormwater to infiltrate uniformly through infiltration and partial infiltration basins. If water remains 48 hours after a storm event, sources of possible clogging shall be identified and corrected. Basin shall be raked and, if necessary, growing medium shall be excavated and replaced.</p> <ul style="list-style-type: none"><input type="checkbox"/> Sources of clogging shall be identified and corrected.<input type="checkbox"/> Soil shall be replaced when basin is observed ponding water more than 48 hours after a storm event.<input type="checkbox"/> Holes caused by erosion or pests shall be refilled and compacted.<input type="checkbox"/> Sediment and debris accumulation shall be removed carefully by hand if it is more than 6 inches in depth, interfering with vegetation health, or obstructing inlets, outlets, or overflows. Use proper erosion control measures and minimize damage to surrounding vegetation.<input type="checkbox"/> Growing medium shall be used to fill and compact any erosive channels in the basin, including channels which form between plants. <p>Inspection comments:</p>
<p>Side slopes, dikes, and berms are earthen walls which retain water in the basin.</p> <ul style="list-style-type: none"><input type="checkbox"/> Side slopes shall be stabilized using appropriate erosion control measures when soil is exposed or erosive channels are forming.<input type="checkbox"/> Structural deficiencies in all forms of earthen walls shall be corrected upon discovery.<input type="checkbox"/> If cracks exist, earthen walls shall be repaired or replaced.<input type="checkbox"/> If erosive channels are forming, earthen walls shall be stabilized.<input type="checkbox"/> Sources of erosion damage shall be identified and controlled. <p>Inspection comments:</p>

Vegetation shall be healthy and dense enough to promote filtration and/or infiltration while protecting underlying soils from erosion. Proper horticultural practices shall be employed to ensure plants are healthy.

- Vegetation, large shrubs, or trees that limit access or interfere with basin function shall be pruned or removed.
- Fallen leaves and debris shall be raked and removed.
- Nuisance, noxious, and invasive plants as defined by Oregon Department of Agriculture and the City of Salem's Non-Native Invasive Plant list shall be removed when discovered.
 - *The use of herbicides and fertilizers is strongly discouraged because of the negative impacts to receiving waters. If herbicides or fertilizers are required, products approved for aquatic use shall be used by a licensed applicator.*
- Dead vegetation shall be removed and replaced upon discovery to promote filtration and infiltration and to minimize erosion.
- Vegetation shall be replaced per original planting plan, or per City of Salem Stormwater Design Standards if no planting plan exists.

Inspection comments:

Basin volume shall be preserved.

- Sediment and debris accumulation which results in a loss of basin volume shall be removed.
- Sources of restricted sediment or debris, such as discarded lawn clippings, shall be identified and prevented.
- Debris in quantities sufficient to inhibit basin function shall be removed routinely, e.g., no less than quarterly or upon discovery.
- Structures which result in a loss of basin volume shall be removed.
- Debris and litter shall be removed to ensure stormwater infiltration, to prevent interference with plant growth, and to prevent clogging of inlets, outlets, and overflows.
- Restricted sources of sediment and debris, such as discarded lawn clippings, shall be identified and prevented.
- Sources of erosion shall be identified and controlled when native soil is exposed or erosive channels have formed.

Inspection comments:

Spill prevention measures shall be exercised when handling substances that can contaminate stormwater.

- Releases of pollutants shall be corrected as soon as identified.

Inspection comments:

Training and/or written guidance information for operating and maintaining basins shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.

Inspection comments:

Access to the basin 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 basin shall be removed.
- Gravel or ground cover shall be added if erosion has occurred.
- Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request.

Inspection comments:

Nuisance insects and rodents shall not be harbored in the basin. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- Holes in the soil located in and around the basin shall be filled and compacted upon discovery.
- Manual pest control measures shall be used in the basin.
 - *The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.*

Inspection comments:

Flow control structures (e.g., weirs, orifices, baffles, etc.) shall direct stormwater and reduce flow velocity. Structural deficiencies shall be corrected upon discovery.

- Flow control structures shall remain unobstructed to allow water to drain from basin.
- Sediment and debris shall be removed from flow control structures when 50% of sump capacity is reached, or when the flow of stormwater is impeded in either direction for structures without sumps.
- Standpipes shall be repaired if cracked or broken.

Inspection comments:

Impermeable liners, if applicable, shall be intact and prevent stormwater infiltration to groundwater. Structural deficiencies shall be corrected upon discovery:

- Damaged or torn impermeable liners shall be replaced upon discovery. If liner is exposed but otherwise in good shape, replenish growing medium to proper depth.

Inspection comments:

Signage, if applicable, shall clearly convey information.

- Broken or defaced signs shall be replaced or repaired.

Fences, if applicable, shall be maintained to preserve their functionality and appearance.

- Collapsed fences shall be restored to an upright position.
- Jagged edges and damaged fences shall be repaired or replaced.
- Structures or fences that impede the flow of water in the basin shall be removed.

Inspection comments:

<p>Outlet pipes and overflow structures safely convey treated flow and excess flow to the stormwater receiving system.</p> <ul style="list-style-type: none"><input type="checkbox"/> All outlet pipes and overflow structures shall be kept clear at all times.<input type="checkbox"/> Damaged outlet pipes and overflow structures shall be repaired or replaced upon discovery.<input type="checkbox"/> If installed, beehive overflows and Type 3 catch basin overflow grates shall be secured, and casings shall be intact and grout-sealed.<input type="checkbox"/> Outlet pipes shall be secured and grout-sealed.<input type="checkbox"/> Standpipe overflows shall be intact, undamaged, and clear of debris. <p>Inspection comments:</p>
<p>Emergency spillways convey flow exceeding subsurface gravel wetland capacity to the approved stormwater receiving system.</p> <ul style="list-style-type: none"><input type="checkbox"/> Emergency spillways shall be kept clear at all times.<input type="checkbox"/> Sources of erosion damage shall be identified and controlled when soil is exposed.<input type="checkbox"/> Rocks or other armament shall be replaced when only one layer of rock exists. <p>Inspection comments:</p>
<p>Underdrains shall ensure unrestricted movement of water between the subsurface gravel cells and the outlet flow control structure.</p> <ul style="list-style-type: none"><input type="checkbox"/> If cracks exist, underdrain pipes shall be repaired or replaced.<input type="checkbox"/> If clogged with sediment or debris, underdrain pipes shall be cleaned or replaced as necessary to ensure free movement of stormwater. <p>Inspection comments:</p>
<p>Growing medium shall allow stormwater to infiltrate uniformly through the subsurface gravel wetland. If water remains 48 hours after a storm event, sources of possible clogging shall be identified and corrected. Growing medium shall be raked and, if necessary, excavated and replaced.</p> <ul style="list-style-type: none"><input type="checkbox"/> Sources of clogging shall be identified and corrected.<input type="checkbox"/> Soil shall be replaced when ponded water is observed on the surface of the subsurface gravel wetland more than 48 hours after a storm event.<input type="checkbox"/> Holes caused by erosion or pests shall be refilled and compacted.<input type="checkbox"/> Sediment and debris accumulation shall be removed carefully by hand if it is more than 6 inches in depth, interfering with vegetation health, or obstructing inlets, outlets, or overflows. Use proper erosion control measures and minimize damage to surrounding vegetation.<input type="checkbox"/> Growing medium shall be used to fill and compact any erosive channels in the subsurface gravel wetland, including channels which form between plants.<input type="checkbox"/> Sources of erosion shall be identified and controlled when native soil is exposed or erosive channels have formed. <p>Inspection comments:</p>

<p>Check dams shall control and distribute flow.</p> <ul style="list-style-type: none"><input type="checkbox"/> Causes for altered water flow shall be identified, and obstructions cleared upon discovery.<input type="checkbox"/> Causes for channelization shall be identified and repaired.<input type="checkbox"/> Damaged or displaced check dams shall be repaired or replaced. <p>Inspection comments:</p>
<p>Side slopes, dikes, and berms are earthen walls which retain water in the surface basin of the subsurface gravel wetland.</p> <ul style="list-style-type: none"><input type="checkbox"/> Side slopes shall be stabilized using appropriate erosion control measures when soil is exposed or erosive channels are forming.<input type="checkbox"/> Structural deficiencies in all forms of earthen walls shall be corrected upon discovery.<input type="checkbox"/> If cracks exist, earthen walls shall be repaired or replaced.<input type="checkbox"/> If erosive channels are forming, earthen walls shall be stabilized.<input type="checkbox"/> Sources of erosion damage shall be identified and controlled. <p>Inspection comments:</p>
<p>Vegetation shall be healthy and dense enough to promote filtration and infiltration while protecting underlying soils from erosion. Proper horticultural practices shall be employed to ensure plants are healthy.</p> <ul style="list-style-type: none"><input type="checkbox"/> Vegetation, large shrubs, or trees that limit access or interfere with subsurface gravel wetland function shall be pruned or removed.<input type="checkbox"/> Fallen leaves and debris shall be raked and removed.<input type="checkbox"/> Nuisance, noxious, and invasive plants as defined by Oregon Department of Agriculture and the City of Salem's Non-Native Invasive Plant list shall be removed when discovered.<ul style="list-style-type: none">• <i>The use of herbicides and fertilizers is strongly discouraged because of the negative impacts to receiving waters. If herbicides or fertilizers are required, products approved for aquatic use shall be used by a licensed applicator.</i><input type="checkbox"/> Dead vegetation shall be removed and replaced upon discovery to promote filtration and infiltration and to minimize erosion.<input type="checkbox"/> Vegetation shall be replaced per original planting plan, or per City of Salem Stormwater Design Standards if no planting plan exists. <p>Inspection comments:</p>
<p>Subsurface gravel wetland volume shall be preserved.</p> <ul style="list-style-type: none"><input type="checkbox"/> Sediment and debris accumulation which results in a loss of subsurface gravel wetland volume shall be removed.<input type="checkbox"/> Sources of restricted sediment or debris, such as discarded lawn clippings, shall be identified and prevented.<input type="checkbox"/> Debris in quantities sufficient to inhibit subsurface gravel wetland function shall be removed routinely, e.g., no less than quarterly or upon discovery.<input type="checkbox"/> Structures which result in a loss of subsurface gravel wetland volume shall be removed.<input type="checkbox"/> Debris and litter shall be removed to ensure stormwater infiltration, to prevent interference with plant growth, and to prevent clogging of inlets, outlets, and overflows.<input type="checkbox"/> Restricted sources of sediment and debris, such as discarded lawn clippings, shall be identified and prevented. <p>Inspection comments:</p>

<p>Spill prevention measures shall be exercised when handling substances that can contaminate stormwater.</p> <ul style="list-style-type: none"><input type="checkbox"/> Releases of pollutants shall be corrected as soon as identified. <p>Inspection comments:</p>
<p>Training and/or written guidance information for operating and maintaining subsurface gravel wetlands shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.</p> <p>Inspection comments:</p>
<p>Access to the subsurface gravel wetland 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.</p> <ul style="list-style-type: none"><input type="checkbox"/> Obstacles preventing maintenance personnel and/or equipment access to the subsurface gravel wetland shall be removed.<input type="checkbox"/> Gravel or ground cover shall be added if erosion has occurred.<input type="checkbox"/> Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request. <p>Inspection comments:</p>
<p>Nuisance insects and rodents shall not be harbored in the subsurface gravel wetland. Pest control measures shall be taken when nuisance insects/rodents are found to be present.</p> <ul style="list-style-type: none"><input type="checkbox"/> Holes in the soil located in and around the subsurface gravel wetland shall be filled and compacted upon discovery.<input type="checkbox"/> Manual pest control measures shall be used in the subsurface gravel wetland.<ul style="list-style-type: none">• <i>The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.</i> <p>Inspection comments:</p>
<p>Flow control structures (e.g., weirs, orifices, baffles, etc.) shall direct stormwater and reduce flow velocity. Structural deficiencies shall be corrected upon discovery.</p> <ul style="list-style-type: none"><input type="checkbox"/> Flow control structures shall remain unobstructed to allow water to drain from subsurface gravel wetlands.<input type="checkbox"/> Sediment and debris shall be removed from flow control structures when 50% of sump capacity is reached, or when the flow of stormwater is impeded in either direction for structures without sumps.<input type="checkbox"/> Standpipes shall be repaired if cracked or broken. <p>Inspection comments:</p>

<p>Inspection comments:</p>
<p>Growing medium shall allow stormwater to pond and infiltrate uniformly through the treatment wetland. If water remains above the wetland pool elevation 48 hours after a storm event, sources of possible clogging shall be identified and corrected. Growing medium shall be excavated and replaced if necessary.</p> <ul style="list-style-type: none"><input type="checkbox"/> Sources of clogging shall be identified and corrected.<input type="checkbox"/> Soil shall be replaced when treatment wetland is observed ponding water above the wetland pool elevation more than 48 hours after a storm event.<input type="checkbox"/> Holes caused by erosion or pests shall be refilled and compacted.<input type="checkbox"/> Sediment and debris accumulation shall be removed carefully by hand if it is more than 6 inches in depth, interfering with vegetation health, or obstructing inlets, outlets, or overflows. Use proper erosion control measures and minimize damage to surrounding vegetation.<input type="checkbox"/> Growing medium shall be used to fill and compact any erosive channels in the treatment wetland, including channels which form between plants.<input type="checkbox"/> Sources of erosion shall be identified and controlled when native soil is exposed or erosive channels have formed. <p>Inspection comments:</p>
<p>Side slopes, dikes, and berms are earthen walls which retain water at the high marsh surface elevation of the treatment wetland.</p> <ul style="list-style-type: none"><input type="checkbox"/> Side slopes shall be stabilized using appropriate erosion control measures when soil is exposed or erosive channels are forming.<input type="checkbox"/> Structural deficiencies in all forms of earthen walls shall be corrected upon discovery.<input type="checkbox"/> If cracks exist, earthen walls shall be repaired or replaced.<input type="checkbox"/> If erosive channels are forming, earthen walls shall be stabilized.<input type="checkbox"/> Sources of erosion damage shall be identified and controlled. <p>Inspection comments:</p>
<p>Vegetation shall be healthy and dense enough to promote filtration and infiltration while protecting underlying soils from erosion. Proper horticultural practices shall be employed to ensure plants are healthy.</p> <ul style="list-style-type: none"><input type="checkbox"/> Vegetation, large shrubs, or trees that limit access or interfere with treatment wetland function shall be pruned or removed.<input type="checkbox"/> Fallen leaves and debris shall be raked and removed.<input type="checkbox"/> Nuisance, noxious, and invasive plants as defined by Oregon Department of Agriculture and the City of Salem’s Non-Native Invasive Plant list shall be removed when discovered.<ul style="list-style-type: none">• <i>The use of herbicides and fertilizers is strongly discouraged because of the negative impacts to receiving waters. If herbicides or fertilizers are required, products approved for aquatic use shall be used by a licensed applicator.</i><input type="checkbox"/> Dead vegetation shall be removed and replaced upon discovery to promote filtration and infiltration and to minimize erosion.<input type="checkbox"/> Vegetation shall be replaced per original planting plan, or per City of Salem Stormwater Design Standards if no planting plan exists. <p>Inspection comments:</p>

<p>Treatment wetland volume shall be preserved.</p> <ul style="list-style-type: none"><input type="checkbox"/> Sediment and debris accumulation which results in a loss of treatment wetland volume shall be removed.<input type="checkbox"/> Sources of restricted sediment or debris, such as discarded lawn clippings, shall be identified and prevented.<input type="checkbox"/> Debris in quantities sufficient to inhibit treatment wetland function shall be removed routinely, e.g., no less than quarterly or upon discovery.<input type="checkbox"/> Structures which result in a loss of treatment wetland volume shall be removed.<input type="checkbox"/> Debris and litter shall be removed to ensure stormwater infiltration, to prevent interference with plant growth, and to prevent clogging of inlets, outlets, and overflows.<input type="checkbox"/> Restricted sources of sediment and debris, such as discarded lawn clippings, shall be identified and prevented.<input type="checkbox"/> Staff gauges located at opposite ends of the treatment wetland shall be installed and maintained to monitor sedimentation.<input type="checkbox"/> Staff gauges shall be checked two times per year. <p>Inspection comments:</p>
<p>Spill prevention measures shall be exercised when handling substances that can contaminate stormwater.</p> <ul style="list-style-type: none"><input type="checkbox"/> Releases of pollutants shall be corrected as soon as identified. <p>Inspection comments:</p>
<p>Training and/or written guidance information for operating and maintaining treatment wetlands shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.</p> <p>Inspection comments:</p>
<p>Access to the treatment wetland 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.</p> <ul style="list-style-type: none"><input type="checkbox"/> Obstacles preventing maintenance personnel and/or equipment access to the treatment wetland shall be removed.<input type="checkbox"/> Gravel or ground cover shall be added if erosion has occurred.<input type="checkbox"/> Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request. <p>Inspection comments:</p>
<p>Nuisance insects and rodents shall not be harbored in the treatment wetland. Pest control measures shall be taken when nuisance insects/rodents are found to be present.</p> <ul style="list-style-type: none"><input type="checkbox"/> Holes in the soil located in and around the treatment wetland shall be filled and compacted upon discovery.<input type="checkbox"/> Manual pest control measures shall be used in the wetland.<ul style="list-style-type: none">• <i>The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.</i> <p>Inspection comments:</p>

<p>Signage, if applicable, shall clearly convey information.</p> <ul style="list-style-type: none"><input type="checkbox"/> Broken or defaced signs shall be replaced or repaired. <p>Fences, if applicable, shall be maintained to preserve their functionality and appearance.</p> <ul style="list-style-type: none"><input type="checkbox"/> Collapsed fences shall be restored to an upright position.<input type="checkbox"/> Jagged edges and damaged fences shall be repaired or replaced.<input type="checkbox"/> Structures or fences that impede the flow of water in the treatment wetland shall be removed. <p>Inspection comments:</p>
<p>Flow control structures (e.g., weirs, orifices, baffles, etc.) shall direct stormwater and reduce flow velocity. Structural deficiencies shall be corrected upon discovery.</p> <ul style="list-style-type: none"><input type="checkbox"/> Flow control structures shall remain unobstructed to allow water to drain from treatment wetland.<input type="checkbox"/> Sediment and debris shall be removed from flow control structures when 50% of sump capacity is reached, or when the flow of stormwater is impeded in either direction for structures without sumps.<input type="checkbox"/> Standpipes shall be repaired if cracked or broken. <p>Inspection comments:</p>
<p>Impermeable liners, if applicable, shall be intact and prevent stormwater infiltration to groundwater. Structural deficiencies shall be corrected upon discovery:</p> <ul style="list-style-type: none"><input type="checkbox"/> Damaged or torn impermeable liners shall be replaced upon discovery. If liner is exposed but otherwise in good shape, replenish growing medium to proper depth. <p>Inspection comments:</p>

8. Manufactured Treatment Technology

Manufactured treatment technologies are proprietary structures that can be used to meet stormwater pretreatment, treatment, and/or flow control requirements, provided the type of structure has been approved by the City. The *Public Works Design Standards* lists approved structures. Because requirements vary among the different types of structures, each structure is to be operated and maintained according to the specifications provided by the manufacturer. City of Salem Stormwater Quality staff can provide private stormwater facility owners with manufactured treatment technology specifications.

Date: _____ / _____ / _____
Day Month Year

Inspector's Name: _____
Please print

- Manufactured treatment technology is being maintained according to manufacturer specifications as approved by the City.
- Records of operations/maintenance are being kept on file.
- Structural repairs, sediment removal, and inspections may require confined space permits, confined space entry, and/or use of a Vactor truck in manufactured treatment technology structures. These maintenance activities can only be performed by professionals with valid certifications, proper training, personal protective equipment, and mechanical equipment.

Inspection comments:

Training and/or written guidance information for operating and maintaining manufactured treatment technology shall be provided to all property owners and property managers.

Inspection comments:

Growing medium shall allow stormwater to infiltrate uniformly through the green roof to the roof drain system. If water remains 48 hours after a storm event, sources of possible clogging shall be identified and corrected. Green roof shall be raked and, if necessary, growing medium shall be excavated and replaced.

- Sources of clogging shall be identified and corrected.
- Soil shall be replaced when green roof is observed ponding water more than 48 hours after a storm event.
- Holes caused by erosion or pests shall be refilled and compacted.
- Sediment and debris accumulation shall be removed carefully by hand if it is more than 2 inches in depth, interfering with vegetation health, or obstructing inlets, outlets, or overflows. Use proper erosion control measures and minimize damage to surrounding vegetation.
- Growing medium shall be used to fill and compact any erosive channels in the green roof, including channels which form between plants.
- Litter and debris shall be removed.

Inspection comments:

Vegetation shall be healthy and dense enough to promote filtration and infiltration while protecting underlying soils from erosion. Proper horticultural practices shall be employed to ensure plants are healthy.

- Vegetation shall be maintained to provide 90% of the designed planting plan cover.
- Mulch or shade cloth may be applied to prevent excess solar damage and water loss in drought conditions.
- Mulch shall be replenished as needed but shall not inhibit water flow.
- During the establishment period, plants shall be replaced once per month as needed.
- After the establishment period, dead plants shall be replaced once per year in the fall.
- Vegetation, large shrubs, or trees that limit access or interfere with green roof function shall be pruned or removed.
- Fallen leaves and debris shall be raked and removed.
- Nuisance, noxious, and invasive plants as defined by Oregon Department of Agriculture and the City of Salem's Non-Native Invasive Plant list shall be removed when discovered.
 - *The use of herbicides and fertilizers is strongly discouraged because of the negative impacts to receiving waters. If herbicides or fertilizers are required, products approved for aquatic use shall be used by a licensed applicator.*
- Dead vegetation shall be removed and replaced upon discovery to promote filtration and infiltration and to minimize erosion.
- Vegetation shall be replaced per original planting plan, or per City of Salem Stormwater Design Standards if no planting plan exists.
- If applicable, mowing of grasses shall occur as needed and clippings shall be removed.

Inspection comments:

Irrigation can be accomplished either through hand watering or automatic sprinkler systems. If automatic sprinklers are used, manufacturer's instructions for operations and maintenance shall be followed.

- During the establishment period (one to three years), water sufficient to assure plant establishment and not to exceed ¼-inch of water once every 3 days shall be applied.
- After the establishment period, water sufficient to maintain plant cover and not to exceed ¼-inch of water once every 14 days shall be applied.

Inspection comments:

<p>Spill prevention measures from mechanical systems located on roofs shall be exercised when handling substances that can contaminate stormwater.</p> <p><input type="checkbox"/> Releases of pollutants shall be corrected as soon as identified.</p> <p>Inspection comments:</p>
<p>Training and/or written guidance information for operating and maintaining green roofs shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.</p> <p>Inspection comments:</p>
<p>Access to the green roof shall be safe and efficient.</p> <p><input type="checkbox"/> Egress and ingress routes shall be maintained to design standards. Walkways shall be clear of obstructions and maintained to design standards.</p> <p><input type="checkbox"/> Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request.</p> <p>Inspection comments:</p>
<p>Aesthetics of the green roof shall be maintained as an asset to the property owner and community.</p> <p><input type="checkbox"/> Damage shall be repaired and accumulation of trash or debris shall be removed upon discovery.</p> <p>Inspection comments</p>
<p>Nuisance insects and rodents shall not be harbored in the green roof. Pest control measures shall be taken when nuisance insects/rodents are found to be present.</p> <p><input type="checkbox"/> Holes in the soil located in the green roof shall be filled and compacted upon discovery.</p> <p><input type="checkbox"/> Manual pest control measures shall be used in the green roof.</p> <ul style="list-style-type: none"><i>The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.</i> <p>Inspection comments:</p>

<p>Outlet pipes and overflow structures safely convey treated flow and excess flow to the stormwater receiving system.</p> <ul style="list-style-type: none"><input type="checkbox"/> All outlet pipes and overflow structures shall be kept clear at all times.<input type="checkbox"/> Damaged outlet pipes and overflow structures shall be repaired or replaced upon discovery.<input type="checkbox"/> If installed, beehive overflows and Type 3 catch basin overflow grates shall be secured, and casings shall be intact and grout-sealed.<input type="checkbox"/> Outlet pipes shall be secured and grout-sealed.<input type="checkbox"/> Standpipe overflows shall be intact, undamaged, and clear of debris. <p>Inspection comments:</p>
<p>Emergency spillways convey flow exceeding sand filter capacity to the approved stormwater receiving system.</p> <ul style="list-style-type: none"><input type="checkbox"/> Emergency spillways shall be kept clear at all times.<input type="checkbox"/> Sources of erosion damage shall be identified and controlled when soil is exposed.<input type="checkbox"/> Rocks or other armament shall be replaced when only one layer of rock exists. <p>Inspection comments:</p>
<p>Underdrains shall ensure unrestricted movement of water through the sand filter layers and off-site in filtration sand filters.</p> <ul style="list-style-type: none"><input type="checkbox"/> If cracks exist, underdrain pipes shall be repaired or replaced.<input type="checkbox"/> If clogged with sediment or debris, underdrain pipes shall be cleaned or replaced as necessary to ensure free movement of stormwater. <p>Inspection comments:</p>
<p>Growing medium shall allow stormwater to infiltrate uniformly through the sand filter. If water remains 48 hours after a storm event, sources of possible clogging shall be identified and corrected. Sand filter shall be raked and, if necessary, growing medium shall be excavated and replaced.</p> <ul style="list-style-type: none"><input type="checkbox"/> Sources of clogging shall be identified and corrected.<input type="checkbox"/> Sand layers shall be amended with clean sand or replaced with clean sand when sand filter is observed ponding water more than 48 hours after a storm event.<input type="checkbox"/> Holes caused by erosion or pests shall be refilled and compacted.<input type="checkbox"/> Sediment and debris accumulation shall be removed carefully by hand if it is more than 2 inches in depth, interfering with vegetation health, or obstructing inlets, outlets, or overflows. Use proper erosion control measures and minimize damage to surrounding vegetation.<input type="checkbox"/> Clean sand shall be used to fill and compact any erosive channels in the sand filter. <p>Inspection comments:</p>
<p>Debris and litter shall be removed to ensure stormwater infiltration and to prevent clogging of inlets, outlets, and overflows.</p> <ul style="list-style-type: none"><input type="checkbox"/> Restricted sources of sediment and debris, such as discarded lawn clippings, shall be identified and prevented. <p>Inspection comments:</p>

<p>Spill prevention measures shall be exercised when handling substances that contaminate stormwater.</p> <ul style="list-style-type: none"><input type="checkbox"/> Releases of pollutants shall be corrected as soon as identified. <p>Inspection comments:</p>
<p>Training and/or written guidance information for operating and maintaining sand filters shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.</p> <p>Inspection comments:</p>
<p>Access to the sand filter 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.</p> <ul style="list-style-type: none"><input type="checkbox"/> Obstacles preventing maintenance personnel and/or equipment access to the sand filter shall be removed.<input type="checkbox"/> Gravel or ground cover shall be added if erosion has occurred.<input type="checkbox"/> Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request. <p>Inspection comments:</p>
<p>Nuisance insects and rodents shall not be harbored in the sand filter. Pest control measures shall be taken when nuisance insects/rodents are found to be present.</p> <ul style="list-style-type: none"><input type="checkbox"/> Holes in the soil located in and around the sand filter shall be filled and compacted upon discovery.<input type="checkbox"/> Manual pest control measures shall be used in the sand filter.<ul style="list-style-type: none">• <i>The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.</i> <p>Inspection comments:</p>
<p>Flow control structures (e.g., weirs, orifices, baffles, etc.) shall direct stormwater and reduce flow velocity. Structural deficiencies shall be corrected upon discovery.</p> <ul style="list-style-type: none"><input type="checkbox"/> Flow control structures shall remain unobstructed to allow water to drain from basin.<input type="checkbox"/> Sediment shall be removed from flow control structures when 50% of sump capacity is reached.<input type="checkbox"/> Standpipes shall be repaired if cracked or broken. <p>Inspection comments:</p>

<p>Source control measures must be taken to prevent pollutants from mixing with stormwater. Typical nonstructural control measures which are used to prevent the clogging of pores in pervious pavement include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Raking and removing leaves from pavement. <input type="checkbox"/> Street-sweeping pavement. <input type="checkbox"/> Vacuum-sweeping pavement. <input type="checkbox"/> Pressure-washing pavement. <input type="checkbox"/> Hand-sweeping or shop-vacuuming pavement. <p>Inspection comments:</p>
<p>Spill prevention measures shall be exercised when handling substances that can contaminate stormwater.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Releases of pollutants shall be corrected as soon as identified. <p>Inspection comments:</p>
<p>Training and/or written guidance information for operating and maintaining pervious pavement shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.</p> <p>Inspection comments:</p>
<p>Access to the pervious pavement 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.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Obstacles preventing maintenance personnel and/or equipment access to the pervious pavement shall be removed. <input type="checkbox"/> Gravel or ground cover shall be added if erosion has occurred. <input type="checkbox"/> Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request. <p>Inspection comments:</p>
<p>Debris and litter shall be removed to prevent the clogging of pavement pores.</p> <p>Inspection comments:</p>
<p>Nuisance insects and rodents shall not be harbored in or adjacent to the pervious pavement. Pest control measures shall be taken when nuisance insects/rodents are found to be present.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Holes in the ground located in and around the pervious pavement shall be filled and compacted. <p>Inspection comments:</p>

<p>Underground detention tank, vault, and pipe volume shall be preserved.</p> <ul style="list-style-type: none"><input type="checkbox"/> Sediment and debris which has accumulated to 6 inches in depth, or which results in a loss of underground detention tank, vault, and pipe volume, or interferes with the structure’s function—shall be removed.<input type="checkbox"/> Debris and litter shall be removed to ensure stormwater detention and to prevent clogging of inlets, outlets, and overflows.<input type="checkbox"/> Restricted sources of sediment and debris, such as discarded lawn clippings, shall be identified and prevented.<ul style="list-style-type: none">• <i>Structural repairs and sediment removal require confined space permits, confined space entry, and/or use of a Vector truck in all underground detention tanks, vaults, and pipes. These maintenance activities can only be performed by professionals with valid certifications, proper training, personal protective equipment, and mechanical equipment.</i> <p>Inspection comments:</p>
<p>Vegetation such as large shrubs or trees should not be located adjacent to underground detention tanks, vaults, and pipes because roots from large vegetation can penetrate the structures, and leaves from deciduous trees and shrubs can increase the risk of clogging inlet pipes.</p> <ul style="list-style-type: none"><input type="checkbox"/> Large shrubs or trees that are likely to interfere with operation shall be identified at each inspection and removed. <p>Inspection comments:</p>
<p>Spill prevention measures shall be exercised when handling substances that contaminate stormwater.</p> <ul style="list-style-type: none"><input type="checkbox"/> Releases of pollutants shall be corrected as soon as identified. <p>Inspection comments:</p>
<p>Training and/or written guidance information for operating and maintaining underground detention tanks, vault, and pipes shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.</p> <p>Inspection comments:</p>
<p>Access to underground detention tanks, vaults, and pipes 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.</p> <ul style="list-style-type: none"><input type="checkbox"/> Obstacles preventing maintenance personnel and/or equipment access to underground detention tanks, vaults, and pipes shall be removed.<input type="checkbox"/> Gravel or ground cover shall be added if erosion has occurred.<input type="checkbox"/> Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request. <p>Inspection comments:</p>

Nuisance insects and rodents shall not be harbored in underground detention tanks, vaults, and pipes. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- Holes in the soil located in the green roof shall be filled and compacted upon discovery.
- Manual pest control measures shall be used in underground tanks, vaults, and pipes.
 - *The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.*

Inspection comments:

Flow control structures (e.g., weirs, orifices, baffles, etc.) shall direct stormwater and reduce flow velocity. Structural deficiencies shall be corrected upon discovery.

- Flow control structures shall remain unobstructed to allow water to drain from underground detention tanks, vaults, and pipes.
- Sediment shall be removed from flow control structures when 50% of sump capacity is reached.
- Standpipes shall be repaired if cracked or broken.

Inspection comments:

<p>Spill prevention measures shall be exercised when handling substances that contaminate stormwater.</p> <ul style="list-style-type: none"><input type="checkbox"/> Releases of pollutants shall be corrected as soon as identified. <p>Inspection comments:</p>
<p>Training and/or written guidance information for operating and maintaining conveyance pipes shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.</p> <p>Inspection comments:</p>
<p>Access to conveyance pipes 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.</p> <ul style="list-style-type: none"><input type="checkbox"/> Obstacles preventing maintenance personnel and/or equipment access to conveyance pipes shall be removed.<input type="checkbox"/> Gravel or ground cover shall be added if erosion has occurred.<input type="checkbox"/> Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request. <p>Inspection comments:</p>
<p>Nuisance insects and rodents shall not be harbored in conveyance pipes. Pest control measures shall be taken when nuisance insects/rodents are found to be present.</p> <ul style="list-style-type: none"><input type="checkbox"/> Manual pest control measures shall be used in conveyance pipes.<ul style="list-style-type: none">• <i>The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.</i> <p>Inspection comments:</p>

Sediment accumulation shall be visually observed and measured to ensure open channels are functioning at maximum efficiency and no localized flooding occurs.

- Open channels shall be visually inspected annually and cleaned when sediment or debris has accumulated to more than 30% of channel capacity.
- Sediment and debris shall be removed in the least invasive manner possible, leaving as much vegetation as possible on side slopes.
- Temporary erosion control measures shall be installed in open channels after sediment and debris removal has occurred.

Inspection comments:

Access to open channels 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 open channels shall be removed.
- Gravel or ground cover shall be added if erosion has occurred.
- Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request.

Inspection comments:

Spill prevention measures shall be exercised when handling substances that contaminate stormwater.

- Releases of pollutants shall be corrected as soon as identified.

Inspection comments:

Debris and litter shall be removed to ensure unimpeded stormwater flow through open channels.

- All debris and litter shall be removed when discovered.

Inspection comments:

Training and/or written guidance information for operating and maintaining open channels shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.

Inspection comments:

Nuisance insects and rodents shall not be harbored in open channels. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- Holes in the ground located in and around open channels shall be filled and compacted.

Inspection comments:

Growing medium and drain rock shall allow stormwater to infiltrate uniformly through the soakage trench. If water is observed ponding on the ground (above the soakage trench) 48 hours after a storm event, sources of possible clogging shall be identified and corrected. Growing medium shall be raked and, if necessary, excavated and replaced.

- Sources of clogging shall be identified and corrected.
- Soil shall be amended with sand and compost or replaced when water is observed ponding on the surface (above the soakage trench) more than 48 hours after a storm event.
- Holes caused by erosion or pests shall be refilled and compacted.
- Sediment and debris accumulation shall be removed carefully by hand if it is more than 2 inches in depth, interfering with vegetation health, or obstructing inlets, outlets, or overflows. Use proper erosion control measures and minimize damage to surrounding vegetation.
- Drain rock shall be replaced or removed, cleaned, and reinstalled when water is observed ponding on the surface (above the soakage trench) more than 48 hours after a storm event if amending the soil above the soakage trench has not alleviated ponding.
- If growing medium above the soakage trench has subsided more than an inch, growing medium shall be added and compacted to design elevation.

Inspection comments:

Debris and litter shall be removed to ensure stormwater infiltration and to prevent clogging of inlets, outlets, and overflows.

- Restricted sources of sediment and debris, such as discarded lawn clippings, shall be identified and prevented.

Inspection comments:

Spill prevention measures shall be exercised when handling substances that contaminate stormwater.

- Releases of pollutants shall be corrected as soon as identified.

Inspection comments:

A shutoff valve or flow-blocking mechanism may have been required with the construction of the soakage trench to temporarily prevent stormwater from flowing into it in the event of accidental pollutant spills. This may also involve mats kept on-site that can be used to cover inlet drains in parking lots. The shutoff valve shall remain in good working order, or if mats or other flow-blocking mechanisms are used, they shall be kept in stock on-site.

Inspection comments:

Training and/or written guidance information for operating and maintaining soakage trenches shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.

Inspection comments:

Access to the soakage trench shall be safe, efficient, and available. 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 soakage trench shall be removed.
- Gravel or ground cover shall be added if erosion has occurred.
- Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is secured, City staff shall be provided access for inspections upon request.

Inspection comments:

Nuisance insects and rodents shall not be harbored in or adjacent to the soakage trench. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- Holes in the soil located in and around the soakage trench shall be filled and compacted upon discovery.
- Manual pest control measures shall be used in the soakage trench.
 - *The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.*

Inspection comments:

Source control measures typically include structural and nonstructural controls. Nonstructural controls can include parking lot or street sweeping and other good housekeeping practices. It is often easier to prevent pollutants from entering stormwater than to remove them.

- Source control measures shall be inspected and maintained (where applicable).

Inspection comments:

A shutoff valve or flow-blocking mechanism may have been required with the construction of the drywell to temporarily prevent stormwater from flowing into it in the event of accidental pollutant spills. This may also involve mats kept on-site that can be used to cover inlet drains in parking lots. The shutoff valve shall remain in good working order, or if mats or other flow-blocking mechanisms are used, they shall be kept in stock on-site.

Inspection comments:

Training and/or written guidance information for operating and maintaining drywells shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.

Inspection comments:

Access to the drywell is required for efficient maintenance. Egress and ingress routes shall be open and maintained to design standards.

Inspection comments:

Nuisance insects and rodents shall not be harbored in the drywell. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- Holes in the soil located in and around the drywell shall be filled and compacted upon discovery.
- Manual pest control measures shall be used in the drywell.
 - *The use of pesticides is strongly discouraged because of the negative impacts to receiving waters. If pesticides are required, products approved for aquatic use shall be used by a licensed applicator.*

Inspection comments:

Sediment accumulation shall be visually observed and measured to ensure structure is functioning at maximum efficiency and no localized flooding occurs.

- Flow control structures shall be visually inspected annually and cleaned when sediment or debris has reached 12 inches in depth, 50% of sump capacity, or is impeding the flow of stormwater in either direction. If there is no sump in the structure, sediment shall be removed prior to impeding the flow of stormwater in either direction.
 - *Structural repairs and sediment removal require confined space permits, confined space entry, and/or use of a Vector truck in all flow control manholes and vaults, and in some flow control catch basins which are greater than 3 feet in vertical depth. These maintenance activities can only be performed by professionals with valid certifications, proper training, personal protective equipment, and mechanical equipment.*

Inspection comments:

Debris and litter shall be removed to ensure unimpeded stormwater flow through the flow control structure.

- All debris and litter shall be removed when discovered.

Inspection comments:

Spill prevention measures shall be exercised when handling substances that contaminate stormwater.

- Releases of pollutants shall be corrected as soon as identified, sediment and other pollutants shall be disposed of properly.

Inspection comments:

Training and/or written guidance information for operation, maintenance, and inspection of flow control structures shall be provided to all property owners and property managers as outlined in the Private Stormwater Facility Agreement (PSFA). This Facility Maintenance Form can be used to meet this requirement.

Inspection comments:

Access to the flow control structure shall be safe, efficient, and available. Roadways shall be maintained to accommodate size and weight of vehicles, if applicable.

- Obstacles preventing maintenance personnel and/or equipment access to the flow control structure shall be removed.
- Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is gated and locked, City staff shall be provided access for inspections.

Inspection comments:

19. Pollution Control Manhole

A **pollution control manhole** is a subsurface structure with an engineered sump that collects sediment and debris from stormwater before it is discharged to the stormwater receiving system or receiving surface waters. The City of Salem standard pollution control manhole has a 24-inch sump and a downturn outlet pipe to remove and store sediment, debris, and oil from the discharged stormwater. Pollution control manholes require cleaning and removal of sediment when the sediment or debris has reached 12 inches in depth or 50% of sump capacity, or oil has reached 2 inches in depth on the surface of the standing water.

Inspections

All facility components shall be inspected for proper operations and structural stability. Pollution control manholes should be inspected, at a minimum, quarterly for the first 2 years from the date of installation, and two times per year thereafter. It is recommended that a visual inspection be made within 48 hours after each major storm event to ensure proper function. 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:

Date: _____ / _____ / _____
Day Month Year

Inspector's Name: _____
Please print

Pollution control manhole shall have no structural damage.

- Structural deficiencies in the overall structure including concrete casing, cracks, missing grout, rot, and broken manhole lids shall be repaired or replaced.
- Structural issues with pollution control manhole components, including broken pipes, broken or missing downturns, shear gates, or strapping, shall be repaired or replaced.

Inspection comments:

Inlet pipes ensure unrestricted stormwater flow into the pollution control manhole.

- Inlet pipes shall be kept clear at all times.
- Inlet pipes shall be secured and grout-sealed.
- Damaged inlet pipes shall be repaired or replaced upon discovery.

Inspection comments:

Outlets and overflow structures safely convey treated flow and excess flow to the stormwater receiving system.

- Outlets and overflow pipes shall be kept clear at all times.
- Damaged pipes shall be repaired or replaced upon discovery.
- If installed, beehive overflows and Type 3 catch basin overflow grates shall be secured, and casings shall be intact and grout-sealed.
- Outlet pipes shall be secured and grout-sealed.
- Standpipe overflows shall be intact, undamaged, and clear of debris.

Inspection comments:

<p>Sediment and oil accumulation shall be visually observed and measured to ensure facility is functioning at maximum efficiency separating pollutants without causing localized flooding.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Pollution control manholes shall be visually inspected annually and cleaned when sediment has reached 12 inches in depth or 50% of sump capacity. <input type="checkbox"/> Pollution control manholes shall be visually inspected annually and cleaned when oil has reached 2 inches in depth. <ul style="list-style-type: none"> • <i>Structural repairs and sediment removal require confined space permits, confined space entry, and/or use of a Vactor truck in all pollution control manholes. These maintenance activities can only be performed by professionals with valid certifications, proper training, personal protective equipment, and mechanical equipment.</i> <p>Inspection comments:</p>
<p>Debris and litter shall be removed to ensure unimpeded stormwater flow through the pollution control manhole.</p> <ul style="list-style-type: none"> <input type="checkbox"/> All debris and litter shall be removed when discovered. <p>Inspection comments:</p>
<p>Spill prevention measures shall be exercised when handling substances that contaminate stormwater.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Releases of pollutants shall be corrected as soon as identified, sediment and other pollutants shall be disposed of properly <p>Inspection comments:</p>
<p>Training and/or written guidance information for operation, maintenance, and inspection of pollution control manholes shall be provided to all property owners and property managers as outlined in the Private Stormwater Facility Agreement (PSFA). This Facility Maintenance Form can be used to meet this requirement.</p> <p>Inspection comments:</p>
<p>Access to the pollution control manhole shall be safe, efficient, and available. Roadways shall be maintained to accommodate size and weight of vehicles, if applicable.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Obstacles preventing maintenance personnel and/or equipment access to the pollution control manhole shall be removed. <input type="checkbox"/> Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is gated and locked, City staff shall be provided access for inspections. <p>Inspection comments:</p>

20. API Oil/Water Separator

There are two primary types of oil/water separators: Coalescing plate separators (CPS) and American Petroleum Institute (API) oil/water separators. **This Facility Maintenance Form covers the most common type: API oil/water separators.** CPS structures are designed for industrial sites and are considered Manufactured Treatment Technology with specified makes and models. Private stormwater facility owners who have a CPS oil/water separators should refer to Manufactured Treatment Technology (Facility Maintenance Form #8) for inspection and maintenance guidance.

API oil/water separators are subsurface structures engineered to capture oil and sediment from stormwater before it is discharged to the stormwater receiving system or receiving surface waters. Most oil/water separators utilize multiple cells and gravity, providing time for the oil to separate from stormwater; these structures are approved by the American Petroleum Institute. API oil/water separators require cleaning when the sediment/debris has reached 20% of vertical hydraulic capacity or oil accumulation has reached 2 inches in depth in any compartment of the structure.

Inspections

All facility components and source controls 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, and two times per year thereafter. It is recommended that a visual inspection be made within 48 hours after each major storm event to ensure proper function. 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:

Date: _____ / _____ / _____
Day Month Year

Inspector's Name: _____
Please print

Inlet pipes ensure unrestricted stormwater flow into the API oil/water separator.

- All inlet pipes shall be kept clear at all times.
- Inlet pipes shall be secured and grout-sealed.
- Damaged inlet pipes shall be repaired or replaced upon discovery.

Inspection comments:

Outlet pipes and overflow structures safely convey treated flow and excess flow to the stormwater receiving system.

- All outlet pipes and overflow structures shall be kept clear at all times.
- Damaged outlet pipes and overflow structures shall be repaired or replaced upon discovery.
- If installed, beehive overflows and Type 3 catch basin overflow grates shall be secured, and casings shall be intact and grout-sealed.
- Outlet pipes shall be secured and grout-sealed.
- Standpipe overflows shall be intact, undamaged, and clear of debris.

Inspection comments:

API oil/water separator shall have no structural damage.

- Structural deficiencies in the overall structure including concrete casing, cracks, missing grout, rot, and manhole lids shall be repaired or replaced.

Inspection comments:

Sediment and oil accumulation shall be visually observed and measured to ensure facility is functioning at maximum efficiency separating pollutants without causing localized flooding.

- Oil/water separators shall be visually inspected annually and cleaned when sediment has reached 20% of vertical hydraulic capacity.
- Oil/water separators shall be visually inspected annually and cleaned when oil has reached 2 inches in depth in any compartment of the structure.
 - *Structural repairs and sediment and oil removal require confined space permits, confined space entry, and/or use of a Vactor truck in all oil/water separators greater than 3 feet in vertical depth. These maintenance activities can only be performed by professionals with valid certifications, proper training, personal protective equipment, and mechanical equipment.*

Inspection comments:

Debris and litter shall be removed to ensure unimpeded stormwater flow through the API oil/water separator.

- All debris and litter shall be removed when discovered.

Inspection comments:

Spill prevention measures shall be exercised when handling substances that contaminate stormwater.

- Releases of pollutants shall be corrected as soon as identified, sediment and other pollutants shall be disposed of properly.

Inspection comments:

Training and/or written guidance information for operation, maintenance, and inspection of API oil/water separators shall be provided to all property owners and property managers as outlined in the Private Stormwater Facility Agreement (PSFA). This Facility Maintenance Form can be used to meet this requirement.

Inspection comments:

Access to the API oil/water separator shall be safe, efficient, and available. Roadways shall be maintained to accommodate size and weight of vehicles, if applicable.

- Obstacles preventing maintenance personnel and/or equipment access to the pollution control shall be removed.
- Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is gated and locked, City staff shall be provided access for inspections.

Inspection comments:

21. Parking Lot Detention Basin

A **parking lot detention basin** is a parking lot that is graded with low elevation depressions which temporarily store stormwater during large storm events. The stormwater is detained in the lowest elevations of the parking lot temporarily before being released slowly over a matter of hours from flow control structures which are inside (or near) the basin. Catch basins serve as both inlets and outlets in parking lot detention basins, draining the basins in small storm events and filling them in large storm events.

Inspections

All parking lot detention basin components and source controls shall be inspected for proper operations and structural stability. Parking lot detention basins should be inspected, at a minimum, quarterly for the first 2 years from the date of installation, and two times per year thereafter. It is recommended that a visual inspection be made within 48 hours after each major storm event to ensure proper function. 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:

Date: _____ / _____ / _____
Day Month Year

Inspector's Name: _____
Please print

Asphalt or concrete depressions retain water in a parking lot detention basin.

- Parking lot detentions basins shall be stabilized using appropriate erosion control measures when asphalt or concrete cracks, potholes form, or erosive channels are created.
- Structural deficiencies shall be corrected upon discovery:
- If cracks exist, loose material shall be removed from parking lot and repaired or replaced.

Inspection comments:

Flow control structures (e.g., weirs, orifices, baffles, etc.) shall direct stormwater and reduce flow velocity. Structural deficiencies shall be corrected upon discovery:

- Parking lot catch basins shall remain unobstructed to allow water to drain from detention area.
- Sediment shall be removed from catch basins when 50% of sump capacity is reached.
- Standpipes shall be repaired if cracked or broken.

Inspection comments:

Sediment and debris management shall prevent loss of parking lot detention basin volume caused by sedimentation.

- Sources of restricted sediment or debris shall be identified and prevented.
- Debris in quantities sufficient to inhibit operation shall be removed routinely, e.g., no less than quarterly or upon discovery.
- Debris and litter shall be removed upon discovery.
- Excessive oil and other automotive pollutants shall be cleaned (without water) upon discovery.

Inspection comments:

Spill prevention measures shall be exercised when handling substances that can contaminate stormwater.

- Releases of pollutants shall be corrected as soon as identified, sediment and other pollutants shall be disposed of properly.
- Significant oil stains shall be removed without the use of water and solid materials utilized for cleaning shall be disposed of properly.

Inspection comments:

Training and/or written guidance information for operating and maintaining parking lot detention basins shall be provided to all property owners and property managers. This Facility Maintenance Form can be used to meet this requirement.

Inspection comments:

Access to the parking lot detention basin shall be safe, efficient, and available. Roadways shall be maintained to accommodate size and weight of vehicles, if applicable.

- Obstacles preventing maintenance personnel and/or equipment access to the parking lot detention basin shall be removed.
- Facility shall be safe, efficient, and accessible by facility owner and City of Salem staff. If facility is gated and locked, City staff shall be granted access.

Inspection comments:

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

Fences shall be maintained to preserve their functionality and appearance.

- Collapsed fences shall be restored to an upright position.
- Jagged edges and damaged fences shall be repaired or replaced.
- Structures or fences that impede the flow of water in the parking lot detention basin shall be removed.

Inspection comments: