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

SECTION

APPENDIX A FACILITY MAINTENANCE FORMS

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 minimizes erosive damage to surrounding to 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 slows 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) <u>Operating and Maintaining Private Stormwater Facilities.</u>

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) <u>Private Stormwater Facility Agreement.</u>

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.

Chapter 109
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

1. Planters

Planters are small, concrete-walled depressions often next to a road or building which collect and filter stormwater through layers of vegetation, growing medium, and rock. Filtration planters collect and convey treated stormwater off-site with a perforated underdrain and/or outlet pipes, and an impermeable liner installed beneath the underdrain to prevent infiltration to groundwater. Infiltration planters convey treated stormwater directly to groundwater and are installed without underdrains or liners. Partial infiltration planters are installed with an underdrain but without a liner, and are designed to complete both processes simultaneously. All planter types are sized to accept and temporarily store the stormwater in the concrete reservoir above the soil. Stormwater should drain from all planter types within 48 hours after a storm event.

Inspections

All facility components, vegetation, 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: _____ / _____ / _____ **Inspector's Name:** _____
Day Month Year *Please print*

Downspouts from rooftop or sheet flow from pavement allow unimpeded stormwater flow to the planter.

- ☐ Debris shall be removed routinely and upon discovery.
- ☐ Damaged pipes shall be repaired upon discovery.

Inspection comments:

Splash blocks, forebays, and rock splash pads prevent erosion and sedimentation from areas around the planter inlets and convey stormwater without disrupting soil.

- ☐ Rock splash pads shall be cleaned when sediment and debris have accumulated or rock replenished if erosion is occurring around the inlets.
- ☐ Accumulated sediment and debris shall be removed from splash blocks and forebays when sump capacity has reached 50%.

Inspection comments:

Curbcuts and inlet pipes ensure unrestricted stormwater flow into the planter.

- ☐ All inlets shall be kept clear at all times.
- ☐ Inlet pipes shall be secured and grout-sealed.
- ☐ Damaged curbcuts and 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:

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

- ☐ 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 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.

- ☐ Sources of clogging shall be identified and corrected.
- ☐ Sources of erosion shall be identified and controlled when native soil is exposed or erosive channels have formed.
- ☐ Growing medium shall be used to fill and compact any erosive channels in the planter, including channels which form between plants.
- ☐ Soil shall be replaced when surface of planter is observed ponding water more than 48 hours after a storm event.
- ☐ Holes caused by 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.
- ☐ Litter and debris shall be removed.

Inspection comments:

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.

- ☐ Rock mulch around plants shall be replenished as needed but shall not inhibit water flow.
- ☐ Vegetation, large shrubs, or trees that limit access or interfere with planter 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/or 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.

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 and reported to the City as soon as identified.

Inspection comments:

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.

Inspection comments:

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.

- ☐ Obstacles preventing maintenance personnel and/or equipment access to the planter 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 planter. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- ☐ Holes in the soil located in and around the planter shall be filled and compacted upon discovery.
- ☐ Manual pest control measures shall be used in the planter.
  - *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.), 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:

2. Rain Gardens

Rain gardens are small, vegetated basins that provide short-term ponding of stormwater while it infiltrates into the underlying soil. Filtration rain gardens treat and convey stormwater to the receiving system via a perforated underdrain or outlet pipes, and are sometimes installed with impermeable liners beneath the soil to prevent further infiltration. Infiltration rain gardens are installed without liners and convey infiltrated stormwater directly to groundwater and/or a perforated underdrain. Partial infiltration rain gardens infiltrate and convey filtered stormwater simultaneously. All rain garden types are sized to accept runoff and temporarily store stormwater within the rain garden side slopes. All filtration, infiltration, and partial infiltration rain gardens should infiltrate or drain all stormwater within 48 hours after a storm event.

Inspections

All facility components, vegetation, 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: _____/_____/_____ **Inspector's Name:** _____
Day Month Year Please print

Downspouts from rooftop or sheet flow from pavement allow unimpeded stormwater flow to the rain garden.

- ☐ Debris shall be removed routinely and upon discovery.
- ☐ Damaged pipe shall be repaired upon discovery.

Inspection comments:

Splash blocks, forebays, and rock splash pads prevent erosion and sedimentation from areas around the rain garden inlets and convey stormwater without disrupting soil.

- ☐ Rock splash pads shall be cleaned when sediment and debris have accumulated or rock replenished if erosion is occurring around the inlets.
- ☐ Accumulated sediment and debris shall be removed from splash blocks and forebays when sump capacity has reached 50%.

Inspection comments:

Curbcuts and inlet pipes ensure unrestricted stormwater flow into the rain garden.

- ☐ Sources of erosion shall be identified and controlled when native soil is exposed or erosive channels have formed.
- ☐ All inlets shall be kept clear at all times.
- ☐ Inlet pipes shall be secured and grout-sealed.
- ☐ Damaged curbcuts and 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/or 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:

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:

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 rain garden 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 rain gardens 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 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.

- ☐ Obstacles preventing maintenance personnel and/or equipment access to the rain garden 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 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:

3. Vegetated Filter Strip

Vegetated filter strips are gently sloped areas that filter stormwater runoff through thick vegetation before infiltrating it into the soil. Stormwater enters the vegetated filter strip as sheet flow and is spread out through the vegetated area by a flow spreader. Flow control is achieved using the relatively large surface area and engineered check dams if necessary. Pollutants are removed through filtration, infiltration, and sedimentation. The vegetated filter strip should drain within 48 hours of storm event.

Inspections

All facility components, vegetation, 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: _____/_____/_____ **Inspector's Name:** _____
Day Month Year Please print

Flow spreaders shall allow runoff to enter the vegetated filter strip as sheet flow.

- ☐ Damaged flow spreaders shall be repaired or replaced.
- ☐ Sediment accumulation which affects flow spreader function shall be removed.

Inspection comments:

Curbcuts and inlet pipes ensure unrestricted stormwater flow into the vegetated filter strip or flow spreader.

- ☐ Sources of erosion shall be identified and controlled when native soil is exposed or erosive channels have formed.
- ☐ All inlets 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:

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.

- ☐ Sources of clogging shall be identified and corrected.
- ☐ Soil shall be replaced when vegetated filter strip 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 filter strip, including channels which form between plants.
- ☐ Litter and debris shall be removed.

Inspection comments:

Check dams shall direct and control flow.

- ☐ Causes for altered water flow and channelization shall be identified, and obstructions shall be cleared upon discovery.
- ☐ Cracks, rot, or structural damage in 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 filter strip 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 vegetated filter strips 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 filter strip shall be safe and efficient. Egress and ingress routes shall be maintained to design standards.

- ☐ Obstacles preventing maintenance personnel and/or equipment access to the vegetated filter strip 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 filter strip. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- ☐ Holes in the ground located in and around the vegetated filter strip shall be filled.
- ☐ Manual pest control measures shall be used in the vegetated filter strip.
  - *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:

4. Vegetated Swale

Vegetated swales are narrow, open channels which filter stormwater pollutants with vegetation and slow flows using gentle slopes, check dams, and/or downstream flow control structures. Vegetated swales are designed as filtration, infiltration, or partial infiltration facilities: Infiltration and partial infiltration vegetated swales may be installed with a perforated underdrain beneath the flow path of the channel to collect and convey treated stormwater. All vegetated swale types should drain within 48 hours of a storm event.

Inspections

All facility components, vegetation, 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: _____/_____/_____ **Inspector's Name:** _____
Day Month Year *Please print*

Splash blocks, forebays, and rock splash pads prevent erosion and sedimentation from areas around the vegetated swale inlets and convey stormwater without disrupting soil.

- ☐ Rock splash pads shall be cleaned when sediment and debris have accumulated or replenished with rock if erosion is occurring around the inlets.
- ☐ Accumulated sediment and debris shall be removed from splash blocks and forebays when sump capacity has reached 50%.

Inspection comments:

Curbcuts and inlet pipes ensure unrestricted stormwater flow into the vegetated swale.

- ☐ Sources of erosion shall be identified and controlled when native soil is exposed or erosive channels have formed.
- ☐ All inlets 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 outlets and overflow pipes 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:

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:

5. Basin (Dry Pond, Detention Basin, WQ Basin, etc.)

Basins are large earthen depressions designed to temporarily detain and/or infiltrate stormwater. Stormwater is temporarily stored and released over a matter of hours in detention basins, infiltrated into the underlying soil over a matter of hours in infiltration basins, and detained and infiltrated simultaneously in partial infiltration basins. All basin types should drain within 48 hours after a storm event.

Inspections

All facility components, vegetation, 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: _____ / _____ / _____ **Inspector's Name:** _____
Day Month Year Please print

Splash blocks, forebays, and rock splash pads prevent erosion and sedimentation from areas around the basin inlets and convey stormwater without disrupting soil.

- ☐ Rock splash pads shall be cleaned when sediment and debris have accumulated or replenished with rock if erosion is occurring around the inlets.
- ☐ Accumulated sediment and debris shall be removed from splash blocks and forebays when sump capacity has reached 50%.

Inspection comments:

Curbcuts and pipe inlets ens2ure unrestricted stormwater flow into the basin.

- ☐ All inlets shall be kept clear at all times.
- ☐ Pipe inlets shall be secured and grout-sealed.
- ☐ Damaged inlets 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 pipes 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/or 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:

Emergency spillways convey flow exceeding basin 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:

Underdrains ensure unrestricted movement of water through growing medium and off-site in some filtration and partial infiltration basins.

- ☐ 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 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.

- ☐ Sources of clogging shall be identified and corrected.
- ☐ Soil shall be replaced when basin 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 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.
- ☐ Growing medium shall be used to fill and compact any erosive channels in the basin, including channels which form between plants.

Inspection comments:

Side slopes, dikes, and berms are earthen walls which retain water in the basin.

- ☐ Side slopes shall be stabilized using appropriate erosion control measures when soil is exposed or erosive channels are forming.
- ☐ Structural deficiencies in all forms of earthen walls shall be corrected upon discovery.
- ☐ If cracks exist, earthen walls shall be repaired or replaced.
- ☐ If erosive channels are forming, earthen walls shall be stabilized.
- ☐ Sources of erosion damage shall be identified and controlled.

Inspection comments:

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 shallbe 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:

6. Subsurface Gravel Wetlands

Subsurface gravel wetlands are engineered systems which consist of a small surface basin installed above two subsurface gravel cells. Inlets and diversion structures direct stormwater to the subsurface gravel cells which remove pollutants through sedimentation, filtration, and biological processes.

Inspections

All facility components and vegetation shall be inspected for proper operations and structural stability. These inspections shall occur, at a minimum, quarterly for the first 2 years from the date of installation, 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: _____ / _____ / _____ **Inspector's Name:** _____
Day Month Year *Please print*

Forebays, diversion structures, and/or manufactured treatment technology shall remove sediment and debris from stormwater prior to entering the subsurface gravel wetland.

- ☐ Sediment depth in forebays, diversion structures, and/or manufactured treatment technologies shall be measured quarterly.
- ☐ Sediment shall be removed from manufactured treatment technology as per manufacturer specifications and removed from forebays and diversion structures when it has reached 50% of sump capacity.

Inspection comments:

Splash blocks and rock splash pads prevent erosion and sedimentation from areas around the subsurface gravel wetland inlets and convey stormwater without disrupting soil.

- ☐ Rock splash pads shall be cleaned when sediment and debris have accumulated or replenished with rock if erosion is occurring around the inlets.
- ☐ Accumulated sediment and debris shall be removed from splash blocks when sump capacity has reached 50%.

Inspection comments:

Inlet pipes ensure unrestricted stormwater flow into the subsurface gravel wetland.

- ☐ 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:

Standpipes shall direct surface flow to the subsurface gravel chamber

- ☐ All standpipes shall be kept clear at all times.
- ☐ Structural deficiencies shall be corrected upon discovery.
- ☐ If cracks exist, structure shall be repaired or replaced.
- ☐ Pipe caps shall be in place at all times.

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:

Emergency spillways convey flow exceeding subsurface gravel wetland 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:

Underdrains shall ensure unrestricted movement of water between the subsurface gravel cells and the outlet flow control structure.

- ☐ 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 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.

- ☐ Sources of clogging shall be identified and corrected.
- ☐ 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.
- ☐ 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 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.
- ☐ Growing medium shall be used to fill and compact any erosive channels in the subsurface gravel wetland, including channels which form between plants.
- ☐ Sources of erosion shall be identified and controlled when native soil is exposed or erosive channels have formed.

Inspection comments:

Check dams shall control and distribute flow.

- ☐ Causes for altered water flow shall be identified, and obstructions cleared upon discovery.
- ☐ Causes for channelization shall be identified and repaired.
- ☐ Damaged or displaced check dams shall be repaired or replaced.

Inspection comments:

Side slopes, dikes, and berms are earthen walls which retain water in the surface basin of the subsurface gravel wetland.

- ☐ Side slopes shall be stabilized using appropriate erosion control measures when soil is exposed or erosive channels are forming.
- ☐ Structural deficiencies in all forms of earthen walls shall be corrected upon discovery.
- ☐ If cracks exist, earthen walls shall be repaired or replaced.
- ☐ If erosive channels are forming, earthen walls shall be stabilized.
- ☐ Sources of erosion damage shall be identified and controlled.

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, large shrubs, or trees that limit access or interfere with subsurface gravel wetland 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:

Subsurface gravel wetland volume shall be preserved.

- ☐ Sediment and debris accumulation which results in a loss of subsurface gravel wetland 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 subsurface gravel wetland function shall be removed routinely, e.g., no less than quarterly or upon discovery.
- ☐ Structures which result in a loss of subsurface gravel wetland 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.

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 subsurface gravel wetlands 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 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.

- ☐ Obstacles preventing maintenance personnel and/or equipment access to the subsurface gravel wetland 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 subsurface gravel wetland. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- ☐ Holes in the soil located in and around the subsurface gravel wetland shall be filled and compacted upon discovery.
- ☐ Manual pest control measures shall be used in the subsurface gravel wetland.
  - *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 subsurface gravel wetlands.
- ☐ 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:

7. Treatment Wetland

Treatment wetlands are constructed surface marshes designed for the storage of groundwater and surface water sufficient to support aquatic vegetation and remove pollutants from stormwater through sedimentation, filtration, and biological processes.

Inspections

All treatment wetland components, vegetation, 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: _____ / _____ / _____ **Inspector's Name:** _____
Day Month Year *Please print*

Forebays, diversion structures, and/or manufactured treatment technology shall remove sediment and debris from stormwater prior to entering the treatment wetland.

- ☐ Sediment depth in forebays, diversion structures, and/or manufactured treatment technologies shall be measured quarterly.
- ☐ Sediment shall be removed from manufactured treatment technology as per manufacturer specifications and removed from forebays and diversion structures when it has reached 50% of sump capacity.

Inspection comments:

Splash blocks and rock splash pads prevent erosion and sedimentation from areas around the treatment wetland inlets and convey stormwater without disrupting soil.

- ☐ Rock splash pads shall be cleaned when sediment and debris have accumulated or replenished with rock if erosion is occurring around the inlets.
- ☐ Accumulated sediment and debris shall be removed from splash blocks when sump capacity has reached 50%.

Inspection comments:

Inlet pipes ensure unrestricted stormwater flow into the treatment wetland.

- ☐ 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:

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.

- ☐ Sources of clogging shall be identified and corrected.
- ☐ Soil shall be replaced when treatment wetland is observed ponding water above the wetland pool elevation 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 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.
- ☐ Growing medium shall be used to fill and compact any erosive channels in the treatment wetland, including channels which form between plants.
- ☐ Sources of erosion shall be identified and controlled when native soil is exposed or erosive channels have formed.

Inspection comments:

Side slopes, dikes, and berms are earthen walls which retain water at the high marsh surface elevation of the treatment wetland.

- ☐ Side slopes shall be stabilized using appropriate erosion control measures when soil is exposed or erosive channels are forming.
- ☐ Structural deficiencies in all forms of earthen walls shall be corrected upon discovery.
- ☐ If cracks exist, earthen walls shall be repaired or replaced.
- ☐ If erosive channels are forming, earthen walls shall be stabilized.
- ☐ Sources of erosion damage shall be identified and controlled.

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, large shrubs, or trees that limit access or interfere with treatment wetland 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:

Treatment wetland volume shall be preserved.

- ☐ Sediment and debris accumulation which results in a loss of treatment wetland 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 treatment wetland function shall be removed routinely, e.g., no less than quarterly or upon discovery.
- ☐ Structures which result in a loss of treatment wetland 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.
- ☐ Staff gauges located at opposite ends of the treatment wetland shall be installed and maintained to monitor sedimentation.
- ☐ Staff gauges shall be checked two times per year.

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 treatment wetlands 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 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.

- ☐ Obstacles preventing maintenance personnel and/or equipment access to the treatment wetland 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 treatment wetland. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- ☐ Holes in the soil located in and around the treatment wetland shall be filled and compacted upon discovery.
- ☐ Manual pest control measures shall be used in the wetland.
  - *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:

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 treatment wetland shall be removed.

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 treatment wetland.
- ☐ 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:

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: _____ / _____ / _____ **Inspector's Name:** _____
Day Month Year *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:

9. Manufactured Chamber Technology

Manufactured chamber 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: _____/_____/_____ **Inspector's Name:** _____
Day Month Year *Please print*

- ☐ Manufactured chamber 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 chamber technology shall be provided to all property owners and property managers.

Inspection comments:

10. Green Roofs

The City of Salem will review green roof submittals on a case-by-case basis.

Green roofs are stormwater quality building systems comprised of growing medium, vegetation, impermeable liners, drains, and other structural components. Green roofs provide aesthetic benefits, energy conservation, and stormwater treatment by filtering stormwater through vegetation and growing medium before draining to the stormwater receiving system.

Inspections

All green roof facility components, including growing medium, vegetation, drains, irrigation systems, impermeable liners, and roof structures shall be inspected for proper operations, integrity of waterproofing, and structural stability throughout the life of the green roof. All elements shall be inspected once a month from April through September. 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: _____ / _____ / _____ **Inspector's Name:** _____
Day Month Year Please print

Green roof shall have no structural damage**.**

- ☐ Structural deficiencies in the roof system including protective boards, insulation, sealant, and waterproof membranes and liners shall be repaired or replaced.
- ☐ Structural deficiencies in the underlying roof system such as mold or rot shall be repaired or replaced.

Inspection comments:

Drain inlets, outlets, and pipes ensure unrestricted stormwater flow out of the green roof.

- ☐ Sources of erosion shall be identified and control when erosive channels have formed.
- ☐ Drain inlets, outlets, and pipes shall be cleared when clogged with soil, vegetation, or debris.
- ☐ Sources of sediment and debris shall be identified and corrected.
- ☐ Damaged drain inlets, outlets, and pipes shall be repaired or replaced upon discovery.

Inspection comments:

Rock drainage layers or rock drainage channels shall convey stormwater to the green roof drain inlets. If water remains 48 hours after a storm event, sources of possible clogging shall be identified and corrected.

- ☐ Rock drainage layers and rock drainage channels shall be cleared when clogged with soil, vegetation, or debris.
- ☐ Sources of sediment and debris shall be identified and corrected.
- ☐ Displaced rock drainage layers and rock drainage channels shall be realigned or repaired.

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:

Spill prevention measures from mechanical systems located on roofs 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 green roofs 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 green roof shall be safe and efficient.

- ☐ Egress and ingress routes shall be maintained to design standards. Walkways shall be clear of obstructions and maintained to design standards.
- ☐ 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:

Aesthetics of the green roof shall be maintained as an asset to the property owner and community.

- ☐ Damage shall be repaired and accumulation of trash or debris shall be removed upon discovery.

Inspection comments

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.

- ☐ Holes in the soil located in the green roof shall be filled and compacted upon discovery.
- ☐ Manual pest control measures shall be used in the green roof.
  - *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:

11. Sand Filters

Sand filters are subsurface structures which filter stormwater through layers of sand. Some sand filters discharge treated stormwater directly to surrounding soils, and others collect the treated stormwater with underdrains that then convey filtered discharge to the stormwater receiving system.

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: _____ / _____ / _____ **Inspector's Name:** _____
Day Month Year Please print

Reservoirs, diversion structures, or manufactured treatment technologies shall remove sediment and debris from stormwater prior to entering the sand filter.

- ☐ Sediment depth in reservoirs, diversion structures, or manufactured treatment technologies shall be measured quarterly.
- ☐ Sediment and debris shall be removed from manufactured treatment technology as per manufacturer specifications and removed from reservoirs and diversion structures when it has reached 50% of sump capacity, 1 cubic foot, or is inhibiting operation.
- ☐ Structural deficiencies in the concrete sand filter box including rot, cracks, leaks, and missing grout shall be repaired upon discovery.

Inspection comments:

Splash blocks, forebays, and rock splash pads prevent erosion and sedimentation from areas around the sand filter inlets and convey stormwater without disrupting soil.

- ☐ Rock splash pads shall be cleaned when sediment and debris have accumulated or rock replenished if erosion is occurring around the inlets.
- ☐ Accumulated sediment and debris shall be removed from splash blocks and forebays when sump capacity has reached 50%.

Inspection comments:

Inlet pipes ensure unrestricted stormwater flow into the sand filter.

- ☐ Inlet pipes shall be cleared of sediment and debris when 30% of the conveyance capacity is obstructed.
- ☐ Sources of erosion shall be identified and controlled when native soil is exposed or erosive channels have formed.
- ☐ 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:

Emergency spillways convey flow exceeding sand filter 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:

Underdrains shall ensure unrestricted movement of water through the sand filter layers and off-site in filtration sand filters.

- ☐ 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 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.

- ☐ Sources of clogging shall be identified and corrected.
- ☐ 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.
- ☐ 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.
- ☐ Clean sand shall be used to fill and compact any erosive channels in the sand filter.

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:

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.

Inspection comments:

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.

- ☐ Obstacles preventing maintenance personnel and/or equipment access to the sand filter 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 sand filter. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- ☐ Holes in the soil located in and around the sand filter shall be filled and compacted upon discovery.
- ☐ Manual pest control measures shall be used in the sand filter.
  - *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 shall be removed from flow control structures when 50% of sump capacity is reached.
- ☐ Standpipes shall be repaired if cracked or broken.

Inspection comments:

12. Pervious Pavement

Pervious pavement is an asphalt or concrete surface containing pores through which stormwater infiltrates to an underlying stone reservoir and the surrounding subsoil, or to a perforated underdrain which collects and conveys the infiltrated stormwater off-site. There are many types of pervious pavement, but the three most common types are: Pervious concrete, porous asphalt, and permeable pavers.

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)

Pervious pavement surfaces shall not be replaced or overlaid, in part or in whole, with standard impervious paving surfaces**.** Pervious pavement surfaces shall be kept clean and free of leaves, debris, moss, and sediment.

- ☐ Regular sweeping shall be implemented for porous asphalt and pervious concrete systems.
- ☐ If replaced, pervious surfaces shall conform to original materials specifications to maintain infiltration capacity.

Inspection comments:

Overflows or emergency spillways are used in the event the pervious pavement's infiltration capacity is exceeded.

- ☐ Overflow devices shall be inspected for obstructions or debris, which shall be removed upon discovery.
- ☐ Overflow or emergency spillways shall be capable of transporting high flows of stormwater to an approved stormwater receiving system.
- ☐ Sources of erosion damage shall be identified and controlled when native soil is exposed nearthe overflow structure.

Inspection comments:

Vegetation such as large shrubs or trees should not be located within or adjacent to the pervious pavement because roots from large vegetation can penetrate the pavement, and leaves from deciduous trees and shrubs can increase the risk of clogging the pavement pores.

- ☐ Large shrubs or trees that are likely to interfere with operation shall be identified at each inspection and removed following the City's tree removal guidelines.
- ☐ Fallen leaves and debris from deciduous plant foliage shall be raked and removed.
- ☐ Poisonous, nuisance, dead, or odor-producing vegetation shall be removed immediately.
- ☐ Grass adjacent to the pavement shall be mowed to less than 4 inches and grass clippings shall be bagged and removed.

Inspection comments:

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:

- ☐ Raking and removing leaves from pavement.
- ☐ Street-sweeping pavement.
- ☐ Vacuum-sweeping pavement.
- ☐ Pressure-washing pavement.
- ☐ Hand-sweeping or shop-vacuuming pavement.

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 pervious pavement 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 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.

- ☐ Obstacles preventing maintenance personnel and/or equipment access to the pervious pavement 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:

Debris and litter shall be removed to prevent the clogging of pavement pores.

Inspection comments:

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.

- ☐ Holes in the ground located in and around the pervious pavement shall be filled and compacted.

Inspection comments:

13. Underground Detention Tanks, Vaults, and Pipes

Underground detention tanks, vaults, and pipes are subsurface containment structures designed to fill, detain, and slowly release stormwater during large storm events. This temporary detention reduces stress on the overall stormwater conveyance system in high flows and reduces damage to creeks and rivers that occurs when large flows are discharged quickly to surface waters. There are numerous mechanical components to each system.

Inspections

All facility components and source controls shall be inspected for proper operations and structural stability. Underground detention tank, vault, and pipe 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:

Date: _____ / _____ / _____ **Inspector's Name:** _____
Day Month Year Please print

Inlet pipes ensure unrestricted stormwater flow into underground detention tanks, vaults, or pipes.

- ☐ 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.
- ☐ Inlet pipes shall be inspected for clogging and leaks where stormwater enters the underground detention tank, vault, or pipe.
- ☐ Debris or sediment that is found to be clogging inlet pipes shall be removed, tested, and disposed of in accordance with applicable federal and state requirements.

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.
- ☐ Outlet pipes shall be secured and grout-sealed.
- ☐ Standpipe overflows shall be intact, undamaged, and clear of debris.
- ☐ Outlet pipes shall be inspected for clogging and leaks where stormwater enters underground detention tanks, vaults, or pipes.
- ☐ Debris or sediment that is found to be clogging outlet pipes and overflow structures shall be removed, tested, and disposed of in accordance with applicable federal and state requirements.

Inspection comments:

Underground detention tanks, vaults, and pipes 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.
- ☐ Structural issues with underground detention tank, vault, and pipe components, including broken pipes, broken or missing downturns, shear gates, or strapping shall be repaired or replaced.

Inspection comments:

Underground detention tank, vault, and pipe volume shall be preserved.

- ☐ 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.
- ☐ Debris and litter shall be removed to ensure stormwater detention 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.
  - *Structural repairs and sediment removal require confined space permits, confined space entry, and/or use of a Vactor 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.*

Inspection comments:

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.

- ☐ Large shrubs or trees that are likely to interfere with operation shall be identified at each inspection and removed.

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 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.

Inspection comments:

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.

- ☐ Obstacles preventing maintenance personnel and/or equipment access to underground detention tanks, vaults, and pipes 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 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:

14. Conveyance Pipes

Conveyance pipes transport stormwater between public and private properties, stormwater quality and flow control facilities, the stormwater receiving system, and ultimately to receiving surface waters or infiltration sites. Conveyance pipes shall be inspected on a scheduled cycle and cleaned when sediment or debris has accumulated to more than 30% of the pipe diameter.

Inspections

All facility components and source controls shall be inspected for proper operations and structural stability. Conveyance pipe 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. Inspection should consist of cleaning main line followed by TV inspection.

- ☐ Structural deficiencies shall be corrected upon discovery; if cracks exist, repair or replace structure.

Date: ____ / ____ / ____ (Day / Month / Year) **Inspector's Name:** _____ (Please print)

Associated structures shall have no structural damage.

- ☐ Structural deficiencies in conveyance pipes and associated structures including concrete casing, cracks, missing grout, rot, broken pipes, broken or missing downturns, shear gates, strapping, grates, and/or lids shall be repaired or replaced.
- ☐ Inlet, outlet, and overflow pipes shall be kept clear at all times.
- ☐ Damaged inlet, outlet, and overflow pipes shall be repaired or replaced upon discovery.
- ☐ Associated manholes and catch basins shall be visually inspected annually and cleaned when sediment and debris accumulation has reached 12 inches in depth, 50% of sump capacity, or is impeding the flow of stormwater in either direction.

Inspection comments:

Inlets, outlets, and overflows shall be inspected for clogging or leaks where stormwater enters and leaves conveyance pipes.

- ☐ All inlet, outlet, and overflow pipes shall be kept clear at all times.
- ☐ Damaged inlet, outlet, and overflow pipes shall be repaired or replaced upon discovery.
- ☐ Sediment or debris that has accumulated to more than 30% of any pipe diameter shall be removed and disposed of in accordance with applicable federal and state requirements.
  - *Structural repairs and sediment removal require confined space permits, confined space entry, and/or use of a Vactor truck in all conveyance pipes. 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 prevent clogging of inlet, outlet, and overflow pipes.

- ☐ 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 conveyance pipes 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 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.

- ☐ Obstacles preventing maintenance personnel and/or equipment access to conveyance pipes 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 conveyance pipes. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- ☐ Manual pest control measures shall be used in conveyance 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:

15. Open Channels

Open channels are narrow surface channels that convey stormwater between public and private properties, stormwater quality and flow control facilities, the stormwater receiving system, and ultimately to receiving surface waters or infiltration sites.

Inspections

All open channel components and source controls shall be inspected for proper operations and structural stability. Open channel 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:

Date: _____/_____/_____ **Inspector's Name:** _____
Day Month Year *Please print*

Inlet pipes ensure unrestricted stormwater flow into the open channel.

- ☐ Sources of erosion shall be identified and controlled when native soil is exposed or erosive channels have formed.
- ☐ 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 or receiving surface waters.

- ☐ 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 and shall be secured and grout-sealed.

Inspection comments:

Side slopes are earthen walls which retain water in open channels.

- ☐ Side slopes shall be stabilized using appropriate erosion control measures when soil is exposed or erosive channels are forming.
- ☐ Structural deficiencies in all forms of earthen walls shall be corrected upon discovery.
- ☐ If cracks exist, earthen walls shall be repaired or replaced.
- ☐ If erosive channels are forming, earthen walls shall be stabilized.
- ☐ Sources of erosion damage shall be identified and controlled.

Inspection comments:

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:

16. Soakage Trench

Soakage trenches are subsurface infiltration channels consisting of layered drain rock and sand which receive stormwater from roof downspouts or area drains. Conveyance systems consist of a perforated inlet pipe which conveys and disperses stormwater, and an underdrain which collects and conveys excess water in large storm events. A catch basin or forebay serves as a pretreatment structure by removing sediment and debris before conveying the treated water to the soakage trench for infiltration.

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: _____/_____/_____ **Inspector's Name:** _____
Day Month Year *Please print*

Catch basins and forebays shall remove sediment and debris from stormwater prior to entering the soakage trench.

- ☐ Sediment and debris accumulation in catch basins and forebays shall be measured quarterly.
- ☐ Sediment or debris shall be removed from catch basins and forebays when it has reached 50% of sump capacity, 1 cubic foot, or is inhibiting operation.
- ☐ Structural deficiencies in catch basins and forebays including rot, cracks, leaks, and missing grout shall be repaired or replaced upon discovery.

Inspection comments:

Perforated inlet pipes ensure unrestricted stormwater flow into the soakage trench.

- ☐ Perforated inlet pipes shall be kept clear at all times.
- ☐ Perforated inlet pipes shall be secured and grout-sealed.
- ☐ Damaged perforated inlet pipes shall be repaired or replaced upon discovery.
- ☐ Clogged perforated inlet pipes shall be replaced or removed, cleaned, and reinstalled.

Inspection comments:

Undrains safely convey excess flow to an approved discharge point.

- ☐ Underdrains shall be kept clear at all times.
- ☐ Damaged underdrains shall be repaired or replaced upon discovery.
- ☐ Underdrains shall be secured and grout-sealed in catch basin or forebay.
- ☐ Clogged underdrains shall be replaced or removed, cleaned, and reinstalled.

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 shallbe 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:

17. Drywells

Drywells are subsurface concrete or plastic structures that contain small percolation holes in the chamber walls, through which stormwater infiltrates into the surrounding soil. Stormwater is often piped to drywells from pretreatment, treatment, or flow control structures, which must be properly operated, inspected, and maintained. Proper maintenance of upstream structures and periodic cleaning of drywells help to prevent contamination of soils and groundwater.

Inspections

All facility components and source controls shall be inspected for proper operations and structural stability. Drywells 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)

Drywell 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.

Inspection comments:

Inlet pipes ensure unrestricted stormwater flow into the drywell.

- ☐ 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:

Ponding around upstream catch basins, sedimentation manholes, or drywell lids may indicate that the drywell is failing due to sedimentation in the chamber or clogging of the percolation holes.

- ☐ Sediment shall be removed from drywells when accumulation has reached the vertical height of the lowest percolation holes or when the percolation holes become blocked or clogged.
- ☐ Drywell shall be replaced when removal of sediment from the chamber or percolation holes is no longer possible.
  - *Structural repairs and sediment removal require confined space permits, confined space entry, and/or use of a Vactor truck in all drywells. These maintenance activities can only be performed by professionals with valid certifications, proper training, personal protective equipment, and mechanical equipment.*

Inspection comments:

Vegetation such as large shrubs or trees should not be located adjacent to the drywells because roots from large vegetation can penetrate the structure, and leaves from deciduous trees and shrubs can increase the risk of clogging inlet pipes.

- ☐ Large shrubs or trees that are likely to interfere with operation shall be identified at each inspection and removed.

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:

18. Flow Control Structure

A flow control structure is a catch basin, manhole, or vault engineered to collect and discharge stormwater slowly, ensuring treatment and/or detention in a nearby stormwater quality facility. One or more orifices (restrictor plates), outlet pipes, baffles, or weir walls serve to restrict the flow of stormwater out of the structure, allowing it to fill and discharge slowly while treatment is provided in an upstream stormwater quality facility. Flow control structures should be visually inspected annually and cleaned when sediment has reached 12 inches in depth or 50% of the sump capacity of the structure. If there is no sump capacity in the flow control structure, the sediment should be removed prior to impeding the flow of stormwater in either direction.

Inspections

All facility components and source controls shall be inspected for proper operations and structural stability. Flow control structures 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: _____ / _____ / _____ **Inspector's Name:** _____
Day Month Year Please print

Flow control structure shall have no structural damage.

- ☐ Structural deficiencies in the overall structure including concrete casing, cracks, missing grout, rot, and broken grate, manhole, and vault lids shall be repaired or replaced.
- ☐ Structural issues with the flow control mechanism itself, broken pipes, missing caps on standpipes, broken or removed orifices, shear gates, and strapping shall be repaired or replaced.

Inspection comments:

Inlet pipes ensure unrestricted stormwater flow into the flow control structure.

- ☐ 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:

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 Vactor 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 shallbe 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: _____ / _____ / _____ **Inspector's Name:** _____
Day Month Year 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:

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

- ☐ Pollution control manholes shall be visually inspected annually and cleaned when sediment has reached 12 inches in depth or 50% of sump capacity.
- ☐ Pollution control manholes shall be visually inspected annually and cleaned when oil has reached 2 inches in depth.
  - *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.*

Inspection comments:

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

- ☐ 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 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.

Inspection comments:

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.

- ☐ Obstacles preventing maintenance personnel and/or equipment access to the pollution control manhole 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:

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: _____ / _____ / _____ **Inspector's Name:** _____
Day Month Year 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 shallbe 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: