

**MAINTENANCE COVENANT
PROPERTY OWNER REQUIRED TO MAINTAIN
STORMWATER FACILITIES AND MEASURES**

INSTRUCTIONS FOR APPLICANTS

1. The property owner must sign the document in front of a notary.

Please Note: Planning and Public Works and the Auditor's office does provide a notary service, but this service may not always be available due to staffing.

2. Have the document recorded with the Pierce County Auditor at the Pierce County Annex. The Auditor can only record the original document.

Please Note: ALL pages of the covenant shall be recorded. The number of pages to be recorded are located at the bottom of the covenant.

The applicant will be responsible for additional recording fees if the covenant is not recorded correctly.

3. Provide the development engineering reviewer with the recording number. You can call, email or hand deliver the recording number to the reviewer.

After recording return to:

Pierce County Planning and Public Works
Development Engineering
2401 South 35th Street, Room 150
Tacoma, WA 98409-7487

**MAINTENANCE COVENANT
PROPERTY OWNER REQUIRED TO MAINTAIN
STORMWATER FACILITIES AND MEASURES
(INDIVIDUAL)**

For purposes of this agreement and for indexing by the Auditor as required by R.C.W. Ch. 65.04, the parties to this agreement are

Grantor (also known as present owner), and Pierce County, Grantee.

Grantor is the owner of certain real property in Pierce County, Washington, as described below and referred to in this agreement as the "Property".

Parcel Number(s): _____

Parcel Address: _____

Legal Description: _____

Site Development Permit Number: _____

Grantor proposes to develop (construct buildings, clear, grade, etc.) the Property. If left unmitigated, this development will cause pollution of surface waters and will increase the amount of stormwater runoff that leaves the property. Pierce County requires stormwater facilities be installed and/or stormwater measures be implemented that will prevent the pollution of surface water and groundwater. Pierce County also requires that stormwater facilities and/or measures be implemented that will prevent an increase in stormwater runoff. The upkeep and maintenance of these stormwater facilities and/or measures are essential to the protection of the County's surface and groundwater resources, as well as downstream properties.

The following stormwater facilities/measures are located on the Property and are intended to mitigate the impacts of the development:

- | | | |
|--|--|--|
| <input type="checkbox"/> Downspout Infiltration Facility | <input type="checkbox"/> Downspout Dispersion | <input type="checkbox"/> Sheet Flow Dispersion |
| <input type="checkbox"/> Perforated Stub-Out Connection | <input type="checkbox"/> Bioretention Facility | <input type="checkbox"/> Concentrated Flow Dispersion |
| <input type="checkbox"/> Soil Amendment | <input type="checkbox"/> Rain Garden | <input type="checkbox"/> Shoreline Dispersion Facility |
| <input type="checkbox"/> Permeable Pavement | <input type="checkbox"/> 65/10 Dispersion Area | <input type="checkbox"/> Porous Gravel Driveway |
| <input type="checkbox"/> Other _____ | | |

In connection with the Grantor's development, Pierce County requires, and the Grantor agrees to maintain, the above stormwater facility/measures in accordance with the maintenance instructions attached herein.

Approved site development drawings and construction photos for the stormwater facility/measures for this property can be viewed on the Pierce County Planning and Land Services on-line permit system web site using the permit number on the front of this document. County approval must be obtained prior to any modification to, relocation of, or removal of these stormwater facilities or measures.

This covenant runs with the land, and is binding on all parties having or acquiring any right, title, or interest in the Property.

This covenant cannot be terminated unless a notice of covenant termination is recorded by Pierce County.

Director or Designee Signature
Pierce County Planning and Public Works

Signature of owner(s):

Print Name:

STATE OF WASHINGTON)
) ss
COUNTY OF PIERCE)

On this _____ day of _____, 20_____, before me, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared _____ who is known to be the individual described in and who executed the foregoing instrument, and acknowledged to me that he/she/they signed and sealed the said instrument as a free and voluntary act and deed for the uses and purposes therein mentioned.

Given under my hand and official seal this _____ day of _____, _____.

Notary Public in and for the State of Washington

Residing at _____

My commission expires _____

AFFIX SEAL OR STAMP ABOVE THIS LINE

65/10 Dispersion Area

What is a 65/10 Dispersion Area?

A 65/10 Dispersion Area is a forested/native vegetation area that has not been modified or disturbed. 65/10 Dispersion Areas are used to control the increased stormwater runoff from driveways, roofs, lawns, sidewalks, roads and other developed areas. The 65/10 Dispersion methodology is typically used on parcels of land 1 acre or larger when a property owner does not plan on removing existing forest and native vegetation from a large portion (65% approximately) of their property. The use of 65/10 Dispersion benefits a property owner because they do not have the construction costs associated with other stormwater facilities or measures, such as porous concrete, downspout infiltration, rain gardens, biofiltration, etc. Property owners that choose to use 65/10 Dispersion to address the stormwater impacts of their project must agree to retain, maintain, and protect native vegetation in a specific portion of their property.

How does a 65/10 Dispersion Area Work?

65/10 Dispersion controls stormwater runoff through infiltration, and evapotranspiration. 65/10 Dispersion also removes pollutants through sedimentation, filtration, adsorption, and phytoremediation.

What if I want to remove my 65/10 Dispersion Area?

This 65/10 Dispersion Area must remain in place in perpetuity, unless the property owner elects to obtain a new site development permit and address the stormwater impacts of their project by constructing another type of stormwater facility or measure. A Notice of Termination of Maintenance Covenant will need to be recorded by the County.

What can I do in my 65/10 Dispersion Area?

The area can be used for passive recreation such as pedestrian and bicycle trails, nature viewing areas, camping areas and other similar activities that do not require permanent structures, provided that cleared areas and areas of compacted soil associated with these areas are kept to a minimum.

The area can contain utilities and utility easements, but not septic systems (utilities are defined as potable and wastewater underground piping, underground wiring, and utility poles).

Invasive, non-native vegetation and weeds listed on the State Noxious Weed List may be removed by clipping, hand-pulling, hand-digging, or other method that leaves the native vegetation, trees, duff, and topsoil intact.

Trees that are dangerous to life or property may be removed, but the stump must be left in place.

How do I know where the boundaries of my 65/10 Dispersion Area are?

The approved site development drawings for the property identify the location of the 65/10 Dispersion Area. These drawings can be viewed on the Pierce County Planning and Land Services on-line permit system web site using the site development permit number on page 1 of this document.

What do I need to do to maintain and protect my 65/10 Dispersion Area?

A property owner should:

- a) understand where the boundaries of the area are located in relationship to property lines and other visual/constructed features, and
- b) prevent removal of existing native vegetation from the area, and
- c) prevent intrusion into area with motorized equipment that might compact the ground or damage the vegetation, and
- d) replant areas with native shrubs, groundcover and trees, if existing vegetation is somehow damaged or dies.

Soil Amendment

What is Soil Amendment?

Soil amendment (or amended soils as they are sometimes called) is the introduction of compost, top soil, or another organic additives into the soils that have been disturbed during construction. The intent of this practice is to recreate the existing duff layer that existed prior to construction.

How does Soil Amendment work?

In conjunction with soil organisms and vegetation, undisturbed soil, or soil amended after construction disturbance, provides important stormwater management functions, such as:

- Water infiltration
- Shallow subsurface water storage and transmission
- Nutrient, sediment, and pollutant adsorption
- Sediment and pollutant biofiltration
- Pollutant decomposition

These functions are largely lost when development strips away native soil and vegetation and replaces it with un-amended soil and sod. Moreover, without proper amendment, disturbed landscapes can also become pollution-generating surfaces due to soil compaction; increased use of pesticides, fertilizers, and other landscaping and household chemicals; the concentration of pet wastes; and pollutants associated with roadside litter.

The practice of amending soil helps to regain stormwater functions, minimize the need for some landscaping chemicals (thus reducing pollution through prevention), and provide increased treatment of pollutants and sediments (that can result from development and habitation).

How do I maintain my Amended Soils?

The following are required maintenance practices for amended soils:

Do	Do Not
<ul style="list-style-type: none">• Replenish the soil organic matter by leaving leaf litter and grass clippings onsite (or by adding compost and mulch regularly).• Protect amended soils from erosion or re-compaction by heavy equipment.	<ul style="list-style-type: none">• Compact or pave over amended soils.• Use fertilizers, herbicides, or pesticides.

Downspout Infiltration Facility

What is a Downspout Infiltration Facility?

A downspout infiltration facility is an underground stormwater storage area that is created by excavating a trench or deep pit (drywell) and filling it with washed drain rock. The drain rock creates void spaces and these void spaces temporarily store the stormwater until it soaks (infiltrates) into the soil. Stormwater runoff from building roofs is piped into the trench or drywell and distributed within it via a perforated pipe.

How do I maintain my Downspout Infiltration Facility?

The following are required maintenance practices for Downspout Infiltration Facilities:

Do	Do Not
<ul style="list-style-type: none"> • Check for accumulated trash, debris, or sediment that impedes sheet flow or conveyance into the trench or drywell. Remove if present. • Check infiltration trench or drywell for moss or vegetation growth impedes flow and remove if present. • Check for blockages in pipes to or from sump, trench, or drywell. Remove blockage if present. • Ensure that the access lid on the catch basin (if present) is accessible and easy to open (i.e., not buried or missing). • Check for accumulated sediment in catch basin sump, and remove and dispose of in accordance with solid waste requirements. • Check underdrain/ perforated pipe for standing water. If standing water remains in the dispersion area for more than 3 days hours following a storm, address cause of ponding (e.g., remove sediment from pipe). • Check for accumulated sediment and debris in drain rock or underdrain/ perforated pipe. Remove sediment and debris. • Check for evidence of contaminants such as oil, gasoline, or paint and clean as soon as possible (Coordinate source control, removal, and/or cleanup with Pierce County Surface Water Management 253-798-2725 and/or Dept. of Ecology Spill Response 800-424-8802). 	<ul style="list-style-type: none"> • Pave over trench or drywell area. • Discharge debris to the infiltration trench from roof cleaning practices.

Rain Garden

What is a Rain Garden?

A rain garden is a, shallow landscaped depression, with compost amended native soils and adapted plants that collects, absorbs, and filters stormwater runoff from roof tops, driveways, patios, and other hard surfaces. Rain gardens are sized to pond and temporarily store stormwater runoff and allow stormwater to soak into the ground.

How does a Rain Garden Work?

Rain gardens are designed to control stormwater runoff through detention, infiltration, and evapotranspiration. Rain gardens also remove pollutants through sedimentation, filtration, adsorption, and phytoremediation.

How do I maintain my Rain Garden?

The following are required maintenance practices for Rain Gardens:

Do
<ul style="list-style-type: none">• Remove trash or debris.• Remove accumulated leaves.• Remove weeds and apply mulch as needed.• Water plants during plant establishment (first 1-3 years).• Water plants during drought conditions (after 3 years).• Check for standing water:<ul style="list-style-type: none">• If standing water remains in the rain garden for more than 48 hours following a storm, address cause of ponding (for example: remove debris or litter built up in the bottom of the rain garden).• If standing water remains in the rain garden for more than 3 days following a storm, cover all inlets, overflows, and openings with mosquito screens to control potential pest activity.• Check for erosion or scour on rain garden walls and side slopes. Re-direct inflows to inlet or stabilize walls.• Check for instability of the walls and side slopes (note: may require consultation with a professional engineer).• Check for sediment accumulation or deposition in the bottom of the rain garden. Remove sediment and eliminating sediment source.• Check for bare spots without mulch. Add 2-3 inches of mulch where needed.

- Check overflow spillway for missing rock, and replace if needed.
- Check inlets, outlets, and overflow for accumulated leaves, sediment, debris, or vegetation. Remove any leaves, sediment, debris, or vegetation that blocks or inhibits flow.
- Check inlets, outlets, and overflow pipes for damage (for example: cracks or punctures from roots). Repair or replace pipes as needed.
- Ensure that site water is being directed into the rain garden. If water is being directed away from the inlet, reconfigure the inlet or splashblock to direct flows into the rain garden.
- Check for erosion or missing rock around the inlet and outlet. Address the cause of erosion and cover ground with rock or cobble to protect subgrade soils.
- Check the vegetation for potential issues (for example: discoloration, lack of flowers, is blocking access to rain garden), and replace or address as needed.

Do Not

- Compact or walk in the rain garden area.
- Remove installed vegetation (unless it is blocking flows or is being replaced).
- Plant additional vegetation that is not appropriate for the rain garden.
- Allow for vegetation to block line-of-sight clearances and sidewalks.
- Use fertilizers, herbicides, or pesticides.

Bioretention Facility

What is a Bioretention Facility?

A Bioretention Facility is a shallow pond that is designed by an engineer that temporarily stores and treats stormwater runoff. It is designed to remove pollutants and to mitigate the peak stormwater flows caused by roofs, driveways or other impervious surfaces. Bioretention Facilities are lined with a special soil mixture and are typically planted with water loving vegetation. Bioretention Facilities control stormwater runoff through detention, retention and evaporation. Biofiltration Facilities remove pollutants through sedimentation, filtration, adsorption, and phytoremediation.

There are three main types of Bioretention:

- Bioretention cells: Shallow depressions with a planting soil mix and a variety of plant material including trees, shrubs, grasses, and/or other herbaceous plants.
- Bioretention swale: Similar to bioretention cells, however, bioretention swales are designed to also convey excess stormwater.
- Bioretention planters and planter boxes: Planters have an open bottom and allow infiltration to the subgrade.

How do I maintain my Bioretention Facility?

Bioretention Facilities are engineered systems, and some larger or more complex designs may require the assistance of professional experts to perform maintenance inspections and activities. If you have questions or concerns about performing the required maintenance, contact the County for further information. The following are required maintenance practices for Bioretention Facilities.

Do
<p>General</p> <ul style="list-style-type: none">• Remove trash or debris.• Remove accumulated leaves.• Remove weeds and apply mulch as needed.• Water plants during plant establishment (1-3 years).• Water plants during drought conditions (after 3 years).• Check for evidence of rodents and remove/eliminate if present.• Check for evidence of rodents and remove/eliminate if present.• Check for vandalism or damage and restore to original conditions if needed.

Ponding Area

- Check for standing water:
 - If standing water remains in the Bioretention Facility for more than 48 hours following a storm, remove leaf or debris buildup, clean underdrain, investigate other water inputs (e.g., groundwater, illicit connections), and verify contributing area. If these do not solve the problem, replace bioretention soil and replant the area.
 - If standing water remains in the Bioretention FacilityMP: for more than 3 days following a storm, cover all inlet, overflows and openings with mosquito screens to control potential pest activity.
- Check for erosion, scour, or cracks wider than 0.5 inch (in concrete) on walls or side slopes. Address by stabilizing walls and side slopes or repairing/replacing concrete.
- Check for any instability of the walls and side slopes (note: may require consultation with a professional engineer).
- Check berm between cells for leaks or seeps. Plug holes or consult with a professional engineer.
- Check berm for settlement. Restore design height with additional mulch if needed.
- Check for sediment accumulation or deposition in the bottom of the Bioretention Facility. Remove sediment and eliminate sediment source.
- Check for bare spots without mulch. Add 2-3 inches of mulch where needed.
- Ensure that side slopes do not exceed 1H:3V (this can be a safety hazard).

Inlets, Outlets, Overflow and Underdrain

- Ensure that site water is being directed properly to the Bioretention Facility inlet structure. If water is being directed away from the inlet, reconfigure the inlet or splashblock to direct flows into the Bioretention Facility.
- Check for erosion (gullies/rills) around inlets, outlets, overflow, and on side slopes. Regrade area or add rock, vegetation, or erosion control blanket.
- Check for erosion or missing rock around the inlet and outlet. Address the cause of erosion and cover ground with rock or cobble to protect subgrade soils.
- Check inlets, outlets, and overflow for accumulated leaves, sediment, debris, or vegetation. Remove any leaves, sediment, debris, or vegetation that blocks or inhibits flow.
- Check inlets, outlets, and overflow pipes for damage and cracks or punctures greater than 0.25 inches. Repair or replace pipes as needed.
- Check trash rack for missing or damaged bar screens. Repair or replace to design standards if needed.
- Check overflow spillway for missing rock, and replace if needed.
- Check underdrain pipe for blockage (plant roots, sediment, or debris), and remove if needed.

Ensure that pipes and culverts are covered and secured if they are hazards to children.

Check dams, weirs, and flow spreaders

- Check sediment, vegetation, and debris accumulation at check dam or weir. Clear blockage and eliminate source.
- Check for erosion and/or undercutting of check dam or weir. Address erosion and undercutting as needed.
- Check the weir, grade board, or baffle for settlement or damage. Restore to level position.
- Check sediment accumulation along flow spreader. Remove and dispose of the sediment if it blocks 35 percent or more of the ports/notches.

Vegetation

- Check vegetation around inlets and outlets. Remove vegetation if within 1 foot of inlets and outlets.
- Check the vegetation for potential issues (for example: discoloration, lack of flowers, blocking access to Bioretention Facility), and replace or address as needed.
- Check for dead standing vegetation. Remove any dead standing vegetation. Replace any plants with high mortality rate with a more appropriate species.
- Ensure that large trees and shrubs do not interfere with operation of the basin or access for maintenance. Prune trees or shrubs if they do interfere with operation or access.
- Ensure that emergent vegetation (vegetation on the bottom of the Bioretention Facility) doesn't block flow of water.
- Remove grass or other vegetation clippings if accumulated to 2 inches or greater.
- Check vegetation coverage. If less than 75 percent of the Bioretention Facility is covered, replant as needed.
- Check for presence of noxious weeds and remove according to applicable regulations.
- Check irrigation system and refer to manufacturer's instructions for maintenance.

Contaminants

- Use spill prevention measures when handling or storing potential contaminants in the vicinity.
- Check for evidence of contaminants such as oil, gasoline, or paint and clean as soon as possible (Coordinate source control, removal, and/or cleanup with Pierce County Surface Water Management 253-798-2725 and/or Dept. Of Ecology Spill Response 800-424-8802).

Do Not

- Compact or walk in the Bioretention Facility.
- Compact bioretention soil media.
- Remove installed vegetation (unless it is blocking flows or is being replaced).
- Plant additional vegetation that is not appropriate for the Bioretention Facility.
- Allow for vegetation to block line-of-sight clearances and sidewalks.
- Use fertilizers, herbicides, or pesticides.

Downspout Dispersion

What is a Downspout Dispersion?

Downspout Dispersion are gravel-filled trenches or splashblocks located at the roof downspout, which serve to spread roof runoff over vegetated areas.

How does a Downspout Dispersion work?

Downspout dispersion methods reduce peak flows by slowing stormwater runoff entering into the conveyance system, allowing for some infiltration, and providing some water quality benefits.

How do I maintain my Downspout Dispersion?

The following are required maintenance practices for Downspout Dispersion methods:

Do	Do Not
<ul style="list-style-type: none">• Check roof downspout for leaves and debris and remove if present.• Ensure that the splashblock or rock pad is directed away from the building structure.• Check for erosion or disruption of the soil around the splashblock or rock pad that is causing concentrated flow (confined flow). Replace or restore soil if needed.• Check rock pad for adequate coverage (should be more than one layer of rock above native soil). Add rock to meet design standards if needed.• Check dispersion trench for accumulated trash, debris, or sediment and remove and dispose of in accordance with solid waste requirements if present.• Check dispersion trench for moss or vegetation that impedes flow and remove if present.• Check dispersion trench for evidence of concentrated flow (flow that is channelizing and not evenly flowing over the trench). Realign notched grade board or other type of level spreader to prevent channelized flow, or rebuild trench to standards.• Ensure that the access lid on the catch basin (if present) is accessible and easy to open (i.e., not buried or missing).• Check for sediment accumulation in the sump of the catch basin or pipes from sump to trench and remove if present.	<ul style="list-style-type: none">• Compact or pave dispersal area.• Use fertilizers, herbicides, or pesticides.

<ul style="list-style-type: none"> • Check inlets, outlets, and overflow pipes for damage and cracks or punctures greater than 0.25 inches. Repair or replace pipes as needed. • Check for erosion (gullies/rills) of the dispersal area. Erosion greater than 2" deep should be addressed by replacing topsoil/vegetation. • Check for accumulated sediment or debris in the dispersal area that is blocking flow. Removing accumulated sediment or debris and eliminate source. • Check for standing water. If standing water remains in the dispersal area for more than 3 days following a storm, address cause of ponding (i.e., regrade depressions) and cover all inlets, overflows and openings with mosquito screens. • Check vegetation coverage and ensure that vegetation is healthy and watered during periods of no rain. • Ensure that the vegetation is not blocking or inhibiting flow. Trim, weed, or replant as needed to restore flow path. Conversely, ensure that vegetation coverage is sufficient to prevent erosion or scour of the flow path. • Check for presence of noxious weeds and remove according to applicable regulations. • Check for evidence of rodents and remove/eliminate if present. 	
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Perforated Stub-out Connections

What is a Perforated Stub-out Connection?

A Perforated Stub-out Connection consists of a length of perforated pipe within a gravel-filled trench that is placed between roof downspouts and a stub-out to the downstream drainage system.

How does a Perforated Stub-out Connection work?

Roof runoff is conveyed to the perforated stub-out connection, and infiltrates into the underlying soils. These systems provide infiltration during drier months, however during the wet winter months, they may provide little or no flow control.

How do I maintain my Perforated Stub-out Connection?

The following are required maintenance practices for Perforate Stub-out Connections:

Do	Do Not
<ul style="list-style-type: none">• Inspect perforated stub-out connection during heavy rain to ensure that water is conveyed to the drainage stub-out. Replace drain rock or remove sediment and debris if present and blocking flow through to the perforated pipe.• Ensure that the access lid on the catch basin (if present) is accessible and easy to open (i.e., not buried or missing).• Check underdrain/ perforated pipe for standing water. If standing water remains in the dispersion area for more than 3 days hours following a storm, address cause of ponding (e.g., remove sediment from pipe).• Check for accumulated sediment and debris in drain rock or underdrain/ perforated pipe. Remove sediment and debris.• Check for evidence of contaminants such as oil, gasoline, or paint and clean as soon as possible (Coordinate source control, removal, and/or cleanup with Pierce County Surface Water Management 253-798-2725 and/or Dept. of Ecology Spill Response 800-424-8802).	<ul style="list-style-type: none">• Pave over trench area.

Permeable Pavement

What is Permeable Pavement?

Permeable pavement (also known as pervious and porous pavement) looks very much like ordinary pavement except it has small openings that allow water to pass through and eventually soak into the ground. Permeable paving significantly reduces the amount of stormwater runoff compared to conventional pavement.

How does Permeable Pavement Work?

After water drains through permeable pavement, it is held in a storage reservoir bed (made up of aggregate rock, or drain rock), and then slowly soaks (infiltrates) into the ground. There are four main types of permeable pavement.

- Porous asphalt
- Pervious cement concrete
- Interlocking concrete paver blocks
- Open-celled paving grid systems

How do I maintain my Permeable Pavement?

Permeable pavements are engineered systems, and some larger or more complex designs may require the assistance of professional experts to perform maintenance inspections and activities. The following are required maintenance practices for Permeable Paving. Note that not all design elements will be present in all permeable pavement applications:

Do
<p>General</p> <ul style="list-style-type: none">• Check adjacent areas to ensure that they are not depositing soil, mulch, or sediment on the permeable pavement area. Replant or stabilize adjacent pervious areas to reduce erosion if needed.• Check for fallen leaves or debris and remove if present.• Check for sediment or debris accumulation between paver blocks, on surface of pavement, or in grid voids and remove if present. <p>Inlet, outlet, and underdrain pipes (if present)</p> <ul style="list-style-type: none">• Check inlet and outlet pipes for clogging or damage. Repair, replace, and remove debris as needed.• Check areas around inlet and outlet pipes for erosion (exposed soil), and eliminate cause of erosion if present.• Check underdrain pipe for plant roots, sediment, or debris. Jet clean, cut roots, and remove debris if present.• Check and clean orifice (if present).

Porous asphalt and pervious cement concrete

- Check adjacent vegetation to ensure it is not growing into the permeable pavement area. Trim or remove vegetation that encroaches upon the permeable pavement area.
- Perform regular maintenance to prevent clogging with fine sediments. Use a vacuum or power washer with rotating brushes two to three times annually.
- Protect permeable pavement area from any adjacent construction site runoff during project construction.
- Check for cracks or trip hazards in the pavement area. For potholes or small cracks, fill with patching mixes. For larger cracks and settlement, cut and replace the pavement section as needed.
- Replace any cuts in the pavement (i.e., utility cuts) with the same permeable pavement material.

Interlocking concrete paver blocks

- Check for any damaged or missing paver blocks. Remove damaged paver blocks and replace or repair per manufacturer's recommendations.
- Check for settlement of surface. If settlement seems to be impeding function of the pavement, reestablish original grade (may require resetting individual paver blocks).
- Check for loss of gravel material between paver blocks and refill per manufacturer's instructions if needed.

Open-celled paving grid with gravel or grass

- Check for loss of gravel material in the gravel grid. If the gravel level is below the plastic rings, refill per manufacturer's recommendations.
- Check for loss of soil and/or grass material in the grass grid. Refill or replant per manufacturer's recommendations.
- Restore growing medium, aerate the soil, and reseed or replant grass grid area as needed.

Contaminants

- Use spill prevention measures when handling or storing potential contaminants in the vicinity.
- Check for evidence of contaminants such as oil, gasoline, or paint and clean as soon as possible (Coordinate source control, removal, and/or cleanup with Pierce County Surface Water Management 253-798-2725 and/or Dept. of Ecology Spill Response 800-424-8802).

Do Not

- Apply sand, sealant, or deicers to the permeable pavement area.
- Use snow plows or stockpile plowed snow (i.e., dirty snow) on the pavement area, unless unavoidable.
- Stockpile landscaping materials (such as mulch, soil, and compost) near or on the permeable pavement area.

Sheet Flow Dispersion

What is Sheet Flow Dispersion?

Sheet Flow Dispersion is the simplest method of runoff control. This method can be used for any impervious or pervious surface that is flat or moderately sloped (less than 15 percent slope) such as driveways, sport courts, patios, roofs without gutters, lawns, pastures; or any situation where concentration of flows can be avoided.

How do I maintain Sheet Flow Dispersion?

The following are required maintenance practices for Sheet Flow Dispersion:

Do	Do Not
<ul style="list-style-type: none"> • Check the rock pad, transition zone, and/or dispersion trench for the following: <ul style="list-style-type: none"> ○ Erosion or disruption of the soil that is causing concentrated flow (confined flow). Replace or restore soil if needed. ○ Adequate rock coverage (should be more than one layer of rock above native soil). Add rock to meet design standards if needed. ○ Accumulated trash, debris, or sediment and remove and dispose of in accordance with local solid waste requirements if present. ○ Moss or vegetation that impedes flow and remove if present. ○ Evidence of concentrated flow (flow that is channelizing and not evenly dispersing over the transition zone). Rebuild transition zone to standards. • Check the dispersal area for the following: <ul style="list-style-type: none"> ○ Erosion (gullies/rills). Erosion greater than 2" deep should be addressed by replacing topsoil/vegetation. ○ Accumulated sediment or debris that is blocking flow. Removing accumulated sediment or debris and eliminate source. ○ Standing water. If standing water remains for more than 3 days hours following a storm, address cause of ponding (i.e., regrade depressions) and cover all inlets, overflows and openings with mosquito screens. 	<ul style="list-style-type: none"> • Compact or pave dispersal area, transition zone, or dispersion trench. • Use fertilizers, herbicides, or pesticides.

<ul style="list-style-type: none">○ Vegetation coverage. Ensure that the vegetation is not blocking or inhibiting flow. Trim, weed, or replant as needed to restore flow path. Conversely, ensure that vegetation coverage is sufficient to prevent erosion or scour of the flow path. Also ensure that vegetation is healthy and watered during periods of no rain.○ Check for presence of noxious weeds and remove according to applicable regulations.○ Check for evidence of rodents and remove/eliminate if present.	
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Concentrated Flow Dispersion

What is Concentrated Flow Dispersion?

Concentrated Flow Dispersion is used on concentrated flows from driveways or other hard surface areas. Concentrated flows are directed to a dispersal berm and dispersion trench, and then dispersed through a vegetated flow path.

How do I maintain my Concentrated Flow Dispersion?

The following are required maintenance practices for Concentrated Flow Dispersion:

Do	Do Not
<ul style="list-style-type: none"> • Check the rock pad, transition zone, and/or dispersion trench for the following: <ul style="list-style-type: none"> ○ Erosion or disruption of the soil that is causing concentrated flow (confined flow). Replace or restore soil if needed. ○ Adequate rock coverage (should be more than one layer of rock above native soil). Add rock to meet design standards if needed. ○ Accumulated trash, debris, or sediment and remove and dispose of in accordance with local solid waste requirements if present. ○ Moss or vegetation that impedes flow and remove if present. ○ Evidence of concentrated flow (flow that is channelizing and not evenly dispersing over the transition zone). Rebuild transition zone to standards. • Check the dispersal area for the following: <ul style="list-style-type: none"> ○ Erosion (gullies/rills). Erosion greater than 2" deep should be addressed by replacing topsoil/vegetation. ○ Accumulated sediment or debris that is blocking flow. Removing accumulated sediment or debris and eliminate source. ○ Standing water. If standing water remains for more than 3 days hours following a storm, address cause of ponding (i.e., regrade depressions) and cover all inlets, overflows and openings with mosquito screens. 	<ul style="list-style-type: none"> • Compact or pave dispersal area or dispersion trench. • Use fertilizers, herbicides, or pesticides.

<ul style="list-style-type: none">○ Vegetation coverage. Ensure that the vegetation is not blocking or inhibiting flow. Trim, weed, or replant as needed to restore flow path. Conversely, ensure that vegetation coverage is sufficient to prevent erosion or scour of the flow path. Also ensure that vegetation is healthy and watered during periods of no rain.○ Check for presence of noxious weeds and remove according to applicable regulations.○ Check for evidence of rodents and remove/eliminate if present.	
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Shoreline Dispersion Discharge

What is Shoreline Dispersion Discharge?

Shore line dispersion discharge is a collection of stormwater runoff from roof and/or driveway that is directed to the shoreline for dispersion. Runoff is collected by roof downspouts and driveway catch basins then piped to a Sediment Control Structure. It is then directed by pipe to the landward side of a bulkhead for direct discharge behind the bulkhead or to the seaward side of the bulkhead to a "T" perforated pipe anchored at high water mark on the bulkhead. If there is no bulkhead the "T" perforated pipe is covered with jute matt stapled to the ground then anchored to the ground with crossed rebar.

How do I maintain the Shoreline Dispersion Discharge Facility?

The following are required maintenance practices for Shoreline Dispersion Discharge:

Do	Do Not
<ul style="list-style-type: none"> • Keep gutters clean from debris, leaves or pine needs. • Check catch basin lid for trash/debris blocking more than 20% of the inlet. Check for sediment buildup in the sump and dispose of in accordance with solid waste requirements. Check inside for cracks on walls and bottom. • Check inside the Sediment Control Structure for blockages in the pipes to or from the sump. Check inside for trash/debris on the inlet/outlet "T" pipe wire covering. Check for cracks on walls and bottom. Check for sediment build up in the sump and dispose of in accordance with solid waste requirements. Ensure the access lid is accessible and easy to open. • Check pipes for cracks/dents that impedes flow or allows leaking of stormwater. If pipe is butt fused, check the fused areas for cracks or leaks. • Check pipe anchors for loose rebar or loose wire ties. If anchor is concrete check the pipe strap is secure and for cracked cement. • Check perforated "T" dispersion pipe for clogged holes. Check for loose rebar anchors and wire ties. Check jute matting for holes and that the staples for matting are in place. Check that end caps are in place. Check anchors for "T" pipe when elevated to high water mark seaward of bulkhead. 	<ul style="list-style-type: none"> • Discharge debris to the gutters from roof cleaning practices.

Porous Gravel Driveway

What is a Porous Gravel Driveway?

A porous gravel driveway is a special mix of angular gravel that allows runoff to percolate through the gravel and into the underlying subgrade. The mix is a 1:1 blend of WSDOT Crushed Surfacing Base Course and Pierce County specified #57 rock. It looks very much like ordinary gravel except it has a larger void content.

How does Porous Gravel Work?

The larger void content (i.e. open space within the gravel) allows water to pass through the gravel and eventually soak into the ground. Porous gravel significantly reduces the amount of stormwater runoff compared to conventional impervious surfaces.

How do I maintain my Porous Gravel?

The following are required maintenance practices for porous gravels.

Do
<p>General</p> <ul style="list-style-type: none">• Check adjacent areas to ensure that they are not depositing soil, mulch, or sediment on the permeable pavement area. Replant or stabilize adjacent pervious areas to reduce erosion if needed.• Check for fallen leaves or debris and remove if present. <p>Inlet, outlet, and underdrain pipes (if present)</p> <ul style="list-style-type: none">• Check inlet and outlet pipes for clogging or damage. Repair, replace, and remove debris as needed.• Check areas around inlet and outlet pipes for erosion (exposed soil), and eliminate cause of erosion if present.• Check underdrain pipe for plant roots, sediment, or debris. Jet clean, cut roots, and remove debris of present.• Check and clean orifice (if present). <p>Contaminants</p> <ul style="list-style-type: none">• Use spill prevention measures when handling or storing potential contaminants in the vicinity.• Check for evidence of contaminants such as oil, gasoline, or paint and clean as soon as possible (Coordinate source control, removal, and/or cleanup with Pierce County Surface Water Management 253-798-2725 and/or Dept. of Ecology Spill Response 800-424-8802).

Do Not

- Use snow plows or stockpile plowed snow (i.e., dirty snow) on the pavement area, unless unavoidable.
- Stockpile landscaping materials (such as mulch, soil, and compost) near or on the permeable pavement area.