



## STORMWATER PERMIT SUBMITTAL REQUIREMENTS

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Most development within the City of Bellingham that involves disruption of soils, or construction of buildings, streets, parking lots, etc. requires a Stormwater Permit. This packet contains material that will aid you in providing a complete application for this permit. Stormwater Permit requirements are based on either the amount of soil to be disturbed (grading, vegetation removal), or the amount of hard surface that is created or replaced on a site (building footprint, concrete, asphalt or gravel parking, sidewalk, etc.).

This packet is largely targeted for small projects and single family residences. For larger projects and more information please refer to the Bellingham Municipal Code (Chapter 15.42 is Stormwater Management) and the latest Washington State Department of Ecology Stormwater Management Manual for Western Washington (Ecology Manual). *If your project is located within the Lake Whatcom Watershed, you should also refer to the separate Lake Whatcom Stormwater Guidance Document.*

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### STORMWATER MANAGEMENT REQUIREMENT CHECKLIST

Provide the following information as part of your submittal, whether it is for a stand-alone stormwater permit or a consolidated Building Permit:

- A complete Stormwater Permit application
  - Total area of site
  - Total land disturbance
  - Hard surface calculation
  - Storm water management requirement determination (see flowchart in this packet)
- Stormwater Site Plan. This depends on your submittal requirements, see next page. This may include one of these three options:
  - Construction Stormwater Pollution Prevention Plan (SWPPP)
  - Stormwater Site Plan that includes your Construction SWPPP & Soils Report (if required)
  - Stormwater Site Plan that includes your Construction SWPPP, an Engineer Stormwater Report & Soils Report

Please calculate your project's hard surface amount; guidance is provided on the stormwater permit application and the same information is on the next page of this document. Use your project's total hard surface calculation to follow the flowchart in this packet and determine the level of stormwater management required for your project. If you need assistance in your determination, contact a Public Works Senior Permit Reviewer at (360) 778-8329, or visit them at the Permit Center.

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## HARD SURFACE CALCULATION

When determining your permit level or if stormwater thresholds are met or exceeded the entire project must be considered. A project is that portion of a property, properties, or right of way subject to land disturbing activities, new hard surfaces and replaced hard surfaces. The hard surface on your property will determine the storm water utility fees and the stormwater development charge. All new or replaced hard surfaces should be accounted for, including any hard surface changes subsequent to 9/1/1995, that did not provide permanent water quality and quantity mitigation. If your project is in Lake Whatcom Watershed then you will also need to account for partially pervious surfaces. Below are excerpts from [Bellingham Municipal Code 15.42 Stormwater Management](#) that may assist you in your determination.

**"Hard surface"** means an impervious surface, a permeable pavement, or a vegetated roof.

**"Impervious surface"** means a non-vegetated surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development. A non-vegetated surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, packed gravel surfaces, packed earthen materials, or other surfaces which similarly impede the natural infiltration of stormwater.

**"New impervious surface"** means impervious surfaces that replace or supplant existing pervious surfaces. Further, any of the following are considered new impervious surfaces:

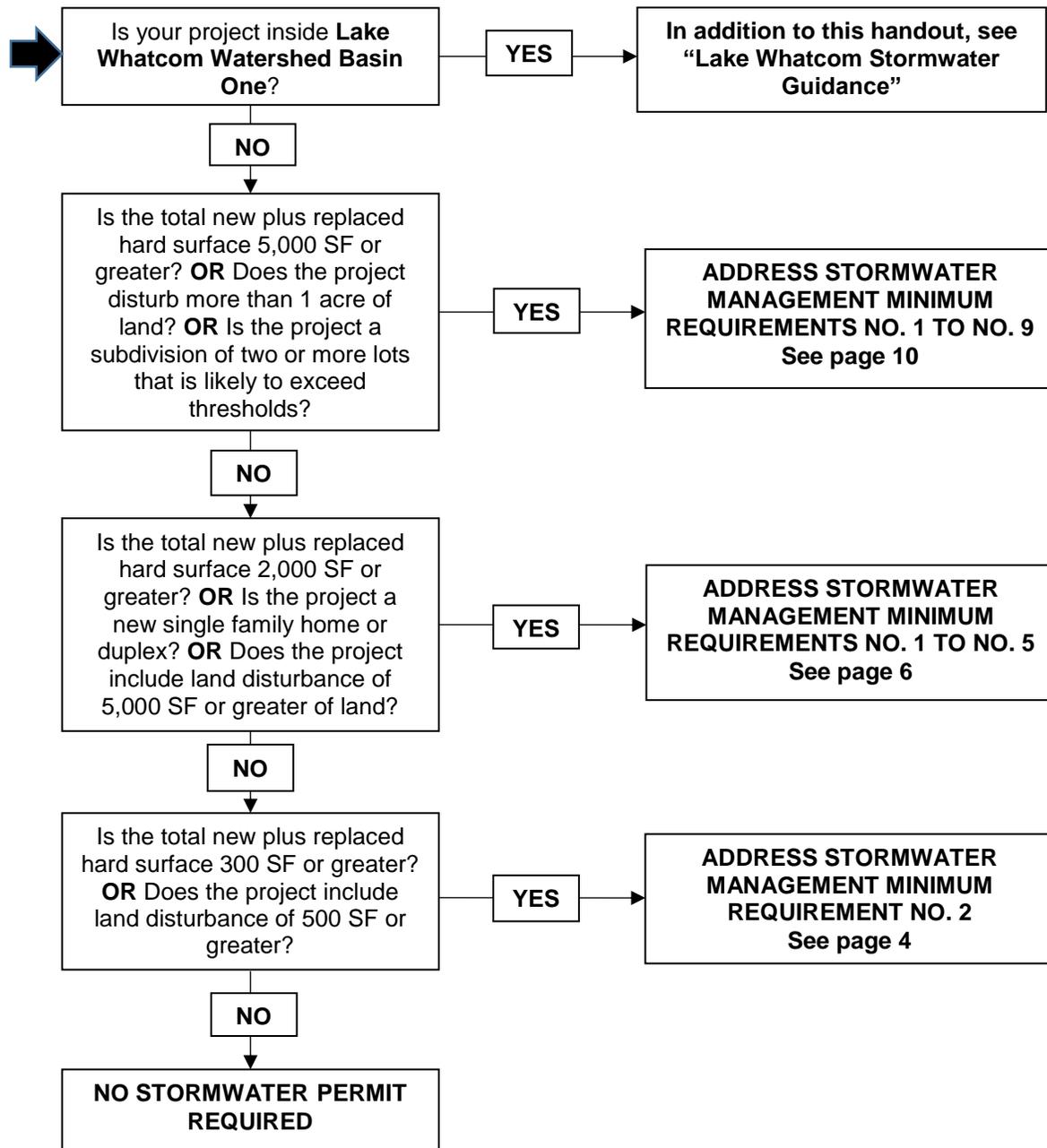
- Extending the pavement edge of a road or paving gravel shoulders
- Upgrading from dirt to gravel, asphalt, concrete or structural development
- Upgrading from gravel to asphalt, concrete or structural development
- Upgrading from chip seal to asphalt, concrete or structural development

**"Replaced impervious surface"** means, for structures, the removal and replacement of any exterior impervious surfaces or foundation. For other impervious surfaces, the removal down to bare soil or base course and replacement is considered "replaced".

Description	Existing (SF)	Removed (SF)	Proposed Replaced (SF)	Proposed New (SF)
Non Pollution Generating (NPG) Hard Surface: Sidewalks, Paths, Patios etc.				
Pollution Generating (PG) (i.e. subject to vehicular traffic) Hard Surface: Driveway, Parking, etc.				
<b>TOTAL HARD SURFACE</b>				

## STORMWATER MANAGEMENT DETERMINATION FLOW CHART

Follow the diagram using information from your hard surface calculation. Your answers will determine what stormwater management requirements are applicable to you. Further description of the requirements are in following pages.



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## STORMWATER MANAGEMENT MINIMUM REQUIREMENT NO. 2

All new development and redevelopment projects are responsible for preventing erosion and discharge of sediment and other pollutants into receiving waters. If you followed the flowchart on page 3 and found your project only triggers Minimum Requirement No. 2 (Construction Stormwater Pollution Prevention) then your project requires a simplified drainage plan.

### Provide a simplified site plan which shows:

- Clearing limits and indicate how limits will be marked on property.
- Construction entrance location and Temporary Erosion and Sediment Control (TESC), e.g. silt fence, straw wattle, mulch berm, etc.
- General Construction Stormwater Pollution Prevention Plan (SWPPP).
- Scale, a North arrow, property boundaries must also be present.

### In addition, consider the following elements for your project:

- Control flow rates
- Sediment controls
- Stabilize soils
- Protect slopes
- Protect drain inlets
- Stabilize channels and outlets
- Control pollutants
- Control de-watering
- Maintain "Best Management Practices" (BMPs)
- Manage the project
- Protect Low Impact Development (LID) features

The Permit Center Public Works Staff can help you with your Site Plan. The General Construction Stormwater Pollution Prevention Plan (SWPPP) is the next page.

**Your SWPPP narrative and drawings must be on your construction plans.** Erosion control is a requirement on all sites.

**COB Erosion Control Standard Details:** <https://www.cob.org/gov/rules/standards/Pages/dgi.aspx>

Commonly used details:

- EC-605 Temporary Construction Exit – Single Family
- EC-615 Reinforced Silt Fence
- EC-620 Catch Basin Insert
- EC-650 Plastic Covering for Slopes and Stockpiles
- EC-655 Straw Rolls

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## GENERAL CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN

### Purpose

To prevent the discharge of sediment and other pollutants to the maximum extent practical from small construction projects (<2000 SQFT of hard surface).

### Design and Installation

Plan and implement proper clearing and grading of the site. It is most important to only clear the areas needed, keeping exposed areas to a minimum. Phase clearing so that only those areas that are actively being worked are uncovered. Retain the duff layer, native top soil, and natural vegetation in an undisturbed state to the maximum degree practicable.

**Note: Clearing limits shall be flagged on the lot or project area prior to initiating clearing.**

- From October 1 through April 30, no soils shall remain exposed and unworked for more than two days. From May 1 to September 30, no soils shall remain exposed and unworked for more than seven days.
- Soil shall be managed in a manner that does not permanently compact or deteriorate the final soil and landscape system. If disturbance and/or compaction occur the impact must be corrected at the end of the construction activity. This shall include restoration of soil depth, soil quality, permeability, and percent organic matter. Construction practices must not cause damage to or compromise the depth of permanent landscape or infiltration areas.
- Locate any soil piles away from drainage systems. Soil piles should be tarped or mulched until the soil is either used or removed. Piles should be situated so that sediment does not run into the street or adjoining yards.
- Backfill foundation walls as soon as possible. Remove excess soil from the site as soon as possible after backfilling. This will eliminate any sediment loss from surplus fill.
- The construction entrance shall be stabilized where traffic will be leaving the construction site and traveling on paved roads or other paved surfaces.
- Provide for periodic street cleaning to remove any sediment that may have been tracked out. Sediment should be removed by shoveling or sweeping and carefully removed to a suitable disposal area where it will not be re-eroded. Street washing is prohibited without special permission from the SSW utility, call (360) 778-7900.

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## STORMWATER MANAGEMENT MINIMUM REQUIREMENT NO. 1 - 5

If you followed the flowchart on page 3 and found that your project is required address Minimum Requirements No. 1 - 5, then you must consider on-site stormwater management to the maximum extent feasible and prepare a stormwater management plan.

### 1. Preparation of Stormwater Site Plans

A Stormwater Site Plan must be prepared that uses site-appropriate development principles to retain native vegetation and minimize impervious surfaces to the extent feasible. The Stormwater Site Plan may be incorporated into building, grading or clearing plan sets. The following elements must be considered during the development of, or included, in the site plan:

- Existing public and private development, including utility infrastructure on and adjacent to the site.
- Minor hydrologic features, including seeps, springs, closed depression areas, drainage swales.
- Major hydrologic features such as streams, wetlands and waterbodies.
- Flood hazard areas on or adjacent to the site, if present.
- Geologic Hazard areas and associated buffer requirements.
- Topographic features that may act as natural stormwater storage, infiltration or conveyance.
- Plat conditions or other restrictions on the allowed impervious surface coverage.
- Easements and/or other restrictions associated with the project area.
- Description of any grading work if applicable (total volume, before and after dimensioned footprints, depth, elevation, slopes, cross sections, total exported, total imported).
- Contours should be present in two-foot intervals up to 10% slopes, in 5-foot intervals between 10% and 20% slopes, and 10-foot intervals at 20% slopes and greater.
- Scale, a North arrow, property boundaries should also be present.

If there are native soil and vegetation protection areas proposed for the site you must provide a survey of existing native vegetation cover by a licensed architect, arborist, qualified biologist or project proponent identifying any forest areas on the site and a plan to protect those areas. The preserved area should be placed on a separate tract or protected through recorded easements for individual lots.

Most projects will also require a **soils report** prepared by a professional soil scientist certified by the Soil Science Society of America (or equivalent), a locally licensed on-site sewage septic designer, or by other suitable trained persons working under the supervision of a professional engineer, geologist, hydrogeologist, or engineering geologist registered in the State of Washington. The professional must identify the following in the report:

- Underlying soils on the site utilizing soil surveys, soil test pits, soil borings, or soil grain analyses.
- The results of infiltration testing (known as a  $K_{sat}$  saturated hydraulic conductivity ( $K_{sat}$ ) testing to assess infiltration capability and the feasibility of rain gardens, bioretention, and permeable pavement. Testing should occur between December 1 and April 1. Use small scale Pilot Infiltration Tests (PIT) or propose another small-scale test for approval. Grain size analyses may be substituted for infiltration tests on sites with soils unconsolidated by glacial advance.
- The results of testing for a hydraulic restriction layer (ground water, soil layer with less than 0.3 in/hr  $K_{sat}$ , bedrock, etc.) under possible sites for a rain garden, bioretention facility, or permeable pavement. Testing with a monitoring well or an excavated pit must extend to a depth at least 1 foot below the estimated bottom elevation of an LID facility. This analysis should be performed in the winter season (December 21 through March 21). Site historic information and evidence of high ground water in the soils can also be used.

## 2. Construction Stormwater Pollution Prevention Plan (SWPPP)

All new development and redevelopment projects are responsible for preventing erosion and discharge of sediment and other pollutants into receiving waters. Projects which result in 2,000 square feet or more of new plus replaced hard surface area, or which disturb 5,000 square feet or more of land must prepare a Construction SWPPP that considers the required 13 Elements.

The SWPPP must include a narrative and drawings that are present on the construction plans. All best management practices (BMPs) must be referenced in the narrative and marked on the drawings. The narrative must include documentation to explain and justify the pollution prevention decisions made for the project.

Each of the 13 elements, described in BMC Chapter 15.42 and summarized below, must be considered and included in the Construction SWPPP unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the narrative of the SWPPP.

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|--|--|
| 1 – Preserve Vegetation / Mark Clearing Limits | 8 – Stabilize Channels and Outlets       |
| 2 – Establish Construction Access              | 9 – Control Pollutants                   |
| 3 – Control Flow Rates                         | 10 – Control Dewatering                  |
| 4 – Install Sediment Controls                  | 11 – Maintain BMPs                       |
| 5 – Stabilize Soils                            | 12 – Manage Project                      |
| 6 – Protect Slopes                             | 13 – Protect Low Impact Development BMPs |
| 7 – Protect Drain Inlets                       |  |

The SWPPP shall be implemented beginning with the initial land disturbance and until final stabilization. Sediment and Erosion control BMPs should be consistent with [City of Bellingham Standard Details](#) or the BMPs contained in Chapters 3 and 4 of Volume II of the Ecology Manual.

**Your SWPPP narrative and drawings must be on your construction plans.** Erosion control is a requirement on all sites.

**COB Erosion Control Standard Details:** <https://www.cob.org/gov/rules/standards/Pages/dgi.aspx>

Commonly used details:

- EC-605 Temporary Construction Exit – Single Family
- EC-615 Reinforced Silt Fence
- EC-620 Catch Basin Insert
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### **3. Source Control Pollution**

All known, available, and reasonable source control BMPs must be applied to all projects. Source control BMPs must be selected, designed, and maintained according to the Ecology Stormwater Manual. *This requirement is not relevant for Single Family Residences (SFRs).*

### **4. Preservation of Natural Drainage Systems and Outfalls**

Natural drainage patterns shall be maintained, and discharges for the project site shall occur at the natural location, to the maximum extent practicable. The manner by which runoff is discharged from the project site must not cause a significant adverse impact to downstream receiving waters and downgradient properties. All outfalls require energy dissipation.

Where no conveyance system exists at the adjacent downgradient property line and the discharge was previously unconcentrated flow or significantly lower concentrated flow, you may need to obtain an easement or consider an engineered storm system to prevent impacts to downstream property.

### **5. On-Site Stormwater Management - NEW REQUIREMENTS**

Projects shall employ on-site stormwater management BMPs to infiltrate, disperse, and retain stormwater runoff on-site to the maximum extent feasible without causing flooding or erosion impacts. Land development projects may not be of sufficient size such that it is practical to construct engineered stormwater facilities for flow reduction and pollutant removal. However, the cumulative impact of smaller development projects on the natural hydrology and water quality of local waters can be significant. To reduce that cumulative impact, small projects must implement on-site stormwater management BMPs.

If the project drains **directly to Bellingham Bay** (or other flow control exempt water body), it does not need to meet the Low Impact Development (LID) performance standard, nor consider bioretention, rain gardens, permeable pavement, and full dispersion. However, those projects must implement BMP T5.13 Post Construction Soil Quality & Depth; BMPs T5.10A, B, or C Downspout Full Infiltration, Downspout Dispersion Systems, or Perforated Stub-Out Connections; and BMP T5.11 Concentrated Flow Dispersion or T5.12 Sheet Flow Dispersion, if feasible.

Projects triggering only Minimum Requirements #1 through #5 have two options to fulfill On-Site Stormwater Management requirements. The applicant can choose to *hire a civil engineer* to demonstrate compliance with the LID Performance Standard. More information on that option can be found in the Ecology Manual. Alternatively, an applicant can choose the prescriptive route of choosing the first feasible Best Management Practice (BMP) for each surface on their project site. *This option does not require a civil engineer, though hiring a Soils Professional will likely be required.*

For each proposed surface on your project, consider the BMP's in the order listed for that type of surface. Use the first BMP that is considered feasible. No other On-site Stormwater Management BMP is necessary for that surface. Feasibility shall be determined by evaluation against design criteria, limitations, and infeasibility criteria identified for each BMP in our On-Site Stormwater BMP Guidance Document.

*Lawn and landscaped areas:*

1. Post-Construction Soil Quality and Depth in accordance with BMP T5.13.

*Roofs:*

1. Full Dispersion (*optional*) in accordance with BMP T5.30, or Downspout Full Infiltration Systems in accordance with BMP T5.10A.
2. Rain Gardens in accordance with BMP T5.14, or Bioretention in accordance with Chapter 7 of Volume V.
3. Downspout Dispersion Systems in accordance with BMP T5.10B.
4. Perforated Stub-out Connections in accordance with BMP T5.10C.

*Other Hard Surfaces:*

1. Full Dispersion (*optional*) in accordance with BMP T5.30.
2. Permeable pavement in accordance with BMP T5.15, or Rain Gardens in accordance with BMP T5.14, or Bioretention in accordance with Chapter 7 of Volume V.
3. Sheet Flow Dispersion in accordance with BMP T5.12, or Concentrated Flow Dispersion in accordance with BMP T5.11.

**See On-site Stormwater BMP Guidance for more information on design and infeasibility criteria.**

**The criteria used to determine a BMP is infeasible must be clearly identified on the plans or in a short narrative.**

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## STORMWATER MANAGEMENT MINIMUM REQUIREMENT NO. 1 - 9

If you followed the flowchart on page 3 and found that you must address all minimum requirements, then you will need to hire a Civil Engineer with stormwater experience. For specific information, please refer to the Bellingham Municipal Code for stormwater regulation and the most current edition of the Washington State Department of Ecology Stormwater Management Manual for Western Washington for design standards.

1. Preparation of Stormwater Site Plans
2. Construction Stormwater Pollution Prevention Plan (SWPPP)
3. Source Control of Pollution
4. Preservation of Natural Drainage Systems and Outfalls
5. On-site Stormwater Management
6. Runoff Treatment
7. Flow Control
8. Wetland Protection
9. Operation and Maintenance

### **\*Commonly missed requirements\***

- Any project that discharges stormwater off-site must include an **off-site analysis** that assesses the potential off-site water quality, erosion, slope stability, and drainage impacts associated with the project and that proposes appropriate mitigation of those impacts. The initial analysis must extend downstream for the entire flow path from the project site to the receiving water or up to one mile, whichever is less. If the receiving water is within a ¼ mile the analysis must extent within the receiving water to ¼ mile from the project site. Provide discussion to the NPDES 303(d) listing of the receiving waterbody(s) as well as discussion of the City's Stormwater Comprehensive Plan.
- Proposed treatment must be designed and implemented according to Ecology Manual and if using an **emerging technology** the Stormwater Report must include the approval level designation information from Ecology's TAPE Program and how the proposed design is consistent with the guidance.
- Plans and/or report should have the **hard surface table** in this packet. If the project includes both on and off-site improvements, they should be separated and two table tables provided. This is important in order to have the appropriate fees assigned. Further if there are multiple threshold discharge areas, this information may need to be broken down further to demonstrate if thresholds are exceeded or not.

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## Stormwater Frequently Asked Questions

### What are the standards for stormwater design?

Stormwater regulations are located in the Bellingham Municipal Code Chapter 15.42. Design standards are located in the City of Bellingham Development Guidelines and Improvement Standards and the most current Department of Ecology's Stormwater Management Manual for Western Washington (Ecology Manual). The Ecology Manual is intended to provide a supplement to the BMC to control the quantity and quality of stormwater runoff from development. The Low Impact Technical Guidance Manual for Western Washington and the Rain Garden Handbook for Western Washington can also be referenced, particularly for raingarden/bioretenion plantings and design.

### What are the fees?

Permit fees are charged when a permit is needed for construction activity. The fee amount is based on either the amount of hard surface added and/or replaced or the amount of land disturbance. Development charges are imposed on each parcel of property this developed or redeveloped within the City of Bellingham. Public Works fee information can be found here:

<https://www.cob.org/documents/planning/applications-forms/permit-center-fees/water-sewer-storm-trans-fee.pdf>.

### When do I need a soils report?

If a project triggers minimum requirements No. 1-5 or 1-9 then a soils report is required to evaluate low impact development best management practices UNLESS any of the following is true:

- The site drains to saltwater. In this case you are not required to implement infiltration, but the project must propose and use a downspout control and dispersion of other hard surfaces if feasible. If full infiltration is chosen as the downspout control, then a soils test for feasibility would still be necessary.
- The project is a redevelopment project that can clearly demonstrate that due to existing conditions permeable pavement would be infeasible and there is no place to add a raingarden.
- If most of the lot is exceeding 25% slope. Most BMPs require less than 15% slope, though some may be used with a geotechnical evaluation.
- If due to smaller lot size there is no space for any stormwater management BMPs due to setbacks and/or space it requires.

### Isn't there stormwater vesting?

In December 2016, the State Supreme Court in *Snohomish County v. Pollution Control Hearing Board* ruled that stormwater management regulations were not land use control ordinances and therefore not subject to the vested rights doctrine. In short, all new projects must meet current stormwater requirements of BMC Chapter 15.42.

### Are decks impervious surfaces?

Decks located near the ground will inhibit vegetation growth and will often result in the ground being packed down with no or very little vegetation. This is considered an impervious surface. If you are close to thresholds and need to reduce your impervious surfaces consider designing the deck with soils meeting BMP T5.13 (Post Construction Soil Quality and Depth) and stabilized with at least three inches of mulch or crushed rock with no fines (aggregate size should be not less than  $\frac{3}{4}$ ").

### Are roof overhangs impervious surfaces?

By definition of impervious surfaces in BMC Chapter 15.42 roofs are considered impervious surfaces and should be accounted for when designing stormwater management infrastructure.