

## Technical Summary of Minimum Requirements for Stormwater Management

<b>Level 1</b>	<p style="text-align: center;"><b>ALL PROJECTS MUST COMPLY WITH MINIMUM REQUIREMENT #2 CONSTRUCTION STORMWATER POLLUTION PREVENTION and must comply with all 13 elements of basic erosion control.</b></p> <p>Unless located in a Critical Area, a Construction Stormwater Pollution Prevention Plan is not required for projects that add or replace less than 2,000 square feet of hard surface or disturb less than 7,000 square feet of land.</p>			
<b>Level 3 Engineer Required</b>	<p>Requirements # 1-10 are required for projects that:</p> <ul style="list-style-type: none"> <li>• add 5000 square feet or more of new hard surfaces; or</li> <li>• convert ¼ acres or more of native vegetation to lawn/landscaped area or</li> <li>• convert 2.5 acres or more of native vegetation to pasture; or</li> <li>• new plus replaced hard surface is 5000 square feet or more and value of improvements exceed 50% of assessed value of existing improvements.</li> </ul>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; vertical-align: middle;"><b>Level 2 Engineer may be required</b></td> <td style="vertical-align: top;"> <p>Requirements # 1-5 and #10 are required for projects that:</p> <ul style="list-style-type: none"> <li>• add or replace 2,000 square feet or more hard surface area or</li> <li>• have 7,000 square feet or more of land disturbing activity.</li> </ul> </td> </tr> </table> <ol style="list-style-type: none"> <li><b>1. Stormwater Site Plan (SSP) Report</b> – The SSP Report is the comprehensive report containing all technical information and analysis necessary for permit review. (see SWMM Volume I)</li> <li><b>2. Construction Stormwater Pollution Prevention</b> – Includes construction erosion control elements 1-13. Projects that add between 2,000 square feet and 5,000 square feet of hard surface or disturb between 7,000 square feet and 1 acre of land may use the Construction Stormwater Pollution Plan (SWPPP) short form. A complete SWPPP is required for projects that add or replace more than 5,000 square feet of hard surface or disturb more than one acre of land or a cumulative gross of grade/fill greater than 500 cubic yards of material. (see SWMM Volume II)</li> <li><b>3. Source Control of Pollution</b> – All known, available and reasonable source control Best Management Practices (BMPs) shall be applied. (see SWMM Volume IV)</li> <li><b>4. Preservation of Natural Drainage Systems and Outfalls</b> – Natural drainage patterns shall be maintained, including discharge at the natural location. Runoff discharged from the project site must not cause a significant adverse impact to downstream properties and receiving waters. (see SWMM Volume I)</li> <li><b>5. Onsite Stormwater Management</b> – Projects shall implement On Site Stormwater Management Best Management Practices (BMPs), by using the List Option <b>or</b> through demonstrating compliance with the LID Performance Standard, to infiltrate, disperse, and retain stormwater onsite to the extent feasible without causing flooding or erosion impacts. (See SWMM Volume I Chapter 2, Volume III Chapter 3 and Volume V Chapter 5)</li> <li><b>6. Runoff Treatment (water quality treatment)</b> – Projects must provide treatment where the total “effective” pollution generating hard surface (PGHS) is 5,000 ft<sup>2</sup> or more, OR The total pollution generating pervious surface (PGPS) is ¾ of an acre or more. High-use sites also require treatment. (“effective” includes all connected PGHS on site – both new and existing). (See SWMM Volume I Chapter 2 and Volume V)</li> <li><b>7. Flow Control</b> – Projects must provide flow control to reduce the impacts of increased stormwater runoff from new hard surfaces and land conversions. Thresholds for flow control are 10,000 square feet or more “effective” hard surface, OR convert ¾ acres or more of native vegetation to lawn/landscaped area or convert 2.5 acres or more of native vegetation to pasture, OR cause a 0.1 cfs increase in the 100-year flow frequency. (See SWMM Volume I Chapter 2 and Volume III Chapter 3)</li> <li><b>8. Wetland Protection</b> – Discharges to wetlands shall maintain the hydrologic conditions, hydrophytic vegetation and substrate characteristics necessary to support existing and designated uses. Stormwater treatment and flow control facilities shall not be constructed within the natural vegetated buffer. (see SWMM Volume I Chapter 2)</li> <li><b>9. Operation and Maintenance</b> – An operation and maintenance manual shall be provided for all proposed stormwater facilities and BMPs. Privately maintained facilities shall keep a copy of the operation manual on site, including a log of maintenance activity that is available for inspection by the local government. (see SWMM Volume I Chapter 2)</li> <li><b>10. Off-Site Analysis and Mitigation</b> – perform a <i>qualitative</i> analysis both upstream and downstream from the site. <i>Quantitative</i> analysis may be required for any project deemed to need additional downstream information. (see SWMM Volume I Chapters 2 and 3, and Volume III Appendix D)</li> </ol>	<b>Level 2 Engineer may be required</b>	<p>Requirements # 1-5 and #10 are required for projects that:</p> <ul style="list-style-type: none"> <li>• add or replace 2,000 square feet or more hard surface area or</li> <li>• have 7,000 square feet or more of land disturbing activity.</li> </ul>
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## Key Terms

**Effective Impervious Surface** - Those impervious surfaces that are connected via sheet flow or discrete conveyance to a drainage system. Impervious surfaces on residential development sites are considered ineffective if the runoff is dispersed through at least one hundred feet of native vegetation in accordance with BMP T5.30 - "Full Dispersion," as described in Chapter 5 of Volume V of the SWMM. Impervious surfaces infiltrated according to this manual are also considered ineffective.

**High Use Sites** – are typically those sites that generate high concentrations of oil due to high traffic turnover or frequent transfer of oil. High use sites include:

- An area of a commercial or industrial site subject to an expected average daily traffic (ADT) count equal to or greater than 100 vehicles per 1,000 square feet of gross building area;
- An area of a commercial or industrial site subject to petroleum storage and transfer in excess of 1,500 gallons per year, not including routinely delivered heating oil;
- An area of a commercial or industrial site subject to parking, storage or maintenance of 25 or more motorized vehicles that are over 10 tons gross weight (trucks, buses, trains, heavy equipment, etc.);
- A road intersection with a measured ADT count of 25,000 vehicles or more on the main roadway and 15,000 or more on any intersecting roadway, excluding projects proposing primarily pedestrian or bicycle use improvements.

**Impervious Surface** - A hard surface area which either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development; a hard 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, rooftops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, oil mat roads, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration of stormwater. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces for the purposes of determining whether the thresholds for application of minimum requirements are exceeded. Open, uncovered retention/detention facilities shall be considered impervious surfaces for purposes of runoff modeling.

**Land Disturbing Activity** - Any activity that results in a movement of earth or a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land disturbing activities include, but are not limited to clearing, grading, filling, and excavation. Compaction that is associated with stabilization of structures and road construction shall also be considered a land disturbing activity. Vegetation maintenance practices are not considered land-disturbing activity.

**Hard Surface** – An impervious surface, a permeable pavement, or a vegetated roof.

**LID Performance Standard** – Stormwater discharges shall match developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 8% of the 2-year peak flow to 50% of the 2-year peak flow. Refer to the Standard Flow Control Requirement section in Minimum Requirement #7 for information about the assignment of the pre-developed condition (SWMM Vol I, Sec 2.5.7). Project sites that must also meet Minimum Requirement #7 – Flow Control must match flow durations between 8% of the 2-year peak flow through the full 50-year peak flow.

**List Option** – Refer to the SWMM Volume I, Section 2.5.5.

**Native Vegetation** - Vegetation comprised of plant species, other than noxious weeds, that are indigenous to the coastal region of the Pacific Northwest and which reasonably could have been expected to naturally occur on the site. Examples include trees such as Douglas fir, Western Hemlock, Western Red Cedar, Alder, Big-leaf Maple, and Vine Maple; shrubs such as willow, elderberry, salmonberry and salal; and herbaceous plants such as sword fern, foam flower, and fireweed.

**New Development** - Land disturbing activities, including Class IV -general forest practices that are conversions from timber land to other uses; structural development, including construction or installation of a building or other structure; creation of impervious surfaces; and subdivision, short subdivision and binding site plans, as defined and applied in Chapter 58.17 RCW. Projects meeting the definition of redevelopment shall not be considered new development.

**Pollution Generating Hard Surface (PGHS)** - Those hard surfaces considered to be a significant source of pollutants in stormwater runoff. Such surfaces include those which are subject to: vehicular use; industrial activities; or storage of erodible or leachable materials, wastes, or chemicals, and which receive direct rainfall or the run-on or blow-in of rainfall. Erodible or leachable materials, wastes, or chemicals are those substances which, when exposed to rainfall, measurably alter the physical or chemical characteristics of the rainfall runoff. Examples include erodible soils that are stockpiled, uncovered process wastes, manure, fertilizers, oily substances, ashes, kiln dust, and garbage dumpster leakage. Metal roofs are also considered to be PGHS unless they are coated with an inert, non-leachable material (e.g., baked-on enamel coating). A surface, whether paved or not, shall be considered subject to vehicular use if it is regularly used by motor vehicles. The following are considered regularly-used surfaces: roads, non-vegetated road shoulders, bike lanes within the traveled lane of a roadway, driveways, parking lots, fenced fire lanes, vehicular equipment storage yards, and airport runways. The following are not considered regularly-used surfaces: paved bicycle pathways separated from and not subject to drainage from roads for motor vehicles, fenced fire lanes, and infrequently used maintenance access roads.

**Pollution Generation Pervious Surface (PGPS)** - Any non-impervious surface subject to use of pesticides and fertilizers or loss of soil. Typical PGPS include lawns, landscaped areas, golf courses, parks, cemeteries, and sports fields.

**Project Site** - That portion of a property, properties, or right of way subject to land disturbing activities, new impervious surfaces, or replaced impervious surfaces. On-site and associated off-site improvements shall be added together when determining if a project site exceeds a threshold. The City shall make the final determination of the project site.

**Receiving Waters** - Bodies of water or surface water systems to which surface runoff is discharged via a point source of stormwater or via sheet flow.

**Redevelopment** - On a site that is already substantially developed (i.e., has 35% or more of existing impervious surface coverage), the creation or addition of impervious surfaces; the expansion of a building footprint or addition or replacement of a structure; structural development including construction, installation or expansion of a building or other structure; replacement of impervious surface that is not part of a routine maintenance activity; and land disturbing activities.

**Replaced Impervious Surface** - 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.

**Site** - The legal boundaries of a parcel or parcels of land that is (are) subject to new development or redevelopment. For road projects, the length of the project site and the right-of-way boundaries define the site.

**Source Control BMP** - A structure or operation that is intended to prevent pollutants from coming into contact with stormwater through physical separation of areas or careful management of activities that are sources of pollutants. This manual separates source control BMPs into two types. *Structural source control BMPs* are physical, structural, or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. *Operational BMPs* are non-structural practices that prevent or reduce pollutants from entering stormwater. See Volume IV of the SWMM for details.