

Glossary and Notations

The following terms are provided for reference and use with this manual.

American Association of State Highway and Transportation Officials (AASHTO) Classification	The official classification of soil materials and soil aggregate mixtures for highway construction, used by the American Association of State Highway and Transportation Officials.
Absorption	The penetration of a substance into or through another, such as the dissolving of a soluble gas in a liquid.
Adjustment	A variation in the application of a Minimum Requirement to a particular project. Adjustments provide substantially equivalent environmental protection.
Administrator	See Director.
Adsorption	The adhesion of a substance to the surface of a solid or liquid; often used to extract pollutants by causing them to be attached to such adsorbents as activated carbon or silica gel. Hydrophobic, or water-repulsing adsorbents, are used to extract oil from waterways when oil spills occur. Heavy metals such as zinc and lead often adsorb onto sediment particles.
Aeration	The process of being supplied or impregnated with air. In waste treatment, the process used to foster biological and chemical purification. In soils, the process by which air in the soil is replenished by air from the atmosphere. In a well aerated soil, the soil air is similar in composition to the atmosphere above the soil. Poorly aerated soils usually contain a much higher percentage of carbon dioxide and a correspondingly lower percentage of oxygen.
Aerobic	Living or active only in the presence of free (dissolved or molecular) oxygen.
Agricultural Activities	The normal and routine actions associated with the production of crops: such as plowing, cultivating, minor drainage, and harvesting, and/or raising or keeping of livestock, including O&M of farm and stock ponds, drainage ditches, irrigation systems, and normal operation, maintenance, and repair of existing serviceable agricultural structures, facilities, or improved areas. The term “agricultural activities” as used within this Title does not include the practice of aquaculture. Forest practices regulated under Chapter 76.09 RCW and Title 222 WAC are not included in this definition.
Algal Bloom	Proliferation of living algae on the surface of lakes, streams or ponds; often stimulated by phosphate over-enrichment. Algal blooms reduce the oxygen available to other aquatic organisms.
American Public Works Association (APWA)	The Washington State Chapter of the American Public Works Association.

Anti-Seep Collar	A device constructed around a pipe or other conduit and placed in a trench or through a dam, levee, or dike for the purpose of reducing seepage losses and piping failures.
Applicant	Means the person, party, firm, corporation, or other legal entity that proposes to develop property in incorporated City of Everett by submitting an application for any of the activities covered by these regulations on a form furnished by the City and paying the required fees.
Appurtenances	Machinery, appliances, or auxiliary structures attached to a main structure, but not considered an integral part thereof, for the purpose of enabling it to function.
Aquifer	A geologic stratum containing groundwater that can be withdrawn and used for human purposes and must be protected from pollutants.
Areas Of Special Flood Hazard	Land in a floodplain within the City of Everett subject to a 1 percent or greater chance of flooding in any given year. Designations on FEMA maps will include the letter “A” or “V.” Areas of Special Flood Hazard will also include “shaded X” zones (formerly called “B” zones by FEMA).
As-Built Drawings	As-constructed engineering plans that include all changes made to a project during construction and submitted to the City. All drawing changes shall be made by a professional engineer or land surveyor. Also referred to as record drawings.
Assessed Value	The value of the existing improvements excluding land as listed in current records at the Snohomish County Assessor's Office. Alternately, the applicant may provide current appraisal information and request that it be substituted for the Assessor's records.
Assignment Of Funds	Retention of funds by a bank to guarantee that work is completed in compliance with the project's site development plan and in compliance with all City of Everett requirements.
Average Daily Traffic	Means the general unit of measurement for traffic defined as the total volume during a given time period (in whole days) greater than 1 day and less than 1 year divided by the number of days in that time period.
Background	A description of pollutant levels arising from natural sources, and not because of man's immediate activities.
Backwater	Water upstream from an obstruction or conveyance roughness which is deeper than it would normally be without the obstruction or roughness.
Baffle	A device to check, deflect, or regulate flow.
Base Flood	The flood having a 1 percent chance of being equaled or exceeded in any given year, also referred to as the “100-year flood.”

Base Flood Elevation (BFE)	The water surface elevation, in feet, above mean sea level for the base flood and referenced to the NGVD of 1929 or North American Vertical Datum of 1988.
Basin	An area from which surface runoff is concentrated, usually to a single point such as the mouth of a stream.
Bedrock	The more or less solid rock in place either on or beneath the surface of the earth. It may be soft, medium, or hard and have a smooth or irregular surface.
Bench	Means a relatively level step excavated into natural earth or fill material.
Berm	A constructed barrier typically made of compacted earth, rock, or gravel. In a stormwater facility, a berm may serve as a vertical divider.
Best Management Practice (BMP)	The schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices, that when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to waters of Washington.
Biochemical Oxygen Demand (BOD)	An indirect measure of the concentration of biologically degradable materials present in organic wastes. Also called biological oxygen demand.
Biodegradable	Capable of being readily broken down by biological means, especially by microbial action.
Bioengineering	The combination of biological, mechanical, and ecological concepts (and methods) to control erosion and stabilize soil through the use of vegetation or in combination with construction materials.
Biofilter	A designed treatment facility using a combined soil and vegetation system for filtration, infiltration, adsorption, and biological uptake of pollutants in stormwater when runoff flows over and through. Vegetation growing in these facilities acts as both a physical filter which causes gravity settling of particulates by regulating velocity of flow, and also as a biological sink when direct uptake of dissolved pollutants occurs.
Biofiltration	The process of reducing pollutant concentrations in water by filtering the polluted water through biological materials.
Bioretention Areas	Small-scale, shallow retention/detention facilities dispersed through the development site that utilize specific soil mixes and plant species to infiltrate and filter runoff from developed sites.
Biological Control	A method of controlling pest organisms by means of introduced or naturally occurring predatory organisms, sterilization, the use of inhibiting hormones, or other means, rather than by mechanical or chemical means.
Bollard	A post (may or may not be removable) used to prevent vehicular access.

Bond	A surety bond to guarantee that work is completed in compliance with the project's site development plan and all City of Everett requirements.
Buffer	The zone contiguous with a sensitive area that is required for the continued maintenance, function, and structural stability of the sensitive area.
Building Setback Line	A line measured parallel to a property, easement, drainage facility, or buffer boundary, that delineates the area (defined by the distance of separation) where buildings or other obstructions are prohibited.
Catch Basin	A chamber or well, usually built at the curb line of a street, for the admission of surface water to a stormwater drainage system, having at its base a sediment sump designed to retain grit and detritus below the point of overflow.
Catch line	The point where a steeper slope intercepts a different, gentler slope.
Catchment	Surface drainage area or basin.
Cation Exchange Capacity (CEC)	Cations are positively charged ions such as calcium (Ca ²⁺), magnesium (Mg ²⁺), and potassium (K ⁺), sodium (Na ⁺) hydrogen (H ⁺), aluminum (Al ³⁺), iron (Fe ²⁺), manganese (Mn ²⁺), zinc (Zn ²⁺) and copper (Cu ²⁺). The capacity of the soil to hold on to these cations called the cation exchange capacity (CEC).
Certification	Means a written engineering opinion, stamped, signed, and dated by an engineer, concerning the progress or completion of work.
Certified Erosion and Sediment Control Lead (CESCL)	An individual who has current certification through an approved erosion and sediment control training program that meets the minimum training standards established by the Department (see BMP C160 in the <i>Stormwater Management Manual for Western Washington (2005)</i>). A CESCL is knowledgeable in the principles and practices of erosion and sediment control. The CESCL must have the skills to assess site conditions and construction activities that could impact the quality of stormwater and, the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges. Certification is obtained through an Ecology approved erosion and sediment control course. Course listings are provided online at Ecology's web site.
Channel	A feature that conveys surface water and is open to the air.
Channel, Constructed	Channels or ditches constructed (or reconstructed natural channels) to convey surface water.
Channel, Natural	Streams, creeks, or swales that convey surface/groundwater and have existed long enough to establish a stable route and/or biological community.

Channelization	Alteration of a stream channel by widening, deepening, straightening, cleaning, or paving certain areas to change flow characteristics.
Check Dam	Small dam constructed in a channel or other small watercourse to decrease the streamflow velocity, minimize channel scour, and promote deposition of sediment.
Chemical Oxygen Demand (COD)	A measure of the amount of oxygen required to oxidize organic and oxidizable inorganic compounds in water. The COD test, like the BOD test, is used to determine the degree of pollution in water.
City, the	Means the City of Everett Mayor or designee; also the City of Everett, its duly authorized representatives, and the jurisdictional boundaries of the City of Everett.
Civil Engineer	see professional engineer
Civil Engineering	The application of the knowledge of the forces of nature, principles of mechanics and the properties of materials to the evaluation, design and construction of civil works for the beneficial uses of mankind.
Clearing	The destruction and/or removal of vegetation by manual, mechanical, or chemical methods
Closed Depression	An area which is low-lying and either has no, or such a limited, surface water outlet that during storm events the area acts as a retention basin.
Cluster Subdivision	A residential subdivision or division of land in which residential building lots are reduced in size and concentrated in specified portions(s) of the original lot, tract or parcel.
Cohesion	The capacity of a soil to resist shearing stress, exclusive of functional resistance.
Coliform Bacteria	Microorganisms common in the intestinal tracts of man and other warm-blooded animals; all the aerobic and facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35 degrees Celsius. Used as an indicator of bacterial pollution.
Compaction	The densification, settlement, or packing of soil in such a way that permeability of the soil is reduced. Compaction effectively shifts the performance of a hydrologic group to a lower permeability hydrologic group. Compaction may also refer to the densification of a fill by mechanical means.
Compost	Organic residue or a mixture of organic residues and soil, that has undergone biological decomposition until it has become relatively stable humus. Compost used should meet specifications for grade A or AA compost in Ecology publication 94-038.

Composted Mulch	Mulch prepared from decomposed organic materials that have undergone a controlled process to minimize weed seeds. Acceptable feedstocks include, but are not limited to, yard debris, wood waste, land clearing debris, brush, and branches.
Composting	A controlled process of degrading organic matter by microorganisms. Present day composting is the aerobic, thermophilic decomposing of organic waste to relatively stable humus. Composting is the process of making usable, organic matter that is beneficial to plants and has converted nutrients into slow-release forms (versus mineralized water-soluble forms found in fertilizer).
Comprehensive Planning	Planning that takes into account all aspects of water, air, and land resources and their uses and limits.
Conservation District	A public organization created under state enabling law as a special-purpose district to develop and carry out a program of soil, water, and related resource conservation, use, and development within its boundaries, usually a subdivision of state government with a local governing body and always with limited authority. Often called a soil conservation district or a soil and water conservation district.
Constructed Wetland	Those wetlands intentionally created on sites previously without wetlands for the primary purpose of stormwater treatment and managed as such. Constructed wetlands are normally considered as part of the stormwater collection and treatment system and are subject to maintenance requirements. (These wetlands are not the same as wetlands created for mitigation purposes, which are typically viewed in the same manner as natural, regulated wetlands.)
Construction Stormwater Pollution Prevention Plan (C-SWPPP)	A document that describes the potential for pollution problems on a construction project and explains and illustrates the measures to be taken on the construction site to control those problems.
Contour	An imaginary line on the surface of the earth connecting points of the same elevation.
Conveyance	A mechanism for transporting water from one point to another, including but not limited to: pipes, ditches, channels, culverts, gutters, manholes, weirs, man-made and natural channels, water quality filtration systems, dry wells, etc.
Conveyance system	The drainage facilities, both natural and man-made, which collect, contain, and provide for the flow of surface and stormwater from the highest points on the land down to a receiving water. The natural elements of the conveyance system include swales and small drainage courses, streams, rivers, lakes, and wetlands. The human-made elements of the conveyance system include gutters, ditches, pipes, channels, and most retention/detention facilities.
Critical Areas	As defined by Title 19, Chapter 37 of the EMC.

Critical Tree Root Zone	The area surrounding the tree trunk where the roots of the tree should not be disturbed. The radius of the area is usually based on trunk diameter at diameter breast height and tree species.
Culvert	Pipe or concrete box structure that drains open channels, swales or ditches under a roadway or embankment. Typically with no catch basins or manholes along its length.
Cut	Portion of land surface or area from which earth has been removed or will be removed by excavating; the depth below original ground surface to excavated surface.
Cut Slope	A slope formed by excavating overlying material to connect the original ground surface with a lower ground surface created by the excavation. A cut slope is distinguished from a bermed slope, which is constructed by importing soil to create the slope.
Cut-And-Fill	Process of earth moving by excavating part of an area and using the excavated material for adjacent embankments or fill areas.
DCSS	The City of Everett document entitled “Design and Construction Standards and Specifications for Development”
Dead Storage	The volume available in a depression in the ground below any conveyance system, or surface drainage pathway, or outlet invert elevation that could allow the discharge of surface and stormwater runoff.
Dedication	Is the deliberate appropriation of land by an owner for any general and public uses, reserving to himself no other rights than such as are compatible with the full exercise and enjoyment of the public uses to which the property has been devoted. The intention to dedicate land within a subdivision or short subdivision shall be evidenced by the owner by the presenting for filing a final plat or short plat showing the dedication thereon; and the acceptance by the public shall be evidenced by the approval of such plat for filing by the appropriate governmental unit. See RCW 58.17.020(3).
Degradation	The breakdown (biological or chemical) of complex organic or other chemical compounds into simpler substances, usually less harmful than the original compound, as with the degradation of a persistent pesticide. The (geological) wearing down by erosion. (Water) The lowering of the water quality of a watercourse by an increase in the pollutant loading.
Design and Construction Standards and Specifications for Development (DCSS)	A City of Everett document prepared in accordance with Ordinance 898-82 that gives specific design and construction standards and specifications for development in Everett.
Design Engineer	See professional engineer
Design Storm (Design Event)	A prescribed hyetograph and total precipitation amount (for a specific duration recurrence frequency) used to estimate runoff for a hypothetical storm of interest or concern for the purposes of analyzing existing drainage, designing new drainage

	facilities or assessing other impacts of a proposed project on the flow of surface water.
Design Year Average Daily Traffic	The planned average daily traffic five years after the road is scheduled to be built.
Detention	The release of stormwater runoff from the site at a slower rate than it is collected by the stormwater facility system, the difference being held in temporary storage.
Detention Facility	An above or below ground facility, such as a pond or tank, that temporarily stores stormwater runoff and subsequently releases it at a slower rate than it is collected by the drainage facility system. There is little or no infiltration of stored stormwater.
Detention Pond	A detention facility in the form of an open pond.
Detention Time	The theoretical time required to displace the contents of a stormwater treatment facility at a given rate of discharge (volume divided by rate of discharge).
Developer	The person or legal entity who holds title to the property or has a sufficient interest in the project to propose the project. The developer of the project.
Development	Any man-made change to improved or unimproved real estate including, but not limited to, buildings or other structures, placement of manufactured home/mobile home, mining, dredging, clearing, filling, grading, paving, excavation, drilling operations, or the subdivision of property. See also the definitions for new development, redevelopment and land disturbing activities.
Director	The Director of the Department of Public Works for the City of Everett; or his/her designee.
Discharge	Runoff leaving a new development or redevelopment via overland flow, built conveyance systems, or infiltration facilities. A hydraulic rate of flow, specifically fluid flow; a volume of fluid passing a point, per unit of time, commonly expressed as cubic feet per second, cubic meters per second, gallons per minute, gallons per day, or millions of gallons per day.
Dispersed Discharge (Dispersion)	The release of surface and stormwater runoff from a drainage facility system such that the flow spreads over a wide area and is located so as not to allow flow to concentrate anywhere upstream of a drainage channel with erodible underlying granular soils.
Disturbed Area	An area inside project boundaries altered from its natural state.
Disturbed Soils	An area inside the project boundaries where the soils have reduced infiltration, retention, and soil permeability than what would be present in a forested or prairie state due to previous development or land use.
Ditch	A long narrow excavation dug in the earth for drainage with its top width less than 10 feet at design flow.

Drain	A buried pipe or other conduit (closed drain). A ditch (open drain) for carrying off surplus surface water or groundwater.
(To) Drain	To provide channels, such as open ditches or closed drains, so that excess water can be removed by surface flow or by internal flow. To lose water (from the soil) by percolation.
Drainage	Refers to the collection, conveyance, containment, and/or discharge of surface and stormwater runoff.
Drainage Plan	A required submittal detailing existing and proposed drainage conditions for a proposed development or land-disturbing activity.
Drainage Basin	A geographic and hydrologic subunit of a watershed.
Drainage Channel	A drainage pathway with a well-defined bed and/or banks indicating frequent conveyance of surface and stormwater runoff.
Drainage Course	A pathway for watershed drainage often intermittent in flow.
Drainage Easement	A legal encumbrance that is placed against a property's title to reserve specified privileges for the users and beneficiaries of the drainage facilities contained within the boundaries of the easement.
Drainage Pathway	The route that surface and stormwater runoff follows downslope as it leaves any part of the site.
Drainage Review	An evaluation by the City of a proposed project's compliance with the drainage requirements in this Manual or its technical equivalent.
Drainage System	Refers to the combination of BMPs, collection, conveyance, retention, detention, treatment and outfall features or structures on a project.
Drawdown	Lowering of the water surface (in open channel flow), water table or piezometric surface (in groundwater flow) resulting from a withdrawal of water.
Driveway	An access facility between the driveway approach point on a roadway, shared access facility, or emergency vehicle access and the abutting private property used by vehicular traffic.
Driveway Approach	Any area, construction, or facility between the roadway and the driveway, shared access facility, or emergency vehicle access serving the abutting private property which provides access for vehicular traffic.
Drop Structure	A structure for dropping water to a lower level and dissipating its surplus energy; a fall. A drop may be vertical or inclined.
Dry Pond	A detention facility which drains dry after a storm.
Earth / Earth Material	Means naturally occurring rock, soil, stone, dirt, or a combination thereof.
Earthwork	Means any operation involving the excavation, grading, filling, or moving of earth materials.

Easement	The legal right to use a described piece of land for a particular purpose. It does not include fee ownership, but may restrict the owner's use of the land. All easements granted pursuant to this Manual shall be legally recorded with the Snohomish County Auditor.
Easement, Private	Means an interest in the land of someone else, usually for the benefit of one or more individuals, and constitutes an encumbrance on another's land.
Effective Impervious Surface	Those impervious surfaces that are connected via sheet flow or discrete conveyance to a drainage system.
Embankment	A structure of earth, gravel, or similar material raised to form a pond bank or foundation for a road, building pad, or similar fill for a particular use.
Emergency Spillway	A channel used to safely convey flood discharges in excess of the capacity of the principal outlet.
Emergent Plants	Aquatic plants that are rooted in the sediment but whose leaves are at or above the water surface. These wetland plants often have high habitat value for wildlife and waterfowl, and can aid in pollutant uptake.
Emerging Technology	Treatment technologies that have not been evaluated with approved protocols, but for which preliminary data indicate that they may provide a necessary function(s) in a stormwater treatment system. Emerging technologies need additional evaluation to define design criteria to achieve, or to contribute to achieving, state performance goals, and to define the limits of their use.
Energy Dissipater	Any means by which the total energy of flowing water is reduced. In stormwater design, they are usually mechanisms that reduce velocity prior to, or at, discharge from an outfall in order to prevent erosion. They include rock splash pads, drop manholes, concrete stilling basins or baffles, and check dams.
Energy Gradient	The slope of the specific energy line (i.e., the sum of the potential and velocity heads).
Engineer	A professional engineer currently licensed in the state of Washington in civil engineering, retained by and acting on behalf of the applicant. The term "engineer" also means design engineer and project engineer.
Engineered Soil/ Landscape System	This is a self-sustaining soil and plant system that simultaneously supports plant growth, soil microbes, water infiltration, nutrient and pollutant adsorption, sediment and pollutant biofiltration, water interflow, and pollution decomposition. The system shall be protected from compaction and erosion. The system shall be planted and/or mulched as part of the installation and shall have the following characteristics: a) Be protected from compaction and erosion.

	<ul style="list-style-type: none"> b) Have a plant system to support a sustained soil quality. c) Possess permeability characteristics of not less than 6.0, 2.0, and 0.6 inches/hour for hydrologic soil groups A, B, and C, respectively (per ASTM D 3385). D is less than 0.6 inches/hour. d) Possess minimum percent organic matter of 12, 14, 16, and 18 percent (dry-weight basis) for hydrologic soil groups A, B, C, and D, respectively (per ASTM D 2974).
Engineering Geology	The application of geologic knowledge and principles in the investigation and evaluation of naturally occurring rock and soil for use in the design of civil works.
Engineering Plan	A plan prepared and stamped by a professional civil engineer.
Enhancement	To raise value, desirability, or attractiveness of an environment associated with surface water.
Environmental Impact Statement (EIS)	A document that discusses the likely significant adverse impacts of a proposal, ways to lessen the impacts, and alternatives to the proposal. They are required by the national and state environmental policy acts when projects are determined to have significant environmental impact.
Environmentally Sensitive Area (Sensitive Area)	As defined by ordinance or resolution by the City.
Erodible Granular Soils	Soil materials that are easily eroded and transported by running water, typically fine or medium grained sand with minor gravel, silt, or clay content. Such soils are commonly described as Everett or Indianola series soil types in the SCS classification. Also included are any soils showing examples of existing severe stream channel incision as indicated by unvegetated streambanks standing over 2 feet high above the base of the channel.
Erosion	<p>The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep. Also, detachment and movement of soil or rock fragments by water, wind, ice, or gravity. The following terms are used to describe different types of water erosion:</p> <ul style="list-style-type: none"> a) Accelerated erosion – Erosion much more rapid than normal or geologic erosion, primarily as a result of the influence of the activities of man or, in some cases, of the animals or natural catastrophes that expose bare surfaces (e.g., fires). b) Geological erosion – The normal or natural erosion caused by geological processes acting over long geologic periods and resulting in the wearing away of mountains, the building up of floodplains, coastal plains, etc. Synonymous with natural erosion. c) Gully erosion – The erosion process whereby water accumulates in narrow channels and, over short periods, removes the soil from this narrow area to considerable

	<p>depths, ranging from 1 to 2 feet to as much as 75 to 100 feet.</p> <p>d) Natural erosion – Wearing away of the earth's surface by water, ice, or other natural agents under natural environmental conditions of climate, vegetation, etc., undisturbed by man. Synonymous with geological erosion.</p> <p>e) Normal erosion – The gradual erosion of land used by man which does not greatly exceed natural erosion.</p> <p>f) Rill erosion – An erosion process in which numerous small channels only several inches deep are formed; occurs mainly on recently disturbed and exposed soils. See <u>Rill</u>.</p> <p>g) Sheet erosion – The removal of a fairly uniform layer of soil from the land surface by runoff.</p> <p>h) Splash erosion – The spattering of small soil particles caused by the impact of raindrops on wet soils. The loosened and spattered particles may or may not be subsequently removed by surface runoff.</p>
Erosion and Sedimentation Control (ESC)	Any temporary or permanent measures taken to reduce erosion; control siltation and sedimentation; and ensure that sediment-laden water does not leave the site.
Erosion and Sediment Control Facility	A type of drainage facility designed to hold water for a period of time to allow sediment contained in the surface and stormwater runoff directed to the facility to settle out so as to improve the quality of the runoff.
Erosive Soils	See Erodible Granular Soils.
Estuary	An area where fresh water meets salt water, or where the tide meets the river current (e.g., bays, mouths of rivers, salt marshes and lagoons). Estuaries serve as nurseries and spawning and feeding grounds for large groups of marine life and provide shelter and food for birds and wildlife.
Eutrophication	Refers to the process where nutrient over-enrichment of water leads to excessive growth of aquatic plants, especially algae.
Evapotranspiration	The collective term for the processes of evaporation and plant transpiration by which water is returned to the atmosphere.
Excavation	The mechanical removal of earth material.
Exception	Relief from the application of a Minimum Requirement to a project.
Exfiltration	The downward movement of runoff through the bottom of an infiltration BMP into the soil layer or the downward movement of water through soil.
Existing Site Conditions	Existing site conditions may be described as follows: <ul style="list-style-type: none"> a) For undeveloped and previously developed sites with stormwater facilities that have been constructed to meet the standards of this manual or the City's 1997 manual,

	<p>existing conditions shall mean the current conditions on the site.</p> <p>b) For previously developed sites that do not have stormwater facilities that meet the standards of this manual or the City’s 1997 manual, existing site conditions shall mean the conditions that existed prior to 1997.</p>
Experimental Best Management Practice (BMP)	A BMP that has not been tested and evaluated by the Department of Ecology in collaboration with local governments and technical experts.
Fertilizer	Any material or mixture used to supply one or more of the essential plant nutrient elements.
Fill	A deposit of earth material placed by artificial means.
Filter Fabric	A woven or non-woven, water-permeable material, generally made of synthetic products such as polypropylene and used in stormwater management and erosion and sedimentation control applications to trap sediment or prevent the clogging of aggregates by fine soil particles. See the WSDOT standard specifications and amendments, specifically, Section 9-33 Construction Geotextiles.
Filter Fabric Fence	A temporary sediment barrier consisting of a filter fabric stretched across and attached to supporting posts and entrenched. The filter fence is constructed of stakes and synthetic filter fabric with a rigid wire fence backing where necessary for support. Also commonly referred to in the Washington Department of Transportation standard specifications as “construction geotextile for temporary silt fences.”
Filter Strip	A grassy area with gentle slopes that treats stormwater runoff from adjacent paved areas before it concentrates into a discrete channel.
Flocculation	The process by which suspended colloidal or very fine particles are assembled into larger masses or floccules which eventually settle out of suspension. This process occurs naturally but can also be caused through the use of such chemicals as alum.
Flood	An overflow or inundation that comes from a river or any other source, including (but not limited to) streams, tides, wave action, storm drains, or excess rainfall. Any relatively high stream flow overtopping the natural or artificial banks in any reach of a stream.
Flood Control	Methods or facilities for reducing flood flows and the extent of flooding.
Flood Frequency	The frequency with which the flood of interest may be expected to occur at a site in any average interval of years. Frequency analysis defines the “n-year flood” as being the flood that will, over a long period of time, be equaled or exceeded on the average once every “n” years.

Flood Fringe	The area subject to inundation by the base flood, but outside the limits of the floodway, and which may provide needed temporary storage capacity for flood waters.
Flood Hazard Areas	Those areas subject to inundation by the base flood. Includes, but is not limited to streams, lakes, wetlands, and closed depressions. Also referred to as special flood hazard areas.
Flood Insurance Rate Map (FIRM)	The official map on which the Federal Emergency Management Agency (FEMA) has delineated many areas of flood hazard, floodway, and the risk premium zones.
Flood Stage	The stage at which overflow of the natural banks of a stream begins.
Floodplain	The total area subject to inundation by the base flood including the flood fringe and floodway.
Flood-proofing	Structural provisions or adjustments to nonresidential buildings for the purpose of eliminating flood damages to those structures including their utilities and contents.
Flood Routing	An analytical technique used to compute the effects of system storage dynamics on the shape and movement of flow represented by a hydrograph.
Floodway	The channel of the river, or other watercourse, and the adjacent land areas that must be reserved in order to convey and discharge the base flood without cumulatively increasing the water surface elevation by more than 1 foot, and those areas designated as deep and/or fast-flowing water or mapped at severe risk of channel migration.
Flow Control Facility	A drainage facility designed to mitigate the impacts of increased surface and stormwater runoff flow rates generated by development. Flow control facilities are designed either to hold water for a considerable length of time and then release it by evaporation, plant transpiration, and/or infiltration into the ground, or to hold runoff for a short period of time, releasing it to the conveyance system at a controlled rate.
Flow duration	The aggregate time that peak flows are at or above a particular flow rate of interest. For example, the amount of time that peak flows are at or above 50 percent of the 2-year recurrence interval peak flow rate for a period of record.
Flow Frequency	The inverse of the probability that the flow will be equaled or exceeded in any given year (the exceedance probability). For example, if the exceedance probability is 0.01 or 1 in 100, that flow is referred to as the 100-year recurrence interval flow.
Flow Path	The route that stormwater runoff follows between two points of interest.
Forebay	An easily maintained, extra storage area provided near an inlet of a BMP to trap incoming sediments before they accumulate in a pond or wetland BMP.

Forest Practice	Any activity conducted on or directly pertaining to forest land and relating to growing, harvesting, or processing timber, including but not limited to: Road and trail construction, Harvesting, final and intermediate, Pre-commercial thinning, Reforestation, Fertilization, Prevention and suppression of diseases and insects, Salvage of trees, Brush control.
Forest Practices Permit	Means a permit issued by the City or WDNR for the removal of timber and construction of necessary roads.
Forested Wetlands	In general terms, communities (wetlands) characterized by woody vegetation that is greater than or equal to 6 meters in height; in this Manual the term applies to such communities (wetlands) that represent a significant amount of tree cover consisting of species that offer wildlife habitat and other values and advance the performance of wetland functions overall.
Freeboard	The vertical distance between the design water surface elevation and the elevation of the barrier that contains the water.
Frequency Of Storm (Design Storm Frequency)	The anticipated period in years that will elapse, based on average probability of storms in the design region, before a storm of a given intensity and/or total volume will recur; thus a 10 recurrence interval storm can be expected to occur on the average once every 10 years. Sewers designed to handle flows that occur under such storm conditions would be expected to be surcharged by any storms of greater amount or intensity.
Gabion	A rectangular or cylindrical wire mesh cage filled with rock and used as a protecting agent, revetment, etc., against erosion. Soft gabions, often used in streambank stabilization, are made of geotextiles filled with dirt, in between which cuttings are placed.
Gage Or Gauge	A measuring device for registering precipitation, water level, discharge, velocity, pressure, temperature, etc. Also, a measure of the thickness of metal.
Geologist	A person who has earned a degree in geology from an accredited college or university or who has equivalent educational training and has at least 5 years of experience as a practicing geologist or 4 years of experience and at least 2 years postgraduate study, research or teaching. The practical experience shall include at least 3 years work in applied geology and landslide evaluation, in close association with qualified practicing geologists or geotechnical professional/civil engineers.
Geometrics	The mathematical relationships between points, lines, angles, and surfaces used to measure and identify areas of land.
Geotechnical Professional	A person with experience and training in analyzing, evaluating, and mitigating any of the following: landslide, erosion, seismic, and/or mine hazards, or fluvial geomorphology and river dynamics. A geotechnical professional shall be licensed

	in the State of Washington as an engineering geologist or professional engineer. In accordance with Washington Administrative Code 308-15-140 and 196-27-020, engineering geologists and professional engineers shall affix their signatures or seals only to plans or documents dealing with subject matter in which they are qualified by training or experience.
Geotechnical Professional Civil Engineer	A practicing, geotechnical/civil engineer licensed as a professional Civil Engineer with the State of Washington who has at least 4 years of professional employment as a geotechnical engineer in responsible charge, including experience with landslide evaluation.
Grade	The slope of a road, channel, or natural ground. The finished surface of a canal bed, roadbed, top of embankment, or bottom of excavation; any surface prepared for the support of construction such as paving or the laying of a conduit.
(To) Grade	To finish the surface of a canal bed, roadbed, top of embankment or bottom of excavation.
Gradient Terrace	An earth embankment or a ridge-and-channel constructed with suitable spacing and an acceptable grade to reduce erosion damage by intercepting surface runoff and conducting it to a stable outlet at a stable nonerosive velocity.
Grading	Means any excavating, filling, clearing, or creating of impervious surfaces or combination thereof.
Grassed Waterway	A natural or constructed waterway, usually broad and shallow, covered with erosion-resistant grasses, used to conduct surface water from an area at a reduced flow rate. See also biofilter.
Ground Water	Water in a saturated zone or stratum beneath the land surface or a surface water body.
Ground Water Recharge	Inflow to a groundwater reservoir.
Ground Water Table	The free surface of the groundwater, that surface subject to atmospheric pressure under the ground, generally rising and falling with the season, the rate of withdrawal, the rate of restoration, and other conditions. It is seldom static.
Grubbing	Means the removal and disposing of all unwanted vegetative matter from underground, such as sod, stumps, roots, buried logs, or other debris.
Gully	A channel caused by the concentrated flow of surface and stormwater runoff over unprotected erodible land.
Habitat	The specific area or environment in which a particular type of plant or animal lives. An organism's habitat must provide all of the basic requirements for life and should be protected from harmful biological, chemical, and physical alterations.
Hardpan	A cemented or compacted and often clay-like layer of soil that is impenetrable by roots. Also known as glacial till.

Harmful Pollutant	A substance that has adverse effects to an organism including immediate death, chronic poisoning, impaired reproduction, cancer or other effects.
Head (Hydraulics)	The height of water above any plane of reference. The energy, either kinetic or potential, possessed by each unit weight of a liquid, expressed as the vertical height through which a unit weight would have to fall to release the average energy possessed. Used in various compound terms such as pressure head, velocity head, and head loss.
Head Loss	Energy loss due to friction, eddies, changes in velocity, or direction of flow.
Heavy Metals	Metals of high specific gravity, present in municipal and industrial wastes that pose long-term environmental hazards. Such metals include cadmium, chromium, cobalt, copper, lead, mercury, nickel, and zinc.
High-Use Site	<ul style="list-style-type: none"> a) High-use sites are those that typically generate high concentrations of oil due to high traffic turnover or the frequent transfer of oil. High-use sites include: b) An area of a commercial or industrial site subject to an expected average daily traffic count equal to or greater than 100 vehicles per 1,000 square feet of gross building area; c) 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; d) An area of a commercial or industrial site subject to parking, storage or maintenance of 25 or more vehicles that are over 10 tons gross weight (trucks, buses, trains, heavy equipment, etc.); <p>A road intersection with a measured count of 25,000 vehicles or more on the main roadway and 15,000 vehicles or more on any intersecting roadway, excluding projects proposing primarily pedestrian or bicycle use improvements.</p>
Hog Fuel	See wood-based mulch.
Hydrological Simulation Program—Fortran (HSPF)	A continuous simulation hydrologic model that transforms an uninterrupted rainfall record into a concurrent series of runoff or flow data by means of a set of mathematical algorithms which represent the rainfall-runoff process.
Humus	Organic matter in or on a soil, composed of partly or fully decomposed bits of plant tissue or from animal manure.
Hydraulic Conductivity	The quality of saturated soil that enables water or air to move through it. Also known as permeability coefficient
Hydraulic Gradient	Slope of the potential head relative to a fixed datum.
Hydro Period	A seasonal occurrence of flooding and/or soil saturation; it encompasses depth, frequency, duration, and seasonal pattern of inundation.

Hydrograph	A graph of runoff rate, inflow rate or discharge rate, past a specific point over time.
Hydrologic Cycle	The circuit of water movement from the atmosphere to the earth and return to the atmosphere through various stages or processes as precipitation, interception, runoff, infiltration, percolation, storage, evaporation, and transpiration.
Hydrologic Soil Groups	<p>A soil characteristic classification system defined by the SCS in which a soil may be categorized into one of four soil groups (A, B, C, or D) based upon infiltration rate and other properties.</p> <p><u>Type A:</u> Low runoff potential. Soils having high infiltration rates, even when thoroughly wetted, and consisting chiefly of deep, well drained to excessively drained sands or gravels. These soils have a high rate of water transmission</p> <p><u>Type B:</u> Moderately low runoff potential. Soils having moderate infiltration rates when thoroughly wetted, and consisting chiefly of moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.</p> <p><u>Type C:</u> Moderately high runoff potential. Soils having slow infiltration rates when thoroughly wetted, and consisting chiefly of soils with a layer that impedes downward movement of water, or soils with moderately fine to fine textures. These soils have a slow rate of water transmission.</p> <p><u>Type D:</u> High runoff potential. Soils having very slow infiltration rates when thoroughly wetted, and consisting chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a hardpan, till, or clay layer at or near the surface, soils with a compacted subgrade at or near the surface, and shallow soils or nearly impervious material. These soils have a very slow rate of water transmission..</p>
Hydrology	The science of the behavior of water in the atmosphere, on the surface of the earth, and underground.
Hydroperiod	A seasonal occurrence of flooding and/or soil saturation; it encompasses depth, frequency, duration, and seasonal pattern of inundation.
Hyetograph	A graph of rainfall intensity (often in inches per hour) over time at a single point.
Illicit Discharge	All non-stormwater discharges to stormwater drainage systems that cause or contribute to a violation of state water quality, sediment quality or groundwater quality standards, including but not limited to sanitary sewer connections, industrial process water, interior floor drains, car washing, and greywater systems.
Impervious Surface	A hard surface area which either prevents or retards the entry of water into the soil mantle as under natural conditions prior

	<p>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, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel 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.</p>
Impoundment	A natural or man-made containment for surface water.
Improvement	Shall mean any thing or structure constructed for the benefit of all or some residents of the subdivision or the general public such as but not limited to roads, alleys, stormwater drainage systems and ditches, sanitary sewer pipes or main lines, and storm drainage containment facilities.
Improvement	Streets (with or without curbs or gutters), sidewalks, crosswalks, parking lots, water mains, sanitary and storm sewers, drainage facilities, street trees and other appropriate items.
Industrial Activities	Material handling, transportation, or storage; manufacturing; maintenance; treatment; or disposal. Areas with industrial activities include plant yards, access roads and rail lines used by carriers of raw materials, manufactured products, waste material, or by-products; material handling sites; refuse sites; sites used for the application or disposal of process wastewaters; sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater.
Infiltration	Means the downward movement of water from the surface to the subsoil.
Infiltration Facility (Or System)	A drainage facility designed to use the hydrologic process of surface and stormwater runoff soaking into the ground, commonly referred to as a percolation, to dispose of surface and stormwater runoff.
Infiltration Rate	The rate, usually expressed in inches/hour, at which water moves downward (percolates) through the soil profile. Short-term infiltration rates may be inferred from soil analysis or texture or derived from field measurements. Long-term infiltration rates are affected by variability in soils and

	subsurface conditions at the site, the effectiveness of pretreatment or influent control, and the degree of long-term maintenance of the infiltration facility.
Ingress/Egress	The points of access to and from a property.
Inlet	A form of connection between surface of the ground and a drain or sewer for the admission of surface and stormwater runoff.
Insecticide	A substance, usually chemical, that is used to kill insects.
Interception (Hydraulics)	The process by which precipitation is caught and held by foliage, twigs, and branches of trees, shrubs, and other vegetation. Often used for “interception loss” or the amount of water evaporated from the precipitation intercepted.
Interflow	That portion of rainfall that infiltrates into the soil and moves laterally through the upper soil horizons until intercepted by a stream channel or until it returns to the surface, for example, in a roadside ditch, wetland, spring or seep. Interflow is a function of the soil system depth, permeability, and water-holding capacity.
Intermittent Stream	A stream or portion of a stream that flows only in direct response to precipitation. It receives little or no water from springs and no long-continued supply from melting snow or other sources. It is dry for a large part of the year, ordinarily more than 3 months.
International Building Code (IBC)	Means the most recent version of the International Building Code adopted by the City of Everett.
Invasive Weedy Plant Species	Opportunistic species of inferior biological value that tend to out-compete more desirable forms and become dominant; applied to non-native species in this Manual.
Invert	The lowest point on the inside of a pipe or other conduit.
Invert Elevation	The vertical elevation of a pipe or orifice in a pond that defines the water level.
Isopluvial Map	A map with lines representing constant depth of total precipitation for a given return frequency and duration.
Junction	Point where two or more drainage pipes or channels converge (e.g., manhole).
Jurisdiction	For purposes of this Manual, a governmental body which has adopted this Manual.
Lag Time	The interval between the center of mass of the storm precipitation and the peak flow of the resultant runoff.
Lake	An area permanently inundated by water in excess of 2 meters deep and greater than 20 acres in size as measured at the ordinary high water marks.
Land-Disturbing Activity	Any activity that results in a movement of earth or a change in the existing soil cover (both vegetative and nonvegetative) 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.
Landscaping	Means the improvement or installation on a parcel or portion thereof of objects or vegetation for decorative or ornamental effect. Examples include: trees, bushes, shrubs, flowers, grass, weeds, ornamental rocks or figures, and low-lying ground cover, sprinkler systems, sidewalks, and lighting fixtures.
Landslide	Episodic downslope movement of a mass of soil or rock that includes but is not limited to rockfalls, slumps, mudflows, and earthflows. For the purpose of these rules, snow avalanches are considered to be a special case of landsliding.
Lattice Block Pavement	A pavement, either cast in place or interlocking paving bricks, with interstices allowing infiltration and the growth of vegetation.
Leachable Materials	Those substances that, when exposed to rainfall, measurably alter the physical or chemical characteristics of the rainfall runoff. Examples include erodible soils, uncovered process wastes, manure, fertilizers, oil substances, ashes, kiln dust, and garbage dumpster leakage.
Leachate	Liquid that has percolated through soil and contains substances in solution or suspension.
Leaching	Removal of the more soluble materials from the soil by percolating waters.
Legume	A member of the legume or pulse family, Leguminosae, one of the most important and widely distributed plant families. Practically all legumes are nitrogen-fixing plants.
Level Pool Routing	The basic technique of storage routing used for sizing and analyzing detention storage and determining water levels for ponding water bodies. The level pool routing technique is based on the continuity equation: $\text{Inflow} - \text{Outflow} = \text{Change in storage}$.
Live Storage	The amount of storage in a detention facility that is intended to completely drain after a storm event.
Local Government	Any county, city, town, or special purpose district having its own incorporated government for local affairs.
Lot	A designated parcel, tract, or area of land established by plat, subdivision, or as otherwise permitted by law, to be used, developed, or built upon as a unit.
Low Flow Channel	An incised or paved channel from inlet to outlet in a dry basin which is designed to carry low runoff flows and/or baseflow, directly to the outlet without detention.
Low Impact Development (LID)	A land use development strategy that emphasizes protection and use of onsite natural features integrated with engineered, small-scale hydrologic controls at the parcel and subdivision scale to manage stormwater and more closely mimic

	predevelopment development watershed hydrologic functions. LID techniques may be considered an alternative to traditional, structural stormwater management solutions.
Maintenance	Repair and maintenance includes activities conducted on currently serviceable structures, facilities, and equipment that involves no expansion or use beyond that previously existing and resulting in no significant adverse hydrologic impact. It includes those usual activities taken to prevent a decline, lapse, or cessation in the use of structures and systems and includes replacement of disfunctioning facilities, including cases where environmental permits require replacing an existing structure with a different type structure, as long as the functioning characteristics of the original structure are not changed.
Manning's Equation	An equation used to predict the velocity of water flow in an open channel or pipelines: $V = \frac{1.486R^{2/3}S^{1/2}}{N}$ <p>where: V is the mean velocity of flow in feet per second R is the hydraulic radius in feet S is the slope of the energy gradient or, for assumed uniform flow, the slope of the channel in feet per foot; and n is Manning's roughness coefficient or retardance factor of the channel lining.</p>
Manual, The	This Stormwater Management Manual, its adopting ordinance, and all documents included by reference.
Manufactured Home/Mobile Home	Means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities.
Manufactured Home/Mobile Home Park Or Subdivisions	Means a parcel (or contiguous parcels) of land divided into two or more manufactured home/mobile home lots for rent, lease, or sale.
Material	Any solid or semi-solid substance.
Metals	Elements, such as mercury, lead, nickel, zinc and cadmium, which are of environmental concern because they can be toxic to life in high enough concentrations and do not degrade over time. Although many are necessary nutrients, they are sometimes magnified in the food chain. They are also referred to as heavy metals.
Microbes	The lower trophic levels of the soil food web. They are normally considered to include bacteria, fungi, flagellates, amoebae, ciliates, and nematodes. These in turn support the higher trophic levels, such as mites and earthworms. Together they are the basic life forms that are necessary for plant growth. Soil microbes also function to bio-remediate pollutants such as petroleum, nutrients, and pathogens.

Modification, Modified (Wetland)	A wetland whose physical, hydrological, or water quality characteristics have been purposefully altered for a management purpose, such as by dredging, filling, forebay construction, and inlet or outlet control.
Monitor	To systematically and repeatedly measure something in order to track changes.
Monitoring	The collection of data by various methods for the purposes of understanding natural systems and features, evaluating the impacts of development proposals on such systems, and assessing the performance of mitigation measures imposed as conditions of development.
National Pollutant Discharge Elimination System (NPDES)	The part of the Clean Water Act which requires point source and municipal dischargers to obtain permits. These permits are referred to as NPDES permits and, in Washington, are administered by the Department of Ecology.
NPDES Threshold	The disturbance of an acre or more of land, either as a single project or as the cumulative of a number of projects which are part of a larger common plan of development or sale.
Native Growth Protection Easement	An easement granted for the protection of native vegetation within a sensitive area or its associated buffer. The native growth protection easement shall be recorded on the appropriate documents of title and filed with the Snohomish County Auditor.
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
Natural Buffer Area	A parcel or strip of land that is designated to permanently remain in an undisturbed and untouched condition. No building, clearing, filling, or grading is permitted within this area, except for minor firewood harvest and watercourse maintenance when applicable. Roads, septic tank drainfield areas, and reserved drainfield areas are not permitted in natural buffer areas.
Natural Channel	Stream, creek, river, lake, wetland, estuary, gully, swale, ravine, or any open conduit where water will concentrate and flow intermittently or continuously.
Natural Hydrologic Function	Refers to the processing of precipitation over and through the landscape in a forest or prairie condition. Includes evapotranspiration by onsite vegetation, storage of rainfall in the soil structure or on the soil surface within depressions in the topography, and the release of stormwater either through infiltration, interflow, or surface flow off the site.
Natural Location	Means the location of those channels, swales, and other non-manmade conveyance systems as defined by the first documented topographic contours existing for the subject property, either from maps or photographs, or such other

	means as appropriate. In the case of outwash soils with relatively flat terrain, no natural location of surface discharge may exist.
Natural Resource Protection Areas	Areas set aside after the site assessment where development is not to occur.
National Environmental Policy Act (NEPA)	National Environmental Policy Act, a federal law.
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.
New Impervious Surface	Impervious surface created on or added to a site or structural development including construction, installation, or expansion of a building or other structure. Includes the addition of a hard or compacted surface like roofs, pavement, gravel, or dirt; or the addition of a more compacted surface, like paving over predevelopment existing dirt or gravel. New impervious surface may also include existing impervious surface that is removed and replaced. To be considered new, the removal and replacement activity must result in significant changes in impervious surface locations, grade, and/or drainage system features, and/or must involve construction, installation, or expansion of a building or structure after complete or substantial intentional demolition thereof by or for the benefit of the applicant.
Nitrate (NO₃)	A form of nitrogen which is an essential nutrient to plants. It can cause algal blooms in water if all other nutrients are present in sufficient quantities. It is a product of bacterial oxidation of other forms of nitrogen, from the atmosphere during electrical storms and from fertilizer manufacturing.
Nitrogen, Available	Usually ammonium, nitrite, and nitrate ions, and certain simple amines available for plant growth. A small fraction of organic or total nitrogen in the soil is available at any time.
Nonpoint Source Pollution	Pollution that enters a water body from diffuse origins on the watershed and does not result from discernible, confined, or discrete conveyances.
Non-Stormwater Discharge	Wash down water and other wastewater that enters the drainage system.
NPDES	The National Pollutant Discharge Elimination System as established by the Clean Water Act.
NPDES Threshold	The disturbance of an acre or more of land, either as a single project or as the cumulative of a number of projects that are part of a larger common plan of development or sale.

NRCS Method	See SCS method.
Nephelometric Turbidity Unit (NTU)	A measure of turbidity for stormwater.
Nutrients	Essential chemicals needed by plants or animals for growth. Excessive amounts of nutrients can lead to degradation of water quality and algal blooms. Some nutrients can be toxic at high concentrations.
Off-Line Facilities	Water quality treatment facilities to which stormwater runoff is restricted to some maximum flow rate or volume by a flow-splitter.
Offsite	Any area lying upstream of the site that drains onto the site and any area lying downstream of the site to which the site drains.
Off-System Storage	Facilities for holding or retaining excess flows over and above the carrying capacity of the stormwater conveyance system, in chambers, tanks, lagoons, ponds, or other basins that are not a part of the subsurface sewer system.
Oil/Water Separator	A vault, usually underground, designed to provide a quiescent environment to separate oil from water.
On-Line Facilities	Water quality treatment facilities which receive all of the stormwater runoff from a drainage area. Flows above the water quality design flow rate or volume are passed through at a lower percent removal efficiency.
Onsite	The entire property that includes the proposed development.
On-site Stormwater Management BMPs	Site development techniques that serve to infiltrate, disperse, and retain stormwater runoff onsite.
Operational BMPs	A type of source control BMP. They are schedules of activities, prohibition of practices, and other managerial practices to prevent or reduce pollutants from entering stormwater and can include formation of a pollution prevention team, good housekeeping, preventive maintenance procedures, spill prevention and cleanup, employee training, inspections of pollutant sources and BMPs, record keeping process changes, raw material/product changes, and recycling wastes.
Ordinary High Water Mark	The term ordinary high water mark means the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil destruction on terrestrial vegetation, or the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding area. As defined applied in Chapter 90.58 RCW.
Organic Matter	Organic matter is decomposed animal or vegetable matter.
Orifice	An opening with closed perimeter, usually sharp-edged, and of regular form in a plate, wall, or partition through which water may flow, generally used for the purpose of measurement or control of water.

Original Tract	Means a unit of land which the applicant holds under single or unified ownership, or in which the applicant holds controlling ownership and the configuration of which may be determined by the fact that all land abutting said tract is separately owned by others, not including the applicant or applicants; provided that where a husband and wife own contiguous lots, both such lots shall constitute the original tract.
Outfall	The point where water flows from a manmade conduit, channel, or drain into a water body or other natural drainage feature. (See Natural Channel.)
Outlet	Point of water disposal from a stream, river, lake, tidewater, or artificial drain.
Outlet Channel	A waterway constructed or altered primarily to carry water from man-made structures, such as terraces, tile lines, and diversions.
Outwash Soils	Soils formed from highly permeable sands and gravels.
Overtopping	To flow over the limits of a containment or conveyance element.
Parcel	Means any portion, piece, or division of land. Fractional part or subdivision of block, according to plat or survey; portion of platted territory measured and set apart for individual and private use and occupancy.
Particle Size	The effective diameter of a particle as measured by sedimentation, sieving, or micrometric methods.
Paved Road	Means a road that has been treated or covered with asphalt to create an oil mat surface; a road that has a bituminous surface treatment, asphalt, or cement concrete surface.
Peak Discharge	The maximum instantaneous rate of flow during a storm, usually in reference to a specific design storm event.
Percolation	The movement of water through soil.
Percolation Rate	The rate, often expressed in inches/hour, at which clear water, maintained at a relatively constant depth, will seep out of a standardized test hole that has been previously saturated. The term percolation rate is often used synonymously with infiltration rate (short-term infiltration rate).
Permanent Stabilization	Permanent site stabilization shall mean the covering of exposed surfaces through paving, gravels, landscaping materials, sodding, seeding, etc. but shall not mean the temporary use of erosion/sediment control materials unless used in conjunction with the above measures to aid in seed or landscaping vegetation establishment.
Permanent Stormwater Control (PSC) Plan	A plan which includes permanent BMPs for the control of pollution from stormwater runoff after construction and/or land-disturbing activity has been completed

Permeable Soils	Soil materials with a sufficiently rapid infiltration rate so as to greatly reduce or eliminate surface and stormwater runoff. These soils are generally classified as SCS hydrologic soil types A and B.
Person	Any individual, partnership, corporation, association, organization, cooperative, public or municipal corporation, agency of the state, or local government unit, however designated.
Pervious Materials	Materials for surfacing roads, driveways, pedestrian paths, parking lots, etc. that allows water to infiltrate through the surface.
Pesticide	A general term used to describe any substance – usually chemical – used to destroy or control organisms; includes herbicides, insecticides, algicides, fungicides, and others. Many of these substances are manufactured and are not naturally found in the environment. Others, such as pyrethrum, are natural toxins that are extracted from plants and animals.
pH	A measure of the alkalinity or acidity of a substance which is conducted by measuring the concentration of hydrogen ions in the substance. A pH of 7.0 indicates neutral water. A 6.5 reading is slightly acid.
Plan	For purposes of this Manual, a Plan shall mean the Drainage Control Plan, Erosion and Sediment Control Plan, Engineered Abbreviated Plan, or Abbreviated Plan as defined in Chapter 3.
Plan Approval Authority	The Plan Approval Authority is defined as that department within a local government that has been delegated authority to approve stormwater site plans.
Plat	A map or representation of a subdivision showing the division of a tract or parcel of land into lots, blocks, streets, or other divisions and dedications.
Point Discharge	The release of collected and/or concentrated surface and stormwater runoff from a pipe, culvert, or channel.
Point Of Compliance	The location at which compliance with a discharge performance standard or a receiving water quality standard is measured.
Pollution	Contamination or other alteration of the physical, chemical, or biological properties, of waters of the state, including change in temperature, taste, color, turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive or other substance into any waters of the state as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life.

<p>Pollution-Generating Impervious Surface (PGIS)</p>	<p>Those impervious surfaces considered to be a significant source of pollutants in stormwater runoff. Such surfaces include those which are subject to: vehicular use; industrial activities (as further defined in this glossary); or storage of erodible or leachable materials, wastes, or chemicals, and which receive direct rainfall or the runoff 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 PGIS 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, unvegetated road shoulders, bike lanes within the traveled lane of a roadway, driveways, parking lots, unfenced fire lanes, vehicular equipment storage yards, and airport runways. The following are not considered regularly-used surfaces:</p> <ul style="list-style-type: none"> a) Paved bicycle pathways separated from and not subject to drainage from roads for motor vehicles b) Fenced fire lanes c) Infrequently used maintenance access roads
<p>Pollution-Generating Pervious Surface (PGPS)</p>	<p>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.</p>
<p>Postdevelopment Conditions</p>	<p>The condition of site after the project has been constructed.</p>
<p>Pothole</p>	<p>A closed basin. See also closed depression and/or basin.</p>
<p>Predeveloped Condition</p>	<p>For projects which will disturb an acre or more of land, or which are part of a larger common plan of development or sale that will disturb an acre or more of land, the predeveloped condition shall be the native vegetation and soils that existed at a site prior to the influence of Euro-American settlement. The predeveloped condition shall be assumed to be forested land cover unless reasonable, historic information is provided that indicates the site was prairie prior to settlement.</p> <p>For projects that will disturb less than an acre of land, and which are not part of a larger common plan of development or sale, the predeveloped condition shall be the existing condition.</p>
<p>Preliminary Plat</p>	<p>Is a neat and approximate drawing of a proposed subdivision showing the general layout of streets and alleys, lots, blocks and restrictive covenants to be applicable to the subdivision which shall furnish a basis for the approval or disapproval of the general layout of a subdivision.</p>

Pretreatment	The removal of material such as solids, grit, grease, and scum from flows prior to physical, biological, or physical treatment processes to improve treatability. Pretreatment may include screening, grit removal, settling, oil/water separation, or application of a basic treatment BMP prior to infiltration.
Private Road	A roadway facility in private ownership providing private access and used for travel of vehicles by the owner(s) or those having express or implied permission from the owner(s), but not by other persons.
Professional Engineer	A person currently licensed and registered in the State of Washington as a professional engineer in civil engineering.
Project	The proposed action of a permit application or an approval which requires a Drainage Control Plan, Erosion and Sediment Control Plan, Engineered Abbreviated Plan, or Abbreviated Plan.
Project Engineer	Professional Engineer.
Project Site	That portion of a property, properties, or right-of-way subject to land disturbing activities, new impervious surfaces, or replaced impervious surfaces.
Properly Functioning Soil System	Equivalent to engineered soil/landscape system. This can also be a natural system that has not been disturbed or modified.
Public Storm Drainage Facility	A conveyance, system of conveyances, or stormwater control facility(ies) (including roads with drainage systems, catch basins, curbs, gutter, ditches, man-made channels, storm drains, retention/detention facilities and infiltration facilities) owned and operated by the City, which is (are) designed or used for collection, storage, conveyance and treatment of stormwater.
Rare, Threatened, Or Endangered Species	Plant or animal species that are regional relatively uncommon, are nearing endangered status, or whose existence is in immediate jeopardy and is usually restricted to highly specific habitats. Threatened and endangered species are officially listed by federal and state authorities, whereas rare species are unofficial species of concern that fit the above definitions.
Rain Garden	Similar to bioretention areas except these are smaller stormwater facilities located on individual lots that receive stormwater from roofs, driveways, and possibly sidewalks only.
Rational Method	A means of computing storm drainage flow rates (Q) by use of the formula $Q = CIA$, where C is a coefficient describing the physical drainage area, I is the rainfall intensity and A is the area. This method is no longer used in the technical manual.
Reach	A length of channel with uniform characteristics.
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.

Recharge	The addition of water to the zone of saturation (i.e., an aquifer).
Recommended BMPs	As used in Volume IV, recommended BMPs are those BMPs that are not expected to be mandatory by local governments at new development and redevelopment sites. However, they may improve pollutant control efficiency, and may provide a more comprehensive and environmentally effective stormwater management program.
Redevelopment	On a site that is already substantially developed (i.e., has 35 percent 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.
Regional	An action (here, for stormwater management purposes) that involves more than one discrete property.
Regional Detention (or Retention) Facility	A stormwater quantity control structure designed to correct existing surface water runoff problems of a basin or subbasin. The area downstream has been previously identified as having existing or predicted significant and regional flooding and/or erosion problems. This term is also used when a detention or retention facility is sited to detain or infiltrate stormwater runoff from a number of new developments or areas within a catchment.
Release Rate	The computed peak rate of surface and stormwater runoff from a site.
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.
Residential Density	The number of dwelling units per unit of surface area. Net density includes only occupied land. Gross density includes unoccupied portions of residential areas, such as roads and open space.
Restoration	Actions performed to reestablish wetland functional characteristics and processes that have been lost by alterations, activities, or catastrophic events in an area that no longer meets the definition of a wetland.
Retention	The process of collecting and holding surface and stormwater runoff with no surface outflow.
Retention Facility	A facility with no outlet to surface water and which is intended to discharge to groundwater and/or evaporation.
Retention Pond	A retention facility that is an open pond.
Retention/Detention Facility	A facility with an outlet to surface water but which is intended to primarily discharge to groundwater and evaporation.

Retrofitting	The renovation of an existing structure or facility to meet changed conditions or to improve performance.
Return Frequency	A statistical term for the average time of expected interval that an event of some kind will equal or exceed given conditions (e.g., a stormwater flow that occurs every 2 years).
Revetments	Facing used to sustain an embankment.
Right-of-Way	Means that area of land dedicated for public road uses including all road appurtenances, secured by the City or the public for purposes of public traffic, drainage, and/or franchised utilities.
Rill	A small intermittent watercourse with steep sides, usually only a few inches deep. Often rills are caused by an increase in surface water flow when soil is cleared of vegetation.
Riparian	Pertaining to the banks of streams, wetlands, lakes, or tidewater.
Riparian Areas	Transition zones between water bodies and upland areas that exhibit vegetation or soil characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas.
Riprap	A facing layer or protective mound of rocks placed to prevent erosion or sloughing of a structure or embankment due to flow of surface and stormwater runoff.
Riser	A vertical pipe extending from the bottom of a pond BMP that is used to control the discharge rate from a BMP for a specified design storm.
Roadway Width	Means the sum of the traveled way width and the shoulder width measured at its narrowest location.
Rodenticide	A substance used to destroy rodents.
Runoff	Water originating from rainfall and other precipitation that is found in drainage facilities, rivers, streams, springs, seeps, ponds, lakes and wetlands as well as shallow groundwater. As applied in this Manual, it also means the portion of rainfall or other precipitation that becomes surface flow and interflow.
Salmonid	A member of the fish family Salmonidae. Chinook, coho, chum, sockeye, and pink salmon; cutthroat, brook, brown, rainbow, and steelhead trout; Dolly Varden, kokanee, and char are examples of salmonid species.
Sand Filter	A man-made depression or basin with a layer of sand that treats stormwater as it percolates through the sand and is discharged via a central collector pipe.
Saturation Point	In soils, the point at which a soil or an aquifer will no longer absorb any amount of water without losing an equal amount.

Scour	Erosion of channel banks due to excessive velocity of the flow of surface and stormwater runoff.
SCS	Soil Conservation Service (now the Natural Resources Conservation Service), USDA.
SCS Method	A single-event hydrologic analysis technique for estimating runoff based on the curve number method. The curve numbers are published by NRCS <i>in Urban Hydrology for Small Watersheds, 55 TR, June 1976</i> . With the change in name to the Natural Resource Conservation Service, the method may be referred to as the NRCS Method.
Seasonal High Groundwater Level	The upper level at which the groundwater table normally is located during the season of the year when such levels are at their highest (typically December 1 through April 30). This level is determined using a test pit (reviewed by a soil analyst for soil color patterns in the soil profile) or using groundwater monitoring data gathered for a minimum of one wet period (October through April).
Sediment	Fragmented material that originates from weathering and erosion of rocks or unconsolidated deposits, and is transported by, suspended in, or deposited by water.
Sedimentation	The depositing or formation of sediment.
Sensitive Area	Means those areas designated by resolution or ordinance of the City of Everett Council pursuant to Washington Administrative Code 197-11-908 and Title 19 EMC, Chapter 37 or the most recent amendments thereto. See Environmentally Sensitive Area.
SEPA	See State Environmental Policy Act.
Settleable Solids	Those suspended solids in stormwater that separate by settling when the stormwater is held in a quiescent condition for a specified time.
Shared Access Facility	A privately-owned drivable surface which serves up to and including four lots in the rural area or two lots in the urban area for access to single family and two family dwelling units.
Sheet Erosion	The relatively uniform removal of soil from an area without the development of conspicuous water channels.
Sheet Flow	Runoff that flows over the ground surface as a thin, even layer, not concentrated in a channel.
Shoreline Development	The proposed project as regulated by the Shoreline Management Act. Usually the construction over water or within a shoreline zone (generally 200 feet landward of the water) of structures such as buildings, piers, bulkheads, and breakwaters, including environmental alterations such as dredging and filling, or any project which interferes with public navigational rights on the surface waters.
Short Circuiting	The passage of runoff through a BMP in less than the design treatment time.

Short Plat Or Short Subdivision	As defined in the Everett Municipal Code (EMC), Title 19, or most recent version thereof.
Shoulder Width	Means the improved and maintained area between the edge of the traveled way and the point of intersection of shoulder slope with the fore slope or ditch slope.
Siltation	The process by which a river, lake, or other water body becomes clogged with sediment. Silt can clog gravel beds and prevent successful salmon spawning.
Single-Family Residential Structure	Means a structure used to house one or two families, including appurtenant structures such as a garage, storage shed, or other structure not used for living purposes, all for the private, non-commercial use of the property owner or renter.
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.
Site Development Permit	Means a permit issued by the City of Everett authorizing the applicant to access the property; fill, grade and create an impervious surface or any combination thereof.
Site Development Plan	Site development plans shall include the following, as specifically required by the City in each instance: Site plan, Drainage Control Plan, Erosion and Sediment Control Plan, Engineered Abbreviated Plan, Abbreviated Plan, grading plan, soils report, flood study, road construction plans, entering sight distance variances and verifications, and other documents required in the review of proposed development of the property.
Slope	Degree of deviation of a surface from the horizontal; measured as a numerical ratio, percent, or in degrees. Expressed as a ratio, the first number is the horizontal distance (run) and the second is the vertical distance (rise), as 2:1. A 2:1 slope is a 50 percent slope. Expressed in degrees, the slope is the angle from the horizontal plane, with a 90-degree slope being vertical (maximum) and 45-degree being a 1:1 or 100 percent slope.
Sloughing	The sliding of overlying material. It is the same effect as caving, but it usually occurs when the bank or an underlying stratum is saturated or scoured.
Soil	The unconsolidated mineral and organic material on the immediate surface of the earth that serves as a natural medium for the growth of land plants. See also topsoil, engineered soil/landscape system, and properly functioning soil system.
Soil Group, Hydrologic	A classification of soils by the SCS into four runoff potential groups. The groups range from A soils, which are very permeable and produce little or no runoff, to D soils, which are not very permeable and produce much more runoff.

Soil Horizon	A layer of soil, approximately parallel to the surface, which has distinct characteristics produced by soil-forming factors.
Soil Permeability	The ease with which gases, liquids, or plant roots penetrate or pass through a layer of soil.
Soil Profile	A vertical section of the soil from the surface through all horizons, including C horizons.
Soil Stabilization	The use of measures such as rock lining, vegetation or other engineering structures to prevent the movement of soil when loads are applied to the soil.
Soil Structure	The relation of particles or groups of particles which impart to the whole soil a characteristic manner of breaking; some types are crumb structure, block structure, platy structure, and columnar structure.
Soil Texture Class	The relative proportion, by weight, of particle sizes, based on the USDA system, of individual soil grains less than 2 mm equivalent diameter in a mass of soil. The basic texture classes in the approximate order of increasing proportions of fine particles include: sand, loamy sand, sandy loam, loam, silt loam, silt, clay loam, sandy clay, silty clay, and clay.
Soils Professional	A person who demonstrates proficiency in the practice of the science of soils, including their origin, character, and utilization for stormwater treatment and disposal. This proficiency shall be demonstrated through the soils professional's ability to complete the Soils Evaluation Report forms in a precise and accurate manner.
Sorption	The physical or chemical binding of pollutants to sediment or organic particles.
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. <i>Structural source control BMPs</i> are physical, structural, or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. <i>Operational BMPs</i> are non-structural practices that prevent or reduce pollutants from entering stormwater. See Volume IV for details.
Spill Control Device	A T-section or turned-down elbow designed to retain a limited volume of pollutant that floats on water, such as oil or antifreeze. Spill control devices are passive and must be cleaned-out for the spilled pollutant to actually be removed.
Spillway	A passage such as a paved apron or channel for surplus water over or around a dam or similar obstruction. An open or closed channel, or both, used to convey excess water from a reservoir. It may contain gates, either manually or automatically controlled, to regulate the discharge of excess water.

State Environmental Policy Act (SEPA)	The Washington law (RCW 43.21c) intended to minimize environmental damage. SEPA requires that state agencies and local governments consider environmental factors when making decisions on activities, such as development proposals over a certain size and comprehensive plans. As part of this process, environmental documents are prepared and opportunities for public comment are provided.
Steep Slope	As defined in Title 19, Chapter 37 of the EMC.
Storage Routing	A method to account for the attenuation of peak flows passing through a detention facility or other storage feature.
Stormwater Drainage System	Refers to the system of gutters, pipes, streams, or ditches used to carry surface and stormwater from surrounding lands to streams, lakes, or Puget Sound.
Storm Drains	The enclosed conduits that transport surface and stormwater runoff toward points of discharge (sometimes called storm sewers).
Storm Sewer	A sewer that carries stormwater and surface water, street wash and other washwaters or drainage, but excludes sewage and industrial wastes. Also called a storm drain.
Stormwater	That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.
Stormwater Drainage System	Constructed and natural features which function together as a system to collect, convey, channel, hold, inhibit, retain, detain, infiltrate, divert, treat or filter stormwater.
Stormwater Facility	A constructed component of a stormwater drainage system, designed or constructed to perform a particular function, or multiple functions. Stormwater facilities include, but are not limited to, pipes, swales, ditches, culverts, street gutters, detention ponds, retention ponds, constructed wetlands, infiltration devices, catch basins, oil/water separators, and biofiltration swales.
Stormwater Management Manual for Western Washington (Ecology Manual)	The Stormwater Manual prepared by Ecology intended to provide guidance on measures necessary in western Washington to control the quantity and quality of stormwater runoff from new development and redevelopment.
Stormwater Program	Either the basic stormwater program or the comprehensive stormwater program (as appropriate to the context of the reference) called for under the Puget Sound Water Quality Management Plan.
Streambanks	The usual boundaries, not the flood boundaries, of a stream channel. Right and left banks are named facing downstream.
Streams	Those areas where surface waters flow sufficiently to produce a defined channel or bed. A defined channel or bed is an area that demonstrates clear evidence of the passage of water and

	includes, but is not limited to, indicated by hydraulically sorted sediments or the removal of vegetative litter or loosely rooted vegetation by the action of moving water. The channel or bed need not contain water year-round. This definition is not meant to include irrigation ditches, canals, stormwater runoff devices or other entirely artificial watercourses unless they are used to convey streams naturally occurring prior to construction. Those topographic features that resemble streams but have no defined channels (i.e., swales) shall be considered streams when hydrologic and hydraulic analyses done pursuant to a development proposal predict formation of a defined channel after development.
Structural Source Control BMPs	Physical, structural, or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. Structural source control BMPs typically include: <ul style="list-style-type: none"> a) Enclosing and/or covering the pollutant source (building or other enclosure, a roof over storage and working areas, temporary tarpaulin, etc.) b) Segregating the pollutant source to prevent runoff of stormwater, and to direct only contaminated stormwater to appropriate treatment BMPs.
Structure	A catch basin or manhole in reference to a stormwater drainage system.
Stub-Out	A short length of pipe provided for future connection to a stormwater drainage system.
Subbasin	A drainage area which drains to a point contained within a larger basin.
Subdivision	Is any voluntary or involuntary division or redivision of land into five or more lots, tracts, parcels, sites or division for the purpose of sale, lease, or transfer of ownership except as provided by large lot divisions.
Subgrade	A layer of stone or soil used as the underlying base for a BMP.
Subsoil	The B horizons of soils with distinct profiles. In soils with weak profile development, the subsoil can be defined as the soil below the plowed soil (or its equivalent of surface soil), in which roots normally grow. Although a common term, it cannot be defined accurately. It has been carried over from early days when “soil” was conceived only as the plowed soil and that under it as the “subsoil.”
Substrate	The natural soil base underlying a BMP.
Surcharge	The flow condition occurring in closed conduits when the hydraulic grade line is above the crown of the sewer.
Surface and Stormwater	Water originating from rainfall and other precipitation that is found in drainage facilities, rivers, streams, springs, seeps, ponds, lakes, and wetlands as well as shallow groundwater.
Surface and Stormwater Management System	Drainage facilities and any other natural features that collect, store, control, treat and/or convey surface and stormwater.

Suspended Solids	Organic or inorganic particles that are suspended in and carried by the water. The term includes sand, mud, and clay particles (and associated pollutants) as well as solids in stormwater.
Swale	A shallow drainage conveyance with relatively gentle side slopes, generally with flow depths less than 1 foot.
Terrace	An embankment or combination of an embankment and channel across a slope to control erosion by diverting or storing surface runoff instead of permitting it to flow uninterrupted down the slope.
Threshold Discharge Area	An onsite area draining to a single natural discharge location or multiple natural discharge locations that combine within one-quarter mile downstream (as determined by the shortest flowpath). The examples in Volume I, Figure 4.1 illustrate this definition. The purpose of this definition is to clarify how the thresholds of this Manual are applied to project sites with multiple discharge points.
Tightline	A continuous length of pipe that conveys water from one point to another (typically down a steep slope) with no inlets or collection points in between.
Tile, Drain	Pipe made of burned clay, concrete, or similar material, in short lengths, usually laid with open joints to collect and carry excess water from the soil.
Till	A layer of poorly sorted soil deposited and compacted by glacial action that generally has very low infiltration rates.
Time of concentration	The time period necessary for surface runoff to reach the outlet of a subbasin from the hydraulically most remote point in the tributary drainage area.
(To) Grade	To finish the surface of a canal bed, roadbed, top of embankment or bottom of excavation.
Toe of Slope	A point or line of slope in an excavation or cut where the lower surface changes to horizontal or meets the existing ground slope.
Top of Slope	A point or line on the upper surface of a slope where it changes to horizontal or meets the original surface.
Topography	General term to include characteristics of the ground surface such as plains, hills, mountains, degree of relief, steepness of slopes, and other physiographic features.
Topsoil	Topsoil shall be per ASTM D5268 standard specification, and water permeability shall be 0.6 inches per hour or greater. Organic matter shall have not more than 10 percent of nutrients in mineralized water-soluble forms. Topsoil shall not have phytotoxic characteristics.
Total dissolved solids	The dissolved salt loading in surface and subsurface waters.
Total Impervious Area	The total amount of actual impervious surface on a site or within a drainage area, basin, or subbasin (see “impervious surface”).

Total Maximum Daily Load (TMDL) – Water Cleanup Plan	A calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant’s sources. A TMDL (also known as a water cleanup plan) is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The Clean Water Act, Section 303, establishes the water quality standards and TMDL programs.
Total Solids	The solids in water, sewage, or other liquids, including the dissolved, filterable, and nonfilterable solids. The residue left when the moisture is evaporated and the remainder is dried at a specified temperature, usually 130-degrees Celsius.
Total Suspended Solids	That portion of the solids carried by stormwater that can be captured on a standard glass filter.
Toxic	Poisonous, carcinogenic, or otherwise directly harmful to life.
Tract	Any parcel of land that is designated or restricted as to use. Examples include parcels of land where uses are restricted due to sensitive areas such as wetlands or steep slopes, and parcels dedicated to the public for roads, utility or other public purposes. A tract may be buildable or unbuildable, depending upon the facts surrounding the creation of the designation or restrictions.
Trash Rack	A structural device used to prevent debris from entering a spillway or other hydraulic structure.
Travel Time	The estimated time for surface water to flow between two points of interest.
Traveled Way	That portion of the roadway used for the movement of vehicles exclusive of the portion of the roadway width which is used, or available for parking of vehicles. The traveled way does not include curbs and gutters.
Treatment BMP	A BMP that is intended to remove pollutants from stormwater. A few examples of treatment BMPs are wetponds, oil/water separators, biofiltration swales, and constructed wetlands.
Treatment Liner	A layer of soil that is designed to slow the rate of infiltration and provide sufficient pollutant removal so as to protect groundwater quality.
Turbidity	Dispersion or scattering of light in a liquid, caused by suspended solids and other factors; commonly used as a measure of suspended solids in a liquid.
U.S. Environmental Protection Agency (U.S. EPA)	The U.S. Environmental Protection Agency.
Underdrain	Plastic pipes with holes drilled through the top, installed on the bottom of an infiltration BMP, which are used to collect and remove excess runoff.
Undisturbed Buffer	A zone where development activity shall not occur, including logging, and/or the construction of utility trenches, roads, and/or surface and stormwater facilities.

Uninterruptible Services	Those services to the public which the City has identified as important enough to merit a higher standard of protection against flooding such as hospitals, police, and fire stations.
Unpaved Road	Means a road that consists of gravel, crushed surfacing top course, or other dirt surface that has not received a surfacing coat of asphalt. A road treated with only a dust preventative or dust treatment shall be considered an unpaved road.
Unstable Slopes	Those sloping areas of land which have in the past exhibited, are currently exhibiting, or will likely in the future exhibit, mass movement of earth.
Utility Line	Pipe, conduit, cable or other similar facility by which services are conveyed to the public or individual recipients. Such services shall include but are not limited to water supply, electric power, gas, communications, and sanitary sewers.
Variance	Relief from the application of a Minimum Requirement to a project.
Vegetation	All organic plant life growing on the surface of the earth.
WSDOT Specifications	Means the requirements or standards of the latest edition of the WSDOT Standard Plans and Specifications.
Water Body	Surface waters including rivers, streams, lakes, marine waters, estuaries, and wetlands.
Water Cleanup Plan	See total maximum daily load.
Water Quality	A term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose.
Water Quality BMP	A BMP specifically designed to control the quality of runoff.
Water Quality Design Storm	For event-based modeling analyses, the 24-hour rainfall amount with a 6-month return frequency. Commonly referred to as the 6-month, 24-hour storm. Continuous modeling does not use individual storm events.
Water Quality Standards	Minimum requirements of purity of water for various uses; for example, water for agricultural use in irrigation systems should not exceed specific levels of sodium bicarbonate, pH, total dissolved salts, etc. In Washington, the Department of Ecology sets water quality standards.
Water Quantity BMP	A BMP specifically designed to control the quantity of runoff.
Water Table	The upper surface or top of the saturated portion of the soil or bedrock layer, indicates the uppermost extent of groundwater.
Water body	Surface waters including rivers, streams, lakes, marine waters, estuaries, and wetlands.
Watercourse	A river, stream, creek, or other course of flowing water which flows intermittently or perennially and discharges into another watercourse or body of water.

Watershed	A geographic region within which water drains into a particular river, stream, or body of water. Watersheds can be as large as those identified and numbered by the State of Washington Water Resource Inventory Areas (WRIAs) as defined in Chapter 173-500 WAC.
Wet Pond	A stormwater treatment pond designed to maintain a continuous or seasonal water level below the pond outlet elevation.
Wetlands	As defined by Title 19, Chapter 37 of the EMC.
Wet Ponds And Wet Vaults	Drainage facilities for water quality treatment that contain permanent pools of water that are filled during the initial runoff from a storm event. They are designed to optimize water quality by providing retention time in order to settle out particles of fine sediment to which pollutants such as heavy metals absorb, and to allow biologic activity to occur that metabolizes nutrients and organic pollutants.
WSDOT Specifications	Means the requirements or standards of the latest edition of the WSDOT Standard Plans and Specifications.

ACRONYMS

APWA	American Public Works Association (Washington State Chapter)
API	American Petroleum Institute
ADA	Americans with Disabilities Act
APWA	American Public Works Association
ASTM	American Society for Testing and Materials
BFE	Base Flood Elevation
BMP	Best Management Practice
BOD	1.1.1 Biochemical Oxygen Demand
1.1.2 CEC	1.1.3 Cation Exchange Capacity
1.1.4 CESCL	1.1.5 Certified Erosion and Sediment Control Lead
1.1.6 CIP	1.1.7 Capital Improvement Project or Program
COD	Chemical Oxygen Demand
CWA	Clean Water Act
DNS	Determination of Nonsignificance
EIA	Effective Impervious Areas
ESA	Endangered Species Act
ESC	Erosion and Sediment Control
EIS	Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
HPA	Hydraulic Project Approvals
HSPF	Hydrological Simulation Program—Fortran
IBC	International Building Codes (also I Codes)
JARPA	Joint Aquatic Resources Permit Application

CITY OF EVERETT STORMWATER MANAGEMENT MANUAL

LID	Low Impact Development
MSDS	Material Safety Data Sheets
MOA	Memorandum of Agreement
NEPA	National Environmental Policy Act
NGVD 29	National Geodetic Vertical Datum of 1929
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NTU	Nephelometric Turbidity Unit
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
PAHs	Polyacrylamide Aromatic Hydrocarbons
PAM	Polyacrylamide
PCB	Polychlorinated Biphenyls
PDD	Planned Development District
PUD	Planned Urban Development
PGIS	Pollution-Generating Impervious Surface
PGPS	Pollution-Generating Pervious Surfaces
PWD	Public Works Department (City of Everett)
PGPS	Pollution-Generating Pervious Surface
RCW	Revised Code of Washington
SCS	Soil Conservation Service
SBUH	Santa Barbara Urban Hydrograph method
SEPA	State Environmental Policy Act
SWPPP	Stormwater Pollution Prevention Plan
TESC	Temporary Erosion and Sediment Control

TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
UGA	Urban Growth Area
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
U.S. EPA	The United States Environmental Protection Agency
USGS	U.S. Geological Survey
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WSDOT	Washington State Department of Transportation
WISHA	Washington Industrial Safety and Health Act
WRIA	Water Resource Inventory Area
WWHM	Western Washington Hydrology Model

NOTATIONS

This list of notations is provided only as a guide to some of the notations to be used in a submittal. The exact definition and units are listed when the symbol is used. Since the same symbol can be used for different design methods, the exact definition should be described in the appropriate section of the submittal.

A	=	drainage area (square miles), also full cross-sectional area of culvert barrel (square feet)
A _b	=	top surface area of basin (square feet), also area of pond bottom (square feet)
A _d	=	drainage area
A _s	=	surface area of swale (square feet), also average surface area for detention BMP
A _t	=	total area (acres)
C	=	estimated runoff coefficient
CN	=	SCS runoff curve number
CN	=	change in curve number
D	=	interior height of culvert barrel (feet)
D ₅₀	=	median stone diameter (riprap)
d	=	average permanent pool depth of a detention BMP
d _b	=	basin depth (feet)
d _c	=	critical depth (feet)
d _s	=	depth of swale check dam (feet)
d _t	=	time interval in minutes
d _x	=	a mixture of riprap sizes where the percent of stone by weight is less than x (the specified diameter)
E	=	designated fraction of particulates to be removed by a BMP
f	=	final infiltration rate of soil (in/hr)
f _d	=	infiltration rate including a safety factor of two
g	=	acceleration due to gravity, 32.2 ft/sec ²
H	=	stage height (feet) or water depth above pond bottom, also $H=H_f+H_e+H_{ex}$; head on orifice
H _c	=	specific head at critical depth ($d_c + V_c^2/2g$) (feet)

H_d	= design depth of pond
H_e	= entrance head loss (feet) = $K_e (V^2/2g)$
H_{ex}	= exit head loss (feet) = $V^2/2g$
H_f	= Friction loss (feet) = $V^2 n^2 L / 2.22 R^{1.33}$ Note: if $(H_f + TW - L * S)$ less than D , adjust H_f such that $(H_f + TW - L * S) = D$. This will keep the analysis simple and still yield reasonable results (erring on the conservative side)
HW	= headwater depth above inlet invert (feet)
h_b	= height from the hydraulic grade line at the 2-year recurrence interval flow on the outflow pipe to the overflow elevation
I	= inflow at time 1 and time 2
$I(t)$	= instantaneous hydrograph, in cubic feet per second, (Santa Barbara Urban Hydrograph [SBUH] method)
I	= hydraulic gradient (ft/ft)
K_e	= entrance loss coefficient
k	= time of concentration velocity factor (feet/second)
k_c	= time of concentration velocity factor; channel flow
k_s	= time of concentration velocity factor; shallow flow
L	= distance of flow across a given segment, also length of culvert (feet), also width of emergency overflow weir
MB_{el}	= mean tributary basin elevation above sea level (feet)
M_s	= potential average snowmelt during storms (in)
m	= number of flow segments
N_s	= number of check dams along total length of swale
n	= Manning's "n", effective roughness coefficient
n_s	= sheet flow; Manning's effective roughness coefficient
O	= outflow at time 1 and time 2
P	= rainfall depth (inches), total for a storm event

P_R	=	the total precipitation at a site for the 24-hour design storm event for the given return frequency (R)
Q	=	flow or discharge (cubic feet per second)
Q_a	=	after development depth of runoff (inches)
Q_b	=	before development depth of runoff (inches)
Q_c	=	depth of runoff from contributing area (feet)
Q_d	=	runoff depth in inches over a given area
Q_o	=	average release rate from detention BMP
Q_s	=	depth of runoff controlled by vegetated swale (inches)
Q_t	=	release rate for orifice
Q_{total}	=	total flow at maximum head
$Q(t)$	=	the routed flow of the runoff hydrograph (SBUH method)
$Q_{10\%}$	=	the flow that is not exceeded more than 10 percent of the time during the months of adult salmonid migration
ΔQ	=	change in runoff depth (inches)
Δq	=	change in peak discharge (cubic feet per second)
R	=	hydraulic radius (feet) in Manning's Equation, equals the cross-sectional area divided by the wetted perimeter
$R(t)$	=	the total runoff depth at time increment dt , in inches; also known as precipitation excess
S	=	storage, also culvert barrel slope (ft/ft)
$S(H)$	=	storage (ft^3) at stage height (H)
S_d	=	the largest volume from an initial pond sizing
S_f	=	friction slope = $n^2V^2/2.22R^{4/3}$
s_o	=	slope of flow path (ft/ft), also bottom slope
T	=	width of swale or vegetated filter strip
T_c	=	time of concentration (hrs)
T_t	=	travel time of overland flow across separate flow path segments

$T_{1,2,n}$	=	the consecutive flow paths of different land cover categories having significant differences in flow path slope
TW	=	tailwater depth above invert of culvert outlet (feet) Note: if TW is less than $(D+d_c)/2$, set $TW=(D+d_c)/2$
t_d	=	design detention time of a BMP
Δt	=	time interval; time 2 - time 1
V	=	average velocity across the land cover (ft/sec), also barrel velocity (fps), also mean velocity
V_c	=	flow velocity at critical depth (fps)
V_{max}	=	maximum allowed velocity of runoff in a Biofilter
V_{pp}	=	permanent pool volume
V_r	=	void ratio
V_{sed}	=	settling velocity of the design soil particle
W_{50}	=	the median stone size (riprap)
w	=	settling velocity of target particle
y	=	depth of flow
y_n	=	normal flow depth
Z	=	basin side slope ratio (h:v)
Z^1, Z^2	=	side slope ratio of swale cross-section (h:v)
α_Z	=	energy coefficient which corrects for the non-uniform distribution of velocity over the channel cross-section